A

PRACTICAL ACCOUNT

OF

THE EPIDEMIC CHOLERA,

&c. &c.

A

PRACTICAL ACCOUNT

OF

THE EPIDEMIC CHOLERA,

AND OF

THE TREATMENT

REQUISITE IN

THE VARIOUS MODIFICATIONS OF THAT DISEASE.

By WILLIAM TWINING,

OF THE ROYAL COLLEGE OF SURGEONS, LONDON; FIRST ASSISTANT SURGEON, GENERAL HOSPITAL, CALCUTTA.

LONDON:
PARBURY, ALLEN, & Co.
LEADENHALL STREET.

1833.

LONDON:
Printed by J. L. COX, and SON, Great Queen Street,
Lincoln's-Inn Fields.

TO

SIR JAMES Mc GRIGOR, Bart., F.R.S

Director General, Medical Department.

My dear Sir;

As you have always been the kind adviser of my professional pursuits, I take the liberty to present to you the following Observations on the Nature of the Epidemic Cholera, and the influence of the various modes of treatment which have been employed in that disease.

The interest you take in all professional investigations, and more particularly in those relating to the Epidemic Cholera, since that disease has appeared in Great Britain, is a further inducement for me to bring this work to

your notice, knowing that if it prove of public utility, I may confide in the justice which it will receive at your hands.

I have the honour to be,

My dear Sir,

Your very faithful and obedient servant,

W. TWINING.

Calcutta, March 1832.

TO

SIR WM. RUSSELL, BART.

M. D.,

Formerly Surgeon to the General Hospital, Calcutta, and now Member of the Board of Health, London.

MY DEAR SIR;

THIS work is offered to your notice, in testimony of my remembrance of the kindness with which you encouraged every pathological inquiry, during many years that I was on duty, under your orders, at the General Hospital in Calcutta, and of the readiness with which your ample experience of the diseases of India was always available for the benefit of the sick in that Institution. I doubt not that some of the following pages will bring to your recollection the arduous duties of former days. I could have referred to you, regarding some of the

cases, but your absence has prevented me from affixing to you any responsibility connected with this publication; to which, nevertheless, I will hope for your approbation, as you are able to judge of the fidelity and diligence with which many of the observations were made.

I have the honour to be,

Dear Sir,

Your very faithful and obedient servant,

W. TWINING.

Calcutta, March 1832.

PREFACE.

The matter contained in the following pages was collected and arranged for the purpose of forming part of a work on the diseases of Bengal, the publication of which I still entertain the hope of being able to accomplish. The accounts we have recently received of the prevalence of Cholera in its most fatal forms in some parts of Great Britain, have induced me to send this treatise home for immediate publication, with the hope that, if the disease should prevail extensively in that country, these remarks may prove useful to those practitioners who have not had much opportunity of treating that destructive complaint.

The sources of my experience affording grounds for the following observations have

been various. The more deliberate and laborious investigations have been made in the General Hospital, and among the cases which have occurred in the city of Calcutta and its vicinity; where the disease almost always exists in some of its forms. The early part of my service in the Upper Provinces of India, enabled me to observe the disease during the cold season in the vicinity of the great snowy mountains which divide this country from Tartary, and in situations where we might suppose, from a considerable similarity of climate during winter, that modifications of cholera would be found similar to those which occur in the northern parts of Europe. In those districts I found sporadic cases of Cholera, exhibiting the same symptoms, following the same course, and terminating in the same manner that the disease does in the low flat country and humid atmosphere of Bengal Proper. It appeared to me, that during the cold weather in the Upper Provinces, the proportion of instances in which the

functions of the lungs seemed impeded by a morbid secretion of mucus in the bronchial tubes, was greater than I have observed in other parts of the country, and a wheezing noise in respiration was there an occasional symptom. In some cases it was attended with considerable expectoration of mucus.

I have endeavoured to add to our knowledge of Cholera, by diligent observation of all the phenomena connected with its origin, progress, and termination, and of the effects produced by remedies in various forms and stages of the disease. My attention has been particularly directed to the condition of the blood, and to the deviations which take place, from the healthy state of many of those functions that can be observed during life, as well as to the morbid changes noticed in dead bodies on *post-mortem* examinations. Out of a multitude of observations recorded on these subjects, I now offer to the public such as appear to me illustrative of

the nature of the disease, and likely to be of practical utility.

I have not mentioned any peculiar odour, as characteristic of Cholera, because I am not able to distinguish any particular smell, either of the perspiration or of the evacuations, that I could deem characteristic of the disease, and not found in some others. However, my occupations in the pursuit of morbid anatomy may make my testimony on this head less conclusive; and I should be unwilling to enter into any discussion on this subject, with those who may be of a different opinion.

Perhaps my readers may consider that undue attention has been bestowed on an inquiry into the nature of the peculiar alvine evacuations, usually described as resembling rice-water, and denominated the *true Cholera stools;* but as the results of all my examinations and analyses authorize me to differ from many authors of

respectability, who speak of such stools as serous fluids, or more distinctly assert that they are the serum of the blood, I have thought it necessary to go somewhat more into detail on that subject than was requisite on other points, where my observations confirm the opinions of my professional brethren, or, at all events, do not directly contradict them.

For the purpose of preventing mistakes in the administration of remedies, by the young apprentices at the Hospital, it is the custom in this country to write the instructions for taking the different medicines, in English, under the Latin prescriptions. They have been copied in the same way into my note-book, and I have not thought it necessary to make any alteration, my only object being to convey an accurate account of the disease, of the treatment employed, and of the results which followed.

CONTENTS.

CHOLERA.

Vomiting and purging are the symptoms of Cholera, which most commonly first attract the attention, and excite the alarm of patients. The importance and danger of these symptoms must be estimated according to the nature and duration of various concurrent phenomena. With the first efforts of vomiting and purging, the ordinary contents of the stomach and intestines, in most instances, seem to be entirely expelled; after which, as the disease goes on, an aqueous fluid like rice-water is voided by stool: that which is vomited is nearly of the same sort, but has generally its appearance modified by the remedies administered.

The whey-like appearance of the stools is so commonly attendant in the worst cases, that it is often spoken of as the *true cholera stool,* or the *congee stool.* The evacuations are sometimes nearly as clear as pure water, and frequently some films of mucus are floating in this sort of fluid. The incipient degree of favourable change in the disease, is marked by a transition from the states of the evacuations above mentioned, to a drab-colour, then to a grey, and subsequently to a darker colour as the improvement goes on,

Besides the above symptoms, we find in Cholera, sudden and extreme prostration of strength; the countenance is either pale or livid; the eyes are much sunk in their sockets, as if from the sudden absorption of the surrounding fat, and shrinking of the cellular structure of the orbit. There is generally a degree of livid venous congestion of the

scleroticæ and conjunctivæ, though sometimes a florid arterial suffusion of the eyes is observed. The sunk eyes, shrunk features, and ghastly expression of countenance, are so remarkable and peculiar, as to be immediately recognised by those who have once seen a cholera patient. The medical man whose illness is mentioned in a subsequent part of this chapter, had no suspicion of his disease being Cholera, till about noon of the day on which he died, when he desired his servant to bring him a small looking-glass, and the instant it was brought, he said, "I see I have got Cholera,* which I did not even suspect before: there can be but little hope of my recovery." He had suffered no spasms, and from there having been a slight bilious tinge in the

* This gentleman had only seen a few well-marked cases of Cholera in the Hospital, about a month before.

stools, he had not been aware of the nature of his complaint at its early stage, and thus lost his life.

In bad cases, the voice becomes feeble, shrill, and pectoral; respiration short, difficult, and imperfect; the tongue is cold and moist; coldness of the whole body, but more especially of the extremities, and a shrivelled state of the fingers, takes place. This mortal coldness is sometimes coeval with the earliest symptoms of Cholera, but I have never known it attended with shivering or rigours, like the cold stage of ague, in which the patient earnestly demands more bed-clothes: on the contrary, the cholera patient when coldest throws off the blankets, tosses about in anxiety, and calls for cold drink. The cessation of the calorific function is as remarkable during the hot weather as at the coldest season of the year; in fact, the hot bath, hot vapour, or other means of

producing artificial warmth, often have not the slightest effect; although inanimate bodies exposed to the same means of raising the temperature, are quickly heated. When the spirit vapour has been employed, the wood and cane of the bedstead may be felt quite hot, while the patient lies as cold as before the vapour was used. When the tendency to collapse commences, the surface of the body (particularly about the chest and upper extremities) is wet with a profuse cold sweat, the pulse becomes weak, rapid, and indistinct; there is often great oppression at the scorb. cordis, and occasionally a sense of burning heat at that part, with anxiety and restlessness.

The belly is sometimes tense, tumid, and painful on pressure; but this is rare, the usual condition of the abdomen being flat, doughy, and inelastic. In a few rare instances of irritable and ner-

vous subjects, there is vast extrication of intestinal flatus, with a sort of roaring hickup. In advanced stages of bad cases of the disease, ordinary hickup is sometimes a transient symptom. Intense and distressing thirst soon takes place, in almost all the severer attacks of Cholera; and a sensation of noise in the ears, or some degree of deafness, occurs in a considerable number.

Spasms of the extremities, though present in the majority of cases to a certain degree, during some period of the disease, are sometimes entirely absent in patients where death takes place very suddenly; and even in some protracted cases, where nearly all the other more aggravated symptoms above enumerated precede the fatal event. The spasms generally begin in the toes and fingers, then, after affecting the calves of the legs very violently, they often proceed to the thighs and belly.

Some patients have very little of either vomiting or purging; the earliest apparent symptoms seeming to announce the general failure of vital energy, and the incipient death of the patient. Such is the variety in the disease, that I could not mention any symptom of Cholera which is not occasionally absent, in cases which terminate in death with the most awful rapidity. I have met with a few cases, in which the patients came to hospital with the same coldness of the extremities, shrivelled fingers, and obstructed circulation, as above described; at the same time that they were passing a thin bloody fluid, not unlike thin chocolate. These patients had usually been ill three or four days, and died within twelve hours of admission into hospital. On dissection, the most intense degree of lurid, duskey-red colour of the mucous membrance of the great intestines was observed, especially at the cœcum; inflammation of the small

intestines, and morbid vascularity of omentum and mesentery. This condition was only observed in neglected cases of several days duration, of which no distinct history could be obtained.

With almost every year I have observed the above symptoms to vary in severity, as well as in the order of succession; and to be combined in different ways. In some seasons, the ordinary characters of the disease are in the majority of cases attended by a febrile affection more or less distinct; spasms are then generally violent and painful, causing the patient to cry aloud: the efforts to vomit are violent, but the quantity of fluid voided both upwards and downwards is frequently not very great. The pulse, though rapid, not sinking very soon, and the warmth of extremities not suddenly ceasing. In such cases the vascular congestion of the eyes is commonly of a florid arterial

character; the tongue furred, often brownish, and usually warm; sometimes it is dry and very slightly furred. During other seasons, the greater number of severe cases become cold at an early period, the evacuations mostly very copious and watery, the pulse sinks rapidly, and becomes indistinct; the voice is feeble, shrill, and pectoral, or entirely inaudible; congestion of the eyes of lurid venous character, and a lurid colour of the face and neck take place, as if from stagnation of venous blood: spasms, when present, are then attended with less pain; and torpor, insensibility, and death, soon close the scene. The affection of the head, in remote stages of the disease, sometimes resembles coma; and in a few rare cases transient delirium exists, but generally we find the intellectual faculties remarkably clear and undisturbed during the whole course of Cholera. In other years many cases are of a mixed character,

beginning with febrile tendency; and a few of them are found vomiting much green bilious watery fluid at first; but rapidly sinking into the state of collapse, with cessation of pulse, cold tongue, and shrivelled extremities. This appears to me a common form of the disease in the last two years, since Cholera has become much less frequent.

The commencement of the disease with febrile symptoms; and their continuance, while the constitution shews signs of sensibility, action, and power; the warmth and circulation remaining, and the evacuations though frequent never having been very profuse, indicate a tractable state of disease, in which the best results may be hoped from a cautious, steady, and discriminating treatment. While the early accession of torpor, which defies the effect of medicine, with cold and shrivelled extremities, cessation of pulse, cold tongue,

and copious evacuations, indicate a modification of disease in which we have but little to hope in the majority of cases, after these symptoms have existed for four hours.

We must always bear in mind, that those who are affected with the febrile form of the disease, do frequently in a short period sink into a state of coldness and torpor: and on the other hand, also, that in the last stage of collapse there are sometimes symptoms of a short and ineffectual re-action of the system, with morbid heat about the head and chest, for a few hours before death; but there is rarely a return of steady and regular pulse. Vomiting, purging, and spasms, frequently all cease for some hours before death.

Whenever an epidemic visitation of Cholera occurs, affecting suddenly a number of persons in one place, a large

proportion of the earlier cases are usually of a very severe description, with tendency to early accession of coldness, torpor, and collapse: a considerable number of these appear inevitably fatal. During the first three or four days of an epidemic visitation, the rapidity of the progress of Cholera towards fatal termination seems to increase. I am not aware that the severer form of the disease has ever continued permanent in a station so long as six days; and by the eighth or tenth day we commonly find only slight cases occurring. Inattention to this fact is liable to lead to erroneous estimation of the efficacy of any plan, or of the various modes of treatment employed. On one occasion, when Cholera occurred in a severe form in detachments recently arrived from Europe, nineteen men died of the twenty-one first attacked with the disease; and of the next thirty-one cases which occurred on the following days, in the same de-

tachment, six only died: a still milder form of Cholera succeeded, and the whole of the patients then recovered. This occurred in May 1827; and the plan of treatment, which was inert in the early cases of the disease, was attended by the most happy results at a more remote period of this endemic Cholera, in the same detachment.

The invasion of Cholera most frequently appears in a violent form, between the hours of two and five A.M. Regarding the mode in which this disease begins, I may observe that a careful reference to my experience authorises me to say, that its attack often commences suddenly, and without any premonitory symptoms: sometimes it abruptly supervenes on the advanced stage of severe acute Dysentery. The Cholera is occasionally preceded by a slight pyrexia; and it has also appeared to me, that congestive fevers do sometimes, though

rarely, fall into a state of collapse resembling the low stage of this disease; not indeed very often attended with violent vomiting and cramps, but the patient suddenly becomes weak and cold; sometimes voiding one *true Cholera stool:* at other times, even this symptom is absent. After the sudden death of fever-patients in this manner, I have several times found, on dissection, the thickened state of the coats of the small intestines, and that portion of the canal loaded with pale, watery fluid, like rice-water; with much of the subalbid mucus, and thick white paste, which are usually considered characteristic of Cholera. In short, the sudden collapse which occasionally supervenes at the termination of a paroxysm of remittent fever, somewhat resembles the collapse in Cholera.

Prior to the more distinct and alarming attack, there are sometimes for a few hours, and in some cases for two or three

days, symptoms of indisposition, evident not only to the patient himself, but to his friends. When Cholera is raging severely, the disease is often ushered in by diarrhœa; at other times it begins with catarrh, nausea, and oppression at the scrobiculus cordis; which are not in an early stage to be distinguished from the slight indisposition which often precedes Fever. The approach of Cholera in this manner makes the patient suppose he is "feverish or bilious;" and if recourse be had to some of the medicines commonly used in slight ailments of that sort, the disease is said to be caused by the dose of medicine taken; when, in fact, it had been insidiously making considerable progress for some hours. When Cholera is prevailing in the vicinity, slight catarrhal, or febrile affections, and disorder of the stomach and bowels, whether tending to diarrhœa or to constipation, seem convertible into Cholera by the use of saline or drastic cathartics,

more especially if they operate about two or three o'clock in the morning.

Case I.—A gentleman of dark complexion, and generally very healthy, of regular and moderate habits, twenty-eight years of age, and five years in Bengal, awoke on the morning of the 18th March 1830, with slight feeling of uneasiness, which he ascribed to indigestion, and therefore on returning from his usual morning ride took a small dose of Epsom salts; soon after which nausea took place, and a cup of tea was vomited two hours after taking the salts: the extremities soon became cold and shrivelled, voice weak and pectoral, tongue cold, countenance livid, eyes sunk, and cornea dull. The pulse gradually grew feeble and indistinct; there were occasional slight efforts to vomit, at intervals of half an hour; and only four stools from the commencement to the termination of the attack: the two first of

these stools very copious, and like grey water; the other two scanty, and of pale-drab colour. There was dreadful anxiety, some thirst, and occasionally slight cramp, by which the fingers and toes were drawn up, but not very great pain. He died at four P.M., nine hours after taking the salts. The few cases of Cholera occurring about this time, had for the most part a tendency to sudden collapse.

CASE II.—A stout and healthy woman, twenty-two years of age, eight years in India, was recovering in a satisfactory manner after her accouchement, nursing her infant, and beginning to go about the house: on the 14th September, 1825, which was the twenty-second day after the birth of the child, she felt slightly feverish, and took six grains of calomel at bed-time, not being considered seriously sick, either by herself or the family. She rose at two A.M. on the 15th, to let

her boy suck, but made then no complaint: soon after three o'clock a profuse purging of dark fluid took place; some of the evacuations passed in bed, and those that were last voided were a pale-grey water; there was neither vomiting nor spasms; the hands and feet became cold, and she died at a quarter past five, in less than two hours and a-half after the first purging. This woman was living in tolerable comfort, in an upper-roomed house, had not been down stairs since her confinement, and the friends asserted that she had not been imprudent in diet, or in any other respect. Cholera of a severe description was at this time frequent among the natives, in the immediate vicinity of this person's house.

Case III.—Michael Hammon, H. M. 13th Light Infantry, a stout young man, eighteen years of age, recently arrived from Europe, felt some slight

ailment on the 20th May, and came to hospital on the night of the 21st, with pain at upper part of belly, constipation, and slight fever: he had an enema, and castor oil in the night, and senna and salts on the 22d, by which he was freely purged, and appeared to be getting better; on the 23d, twenty grains of jalap and as much cream of tartar were given, which acted very freely during the day; and about two A.M. on the 24th a watery purging took place, with coldness of extremities, feeble pulse, dreadful thirst, and cramps: his life was saved with difficulty, and he was discharged on the 13th June.

There were several very bad cases of Cholera in the Hospital at this time; and within a few days, other men of the same detachment were admitted into Hospital with Spasmodic Cholera, and some of them died.

I have known more than one case, where persons feeling some slight indisposition, have taken a dose of rhubarb and magnesia, with a small quantity of ginger, early in the morning; after which, distinct Cholera symptoms appeared with the first purgative effects of the medicine, by ten o'clock; and the disease proved fatal within twelve hours. It is evident, in most such cases, that an insidious attack of Cholera was going on before the medicine was taken. However, I am of opinion, that when Cholera is prevailing, drastic purgatives, particularly senna and salts, or jalap, have frequently brought on the disease in persons who had at the time only slight pyrexia; and who, if left without active purgatives, would not then have had Cholera. The experience of many years has so far confirmed this opinion, that we usually are cautious in ordering either jalap or salts in the Hospital, when we have many patients with Cholera under

treatment here, or when that disease is prevailing in the town; and at such times it is deemed hazardous to give a patient any medicine likely to act on the bowels, between two and five A.M.: therefore we have usually, if possible, avoided giving, even to febrile cases, on those occasions, calomel and colocynth at bed time. I do not remember ever having heard the commencement of an attack of Cholera imputed to a dose of castor oil.

CASE IV.—Michl. Regan, a recruit, recently landed from Europe, who had been eleven days in Hospital with catarrh, was quite well, and ordered to be discharged in the afternoon of 10th Dec. 1825, to join his Regiment. He ate his dinner as usual, and in a few minutes he vomited: the worst symptoms of Cholera soon came on, and he died of that disease. There was no want of prompt and assiduous attention in this case, for I was in Hospital at the time that he began to

vomit, and saw him in less than fifteen minutes afterwards.

Case V.—A stout and healthy lady, of light complexion, aged twenty-six, who had been fifteen months in India, was attacked with vomiting and purging, at three o'clock P.M., on the 2d September, 1825: spasms of the extremities soon came on, and by five o'clock collapse had taken place to such a degree that her life was despaired of: she died before dark the same evening. This person had been quite well up to the moment of the attack: ate her tiffin as usual, and was afterwards occupied in arranging books in the library; standing on a chair to place those on the upper shelves. When so occupied, she felt sick, in consequence, as she supposed, of reaching too high: in a few minutes after the first sensation of sickness, she began to vomit, and all the worst symptoms of the disease quickly followed.

I have met with many instances, when in the Upper Provinces, where Sipahees, who marched from the Camp early in the morning quite well, have suddenly fallen to the ground, with violent spasms of the extremities; and in whom vomiting, purging, coldness, and all the worst symptoms of Cholera came on quickly.

Some other phenomena, not yet described, are so intimately connected with the character of Cholera, and indicative of the morbid changes which take place in that disease, that they deserve particular attention. When the patient, from the first attack, sinks rapidly into a low state, with feeble pulse, cold extremities, shrivelled fingers (as if from long maceration in water), and weak pectoral voice, the carbonic acid gas evolved by respiration is much less than that contained in the air from the lungs of persons in health. I have several times found the quantity of carbonic acid gas, as low as

1·5 per cent.* of the air expired from the lungs of patients in the state described above; and seldom so much as two per cent.: whereas air from the lungs of patients suffering from febrile Cholera, with violent and painful spasms, free pulse, and warmth of surface; contained 3·5 to four per cent. of carbonic acid gas, and sometimes more. I have been particularly careful in the mode of procuring the air from the lungs for these experiments, and have made numerous trials on the expired air of healthy persons, in order to enable me to speak confidently on this subject. I make the patient take rather a forced inspiration; and then holding the nose till some of the air is expired by the mouth, have the apparatus ready to collect the next portion for experiment; hoping by this

* In these cases, I have reason to believe that the pulmonary vapour, or exhalation, is much diminished.

means to procure a portion of air that has been fairly subjected to whatever vital and chemical action may be going on in the lungs. By always using these precautions, and operating on one given quantity of air, I hoped to insure a relative uniformity of results, and the greatest possible precision. It is often very difficult to procure even ten cubic inches of air in a satisfactory manner, from the lungs of a person in a state of lowness and collapse, when restlessness and extreme anxiety prevail. It appears to me, that the great discrepancy stated in the results of eudiometric experiments on the respired air of healthy persons; when those who conducted the analyses were men of equal eminence, and undoubted accuracy; must have arisen from their having not observed similar precautions in collecting the air for their operations: for there has been a tolerable uniformity in the result of the experiments made by each person; though in some cases a

difference of nearly one-half, from the conclusions of others.

When we can succeed in bleeding a man, who is in the state of lowness and collapse, while torpor is impending; we find the blood is generally thick, black, and tarry, trickling down the arm in a slow and unsteady stream; and the flow very often entirely ceases as soon as the veins of the fore-arm are emptied. This blood usually coagulates into an uniform mass, without separating any serum; and the surface of the cruor, after standing till it is cold, becomes somewhat more florid than when first drawn. In other cases, the dark-coloured blood separates a small quantity of reddish serum, which exhibits no peculiar character except its colour: and when heat is applied to this discoloured serum, it forms a firm, dry, friable coagulum, which in a few instances is of a pale, dusky green colour. When Cholera is attended with febrile

symptoms, the blood generally separates into serum and crassamentum, nearly as in healthy subjects; though the quantity of serum varies considerably, and sometimes the surface of the cruor is remarkably florid; not unfrequently it exhibits the buffy coat, indicative of local inflammation; several examples of which will be detailed. I acknowledge having two or three times seen the cruor quite florid, and still the patient has rapidly sunk into a cold and torpid state after the V. S. and, although the blood flowed freely, the patients were lowered, and made worse by it: but this florid appearance has been so rare, as not to have allowed sufficient opportunities of ascertaining satisfactorily the circumstances connected with it, in such cases as have terminated fatally.

The subalbid fluid, usually denominated the true Cholera stool, or the conjee stool, has been repeatedly and care-

fully analysed; as well as the fluid ejected by vomiting. Of the latter it is impossible to speak with any confidence, except in cases where the patients have been a considerable time in Hospital, and carefully watched, so as to ascertain what fluids may have been drank, and what remedies taken: consequently, it has not been possible to make so many satisfactory examinations of the fluid that is vomited. In a case of febrile Cholera, attended with profuse evacuations, I have by the smell recognised peppermint water, which had passed through the intestines in about two hours and a-half: and have been able to detect in the stools, fluids acidulated with cream of tartar, which had been drank less than three hours before. Therefore, if the analysis of Cholera stools be deemed important, the circumstances of the disease and nature of the ingesta should be attended to. The following results have been obtained, on examination of

the fluid vomited; and of the watery and subalbid stools usually admitted to be characteristic of Cholera.

The Cholera stools frequently consist of two portions; a thin watery fluid, and a pale-grey thicker substance like dirty mucilage, or the sediment in barley water, part of which will pass through a muslin strainer with the more watery portion; and if left in a large test-tube for four hours, the thicker part subsides, and is found to possess the following properties:

α It is in slight degree soluble in cold water.

β The greater part is soluble in a mixture of equal parts of distilled water, and Liquor Ammoniæ.

γ Exposed in a small evaporating dish to the heat of the spirit-lamp, it dries into a thin pellicle, which does not contract much when heated: but in the progress of desiccation, it exhales a nauseous odour of putrid flesh.

The subalbid fluid, which floats on the

pot, when the true Cholera stools are left to settle in the test-tubes, affords the following indications:

α With litmus, very seldom any effect is produced; and when any is observed, it is a slight reddening of the litmus paper, denoting the presence of an acid.

β Exposed to heat, it does not coagulate; even if the temperature be raised to the boiling point.

γ Treated with pure alcohol, it is not coagulated; but in a few rare cases, a very trivial cloudy opacity appears on the addition of the Alcohol.

δ Treated with a solution of oxymuriate of mercury in distilled water; sometimes a slight opaque cloud is formed, which in twelve hours subsides to the bottom of the test-tube: forming a minute sediment like mucilage, not amounting to $\frac{1}{32}$ of the quantity of fluid tested.

ε Solution of subacetate of lead, when dropped into the fluid, even in the most minute quantity, instantly causes a curdled appearance, and a precipitate subsides in the course of an hour. This is in such remarkable quantity, that the sediment amounts to from one-third to one-eighth of the quantity of fluid tested.

ζ The infusion of galls sometimes causes a slight turbidness: and in some of the experiments a few very light films were formed, which slowly subsided towards the bottom of the tube in the course of twelve hours. If left to stand for two or three days, the fluid at the top of the test-tube becomes of a rusty brown colour, which after a longer period is changed to black.

The Cholera stools which appear like *clear water*, afford the same indications as above stated, when tried with the several tests: but on the addition of solution of subacetate of lead, the curdled appearance instantly produced, is of a more snowy whiteness; and when this subsides, it is much smaller in quantity than the precipitate of a subalbid cholera stool, tried with the same test.

The fluid vomited in cases of Cholera, when obtained under circumstances which gave reason to believe that the secretion of the stomach was obtained free from the fluids recently drank, only differs

from the above in being more viscid and slimy: the results of analysis have been the same as those afforded by the more fluid portion of the conjee stools; but the indications of the presence of an acid have been stronger.

The results of a multitude of experiments accord generally with these statements. Without entering into minutiæ, concerning the conclusions deducible from the above; it is evident from Ex. β. that the subalbid evacuation, called the true Cholera stool, does not consist of the serum of the blood, as some authors have stated. I have found the conjee stools not coagulable by heat, when the blood of the same patient has separated a small quantity of serum, which has coagulated firmly on the application of heat. The occasional indications of an acid in the Cholera evacuations; while we know that uncombined soda is generally found in serous fluids;

would be an additional reason for our not acknowledging the conjee stools to be the serum of the blood.

By the employment of Dr. Bostock's test, the subacetate of lead, in Ex. ε. the peculiar secretion of Cholera is proved to consist chiefly of mucus. We may therefore conclude that the Cholera stools consist of mucus, and a peculiar morbid secretion; without any appreciable quantity of the serum of the blood.

In a subsequent part of this chapter I will mention a few cases, shewing the state of the patient and the stage of the disease, when the evacuations were taken for analysis.

When the kidneys continue to secrete during Cholera, the urine appears to be nearly the same as that of a healthy person; in containing urea, and the ordinary salts of the urine: whether ex-

actly in the usual proportions, I have not been able to determine. In some cases, the small quantity of limpid urine first voided after a suppression of that secretion for several hours; appeared to contain a large quantity of animal matter, and the putrefactive changes were observed to take place in it very early.

In the assemblage of symptoms which constitute the early stage of a sudden invasion of Cholera; we observe evidence of the disorder, or total cessation of the functions of those organs, which are supplied with nerves from the great solar plexus. In those cases tending to early collapse and coldness, the liver and kidneys cease to secrete as usual; the digestive powers are arrested, the mucous membrane of the stomach and intestines has its secretions altered; and the disorder of the respiratory function, reminds us of the alliance in the healthy,

as well as diseased actions of the lungs,* with the digestive organs; through the

---

* Whoever undertakes an accurate pathological inquiry, relative to the nature of Cholera, and has extensive opportunity to pursue his investigations; will find many reasons for concluding, that among the most important lesions of function which take place in that disease; the decarbonising power of the lungs is affected to a very great degree; more especially in those cases which are attended with early collapse and coldness, and are void of any febrile and inflammatory symptoms. In connection with this subject, we have occasion in post-mortem examinations sometimes to observe the contents of the cœcum and colon black, when the contents of the small intestines are of a lighter colour. These facts will induce us to inquire whether the black colour of the contents of the colon, and of the stools which appear during life in certain stages of Cholera, be in all cases dependent on black cystic bile. Is there not reason to conclude, that the black secretions in the cœcum and colon, may depend on an effort of nature to compensate by a carbonaceous secretion, for the inefficient action of the lungs and skin? Many patients die of Cholera before such secretion is established.

Viewing

influence of the nervous system generally, and more especially of the pneumo-

---

Viewing the depressed state of the decarbonising power of the lungs, as an important pathological condition; we would be especially cautious in administering to a Cholera patient in a state of collapse, such remedies as are known to have a direct effect in diminishing the quantity of carbon evolved by the lungs during respiration: among the most powerful of which agents we find mercury; ardent spirits, in such quantity as to produce a stupifying, in contradistinction to their exhilarating and exciting effect, and the abstraction of blood.

Facts coincide with the above observations; and I know of no case of *pure congestive* or *blue Cholera,* without febrile or inflammatory symptoms; in which mercury does much good: in such cases, stupifying quantities of spirituous stimulants, like stupifying doses of opium, decidedly hurry on the fatal event; and indiscreet use of the lancet has certainly in some cases shortened life. Although this view of the subject is here alluded to, in hopes that its legitimate application to practice may hereafter undergo the strictest examination and experimental investigation: I may state that I have, in very bad cases of the low form of Cholera, been so far

gastric nerves. The most undeviating phenomena of Cholera attended with early collapse, are the recession of blood from the surface of the body, and its accumulation in the great veins of the abdomen and thorax; a gorged state of the capillary vessels of the lungs; and disordered secretion from the mucous membrane of the intestinal canal: at the same time that the mucous membrane of the bronchial tubes and cells of the

---

far influenced by these considerations, as to abstain from the free use of calomel, to stimulate with ammonia, and to use only small quantities of spirits or brandy, trusting to the warm resinous purgatives, given alternately with castor oil, and enemas: enjoining tranquillity, and supporting the system by mild farinaceous food in small quantity. The result has been satisfactory; the pulmonary system has resumed its healthy action, and ultimate recovery followed in the most favourable manner; without the appearance of black stools. Cautious trials of this sort, on a large scale, are requisite, before we can be authorized in recommending the general employment of such a practice.

lungs, occasionally has its secretion affected in a similar manner, though to a slighter degree.

In cases not fatal, the progress of recovery is often almost as rapid as the accession of Cholera; and if the disease be promptly treated at the very onset, it is not uncommon to see a person well on the third day after the attack of the worst symptoms, which had commenced with coldness and collapse; and who, if left without remedies, would probably have died in six or eight hours. In these instances, recovery seems almost as sudden and complete, as in cases of suspension of animation from submersion in water.

We see a person suddenly attacked with vomiting, and purging of cholera-stools, he quickly becomes cold and has a rapid feeble pulse: we know that if left to the course of nature, or supplied

with a few glasses of cold water, this patient will be in a hopeless state in a few hours; whereas, if he get a table spoonful of tincture of rhubarb undiluted, or a teaspoonful of laudanum, and as much spirit of sal volatile, in an ounce of water; immediately on the first attack, the disease is very often at once arrested.

Many of the febrile cases, especially those where there is a dry tongue and feverish flush of the face, are slower in arriving at complete convalescence; and we have occasionally sufficient evidence, that, besides the disordered functions, and congestion with incipient inflammation, of the early stage; there is a decided tendency to a slow inflammatory condition of several internal organs, at remote periods. When reaction commences, it is irregular, and I have seen one eye suffused with bright arterial redness, while the other eye was pale.

Patients who remain without pulse at the wrist above three hours, seldom survive the attack; though we sometimes succeed by means of ammonia, camphor, assafœtida, and small quantities of opium, combined with warm resinous purgatives; and some stimuli of spices, wine, or spirits; to resuscitate the pulse, and restore the warmth of skin, in persons who have been a whole day cold and without pulse at the wrist. Yet the majority of those so excited, ultimately expire, after lying a longer or shorter period, sometimes several days, in a half-torpid state, without either spasms or purging: while in this state they suffer much nausea, and continue to vomit whatever fluid is drank; gulping up every eight or ten minutes, almost without effort, large mouthfuls of yellowish green bile, which is spat over the bed-clothes and floor, without moving the head. While this condition lasts, an attempt to sit up in bed causes faintness.

This is almost as hopeless a condition as a Cholera patient can fall into: in cases of this sort, free blood-letting, or an active purgative is apt to sink the patient irrecoverably: stimulants excite fever, and hurry on the fatal termination. By whatever mode these cases are treated, the most intense gastro-enteritis is found after death, and the intestines are loaded with superabundance of bile and dark-coloured secretions. A few recover by the cautious application of leeches, as soon as the patient will bear them without sinking the pulse; repeated use of moderate V. S. is often requisite in the latter stage of these cases; and perseverance in a steady course of resinous purgatives; with the mildest food in small quantities, supplied in succession to the first effects of each purgative. An emetic, and particularly a sulphate of zinc emetic, is sometimes found in such cases, to produce the most beneficial change. In other cases resuscitated by

stimulants, after long continued collapse, as above stated; a febrile condition follows, with frequent weak pulse, and lurid redness of face, resembling the remote stage of bad cases of remittent Fever.

The fatal termination of Cholera, in some of the most sudden cases commencing with extreme collapse; seems to depend on the intensity of the efficient cause of the disease, acting so powerfully on the nervous system as to produce total arrest of all vital energy; and death, as it were by suspension of animation; cessation of vital actions taking place, with hardly any preliminary course of disease.

Many others die from venous congestion, with a remarkable stagnation of the blood in the great veins of the internal parts of the body, and cessation of most of the secretions; combined with a less

degree of that sort of shock of the nervous system, which produces the sudden termination just described.

The fatal event at a still later period, has more or less of local inflammation, superadded to congestion; and combined with the remains of such disorder of the nervous system as in its more intense degree causes early death.

While a rapid and weak pulse continues, though there be not much purging and vomiting, the patient must be deemed in the utmost danger.

The severer cases of Cholera, with early coldness and collapse, tending to sudden death without reaction, have been already alluded to; and the absence of inflammation of the stomach and intestines, in many of those cases, has been pointed out. The peculiar nature of that description of Cholera, is still more

remarkable, when we observe the same stage of that disease attacking dysenteric patients who had been for many days voiding bloody stools; but who, on being seized with Cholera, cease to void blood, and their evacuations change to the fluid resembling rice-water; examples of which were seen in the cases of Cox, and Post, which are mentioned in this chapter: affording evidence of the fact, that the circulation in the capillary system of vessels of internal organs in the febrile Cholera, is in a state totally different from what takes place when the Cholera with sudden coldness and early collapse comes on; and when in fact the essential character of the disease consists in accumulation and stagnation of blood in the veins, and principally in the great internal veins. Robust and plethoric subjects suffering from this form of disease, also exhibit strong marks of stagnation of blood in the smaller cutaneous veins; affording the appearance which has been

denominated the blue Cholera: a state of disease often existing in the most intense degree, when totally void of inflammation.

Morbid Appearances on Dissection.

The appearances observed on the inspection of subjects that have died of Cholera, are various; according to the nature and duration of the illness, and the circumstances that have preceded and accompanied the attack. In the damp hot climate of Bengal, we are obliged to perform our dissections at an early period after dissolution, generally from three to twelve hours. And it has frequently occurred to me to observe, that bodies are warm for some hours after death, although the persons, while suffering under Cholera, had been exceedingly cold for several hours, and sometimes more than a whole day, before they died. The exterior of bodies after

death from Cholera, is generally found livid from the stagnation of venous blood in the capillaries, especially about the chest and neck: and still more so at those parts which are dependent, and liable to be discoloured by the gravitation of blood. The muscles are generally rigid, of a lurid red colour: and robust subjects are seldom emaciated by those attacks of Cholera which are fatal after a short period of illness. But even in these, the eyes are sunk deeply into the sockets, and the fingers, hands, and feet, remain shrivelled. In a few weak and emaciated subjects, the surface is whiter, and corrugation of skin more extensively visible.

The most common morbid appearances in the viscera of those who die after an illness of only a few hours; are a pale colour of the stomach, when viewed externally; a thickening of its coats, so as to feel like a thick new doe-skin glove;

its interior is also sometimes quite pale, but generally of a pink colour, in patches of various sizes and covered with a thick tenacious viscid mucous secretion. The mucous membrane of the stomach is often much corrugated into longitudinal folds; and when its secretions are seen not tinged by medicines, they are usually at this stage of the disease, a pale-grey water: frequently the stomach is relaxed, and this secretion is then in very large quantity. The small intestines of a pale pink colour, that in many cases could hardly be deemed morbid, their coats thickened and pulpy, as if œdematous, the villous coat sometimes quite pale: their contents usually consisting of a whey-like fluid, and a thick curdled mucus, in various proportions. More rarely we find the small intestines loaded with quantities of a substance resembling a thick paste of flour and water, and occasionally there is a fluid like dirty gruel, or like the sediment in barley-

water. The great intestines at this stage of the disease, are of a pale bluish colour, with little or no vascularity, their coats frequently remarkably thin; contents, copious and watery, or like rice-water in which some films of mucus are floating. The great portal and mesenteric veins and the cavæ, turgid with blood. Liver and spleen usually tumid from venous congestion, especially if the subject be plethoric. The gall-bladder is found to contain bile of various shades of green, usually somewhat inspissated, but frequently appearing in a healthy state. In a few emaciated subjects, where the watery purging had been very profuse during life, and the extremities remained much corrugated after death; the peritoneal coat of the abdominal viscera was sometimes dry, and not covered with the usual lubricating serosity; the whole of the viscera seeming shrunk and bloodless. The cavities of the heart are usually distended with black blood. The

lungs generally exhibit a degree of venous congestion, which, at the depending parts, is much increased by gravitation. The bronchial tubes in some cases filled with frothy fluid; in others, lined with a tenacious mucus of a very viscid description, which when scraped off and collected, resembled a thick paste of wheaten flour. This latter appearance usually found in cases where the voice had been feeble and *pectoral*, and it is certainly more commonly met with in the cold season: suppression of voice occasionally occurs when this morbid bronchial secretion does not exist. Venous congestions in the brain and spinal marrow, inconsiderable in emaciated subjects; but remarkable in those who were plethoric. Bladder contracted, generally contained about two ounces of limpid urine; and a small quantity of white mucus can be seen on its internal surface.

The above morbid appearances of the

viscera, in cases of Cholera proving rapidly fatal; are supposed to be the vestiges of a much higher scale of vascular turgescence during life: but this is doubtful.

When the patient has lived longer, and Cholera has been attended with violent and painful spasms; but more especially when a prolonged disease has been marked by any febrile symptoms, the congestions above described, are attended by distinct appearances of inflammation of the small intestines. The omentum, mesentery, and mesocolon, present a high degree of morbid vascularity: the mucous membrane of the stomach is more extensively and more highly coloured with red, and this is often the case when on examining the exterior of the stomach, it is still pale and its coats much thickened. In more advanced stages, the coats of the small intestines are found thin and diaphanous, so that masses of viscid mucus, deeply tinged with green

bile, may be seen before opening the gut; and in these cases there is usually much flatus in the small intestines, with some pale-grey fluid. Proceeding to speak of those who have survived to the third or fourth, or fifth day; inflammations of the intestines are more distinct and extensive: the small intestines are then found to contain quantities of viscid mucus of various colours, and green bile; the large intestines filled with dark-grey, dark-brown, or black thin fluid. The morbid appearances in the ulterior stages of febrile Cholera, very much resemble those seen in the dissection of subjects who have died during the remote stages of remittent Fever.

Some of those in whom the disease begins with early sinking and deadly coldness, survive that stage for two or three days; having a slight degree of lurid redness of face, with ineffectual reaction of the system, marked by return-

ing warmth of skin and improved state of the pulse; but they are inclined to faint when in the erect posture: such cases are often found to sink into a state of stupor, and die on the fourth or fifth day. Dissection then shews much venous congestion of the brain, still more of the lungs; and a general lurid redness of the small intestines, which approaches to a mahogany colour; but sometimes no congeries of minute vessels is to be seen: we are inclined to speak of this state; as mortification of the muscular fibres of the intestine, for the intestines are very easily torn. In such cases, their contents are mostly a thin chocolate-coloured fluid. The cœcum usually strongly marked by the lurid appearance of its coats, which are thin.

When febrile and spasmodic symptoms have predominated, we occasionally find intus-susceptions in the small intestine, and still more frequently portions of the

canal contracted to the size of the little finger: the contracted portion of intestine sometimes red, but more commonly paler than the rest. I have very often seen a contraction at the sigmoid flexure of the colon, of a foot in length, without any morbid vascularity at that part; the mucous membrane at the constricted part exceedingly corrugated and almost dry. Lumbrici are occasionally found in the intestines.

In the dissections of Cholera subjects, I have sometimes met with morbid appearances, which would not seem essentially the result of the disease; and they probably have been influenced by circumstances in which the patient was placed prior to, or during the commencement of the attack. In the post-mortem examinations of sailors who were seized by Cholera in the Bazaars, where they had been much exposed to the sun, and in habits of dissipation; a considerable

serous effusion has been found between the arachnoid and pia mater, over the whole convex surface of the brain; and frequently there is serous effusion in the spinal canal. The same appearances have been observed in sober people, in whom Cholera came on after much exposure to the sun, and proved fatal. These patients have generally soon sunk into a torpid condition, without much suffering from spasms: they quickly became cold, and died within fifteen or sixteen hours after the attack commenced. The sailors of the H. C. ship *Bridgewater*, were exposed to severe privations and much hard work, during a succession of gales of wind on the homeward voyage from China; and the ship was so much injured that she was brought to Calcutta. Soon after the crew landed, in June 1830, many of the men were attacked with Cholera, which quickly proved fatal to several of them. On dissection, serous effusion was found on the hemispheres

of the brain; and in some of the cases, a large quantity of serum in the lateral ventricles. On several occasions, when ships in coming up the river in the rainy season, have got aground, or lost their anchors, whereby the crew have been obliged to work hard, and were much exposed to the weather, and probably at the same time living irregularly: the sailors have been attacked with Cholera; the peculiarities of which consisted in the patients having in several cases tympanitic distension of the belly, cold hands, and hot feet. On dissection, acute inflammation of the colon was found, besides the other morbid appearances common in Cholera.

Causes of Cholera.

The cause of the more frequent appearance of Cholera for some years past, is unknown; and we are unacquainted with any circumstances which are sure to

produce the disease, or by avoidance of which, residents in India can be certain of always escaping its attack. Cholera occurs at all seasons of the year, and under all circumstances: people who live in the best houses, avoiding excesses of every sort, and who are exempt from any species of privation; are occasionally liable to be seized with the worst forms of this malady. However, we have abundant proof that the disease prevails most, among those who reside in low and ill-ventilated situations, exposed to humid atmosphere and sudden changes of weather; who are frequently using ill-cooked or bad food; and who indulge in eating cold or unripe fruits: more especially if they be at the time exposed to fatigue and unusual privations. People with impaired constitutions, or who are in a state of debility from any cause, are more liable to Cholera than the robust and healthy: and it is certain that persons recently arrived

from Europe, are very liable to an attack, if the disease happen to prevail at the time in the vicinity of their residence. The depressing passions, doubtless have much effect in rendering people more liable to an attack of the disease.

Sudden decrease of temperature appears to be among the most frequent exciting causes of Cholera; for we find it has commenced generally between two and five o'clock A.M. when the cold damp air is most sensibly felt in this country. Men are often attacked soon after exposure to rain, when they are fatigued; and many awake ill with cramps and other symptoms of the disease, after having slept in damp clothes. Soldiers on fording a river early in the morning, though the water be not a foot deep, are apt soon to fall ill, especially if they have marched several miles previously, so as to be heated and fatigued before they pass the ford: and they are often at-

tacked in the night, or early in the morning, after encamping on the low damp bank of a rivulet. Hard work, and exposure to the sun and rain alternately, seem occasionally to bring on the disease: and a large dose of saline purgative has frequently excited an immediate attack. When three or four severe cases of Cholera have happened about the same time, at different parts of the town; we know that any man who takes an active saline purge, is very likely to fall quickly into a state of Cholera with collapse. Severe cases of Dysentery, or even slight Diarrhœas, are apt in the most sudden manner to lapse into the low form of Cholera; at those times when the latter disease is prevailing in the vicinity. Drunkenness has been followed by a severe form of the disease among large numbers, as happened in H. M. 14th Regiment, in 1828, at Berhampore; where, after a distribution of 15,000 Rupees prize-money to the sol-

diers of the Regiment; ninety-four cases of Cholera appeared within a few days, of whom twenty died. Of these ninety-four patients, forty-five had been from nine to fourteen years in India. Nevertheless, at corresponding periods, in other years, we often see patients vomiting violently for hours, and others are purged profusely for several days, without Cholera coming on: intemperance to the utmost extent, exposure to atmospheric vicissitudes, and all the other exciting causes* above enumerated, often exist to an extreme degree, and the disease does not follow. Therefore we must acknowledge that some other cause or circum-

---

* The same observation may be made with respect to many other diseases which are influenced by atmospheric vicissitudes. We cannot give any reason why exposure to sudden changes of temperature, in England, causes Rheumatism to prevail in one year; Ophthalmia in another; Catarrhs in a third; and Fevers in a fourth.

stance, is essential to the production of Epidemic Cholera; since we see that these circumstances which seem to be efficient in exciting an attack in one year, are not productive of the disease in the next. The disease has been ascribed to some unwholesome condition of the atmosphere, which we have no means of appreciating, except by its effects; as we judge of the presence of malaria, in the case of intermittent Fevers. We know that at times every slight ailment seems convertible into Cholera of the most rapid and fatal description; among the inhabitants of a station where the disease had not previously existed, and where it cannot be traced to the arrival of sick persons, or to any mode of imported infection: the disease appearing about the same time at various and remote parts of the town, among persons of the most opposite habits of living, who have no direct or indirect communication with each other; as was

the case in Calcutta in 1830, and on several other occasions. Strangers coming to a town when a general proclivity to Cholera exists, must be very liable to the disease; if they happen to arrive after suffering fatigue and privations, and just when the local distempered state of the atmosphere, with the usual exciting causes, are about to affect the residents of the place. Persons arriving at such a time, with any disorder of the digestive organs, may become the first sufferers; and thus the probability of imported contagion is suggested: though a strict investigation of the circumstances in detail, may be sufficient to negative any idea of contagion.

Treatment.

In the treatment of Cholera, it is of the utmost importance that remedies be employed early; and that they be varied with careful reference to the nature of

the attack, and the existing stage of the disease: for the utmost vigilance and discrimination of the practitioner are often defeated. The cases which will presently be adduced, as well as the various accounts previously published in Bengal, shew us a great class of diseases to which the name *Cholera* has been applied. The whole of these have more or less of a common character so distinctly marked, that we rarely hear of a difference of opinion among practitioners concerning the identity of the disease: and still in some of the individuals of this class we find the prevailing tendency of the complaint, not only different, but diametrically opposite to what constitutes its predominant character in other cases. If the diseases which are acknowledged to be Cholera, were so ranged on a scale as to place those cases which have most affinity together; and those most dissimilar, at a distance: we should find one end of this scale occupied by diseases in

which the actions of the constitution are distinctly febrile, and in many of them the evidence of local inflammation is strong and unequivocal, as in the most intense examples of gastro-enteritis. At the other extreme of this scale, we should find the prevailing characters of the disease, as already stated, consisting in coldness, depression of vital actions, and extreme venous congestion; with tendency to sudden death, not preceded by much active disease. Between these two extremes, every possible variety exists: the disease with early collapse and coldness, generally combines an intense degree of congestion of blood in internal organs, with some remote tendency to inflammation of the intestines, and sometimes (though rarely in Bengal,) of the brain: while the febrile cases, and those which are marked by distinct evidence of local inflammation; are by no means void of congestion, and they frequently lapse suddenly into the low state, with

coldness, and the most awful prostration of vital power. Our watchful attention to the course of the disease is urgently demanded, on account of this occasional tendency to sudden change; lest we be misled, and induced to use depletion, by V. S. or other means, at a time when such treatment may be injurious. It will be evident that the treatment of Cholera must be varied according to the nature of the disease.

In the febrile and inflammatory stages of the disease, attended with violent and painful spasms, warmth of surface, and free circulation; our chief dependance must be on V. S. leeches, and purgatives of calomel or blue pill, with cathartic extract; alternated with castor oil: in a few of these febrile cases, we may venture on jalap and scammony at more remote periods of the disease. The earlier a case of Cholera of this description is bled, the more certain and effectual is

the relief which is obtained. While those patients, who come under treatment at a late period of the disease; even though distinctly marked inflammatory symptoms be present; require great caution in the employment of depletion, and still they are almost certain to die without antiphlogistic treatment. Opium is admissible for one or two doses, in small quantity, at the onset of these febrile cases; when watery evacuations prevail: but except for the purpose of allaying the dreadful commotion of the system, and to arrest profuse purging; we derive little benefit from this remedy. Nothing relieves the spasms of the early stage of febrile Cholera, so effectually as the lancet.

There is a more remote stage of the disease, in which local inflammations take place; appearing sometimes to be excited by premature return to a diet of animal food, and in other cases to arise without any evident cause: we are

obliged then to use the lancet, and to purge the patient freely, as in an ordinary inflammatory fever. At the same time, a word of caution is requisite; lest the inexperienced practitioner, should mistake for fever or inflammation, the transient and ineffectual re-action which often occurs just before death: attended with morbid heat of forehead and chest, while the patient is torpid, blue, and restless; as vain attempts have been made to cure these cases by bleeding. The least that can be said of such treatment, is to acknowledge its total inutility.

Where the evacuations have been profuse, it is always advisable to give a small quantity of thin sago, or arrow-root; as soon as the stomach will retain it; and the employment of a small quantity of food of this sort, need not interfere with the general antiphlogistic plan above stated.

The majority of these febrile cases, can generally be saved; if seen early and treated with careful discrimination and perseverance.

In the low description of Cholera, where the vital actions fall early into a state of torpor and collapse, with profuse cold perspirations; we have a much more formidable complaint to contend with. There is but little time for consideration in this form of the disease; it is rapid in its course, and deadly in its tendency: the most judicious measures that can be adopted, too often fail. It is necessary in the first instance to uphold the feeble remains of vital energy, and as it were to resuscitate the patient, otherwise the susceptibility to remedies is speedily extinguished. For this purpose, it is necessary to give some opium with stimulants. If the patient be seen early, and the vital actions have not been very much sunk; half a grain of opium with

six grains of blue pill should be given every half hour, while frequent purging continues: and two ounces of hot sago with one ounce of brandy may be taken after the second dose of the pills. In the early stage of those cases where Cholera symptoms have supervened suddenly on diarrhœa; we often see patients whose tongues are cold, the eyes sunk, and prostration extreme, entirely altered in two or three hours; warmth being restored: and we have to manage diarrhœa with slight febrile symptoms. But after a few hours' continuance of the disease; when the pulse becomes low and weak, and the voice feeble, it is necessary to use more active remedies; at the same time, we must always bear in mind the possibility of overpowering the system, either by opiates or spirituous stimuli, when the vital actions are sinking into a low and feeble state. I have seen in these cases, prompt and effectual relief more frequently afforded

by opium than by any other remedy. But when this medicine is likely to do good, all the benefit derivable from it, follows quickly after taking one or two doses; and it is more appropriate in those cases attended with profuse watery purging, than in others. Two grains of opium in a pill, sometimes arrest the most formidable symptoms. In other cases where the pill is immediately rejected; the same quantity of opium dissolved in cinnamon water, and mixed with ʒ i. of Spirit of Sal Volatile proves effectual. It is advisable to make the patient drink a cup of hot sago, with some brandy or wine, as soon as the more distressing symptoms are moderated. If this be retained, and tranquillity with sleep follow, we may entertain hopes of recovery.

Under less favorable circumstances, where our early remedies do not produce such immediate benefit; the vomiting

and purging are either arrested, or having been from the first less urgent; we find the lowness and coldness not removed. The thirst is extreme, pulse feeble and 120, or more frequent; while a weak pectoral whining voice, indicates the impaired function of the respiratory organs, and inward distress of the patient. In such cases, repetition of opium is apt to stupify the patient, without effecting any other purpose;* and spirits too often seem to overpower him, and render

---

* I consider Ammonia the best internal stimulant, in cases of approaching torpor, where repeated doses are requisite; it is more effectual, and safer, than either opium or brandy. I have also tried Enemas of four, and six pints of hot water, containing Ammonia in solution; with the view of stimulating the system, and at the same time of washing away from the great intestines, the tenacious paste-like secretion, which they contain. These Enemas were employed only in the most hopeless cases, when other stimuli had failed; therefore they were generally unsuccessful.

recovery more hopeless. Liquor Ammoniæ Puræ is the best stimulant in such cases: I have given ʒ i. every hour in ℥ iiss, of water, for eight doses; and afterwards every two hours, until the circulation has been restored, and warmth of surface has returned. An infusion of Cayenne Pepper may be made in the proportion of ʒ ii. to a pint of boiling water, and a table-spoonful given every half hour, alternately with the Liquor Ammoniæ. If the patient be calling aloud for drink; instead of giving brandy and water in such cases, I prefer letting him have an infusion of pepper, or ginger, either of which is to be made in the proportion of ʒ i. to the pint of boiling water; and a wine-glassful may be allowed every half hour, either tepid or cold, as the patient likes.

While these internal stimuli are used; much benefit may be derived from external applications. European flour of

mustard is to be mixed with hot water, and when made to the consistence of an ointment, about one-eighth part of common salt added: this is spread on calico; and applied to the epigastrium and across the lower part of the chest, and to the spine, and feet. If the skin retain any degree of susceptibility, this will soon act as a strong rubefacient, and when left on for five or six hours it blisters. I prefer this to any other external stimulant: after having tried Turpentine, common Blisters, and boiling-water, as well as pure nitric acid; and in extreme cases, the red hot iron has been applied to the epigastrium and spine. The mustard plaster is not so irksome to bear as a blister, and it is free from the appearance of cruelty and harshness, which is an objection to some of the other stimulants just named.

If we are so fortunate as to arrest the progress of symptoms threatening sud-

den death, the patient generally sleeps for some hours. The subsidence of urgent symptoms, should make us satisfied to wait for three or four hours; and then we must give mild aperient medicine every four hours, until the bowels are made to act moderately. For this purpose, castor oil should be given every eight hours; and in the intervals 12 grains of compound extract of colocynth, with six grains of blue pill, and two grains of aloes. If a tendency to the low stage of the disease still predominate; I would give only half the above quantity of blue pill, and would add two drops of cinnamon oil, or of the oil of peppermint to each dose of the pills. Supporting the patient with sago, arrowroot, or other farinaceous food; and giving wine in small quantity, or omitting it according to the indications of pyrexia, or local inflammation.

After patient begins to recover from

the stage of collapse; the disease seems to balance between a return of the lowness; and the accession of Fever with inflammation: the former condition is the most to be dreaded; it may be brought on by cold drastic purges, untimely bleeding, copious draughts of cold water, or imprudent exertion in attempting to rise to stool. After all that can be effected, by diligence and science; it must be acknowledged that a large proportion of Cholera cases which sink into the state of collapse, are then inevitably fatal.

The domestic management, and accessories to the medical treatment of Cholera patients, are very important. The sick person should be placed in an airy room, on a low and rather narrow bed; that he may be easily and effectually assisted: the room should not be crowded with attendants, nor should the patient be left in a draught of air, but

the face may be fanned. If profuse perspirations exist; the surface should be frequently rubbed dry, with hot flannel; but the whole body need not be uncovered at one time, for this purpose. During the low form of the disease with decrease of natural warmth; the patient should be placed between blankets, and the extremities diligently rubbed and champoed by attendants, whose hands are frequently warmed. Tin cases made to hold hot water, or bottles of hot water, or bags of hot sand, are frequently placed by the patient's limbs: but restlessness of the sick, renders these means of affording artificial warmth, generally of little avail. It is proper to prevent patients from rising to stool, so long as there is any appearance of collapse, with lowness and frequency of pulse: and under any circumstances, while copious watery evacuations continue frequent, it is desirable to make the sick remain recumbent, and use a bed-pan. I have many times seen men rise to stool;

and after a copious gush of watery evacautions from the bowels; to fall on the floor, sometimes apparently fainting, at other times convulsed: some of these have died within five minutes after rising to stool, who had not been 12 hours ill, and who had some degree of warmth of surface at the time of getting out of bed; having just before that been speaking rationally, though in a state of anxiety and restlessness. When the pulse at the wrist has ceased, or is very feeble and rapid, the patient anxiously tossing about in his bed, and when entire arrest of the circulation seems impending; any exertion of the patient is likely to prove injurious: either rising to the erect posture, or sitting up in bed, should then be prohibited. The most precise instructions to the attendants, are requisite, regarding the quantity of drink, or aliment to be given: for although a wine-glassful of some drink may be allowed, (to any patient in whom it does

not quickly excite vomiting,) and in febrile cases, may be repeated every hour; a free use of fluids, is almost always injurious.

The following cases, are intended to shew the nature of Cholera in Bengal; and the effects of the treatment.

Those in which a febrile or inflammatory condition existed, are arranged first in order; though that form of the disease is not always the most frequent in this part of India. After these are placed, some cases in which it would appear that V. S. was injurious, and others in which it was useless. Then follow some examples of the disease, in which the extraordinary venous congestion, and impeded circulation, were attended with such apparent agony, and laborious heaving of the chest, that I was induced to hope relief might be obtained by opening the radial artery; which was

tried, and as much blood obtained as the most urgent advocates of blood-letting in Cholera have considered sufficient to alleviate the oppression. Next in order, are arranged cases in which the sudden coldness and collapse, with sinking of vital power, were so extreme; either that blood could not be obtained from the veins, or the attempt at V. S. was not deemed advisable; and therefore the patients were at first treated by opium and stimulants. These examples, will prove that no exclusive rule of practice can be followed; and that the utmost diligence and discrimination are requisite; to apply such remedies as are best suited to the nature of the attack, and the existing stage of the disease.

Case VI.—Thomas Greenwood, Æt. 21, of middle size and light complexion, recently landed from Europe: was taken ill with purging, at noon on the 16th November, 1830; and he was at stool

as often as six times an hour. Cramps in the extremities and vomiting commenced at ten o'clock on the 17th, and as he appeared to be getting worse, he was sent into General Hospital at 11 A.M. His pulse was then 116 and weak; tongue cool and moist; skin cool; and voice feeble: there was slight arterial or florid congestion of the eye-balls; eyes only half open, but a bright light was not painful.

V. S. ad lb. i.
℞. Calomel. ℈ i.—Opii gr. i. in a Pill.
℞. Spirit. Ammoniæ Aromat. ʒ i.
Aquæ Tepid. ℥ iss. misce. To be drank after the Pill.
Extremities rubbed with Spirit of Turpentine.

1 P. M.—Blood not buffy, the cramps have ceased, otherwise he is not much changed; he has been vomiting, and purged often: the evacuations are a clear watery fluid, with flakes of mucus.

℞. Calomel. ℈ i.

Extract. Colocynth. Comp. ℈ ss.—to be taken now, in three Pills; and repeated in two hours. Draught as above, to be repeated with each dose of the Pills.

5 P. M.—Vomiting and purging continue; he complains of thirst; pulse rather more distinct; the last stool is slightly colored with grey fæces.

Repeat the Pills and Draught.

7 P. M.—Had one more stool, of the same appearance as the last; pulse unchanged; his voice is a little stronger; he lies quiet and is cold, the fingers shrivelled; but tongue warm.

℞. Calomel. ℈ ss.—Extract. Colocynth. Comp. Asafœtidæ āā gr. v.—misce, fiant Pill iii. To be taken at 7, and repeated at 9, 11 P. M. and 1, and 3 A. M. to-morrow.

℞. Mist. Camphoræ lb. i.

Sp. Lavand. Comp.—Tinct. Hyoscyami āā ʒ iss. misce.—To take two ounces every two hours.

A cup of hot sago with 1½ ounces Port Wine to be given immediately.

Nov. 18*th* —He has had one scanty, slimy, pale-grey stool, and vomited often during the night. Pulse 102 and feeble; tongue clean, warm, and moist; voice very feeble; has occasional slight cramps in the legs.

℞. Calomel. ℈ ss.—Extract. Colocynth. Comp. gr. v.—misce, fiant Pill ii. To be repeated every three hours, with some of the Camphor mixture.

Apply a small blister to the Epigastre.

Let him have Port Wine, three ounces, in some hot sago.

Vesper.—He has taken five doses of the pills; has not vomited, and had no stool: cramps have ceased, and the shrivelled state of fingers has disappeared.

Enema Purg. statim.

℞. Extract. Colocynth. Comp.—℈ ss.

Pil. Hydrarg. gr. v.—in three Pills at bed-time.

Nov. 19*th.*—Had two free dark-green stools at night; pulse soft and weak;

he is cold, but his voice is stronger: tongue warm, moist, and slightly coated with white mucus.

R. Calomel. ℈ ss.
Extract. Colocynth. Comp.
Asafœtidæ āā gr. v. To be taken at 6 A. M. and repeated at noon, and at 3 P.M.—Diet, tea, and three ounces Port Wine in a cup of hot sago at 11 A.M.

Vesper.—He took three doses of pills; vomits often; is colder and very thirsty; tongue cold. These unfavourable appearances are ascribed to his having drank much water, and tea; which he obtained contrary to orders. An attendant was directed to prevent his drinking.

R. Calomel. ℈ i.
Extract. Colocynth. Comp. ℈ ss.
Opii. gr. ss. To be taken in three pills, at 6, and repeated at 10 o'clock.

Nov. 20th.—No stool, and very little change in any respect. Pulse low, weak,

and soft; tongue not quite cold; he suffers from anxiety.

Habeat Enema Purg. statim.
℞. Calomel. ℈ i.—Extract. Colocynth. Comp. ℈ ss.
In pills at 7 A. M. and repeat at noon.
Give some hot sago with brandy, at 11 o'clock.

Vesper.—Had three stools, the last was black, feculent, and fluid. He is warmer; pulse improved. Has not vomited; the gums are sore.

℞. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

10 P. M.—He has had several free fluid stools; and is weaker.

Habeat statim Enema Purg.
℞. Pil. Hydrarg. gr. vi.—Opii gr. i. fiant pil. statim sumend.

Nov. 21*st.*—He has had several black fluid stools, since last report: he is now warm, and rather better; but there ap-

pears some lurid congestion of the face; pulse soft and low,

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A. M.
Ol. Ricini. ℥ i. at noon.
Diet—Tea, Bread, and Sago.

Vesper.—Had four free, dark, feculent stools; has not vomited, pulse more distinct, and he is much stronger and better.

After this a slight feverish disposition remained a few days; he took a mild purgative daily, and gradually improved. Was allowed chicken and vegetables on the 25th, and was discharged on the 29th November, 1830.

CASE VII.—Stephen Drewry, Æt 31. A stout man, with a florid face, recently landed in Bengal, was seized with vomiting, and purging, and pain in his belly at 8 P. M. on the 21st May, 1827, but did not send for medical aid till daylight

next morning. He was then bled to lb. i. had a blister applied to the epigastre, and took two grains of opium in solution in an ounce of mint-water, with Spirit. Ammoniæ Aromat. ʒ i. He was not seen by me till 8 A. M. on the 22d May, when he was brought to Hospital; he was then purged, and felt very weak. Ordered to take

Calomel.—Extract. Colocynth. Comp. āā gr. v. statim.
Ol. Ricini. ℥ i. at noon.

Vesper.—Had three stools, evacuations not kept for inspection; pulse 98 and small, but rather hard, and he is feverish.

V. S. ad lb. i.
℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. in two Pills at bedtime.

May 23d.—Blood not buffy; he had four watery stools during the night, the

colour of ink. Pulse 102 and weak; there is still a slight flush of face.

℞. Calomel.
Extract. Colocynth. Comp. āā gr. v. at 7 A. M.
Ol. Ricini. ℥ i. at noon.

Vesper. 5 P. M.—Had five very scanty, fluid, black stools, since morning; he has now pain in the lower belly, and oppression at chest. Pulse 70, soft, and weak; tongue cool, moist, and clean.

Apply six leeches to the lower belly.
℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v.—Opii gr. ½, to be taken now.
Ol. Ricini. ℥ i. at 8 o'clock.

May 24th.—He had several scanty green and yellow stools, and has suffered severely from cramps in his legs.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. to be taken at 7 A. M.
Ol. Ricini. ℥ i. at noon.

Vesper.—The medicine has produced four stools of yellowish brown colour; tongue cool and nearly clean; pulse better; he has some cramps in the belly but none in the legs.

℞. Extract Colocynth. Comp.
Pil. Hydrag. āā gr. v.

May 25th.—Had three bilious yellow stools, in which many films of white mucus are floating. Has now pain in the belly, and slight morbid heat of skin. Pulse 92.

Apply 12 leeches to the belly.
℞. Pulv. Rhei. ℈ i.

After this he took a purgative dose of rhubarb, or of colocynth and blue pill almost every day, and appeared to be improving.

June 2d.—He was seized at one P.M. with violent pain at stomach, and spasmodic twitchings in the fingers and toes.

Pulse strong and frequent. He was bled to 20 ounces; the blood on cooling was buffy.

R. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v.—Opii gr. i. misce—to be taken at 6 P.M.

3d.—Pain moderated, but not removed: a white tongue, and slight pyrexia; no stool.

Apply 16 leeches to scorb. cordis.
Enema Purg. statim.
R. Ol. Ricini. ℥ iss. at 6 A.M. and repeat at noon.

Six leeches were applied on the 4th, and again on the 5th; and he took a mild purgative daily.

June 10th.—Pressure over the belly caused pain, therefore a blister was applied to the abdomen, and mild purgatives were continued till 28th June, when he was pronounced well.

The above case of gastro-enteritis, is inserted to shew how that disease, in some respects, approaches the febrile form of Cholera; but wants the rapid pulse, conjee stools, and sinking of vital power.

Case VIII.—Henry Johnson, Æt. 40, a sailor of the ship *Cæsar*, of middle size and light complexion, one month arrived from England: admitted into General Hospital at 7 A.M. 28th June 1830. Has had a purging for 48 hours and began to vomit at 2 o'clock this morning; the purging abated since 5 A.M. and he has suffered from cramps in his thighs for the last half-hour. Extremities now warm. Pulse 112 and free; tongue warm and dry. Has some chronic enlargement and induration of the liver, which can be distinctly felt.

V. S. ad ℥ xxvii.
℞. Calomel. ℈ i. statim sumend.
Ol. Ricini. ℥ i. at 9 o'clock.

Half past 10 A.M.—One cup of the blood taken at 7 A.M. is buffy, the other not; he has had two stools since admission; they are like rice-water. He complains of dreadful pain at scrob. cordis, and is crying aloud for drink; there is great anxiety. Pulse 132, fingers shrivelled, but the extremities are still warm; he voids no urine.

Repet. V. S. ad. ℥ x.
℞. Calomel. ℈ i.
Extract. Colocynth. Comp. gr. v.—misce fiant pil. ii. statim sumend.
Allowed 2 oz. of Cream of Tartar drink, every hour.

2 P.M.—Blood not buffy, had only one return of cramps since half past 10 o'clock. There is at present great anxiety; pulse 120 and soft: has had since last report, six copious watery conjee-like stools, in quantity at least 8 pints.

℞. Pil. Hydrarg. ℈ i.
Extract. Colocynth. Comp. ℈ ss.

Opii gr. i. misce et divide in pil. iv.
Two pills immediately, and repeated in two hours.

5 P.M.—By mistake the whole four pills were taken at once. He has vomited once since 2 o'clock, and had one pale-grey watery stool, with some flocculi of mucus floating in it. Belly soft and elastic. Pressure over the abdomen gives some pain. Surface generally warm; tongue warm and dry; pulse 116; he is anxious and moaning.

Apply 12 leeches to the belly.
℞. Calomel. ℈ ss.
Extract. Colocynth. Comp.
——— Hyoscyami. āā gr. iv. misce et divide in pil. ii. statim sumend.

7 P.M.—Has had one scanty, feculent, dark stool; pulse free, and there is less anxiety.

Repeat the last prescription, at 8 o'clock.

June 29th.—Had during the night, one watery stool, of pale grey colour; no

sleep. He is now tranquil, and suffers no pain; pulse 116 and soft; tongue dry, and of morbid brownish-red colour; edge of liver distinctly to be felt; pressure gives slight pain.

Apply four leeches to the region of the liver.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. misce fiant, pil. iii. statim sumend.
Ol. Ricini. ℥ i. at noon.
Tea and thin sago allowed.

Vesper.—Had four free, feculent, fluid stools, nearly black; pulse 108; skin rather cool; he is very thirsty; has no pain except in the calf of the right leg.

Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at bed-time.

June 30*th.*—Had one stool at night, which is not kept for inspection; pulse 84; tongue clean and moist at edges, but loaded, brown, and dry in the centre; skin cool; belly soft and elastic; edge

of liver to be felt as before: urine copious.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. in pills at 6 A.M.
Ol. Ricini. ℥ i. at noon.

After this he took a mild purgative daily.

In a few days more, there was increased tenderness in the region of the liver; for which reason he was bled to lb. i. and leeches were applied four times: and by these means he recovered. I was informed that this man had several feverish attacks during the voyage to India; but since his arrival in Calcutta he had been in good health, and lived on shore at the Captain's house; he was a sober man, of good character.

Discharged 10th July, 1830.

CASE IX.—Thomas Cavender, Æt. 30,

a sailor of the ship *Roxboro' Castle;* a stout and tall man, of dark complexion, recently arrived from England; admitted 26th October, 1830, at 8 A.M. Stated that he had been purged for three days; and worked hard in the ship's hold until yesterday. He began to vomit at 10 o'clock last night, and soon after had severe cramps in his legs and belly: the vomiting, purging, and cramps continue, and he has been purged often in the palankeen, while being brought to hospital. Pulse free and rather full, and he is warm; eyes blood-shot.

V. S. ad lb. i.
℞. Calomel. ℈ i.

10 A.M.—Blood not buffy, he is cooler and weaker; cramps moderated; the stools consist of water, of a dark-brown colour, with little feculence; pulse 96, and weak.

℞. Calomel. gr. xii.
Extract. Colocynth. Comp. gr. vi.

Ol. Menth. Pip. gtt. ii. to be taken in two pills now, and repeated in three hours.

4 P.M.—Has been purged four times; cramps returned, and he has pain in the loins; but is better in having the warmth restored, and less congestion of the eyeballs; pulse risen, and rather full. The vein was again opened and eight ounces of blood flowed.

He was very faint, and vomited after the bleeding; blood not buffy, it coagulated, but no serum separated.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v.—to be taken directly —and in half an hour let him have 3 oz. Port Wine with sago.

10 P.M.—The cramps continued till half past nine; he is warm and tranquil, but very thirsty; has had two dark-grey stools, moderate in quantity.

Oct. 27*th.*—He passed a restless night,

without spasms or vomiting; had much nausea, voided some urine; and had two fluid black stools, in quantity about a pint: pulse 86 and moderate; belly hot, full, elastic, and pained on pressure; tongue moist, cool, white, and very little loaded with mucus.

V. S. ad lb. i.

℞. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v. in pills at 6 A M.—and repeat at 10 o'clock.

Noon.—Blood buffy; he had one scanty loose dark-coloured stool, and seems better.

Repeat the pills now; and again at 3 P. M.

Vesper.—Had three free stools, and is better.

Oct 28*th.*—Had no sleep, but says he feels well; the tongue is warm, moist, and loaded with white mucus. One dark feculent stool, in moderate quantity.

℞. Extract. Colocynth. Comp. ℈ ss.
Calomel. gr. v. in pills at 7 A.M.
Ol. Ricini. ʒ ss. in Aquæ Cinnamon. ℥ i. at noon.

Vesper.—Had three dark, fluid, feculent stools; vomited the oil; suffers from pain at stomach and anxiety.

Apply four leeches to Epigastre.
℞. Calomel. gr. xii. H. S.

He was better on the 29th, but complained of some pain in head and chest, unattended with pyrexia; he took mild purgatives and had an enema which operated slightly: he passed a bad night. On the 30th October, he was feverish and had head-ache, for which reason six leeches were applied to the temples and four to epigastre: the head was shaved; and he was ordered to take

Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. in the morning.
Ol. Ricini. ʒ i. at noon—and
Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. at night.

9 P.M.—These medicines have produced two dark fluid stools; he is anxious, and cool; pulse low. Ordered to take

Pil. Hydrarg. gr. vi.—Opii gr. i.

He slept at night; had two fluid stools of natural colour; was cheerful and feeling well on the morning of 31st. In the evening there was some slight feverishness; and he took

Extract. Colocynth. Comp.
Pil. Hydrarg. āā. gr. v.
Opii gr. i. in pills at bed-time.

On the 1st November, he felt better and had slept, but had no stool; castor-oil or other purgative was given daily: his diet was gradually increased, and he was discharged well on the 14th November, 1830.

CASE X.—James Cawson, Æt. 23, a small man of light complexion, recently

arrived in Bengal: ill 12 hours before I first saw him, on his arrival at the Hospital, on the evening of 7th June, 1827. He was then suffering with violent vomiting and purging, the stools a clear water, not coloured in the slightest degree; he had no cramps; face flushed; pulse 92 and regular.

V. S. ad lb. j.
℞. Calomel. ℈ i. in pills.
℞. Opii gr. ii.
Spirit. Ammoniæ Aromt. ʒ i.
Aq. Menth. pip. ℥ i. misce—to be drank after the pills.

June 8th.—Blood slightly buffy: he had four stools during the night, which are watery and of a pale-grey colour; he is better; tongue clammy; pulse fuller; he feels weaker, and has inclination to vomit.

Apply 8 leeches to scrob. cordis.
℞. Calomel. ℈ i.
Opii gr. ii.—misce fiant pil. ii. statim sumend.
Ol. Ricini. ℥ ii. to be taken at noon.

June 9th.—He had three stools in the course of yesterday; and three this morning.

℞. Calomel.
Extract. Colocynth. Comp, āā ℈ ss. in three pills at 6 A. M.

Vesper.—Had two very free stools, and is improving.

℞. Calomel. ℈ ss.
Extract. Colocynth. Comp. gr. v.
Opii gr. ½—to be taken in pills at bed-time.

June 10th.—Had four brown watery stools in the night, says he is well, but his face is flushed; pulse 60 and soft.

℞. Calomel.
Extract. Colocynth. Comp. āā gr. v. at 6 A.M.
℞. Ol. Ricini. ℥ i. at noon.

He took a mild aperient daily, and was gradually improving till the 21st: when he appeared feverish, had a white tongue and flushed face. Pulse 88 and full.

V. S. ad lb. j.
℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A.M.
Pulv. Jalap. Comp. ʒ i. at noon.

This purged him freely; he took a purgative on the 23d, and was discharged well on the 28th.

CASE XI.—Pat. Whelahan, Æt. 27, H. M. 44th Foot, recently landed in Bengal. Was seized with purging early in the morning of the 22d May, 1827; but not sent to Hospital till 10 P.M. He then had cramps in the limbs; the purging and vomiting continued, and he had some pyrexia. Pulse 92 and free; face flushed; tongue little coated with white mucus.

V. S. ad lb. j.
℞. Calomel ℈ i.
Extract. Colocynth. Comp. ℈ ss.—misce fiant pil. iij. statim sumend.

May 23*d*.—Blood not buffy, he had three copious feculent loose stools; is

very weak and faint; tongue brownish and moist; cramps are still severe; pulse 98 and regular.

℞. Calomel.
Extract. Colocynth. Comp. āā ℈ ss.
Opii gr. i.—misce fiant pil. iij. statim sumend.
Ol. Ricini. ℥ i. meridie.

Vesper.—Had four scanty dark-brown stools, and vomited once during the day; he is warm and tranquil; has some pain at the navel.

V. S. ad lb. j.
Blister to the belly.
℞. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

May 24*th.*—Had four stools in the night, and he is better; still has some pain in the belly. Pulse 86 and soft; blood not buffy.

℞. Extract. Colocynth. Comp. gr. v.

May 25*th.*—Pain in the belly remains,

with slight pyrexia and flushed face; pulse frequent; tongue hot.

V. S. ad lb. j.
℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A.M.
℞. Ol. Ricini. ℥ i. at noon.

May 26th.—The blood last drawn was buffy, and separated a moderate quantity of serum. He was freely purged, and is much better in every respect. After this date, a small dose of rhubarb was given every morning, and he gradually improved. Was discharged on the 4th June, 1827.

In the month of May 1827, the number of cases of Cholera received into the General Hospital was 149; of whom the greater number were attacked with the disease within ten days of this man's admission.

Case XII.—Wm. Morris, Æt. 21, a middle-sized man, of light complexion,

recently arrived in India, was seized with vomiting, purging, and cramps in his legs, at noon, on the 22d August 1830, which symptoms continued when he was seen at 2 P.M.; his pulse was then 102 and rather small; he was perspiring profusely, and the skin was cold, but his tongue was warm, clammy, and nearly clean; he experienced great thirst and anxiety, and felt very weak.

V. S. ad lb. j.
Capt. Calomel. ℈ i. in Pil. ij. statim.

6 P.M.—He was faint, when only ℥ xii. of blood flowed, which was not buffy when it had cooled: vomiting and purging have ceased; he has had no cramps for the last 20 minutes; anxiety remains, but his skin is warm, and he perspires less. Belly hot, inelastic and doughy.

℞. Calomel.
Extract. Colocynth. Comp. āā ℈ ss.—misce fiant pil. iij. statim sumend.
Enema Purg. statim.

8 P.M.—The Enema has produced no stool. Cramps in his legs have returned; there is increase of heat on the surface, and slight perspiration on the face.

The vein was again opened; and when 14 oz. of blood had flowed, he became faint, and the perspiration increased.

℞. Ol. Ricini. ℥ iss.

11 P.M.—He is very weak; pulse 116 and hardly to be felt; the surface is cool, and he is suffering from great anxiety; tongue warm. He has had one copious stool, of pale yellow colour.

To have Port Wine ℥ iij. with as much hot sago.

℞. Calomel. ℈ i.
Opii gr. i.—misce fiant pil. ij. statim.

August 23*d*.—Had cramps nearly all night, pulse 108 and weak, tongue clean and rather dry: he vomited once since 11 o'clock, and had a scanty fluid brown stool, not 3 oz. in quantity.

℞. Extract. Colocynth. Comp.
Calomel. āā ℈ ss.—misce fiant pil. iij.—to be taken at 6 A. M.—and Castor Oil ℥ i. at 10 o'clock.

3 P.M.—Had two free fluid stools; the belly is hot, and he has some pain below the navel. A small cup of sago allowed.

Apply four leeches to the belly.
℞. Extract. Colocynth. Comp
Pil. Hydrarg. āā gr. v.—misce fiant pil. ii. statim sumend.

9 P.M.—Pulse 106; he is free from pain, but feels very weak: has had another copious fluid stool, nearly black. Give 1½ oz. of Port Wine, with 3 oz. of thin and hot sago.

August 24*th*.—He slept, and is much better; had one stool of the same appearance as the last. Diet—tea, bread, and sago.

℞. Pil. Hydrarg. gr. v.
Extract. Colocynth. Comp. ℈ ss.—misce fiant pil. ii. statim sumend.

The above medicine produced free stools, and he was convalescent next day. A mild purgative was given daily till the 3d September, with the exception of only two days. His recovery was progressive until the 27th August: he then for the first time ate some meat, and was feverish next day: therefore a reduced diet was enjoined for several days longer.

The bad effects of premature use of animal food, were very evident in this instance. In all cases of Cholera, where febrile or inflammatory symptoms have existed, the same caution is requisite as to the food used during convalescence as in ordinary cases where patients are recovering from gastro-enteritis.

Case XIII.—George Mogg, Æt. 20, a middle-sized lad, of light complexion; recently arrived in Bengal: received into the General Hospital at 7 P. M. June 7th, 1827. Has been affected during the

whole day with purging and severe cramps in the legs. Pulse feeble and frequent; skin cold; he is suffering much from pain all over the belly, and has head-ache,

V. S. ad ℥ xx.—He was ordered to take immediately.

Calomel ℈ i. in pills: and at the same time the following draught:

℞. Opii gr. ij.
Spirit. Ammoniæ Aromat. ʒ i.
Aquæ Menth. Pip. ℥ ii. misce.

June 8th.—Blood buffy, very little serum separated. He had several feculent stools in night, of light-grey colour, and feels better; but still has head-ache, and there is pain in the belly, increased on pressure; no morbid heat of skin. Pulse frequent but more free, tongue clammy.

Apply 16 leeches to the belly.

℞. Calomel. ℈ i.
Opii gr. i. fiant pil. ii. statim sumendæ.
Capt. Olei Ricini ℥ ii. meridie.

Vesper.—He has had numerous free

feculent stools, and feels better: tongue white.

℞. Calomel.
Extract. Colocynth. Comp. āā ℈ ss.
Opii gr. i. fiant pil. iij.—H. s. sumend.

June 9th.—Had one scanty mucous stool, at night. Pain in the belly continues: tongue white.

Capt. Ol. Ricini ℥ i.
Apply 16 leeches to the belly.

He took Castor Oil daily on the 10th and 11th June; on the 13th, was considered convalescent, and meat diet allowed.

On the 19th June, he was attacked with fever, and head-ache: and the bowels were not sufficiently free; pulse frequent but not very full. Diet reduced to tea and bread.

V. S ad lb. j.
Apply ten leeches to the temples
℞. Pulv. Jalap. Comp. ʒ i.

Vesper.—Blood buffy; head easier, but he is still feverish and thirsty; he was purged five times in the course of the day.

R. Calomel. gr. v.
Extract. Colocynth. Comp. gr. xii.
Pulv. Antimon. gr. iij.—misce fiant pil. iij.
H. S. sumend.

June 20*th.*—Vomited twice, and had eight stools at night; he is now suffering from pains in his legs and thighs; pyrexia somewhat abated.

V. S. ad lb. j.
R. Extract. Colocynth. Comp. ℈ ss.
Calomel. gr. v. in pil. ii. statim.

June 21*st.*—Blood buffy; he was freely purged; no pyrexia remains. After this, he was purged with Castor Oil, and on the 28th June, discharged to join his Regiment. The evil consequences produced by a premature use of animal food, were evident in the febrile and inflammatory condition, which took place on

the 19th June; requiring active depletion and a return to low diet.

Case XIV.—Joseph Bowdem, Æt. 19, a sailor of the French Ship *Victorine*, admitted into General Hospital 25th October, 1830, at half past 6 A. M. A slight-made lad, of light complexion; sailed from France twenty-two months ago, and has been to Peru, from whence he arrived in the river Hooghly fifteen days ago; and has been working hard in landing the ship's cargo, which is of copper. He had a diarrhœa for a fortnight, which ceased for two days, and returned last night, with the addition of cramps in his limbs and vomiting. He is now in the act of vomiting the crude remains of food. Skin covered with a cold sweat; pulse 120 and weak; tongue warm, moist, and nearly clean; he is very pale, and has some oppression at chest. The cramps are at present severe in his feet and legs.

V. S. ad lb. i.

℞. Calomel. ℈ i.
Opii gr. ii.—misce fiant pil. ii. statim sumend.

8 A. M.—He was weak and faint when only 12 ounces of blood had flowed; it is black and not buffy, but a coagulum has formed, and the serum is bloody. Has had two brown, watery stools, about lb. iss. in quantity; has not vomited; he suffers from great anxiety and desire for drink. Pulse weaker.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. misce fiant pil. iii.—to be given at 9 o'clock.

2 P. M.—Has had one scanty stool, like barley water; vomited very often; cramps have ceased. He is cold and feeble; tongue white, cold, and moist; pulse 122, and very weak. He is thirsty, and appears stupid.

℞. Calomel. ℈ i.—Pulv. Jalap. Comp. ʒ i.
Pulv. Scammon. Comp. (Ph. Ed.) ʒ ss. to be given now, mixed in treacle.

6 P. M.—Had one scanty watery stool, almost white; vomited several times, and suffers from cramps in his legs and fingers.

Half past twelve at night; he has had one pale-grey fluid stool, and vomited twice since 6 P. M. Pulse low, weak, and rapid; voice pectoral. He is torpid at times, and then lies in a restless state for a few minutes: fingers shrivelled, but there is not much perspiration except on the face; extremities cold and damp; he is certainly worse. Ordered to take three ounces of Port Wine with sago.

October 26th.—Slept after the sago and wine; he is now cheerful and warm; the tongue is warm, moist, and white; pulse stronger: he has had two stools, chiefly of a dark-grey colour, but a part of the evacuations nearly black. Diet—tea, and sago with wine.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. in two pills, to be taken at 7 A. M. and repeated at 10 o'clock.

4 P. M.—Free from cramps; the skin cold, pulse low and weak; he has had two scanty, black, paste-like stools. Repeat two pills such as ordered this morning.

Half past 9 P M.—Pulse feeble and frequent, hands cold, tongue white, cool, and moist: since 4 o'clock he has had two free fluid stools, like gruel in consistence, but black.

℞. Calomel. ℈ ss.
Extract. Hyoscyami. gr. vi. in pills H. S.

Oct. 27th.—Had one scanty stool, like that last reported, but has not vomited, or had any cramps: hands cold, pulse 110, and he craves anxiously for drink.

℞. Ol. Ricini ℥ i. statim sumend.
℞. Pil. Hydrarg.

Extract. Colocynth. Comp. āā gr. v. in pills, at noon, and repeat at 3 P. M.
Diet of tea, bread, and sago, with 3 oz. of Port wine.

8 P. M.—Had two dark fluid stools, moderate in quantity, and thinks he is better.

℞. Calomel. ℈ ss. H. S.
Madeira Wine, three ounces, with Sago.

Oct. 28*th.*—Slept; had two scanty black stools during the night: one more free evacuation this morning, of yellow colour. He is better; the hands warm, pulse feeble, and mouth slightly sore from mercury.

Ordered to take Calomel. gr. v. at 7 A. M.
Ol. Ricini—Aquæ Cinnamon. āā ℥ i. at noon.

Vesper.—Pulse improved; face livid, and eyes very dull; he has had two free loose stools, is warm, and feels better.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v.

At 9 P. M.—He was anxious, low, and colder.

R. Pil. Hydrarg. gr. vi.
Opii gr. ss. misce fiant pil. H. S. sumend.

Oct. 29th.—He slept, and is better; had one stool: mouth sore; tongue moist, and coated in centre with white mucus. After this; a slight feverish condition remained for several days, and he took some purgative daily. On the 2d November, he was troubled with an eruption on the skin, resembling urticaria. Mild purgatives were continued, and his food very gradually increased.

Discharged well on the 10th November.

CASE XV.—Peter Mathews, Æt. 23, of middle size, and dark complexion; recently landed from Europe: was taken ill on the morning of 19th November, 1830, with purging and vomiting; which

continued when he was admitted into General Hospital, at 5 P. M. He was then warm and had a soft free pulse, no cramps.

V. S. ad lb. iss.
℞. Calomel. ℈ i.—Opii gr. ss. statim sumend.
℞. Calomel. ℈ i.—Extract. Colocynth. Comp. ℈ ss.
Opii gr. ss. to be taken in pills at 10 P. M.

Nov. 20*th.*—Blood not buffy, and the surface of the cruor is florid; he vomited three times, and was purged often during the night; the stools are tinged with bile. Pulse 112, and very weak; he suffers from great anxiety and thirst; tongue cool, white, and dry; skin nearly cold.

℞. Calomel. ℈ i.—Opii gr. i. in pills at 6 A. M.
Diet—Tea, and hot Sago with some Brandy.

2. P. M.—No stool or vomiting since the morning. Pulse low and weak; he is cold, and sinking.

℞. Calomel. ℈ i.
Extract. Colocynth. Comp.—Asafœtidæ āā gr. v.
Ol. Cinnamon. gtt. ii. to be taken in two pills now. Sago and Brandy repeated.

5. P. M.—Had five stools, partly watery and black, partly feculent. Repeat the pills at 5 and again at 8 o'clock.

10 P. M.—Had ten free, dark, and feculent stools; perspires, and is very faint.

℞. Pil. Hydrarg. gr. vi.—Opii gr. i. in a pill now.

Nov. 21*st.*—Slept after 3 A. M. and is better; had no stool. Pulse 98 and soft. Diet—tea, bread, and sago.

℞. Extract. Colocynth. Comp
Pil. Hydrarg. āā gr. v. at 6 A. M
Ol. Ricini ℥ i. at noon.

Vesper.—Had four free, fluid, dark stools, after the oil; feels very weak; tongue cold, but the extremities are warm; pulse free and natural.

R. Pil. Hydrarg. gr. vi.—Opii gr. i.

Nov. 22*d.*—Had more dark-grey fluid stools in night, moderate in quantity: the surface of his body is warm and pulse free; tongue continues cool, moist, and much loaded with grey mucus.

R. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v.

After this, he took a purgative daily. Was feverish, and had a pain in chest on the 26th, for which he was bled, and a purgative of Jalap used. Discharged well on the 29th November.

Case XVI.—Daniel Watson, Æt. 25, a sailor of the ship *Bridgewater*, admitted 2d June, 1830, at 6 P.M. A tall thin man, of light complexion, ill two days with vomiting and purging. He is now in the beginning of collapse; pulse feeble, 96, and soft; he is covered with a profuse perspiration; vomits water, which he has just drank. Purging, a

grey watery fluid. Eyes blood-shot; belly full, doughy, and inelastic; tongue clean, moist, and of morbid red colour. Has cramps at the pit of stomach now, and had cramps in the soles of his feet three hours ago.

℞. Calomel. ℈ i.
Extract. Colocynth. Comp. gr. vi.
Ol. Menthæ. Pip. gtt. ii. in two pills.

June 3*d*.—Vomited twice; and was purged five times; the circulation is more free; face flushed; the tongue of morbid red colour at edges, a little white in the centre, and rather dry; stools a conjee-like fluid, with some pale-grey powder at the bottom of the pan.

V. S. lb. i.
℞. Calomel. ℈ i.—Extract. Colocynth. Comp. gr. vi.
Ol. Menth. Pip. gtt. ii. in pills at 6 A.M.
Ol. Ricini ℥ i. at noon.

Vesper.—Has had four dark fluid stools, and he is better. Blood slightly

buffy, it has separated a very small quantity of serum.

℞. Extract. Colocynth. Comp.—Pil. Hydrarg. āā gr. v. misce fiant pil. ij. statim sumendæ.

June 4th.—He has had four copious, dark stools during the night; and has now some pain in the region of the liver.

Apply eight leeches to the region of the liver.

℞. Extract. Colocynth. Comp. ℈ ss.—Pil. Hydrarg. gr. v.

June 5th.—Has had seven stools, and is better.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. at 6 A.M.
Ol. Ricini ℥ i. at noon.

After this a course of mild purgatives was followed, and he soon recovered good health.

Case XVII.—George Patch, Æt. 24, H. M. 16th Lancers, admitted into General Hospital on the 18th November 1830, in the evening. A tall thin man, of light complexion, recently landed from Europe: ill one day, with purging and slight fever; has voided no blood.

V. S. ad lb. iss.

℞. Ext. Colocynth. C.—Pil. Hydrarg. āā ℈ ss. statim.

Nov. 19*th*.—Blood florid and not buffy; he fainted when 8 oz. of blood had flowed; had six stools in night, which have not been kept; he is now cool and weak; pulse softer and natural; belly flat and hard, the abdominal muscles tense.

℞. Calomel. ℈ ss.
Extract. Colocynth. Comp. gr. v. statim sumend.
Apply six leeches to the epigastrium.

1 P.M.—One copious stool, like bar-

ley-water; eyes blood-shot, skin hot; has not vomited. Pulse 92 and free; face flushed; tongue white, moist, and warm.

V. S. lb. i.
℞. Calomel. ℈ ss.—Extract. Colocynth. Comp. gr. v. now.

Vesper.—Fainted after the V. S. The blood is not buffy; he has had two stools. The tongue is cold, moist, and white; pulse weak: he suffers from anxiety, is pale and low; and has the Cholera visage.

℞. Calomel. ℈ i.—Extract. Colocynth. ℈ ss. Opii gr. ½, now, and repeat at 10 o'clock.

Nov. 20th.—Two stools during the night, and he feels better; the evacuations are watery and of dark colour; the right eye is still blood-shot, and there is slight morbid heat of skin.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. at 7 A.M. and repeat at noon.

5 P.M.—He has had two stools, consisting of a dark fluid feculence; and is better.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. now, and repeat at 10 o'clock.

Nov. 21*st.*—He is improving, and has had several scanty, fluid, dark stools; surface of body warm; but the tongue is cool.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. at 7 A.M.
Ol. Ricini ℥ i. at noon.

Vesper.—Much better; three free stools.

Nov. 22*d.*—One stool in the night, a whitish mucus, not in large quantity; he is warm and seems better; more arterial congestion of right eye. Pulse soft and free.

℞ Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 7 A.M.

Vesper.—Better; two stools.

Pil. Rhei. Comp. gr. vi.

Nov. 23*d.*—Has had one free, fluid, dark stool; he is rather better.

Pil. Rhei. Comp. gr. xii. at 7 A.M.
Ol. Ricini ℥ ss. at noon.
Pil. Aloes Comp. gr. v. to be taken at bed-time.

Nov. 24*th.*—Better.

Ol. Ricini ℥ i.

Vesper.—One stool; he is gradually recovering. After this he took a purgative daily and was discharged well on the 29th November.

The morbid vascularity of one eye, in this case, was very remarkable: the left eye was slightly red on the 19th, while the right was injected with florid red

blood, to a most intense degree; and continued in that state, long after the redness of the left had entirely subsided. I have seen children suffering from Cholera, with very obscure inflammatory symptoms, in whom the cornea of one eye became dull, and an ulcerated grove formed at the lower segment of the cornea; by which the humours were evacuated before death.

Case XVIII.—John Dempsey, Æt. 20, a very muscular lad, of dark complexion, recently arrived in Bengal, was attacked with vomiting and purging at 10 A.M. on the 26th March, 1826; for which he was bled from the arm, and took two small pills; but does not know their composition. His complaints continuing to get worse, and, being attended with other bad symptoms of Cholera, he was sent to General Hospital, where he arrived at 7 A.M. on the 27th March; his countenance was then sunk and

ghastly (the true Cholera visage). Pulse 80, and weak; he suffered from extreme thirst, and had pains in his legs; some pain on pressing over the belly: skin cool and lax; tongue cool, clammy, moist, and brownish.

V. S. ad ℥ xx.
℞. Calomel. ℈ i.
Extract. Colocynth. Comp. ℈ ss. misce fiant pil. iii.—to be taken now, and repeated in 1½ hour.

As the patient appeared fast approaching a state of torpor from obstructed circulation, and the blood only came from the orifice in the vein by drops; 20 leeches were applied to the belly, and they filled very slowly: at the same time by pressing and rubbing the arm, the blood continued to drop from the vein for nearly two hours; and 20 ounces were collected in the cup.

At 10 A.M.—He is suffering from great anxiety and thirst; has a brown dry

tongue; the extremities are cold; pulse 110 and feeble; he has not vomited or been purged since admission.

℞. Ol. Ricini ℥ iss.
Aquæ Cinnamon. ʒ iv.—misce; to be taken now, and repeated at 1 P.M.

4 P.M.—Pulse more distinct, but still low and feeble; the feet are cold, tongue brown and dry: he has very little uneasiness on pressing over the belly; has neither vomited, nor been purged since he came to hospital.

Apply 30 leeches to the belly, and a large hot poultice after their removal.
℞. Ol. Croton. gtt. iv.
Ol. Ricini.—Ol. Terebinth.
Magnesiæ Sulphatis āā ℥ i.
Decoct. Oryzæ. lb. i. misce, fiant enema.

6 P.M.—Much in the same state as last reported; has had two, copious, fluid, grey stools.

Capiat Ol. Ricini ℥ iss. statim.

Directed to drink 3 oz. of thin and hot sago afterwards.

Apply sinapisms to the feet.

March 28*th*.—Appears better, the anxiety and restlessness have ceased, the eyes are less sunk, and he has no pain if the belly be pressed; the extremities are warm, and pulse somewhat revived, but still low and soft. The tongue continues brown and dry, and he suffers from extreme thirst. Has had two copious, grey, feculent, fluid stools.

R. Ol. Ricini ℥ iss.

Aquæ Cinnamon. ℥ ss.—misce; to be taken at 6 A.M. and repeated at 11.

An Enema, such as ordered at 4 P.M. yesterday, is to be given at 6 A.M. and repeated at 11.

Vesper.—He had two, copious, loose, grey stools; skin warm, tongue moist and brown: pulse 110 and soft. The Cholera visage is no longer present.

Repeat the Castor Oil ℥ iss.; also the Enema as at 11.

March 29*th*.—He is easy and cheerful: pulse 98 and soft; tongue cleaner, but still rather dry, and little coated with grey mucus; had three copious stools of bright bilious yellow colour.

Ol. Ricini ℥ i. at 6 A.M.
Enema as before, to be given at noon.
Tepid Bath.

He remained feverish for several days; and required purgatives to be repeated daily, until the tongue became clean. He recovered, and was discharged from hospital on 17th April. Although this man was apparently so much oppressed and low; the pain on pressure over the belly, on admission; and the dry brown tongue afterwards: shewed the existence of an inflammatory condition, for which depletion was the only proper treatment.

The next case affords an example of the difficult and unmanageable state of disease, which exists in those cases where Cholera is preceded by a diarrhœa of several days duration. This patient shewed some signs of re-action, after being a few hours in Hospital; and his actual condition then, if abstractedly considered, might have been deemed much more favourable than Dempsey's case: but it verified the observation I have often before had occasion to make, regarding the dangerous nature of those cases, which patients denominate a common bilious attack; more especially if it occur at a time when Cholera is frequent in the vicinity.

Case XIX.—Pierre Francis Poussadore, Æt. 37, a French sailor, arrived in the river fifteen days ago, from Peru; and has worked very hard in unlading the ship, which brought a cargo of copper. Had diarrhœa for five days past: he

was seized with vomiting and cramps in his legs, at noon on the 24th October, and was brought to the General Hospital at 10 P.M.; he was then in the act of vomiting, his pulse feeble, surface cold, tongue cool, skin of his hands shrivelled, respiration hurried, and voice weak and pectoral: thirst extreme.

R. Calomel. ℈ i.

Confect. Aromat. ʒ i. To be mixed with a little treacle and given directly. To take in two hours after.

Ol. Ricini—Aquæ Cinnamon. āā ℥ i.

October 25th.—No sleep; and no stool during the night: he vomited about an hour after taking each dose of medicine, and at two other times in the night; has occasionally cramps in the fingers and toes. Pulse 92 and free; face little flushed; skin warm; tongue rather dry and brown. He suffers exceedingly from anxiety and restlessness; voice continues pectoral, and he is quite

frantic and unmanageable, calling constantly for drink.

V. S. ad lb. i.

℞. Calomel. ℈ i.

Confect. Aromat. ʒ i. to be taken at 7 A.M.

Ol. Ricini ℥ i. at 10 o'clock.

To take Sago with 3 oz. of Port Wine at 11 A.M.

Extract. Colocynth. Comp. gr. xii.

Pil. Hydrarg. gr. vi. in three pills at noon.

At 2 P.M.—The cramps have ceased. Blood drawn in the morning not buffy; circulation lowered; he had two scanty white stools like flour and water; he is cool, and says he feels himself better,

℞. Calomel. ℈ ss.

Pulv. Jalap. Comp. ʒ i. to be taken in treacle.

At 6 P.M—Had no stool; thought himself rather better, but he was colder.

At half past 12 at night, had one scanty stool, like that last reported; no

return of cramp, but the pulse is very feeble, and voice pectoral; skin nearly cold, and he appears anxious, low, and weak.

To take Sago and three ounces of Port Wine.

Oct. 26th.—Slept for three hours, and says he feels much better; has no pain; tongue little furred and brown, but warm and moist.

℞. Extract. Colocynth. Comp.
Calomel. āā gr. v. at 6 A.M. and repeat at 10 o'clock.
Ol. Ricini ℥ i. at noon.
To have 3 oz. of Port Wine in hot Sago.

At 4 P.M.—Had two, black, paste-like stools; moderate in quantity; tongue brown and moist: he appears better, but is still cold.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. in three pills now.

At half past 9 P.M.—Has had a very scanty black stool, in quantity not ℥ ss. Pulse feeble and unsteady; tongue moist, brown, clammy, and cool; voice pectoral; hands shrivelled, and covered with a cold sweat.

℞. Calomel. ℈ i. in pills.
To take 3 oz. Port Wine in hot Sago.

Oct. 27*th.*—Had one scanty figured stool; not ℥ i. Pulse 110; he suffers from urgent thirst, and inclination to vomit; surface cold. He has a troublesome cough, and copious mucous expectoration.

℞. Pulv. Jalap. Comp. ʒ i.
Tinct. Sennæ ʒ ii.
Aquæ Menth. Pip. ℥ i.—misce, to be taken at 7 A.M.

Noon.—Vomited once, and had one scanty stool, like the last: he is cold, weak, and the extremities are perspiring; tongue cold, moist, and white.

Habeat Enema Purg. statim.
℞. Ol. Ricini ℥ i.
Cum Tinct. Sennæ ʒ ii.

3 P.M.—Nothing voided but the enema: tongue cold, very brown in the centre, a narrow red clean streak at its edges. Increased anxiety; he is eagerly calling for water, and at times delirious,

℞. Calomel. — Pulv. — Scammon. Comp. (Ph. Ed.) āā ℈ i.
To be taken in treacle.

8 P.M.—Had one scanty black mucous stool; says he is better, but appears weaker; surface cold, and pulse hardly perceptible.

℞. Calomel. ℈ ss.—Extract. Colocynth. Comp. gr. v.
Opii. gr. ½ in pills.—1½ oz. Brandy in hot Sago.

Oct. 28*th*, 5 A.M.—He has had one scanty stool, like tar; pulse hardly perceptible: he is quite cold, and slowly

sinking; cough and expectoration very troublesome in the night.

℞. Calomel. ℈ i. in Sugar.
℞. Pulv. Scammon. Comp. ʒ ss.
Pulv. Jalap. Comp. ʒ i.
Tinct. Sennæ ʒ ii.
Aquæ Menthæ ℥ iss. misce, to drink after the Calomel.

At 8 A.M.—Indifferent and torpid; no stool. Sago and wine was given; also an injection of four pints hot water with the pump: which was repeated in an hour and brought away some flocculi of white mucus.

Died—at half past 9 o'clock.

Dissection, at 4 P. M.—Subject emaciated. Stomach and small intestines contracted, the former pale, the latter of dull lurid colour: a quantity of water in the stomach, much pale grey mucus and yellow bile in the small intestines. Colon and rectum pale, thin, and flaccid: liver

slightly enlarged, soft, and a few small pale-grey patches on its surface. Much venous conjestion of the lungs, and thick mucus in the air tubes : no other disease observed.

This man belonged to the French Ship *Victorine*, and the history of the Cholera on board that vessel was most lamentable : she was twenty-two months from France, having first made the voyage to Peru; and brought a cargo of copper from thence to Calcutta, where she arrived in October. Her crew, consisting of Frenchmen, worked hard for fifteen days in landing the copper, and during the greater part of that time many of the crew suffered from diarrhœa ; which was ascribed to drinking the Ganges water, when heated at work : they had all been on shore once or oftener. Several of the men without any evident cause became suddenly much more purged before mid-day, on the 24th October, and gra-

dually sunk into a low state, in which they derived no benefit from any of the remedies tried on board. Nine men were therefore landed: one of whom died while being carried on shore, and another was found insensible and dying when he was taken out of the palankeen at the Hospital. The rest were admitted in an advanced stage of collapse, and four more of them died of the disease. The loaded state of the mucous membrane of the bronchial tubes and air cells, was less distinctly marked in the others who died than in this case. The appearance of re-action on the 25th induced me to use the lancet, and although the force of the circulation was lowered by the bleeding, I would willingly have repeated the V. S. in hopes of giving more freedom to the circulation, but the man refused to submit to it. The progress of the sinking after the blood was drawn, though not rapid, was regular and undeviating. The general character of the attacks of Cho-

lera on board this man's ship, was most distinctly of the low kind, tending to fatal termination with little re-action: and we are never certain of benefit from bleeding in these cases; on the contrary, we have evidence that in such forms of the disease, V. S. is very frequently injurious, and seems to shorten life.

At pages 64 and 65, I have endeavoured to point out the general character of Cholera, attended with febrile and inflammatory symptoms, such as existed in the cases that have been detailed; in which, all the worst appearances are usually moderated by the use of the lancet; and cured by a system of depletion, regulated according to the severity of the symptoms. In the foregoing cases, wherever the state of the blood which was drawn is merely reported *not buffy*, it is to be understood that there was about the usual quantity of serum separated, and that the surface of the cruor did not

materially differ from the ordinary appearance of venous blood drawn from persons in health.

Blood-letting frequently Injurious in congestive Cholera.

In almost all the foregoing cases, Blood-letting seems to have been decidedly useful; in some by removing congestion, and in many others by reducing pyrexia, and obviating early local inflammation: or by subduing the inflammation arising at remote periods. Still, to advise the use of the lancet in all cases of Cholera, would often lead to disappointment; as happened in some of the succeeding examples, in which the early collapse, and general character of disease alluded to at pages 67, 86, and 69 existed; and in which it is often difficult to procure blood from a vein. But in many of the cases where blood will flow, the

system is lowered, and all the important symptoms aggravated. The fact is, that in this low form of the disease, which frequently prevails at the early stage of an Epidemic attack; we can often get as much blood from a vein, as does harm: and might almost always procure blood from the larger arteries; if the principal desideratum were simply to unload the vascular system. We are apt not to distinguish the low state, at the onset of the disease; from the collapse which supervenes on the latter stages of the febrile Cholera, when the patient dies because he was not bled early: while in the other form of the disease, he dies more quickly, because he was bled at all. We sometimes meet with cases of a mixed character, which are difficult to distinguish. The condition of the patient (Holt) in the next case, seemed fully to justify the use of the lancet; in fact the morbid sensibility of the belly on pressure, with warmth of surface and spasms; at so early

a period after the commencement of symptoms of the disease, seemed to demand the loss of blood: still the first effects of the depletion were unfavorable, and its ultimate result destructive. A large proportion of the Cholera cases which commenced within a day or two of this man's attack, proved fatal, by the rapid accession of coldness and collapse.

Case XX.—W. Holt, H. C. Artillery, Æt. 20, of middle size and light complexion, recently arrived from Europe, and landed from the Ship *Thames* five days ago Admitted into General Hospital, at half-past 2 p. m. on the 20th May 1826: affected with vomiting, and a purging of a pale and almost clear watery fluid. He vomited the instant he was taken from the doolie and placed on a bed; and was then suffering from cramps in his legs: the skin was warm; pulse 122, soft and low; tongue warm, moist, and white; belly rather full and doughy,

pressure over the abdomen was painful, and he complained of ardent thirst. His illness commenced at 10 A. M. with a simultaneous vomiting and purging, for which he took medicine in the Fort.

V. S. ad ℥ xx. statim.

Twelve ounces of blood flowed in a stream; the rest was obtained by pressing the arm. The vomiting recurred while the blood was flowing: at the same time the pulse sunk, and became imperceptible, and could never be distinctly felt afterwards.

A large blister was applied to the belly.

Calomel ℈ i. was put on the tongue in powder; and washed down with the following mixture.

Tinct. Opii ʒ i.—Tinct. Sennæ. ʒ iv.

An enema was ordered, composed of

Ol. Terebinth.—Ol. Ricini—Magnesiæ Sulph. āā ℥ ii.

Ol. Croton. gtt. iv.—Aquæ Tepid. ℥ x.

4 P. M.—Has vomited several times, and purged once, a watery fluid as before; he lies in a state of extreme anxiety, the surface livid and cold; fingers shrivelled, eyes sunk, and pulse not to be felt.

After this, no medicine remained many minutes on the stomach. Calomel combined either with purgatives, or with opium, was quickly rejected. The enema was repeated, and we attempted to alleviate the torpor of the venous circulation in the extremities, by keeping people constantly employed, with warmed hands, to champoo and rub the whole surface of the body. Brandy with hot water, and hot sago, were repeatedly given, and every means tried to restore the circulation, but without effect. The fulness of belly was decreased; and on pressure the gurgling of fluid in the intestines was very evident. His coun-

tenance remained ghastly and sunk, and his expressions were incoherent at eight o'clock. He died at half-past 9. It was exceedingly distressing to see a patient sink so rapidly, and the pulse fail so immediately on the abstraction of blood, as to leave no doubt that the treatment was injurious. I have seen several cases of a similar description, where the abstraction of blood decidedly did harm, in the early stage of pure congestive or blue Cholera: but in this instance, the warmth of surface, with morbid sensibility of belly when pressed, and the existing spasms, seemed to afford reasonable hope that V. S. would be beneficial.

Case XXI.—Thos. Marren, Æt. 50, a sailor of the Ship *Bridgewater*. Admitted into General Hospital, 3d June 1830, at 10 A.M. A large and muscular man, of dark complexion: was taken ill at 8 o'clock last night with cramps in his legs and belly. Vomiting and purging

began at 1 o'clock this morning; and he says he was bled to a basinful (probably a pint) at 4 A. M.; but has not taken any medicine. On admission at 10 o'clock, the fingers were shrivelled; surface cold; tongue cold, clammy, and pale; eyes sunk; pulse 162 and very weak; he was exceedingly restless, and suffering from cramps in his legs and hands; vomiting and purging a watery fluid, and calling aloud for drink. The belly was flat, doughy, and inelastic.

V. S. ad ℥ xv.

℞. Calomel. ℈ i.

Extract. Colocynth. Comp. gr. vi.

Ol. Menth. Pip. gtt. ii. To be given in pills now; and repeated every hour, for four doses.

℞. Spirit. Ammoniæ Aromat. ʒ i.

Aquæ Tepid. ℥ ii.—misce, to be drank after each dose of the pills.

2 P.M.—Blood not buffy; he has had one scanty stool resembling barley-water, but no vomiting since the bleed-

ing, The pulse is not perceptible; otherwise he remains much in the same state; cramps at times violent; extremities cold.

A hot-water blister was applied to the scrobiculus cordis, and another to the centre of the spine.

No favourable symptom occurred, and he died at 5 P.M.

Dissection. — Fourteen hours after death, and 21 hours after the commencement of the disease. Venous congestion of the brain, some milky serum effused between the arachnoid and pia mater, at the upper part of the hemispheres;—and ʒ iiss. of serum in each lateral ventricle. Nearly an ounce of serum beneath the tentorium, some of which extended down the spinal canal.

An opaque patch on the anterior part

of the heart, evidently not the result of recent disease. Liver rather large, soft and unctuous, its surface slightly mottled. Two very white patches on the surface of the liver near the ligamentum suspensorium, from effusion of coagulable lymph beneath the peritoneal coat; these are each the size of half a rupee, and evidently not the result of recent disease.

Gall-bladder distended with bile of a pale dirty green colour. The cystic duct not one-fifth of the usual size, and it arose from nearly half way up the side of the gall-bladder. Omentum and small intestines very vascular; the coats of the latter, as well as of the stomach thickened, the interior of both lined with a thin pale-grey fluid, of the consistence of thin mucilage.

Case XXII.—Thomas Holme, Æt. 45, a sailor of the Ship *Bridgewater*, was

admitted into General Hospital at noon on the 8th June, 1830. A stout man, of light complexion; has been drinking spirits intemperately: seized with vomiting and purging, and cramps in the legs at 4 A.M. These symptoms continue, with a flushed face, and pain in stomach and right side. Pulse frequent and full, body warm, feet cold; tongue white, moist, clammy, and warm.

V. S. ad. lb. iss.

℞. Calomel. ℈ i.—Extract. Colocynth. Comp. ℈ ss.

Ol. Cinnamon. gtt. iv. in three pills. To be taken now.

℞. Spt. Ammon. Aromat. ʒ i.

Aquæ Tepid. ℥ i. misce,—to drink after the pills.

Half past 1 P.M.—The bleeding made him faint: blood buffy, and much cupped, pain alleviated; he is cold and appears to be sinking.

Pills repeated. Hot brandy and water to be given.

Half-past 2 P.M.—Vomited once; but has had no stool.

Repeat the pills, with addition of one drop of Croton Oil.
Also let him have a purging Enema with Ol. Terebinth. ℥ ss. and repeat it in half an hour.

Half-past 3 P.M.—He had two copious, dark-green, fluid stools, after the second enema; he is now warm and more tranquil; has cramps in the feet, but has not vomited in the last hour.

℞. Ol. Ricini ℥ i. Ol. Menth. Pip. gtt. iv. Sacchari ℈ i.—Aquæ Font. ʒ iv. misce—to be taken now, and repeated at half-past four.
Turpentine Liniment to be rubbed to the extremities.

6 P. M.—He remained easier for above an hour; and in the last half-hour has had several black watery stools, altogether three pints; he suffers from great anxiety, and incessantly calls for drink; tongue cold and clammy. Pulse 126

and weak; cramps very urgent; fingers shrivelled.

℞. Calomel. ℈ i.
Extract. Colocynth. Comp. gr. vi.
Opii gr. ½ to be taken in two pills now; —and repeated at 7 o'clock.
℥ iv. Sago, and Brandy ℥ i. to be drank after the pills.

10. P.M.—Has been gradually sinking, and becoming more cold. Pulse now imperceptible; he had one stool, the same sort as above; has not vomited; says his "head is light."

Repeat the pills as at 6 P.M.
Also let him have Spt. Ammon. Aromat. ʒ iss.
Aquæ Tepid. ℥ ii.—to be drank after the pills.

Died half-past 11 P. M. 8th June, 1830.

Dissection.—Fourteen hours after death. Subject stout; eyes much sunk, and face very white.

Some old adhesions were observed in the right side of chest; both lungs sound, their posterior part very dark-coloured, from gravitation of blood. Liver large, soft, and exceedingly vascular, its surface covered with star-like patches of vascularity, like the nose and cheeks of a bon-vivant; incisions into the liver bled freely. Gall-bladder small; its coats thickened; its base adherent to the colon. Stomach thickened and pale; its interior corrugated, and covered with thick whitish mucus. Omentum and small intestines very vascular: the coats of intestines somewhat thickened, and their contents deeply tinged with dark orange-coloured bile. Veins of brain turgid; much effusion of serum between the arachnoid and pia mater—in some places this effusion very milky; ʒ vii. of clear serum in right lateral ventricle, above an ounce of clear serum in the left, and ʒ iii. beneath the tentorium: the substance of the brain was firm and tough.

Case XXIII.—James McCabe, Æt. 23, a stout man, of dark complexion; four years in India, recently arrived from Madras: having volunteered from H.M. 89th to the 3d foot; and therefore it may be presumed, he has been living in an irregular and dissipated manner for the greater part of several weeks past. Was admitted into General Hospital on the evening of 11th November, 1830. Ill five days with head-ache, and griping in the belly. Was bled to lb. iss. that night, and the blood was not buffy. In the next three days, he took two doses of colocynth with blue pill; and one dose of castor oil, which purged him freely. He was discharged well on the 15th November.

This man was seized on the next day with vomiting, after eating his dinner at three o'clock; and was sent to the Hospital at 6 o'clock P. M. on the 16th November. He was then vomiting with

great violence, and constantly passing by stool a conjee-like fluid, with white flocculi: the surface of his body was cold, pulse feeble; and he had slight cramps in the legs.

V. S. ad lb. i.
℞. Calomel. ℈ i.
Opii gr. i. to be taken immediately in a pill.
Extremities rubbed with Ol. Terebinth.

Eight o'clock P. M.—Only 8 oz. of blood could be got from the veins. No change for the better; he hast just now vomited, and had a stool like conjee.

℞. Calomel. ℈ i. in pills, to be washed down with this draught.

℞. Spirit. Ammoniæ Aromat.—Tincturæ Opii āā ʒ i.

Aquæ Cinnamoni ℥ i. misce—the draught and pills to be repeated at 10, and again at 12 o'clock.

He gradually sunk into a state of insensibility, and died at one A. M. 17th November, 1830.

Dissection.—Fourteen hours after death. Much engorgement of blood at the back part and root of the lungs. Liver appeared healthy, and rather smaller than common; its edge thin, and texture of natural softness. The gall-bladder was full of green bile; its exterior covered with an adventitious membrane, apparently not of recent formation. Stomach and small intestines enormously distended with flatus, and containing much whey-like fluid, and thick white mucus. There was no bile in the duodenum. Omentum, mesentery, and mesocolon, highly vascular; small intestines in the same state, mesenteric glands enlarged,

---

Arteriotomy in Cholera.

When plethoric subjects labouring under Cholera, fall early into a state of collapse, with obstructed circulation;

and we are unable to take a considerable quantity of blood from the veins; we are apt to suppose that the measure fails to afford relief, because we do not get enough blood: and it is difficult to come to a different conclusion, when we contemplate a robust and plethoric man suffering from that form of Cholera, with the face, neck, and chest purple or livid; while the patient is using great muscular exertion in respiration. But when we open a considerable artery in such subjects, and take blood as freely as we could wish: and still find our patient not relieved, we are obliged to change our opinion. Some doubt may be entertained with respect to the propriety of taking blood from an artery, in those cases, observing that the congestion and obstruction appear to be in the veins: and in taking away arterial blood, we deprive the patient of that which his system cannot again supply, so long as the decarbonising functions of the lungs are

arrested: either in consequence of the disorder of the nervous system generally, or by means of a morbid coating of viscid mucus in the bronchial tubes and air cells. We are so apt to speak of the calorific and decarbonising functions of the system, as allied to each other, that perhaps I may now be ascribing too much to the latter; when I would speak of the failure of both, as among the most prominent phenomena of declining vitality, in cases of Cholera with collapse.

Case XXIV.—William Griffiths, a Gunner in the Artillery, aged 28, a stout muscular man, four years in India, invalided on account of the loss of an arm; and recently sent from his battalion to Fort William, on his way to Europe. Was taken ill with Cholera soon after midnight; the first symptoms were vomiting and purging, followed by dreadful thirst, cramps in the legs, coldness of the whole surface, and extreme anxiety.

He did not report his illness till daylight, and was then sent to Hospital, 26th December, 1829. On admission, he was quite cold, the fingers shrivelled, pulse imperceptible; tongue cold, moist, clammy, and nearly clean; the face livid; eyes sunk in the orbits; and there was much venous congestion of the eyes, giving the scleroticæ and conjunctivæ a lurid appearance. Respiration was laborious, and the chest heaving, with expression of great agony in the countenance: voice pectoral, but not very feeble. He was tossing from side to side in bed, and constantly calling for water. Cramps in the legs and arms very severe.

Twenty grains of calomel and two grains of opium were given in a pill, but immediately rejected. A free incision was made into a vein in the arm, but not a tea-spoonful of blood obtained; the jugular vein was then opened, and only a

trivial oozing of thick black blood, like treacle, issued slowly from thence. These attempts to procure blood from the veins having failed, and the symptoms continuing unabated, he was ordered to take 20 grains of calomel mixed with sugar, and washed down with the following draught:

℞. Aquæ Cinnamon. ℥ iss.—Spirit Ammoniæ Aromat. Tinct. Opii āā ʒ i. misce.

These medicines were vomited up, with most violent efforts, the instant after being swallowed. The extremities and body were now rubbed with spirit of turpentine, by four men; and at the same time the radial artery was freely opened at the wrist, by an oblique incision with a lancet; the integuments being first divided down to that vessel, with a small scalpel. Blood flowed from the artery at first in a languid stream and of dark purple color, trickling down the wrist. When about 13oz. had flowed, the blood came in a jet with arterial impulse, its

colour was rather brighter red; yet not like the arterial blood of a healthy person. At this time there was no evident relief of any symptom, and the man said he was weaker. The rubbing of the extremities was continued briskly, and a finger applied to arrest the flow of blood. Some brandy with hot-water was given, which he vomited immediately; and after this he refused to take any thing but cold water: in fact he was totally unmanageable, and deaf to argument or entreaty of his friends. After the delay of about three minutes, the blood was allowed again to flow, and it came freely with a smart jet; by which and the restlessness of the patient, above 4½ oz. was spilt on the bed and floor; when lb. j. more had been received in the basin, the stream became smaller and more feeble, which was ascribed to the gradual formation of a coagulum at the orifice; but the man seemed weaker and more exhausted. Therefore the finger

was again applied to the artery for five minutes. The patient was now evidently more purple in the face, his breathing more laborious, and he appeared more feeble in tossing about in bed: the voice remained pectoral, but much weaker than on his arrival at the Hospital about one hour and a quarter ago. The principal distress appeared as this time to depend on the stagnation of venous blood, and imperfect action of the lungs. The artery was again let loose; but the blood now flowed very feebly, and only 3 ounces more could be procured.

During the above treatment, this patient continued sinking; but I could not assert, that his dissolution took place more quickly than I have frequently seen in patients admitted in the same stage of disease, who had the calomel and opium treatment, with stimulants, and who were not bled. Although the blood sprung from the arm in a smart jet

before a pound had flowed, and we might infer from hence that the heart's action was more free, I was never able to distinguish any pulsation in the radial artery; nor did the patient appear in any degree relieved. The blood received in three cups as above stated, was examined in half an hour; it had coagulated rather more firmly then we find the cruor of venous blood of a healthy person, its color, not materially differing in the several cups, was of rather brighter tint than the cruor of healthy venous blood. When carefully weighed, the quantity taken in the cups was found to be lb. ij. 1 oz. making together with what had been spilt in consequence of the arterial jet, and the agitation of the patient, 2 lb. 5½ oz. No serum was separated in any of the cups of blood. The patient gradually became weaker, less agitated and indifferent to surrounding objects; occasionally calling out that he had cramps in the feet or belly; no sign of reaction appeared, and

he died one hour and 37 minutes after the blood had ceased to flow from the artery.

Case XXV.—Pierre Louis, a middle-size lad, of light complexion, Æt. 18, a French sailor, of the Ship *L'Indus;* was brought to Hospital at 5 P. M. on the 21st March 1828, having suffered from slight fever for six days. He began to vomit yesterday morning, and was 20 times at stool since: evacuations like water. Vomiting ceased during the night, but returned this morning, since which he has vomited three or four times, but had no stool this day, Has now severe headache and pain at scrob. cordis; pulse 108 and feeble; respiration panting and anxious; pupils dilated, bu there is no venous congestion of the eye-balls; snrface of the body cool; the tongue cold, moist, and white. He is suffering from dreadful thirst. He has taken no medicine, and for two days past no food.

Apply 12 leeches to the Epigastre, and six to the temples.

Calomel ʒ ss: was given in pills: and a draught of

Tinct. Rhei ʒ iv. Aquæ Cinnamon. ℥ i.

A blister was applied to the belly, and at 6 o'clock he was ordered to take

Ol. Ricini—Ol. Terebinth. āā ℥ i. with Ol Croton. minim ii.

At 9 P.M.—The face is livid, tongue cold, pulse at wrist imperceptible, and fingers shrivelled; the hands quite purple from stagnation of venous blood: he calls incessantly for drink. Has been once to stool, and voided from the intestines a small quantity of clear water, which has a peculiar cadaverous odour.

Repeat twelve leeches to the chest; and six to the temples.

℞. Calomel. ℈ i.—Extract. Colocynth. Comp. ℈ ss.

Opii. gr. ss.—misce fiant pil. iii. statim sumend; also let him have

Spirit. Ammoniæ Aromat. ʒ i.

Aquæ Font. ℥ i. in a draught, after the pills.

At 10 P. M.—No vomiting, nor stool; cramps very severe; thirst unabated: pulse just perceptible and very rapid. His face continues purple, and respiration laborious; the chest heaving, with intense anxiety. Seven of the leeches have filled tolerably, the rest have been pulled off by the constant restlessness and jactitation of the patient. A vein was now very freely opened, but no blood flowed. As a last attempt to mitigate the extreme agony of the patient, I made an incision down to the radial artery at the wrist; and opened that vessel by an oblique section with a lancet. The blood which first flowed was warm, and of a purple colour; it trickled down the arm for a few minutes, and afterwards started forth with a jet, and by the time seven ounces had flowed, the arterial impulse was strong and steady: the livid colour of the face had decreased, and there was less laborious heaving of the chest; but the coldness of surface remained, and there was no perceptible difference in the

pulse at the wrist. Desiring to afford time to ascertain if this limited flow of blood from the artery, would be followed by acknowledged relief of respiration, and more free action of the heart and arteries: pressure was made on the orifice for five minutes, as soon as seven ounces had flowed. The patient not expressing any relief at this time, the orifice was allowed again to bleed, until seven ounces more had flowed, and after a similar pause of five minutes, the bleeding was carried to 21 ounces, besides about five ounces that were spilt on the bed and floor. The colour of the blood last drawn, was more florid than the first, but the patient did not appear to derive any benefit from the operation. He was weaker, and as it was estimated that he had lost by V. S. and leeches, above fifty ounces of blood since admission; the artery was closed with slight pressure and a bandage. The patient swallowed 20 grains of calomel in a small quantity of beer, which was the only thing he

would now take: and the calomel was repeated at 11 o'clock, but not the slightest amendment took place, and he died at ¼ past 12 at night.

The low form of Cholera with tendency to collapse.

In the succeeding cases, we have examples of a most formidable description of Cholera, from which the patient seems to have no chance of recovery by the unaided efforts of nature. V. S. at the commencement of collapse is a dangerous experiment, which has often done harm in such cases; but we frequently succeed in saving our patients, by a careful and judicious treatment. Febrile and inflammatory symptoms are not usually observed in persons suffering from this description of Cholera; and early failure of vital energy, seems in many cases connected with profuse and frequent watery evacuations; the course

of the disease tending rapidly to that stage of torpor, in which remedies produce no effect.

It is when this description of disease occurs in the cold season, that we most frequently see the short and imperfect respiration, with feeble pectoral voice, and other symptoms, indicating that torpor in the functions of the lungs, which dissection proves to be sometimes connected with a thin coat of tenacious mucus on the surface of the bronchial tubes and air cells. Among the expedients that might reasonably be tried in this form of disease; the inspiration of medicated vapours, and of nitrous oxide gas may be mentioned. In fact, the effects of remedies inhaled into the lungs, have been almost entirely neglected: they may be useful in the treatment of this formidable modification of disease.

CASE XXVI.—Joseph Branch, Æt. 42,

a middle-sized man, was affected with a slight diarrhœa, on the 24th and 25th April 1826, to which he paid no attention; the purging increased, and on the 26th at daylight he began to vomit, but concealed his ailments until they were observed by one of the serjeants, and he was sent into the General Hospital at 8 P.M. he was then vomiting very frequently, and was purged every half-hour; the stools were copious and watery, and he was suffering from cramps in the toes: the pulse was soft, weak, and rapid, and he had the Cholera visage.

He was ordered to take three grains of opium in a pill, and to repeat the dose at 10 P.M.

April 27th—At 6 A.M. He is now free from cramps, vomiting and purging have ceased; he is very weak, but the pulse is soft and natural, his tongue is

warm, moist and coated with a little white mucus.

℞. Extract. Colocynth. Comp.
Calomel. āā gr. v.
Opii gr. ½. — misce fiant pil. ij. statim sumend.

Ordered 3 oz. of Port Wine in Sago; and allowed Tea.

Meridie.—The vomiting and purging have returned; the stools are like rice-water; his skin is again cold, but the tongue is warm; pulse 102, soft and weak, and he suffers from slight cramps in the legs. The return of symptoms is ascribed to his having drank much water. Three grains of opium were ordered to be taken immediately, and to be repeated at 3 o'clock.

Vesper.—At 6 P. M. He has only vomited twice, and the purging is moderated; he is warmer and feels better, but complains of extreme thirst; pulse as above

reported. He was ordered to take two grains of opium dissolved in half an ounce of tincture of senna, with one ounce of cinnamon water, and a drachm of Spirit. Ætheris Nitrosi.

April 28*th*—He slept and is much better; has not vomited during the night, but has had two frothy fluid stools of nearly white colour.

℞. Extract Colocynth. Comp.
Calomel. āā gr. v. ter die.

Vesper.—He has had several yellowish frothy watery stools in the course of the day, and is now suffering from nausea, and inclination to vomit.

℞: Extract Colocynth. Comp.
Calomel. āā gr. v .
Opii gr. i. misce fiant pil. statim.

April 29*th.*—He had three stools in the course of the night; they are of a light colour and frothy. There has been no

vomiting. He is warm, and the circulation natural, the tongue is clean and moist.

Ordered to take twenty grains of Rhubarb, with a drachm of magnesia, in cinnamon water.

April 30*th*.—He had five stools in the course of yesterday forenoon, and had neither vomiting nor purging since: slept well, and the pulse is now natural, tongue warm and moist. After this date he took a mild purgative almost every day, until he was discharged on the 15th May 1826.

Case XXVII.—William Prosser, Æt. 27, a stout man of dark complexion, was taken ill at 1 A. M. on the 21st April 1826, and had three very copious watery stools before daylight; after which he was purged at least ten times in each twenty-four hours, and vomited as often,

until the morning of the 23d. Admitted into General Hospital at 9 A. M. on the 24th April; the vomiting has ceased, but the purging continues, the evacuations resemble clear water. The extremities are cold, his belly is flat and inelastic, pulse 96 and not very weak; tongue white, moist, and warm; but the Cholera visage is strongly marked. He has had spasms in his legs which have now ceased, and he is very weak; but as the doolies were all employed, and he was anxious for immediate assistance, he with some difficulty walked to the hospital, a distance of nearly a mile.

℞. Opii gr. iii.—Aquæ Fontis ℥ i.
Spirit Ammoniæ Aromat. ʒ iss. misce.
To be taken immediately.

Vesper. He has had two stools, like barley-water; is free from spasms, but very thirsty and restless, pulse 106 and weak: the tongue is cool, and the eyes are sunk.

℞. Extract. Colocynth. Comp. ℈ ss.
Calomel. ℈ i. Opii gr. i.
Olei Croton gtt. ii. to be taken in three pills.

April 25*th*.—He has had five stools in the night, which are in appearance like conjee: he has been vomiting, but his pulse is not very weak.

℞. Pulv. Scammon. Comp. (Ph. Ed.)
Pulv. Jalap.—Pulv. Rhei āā ℈ i.
Tinct. Sennæ.
Aquæ Cinnamon. āā ℥ ss misce.
To be taken at 6 A M.

At 9 A. M. he had been vomiting often but had not been purged, was ordered to take 20 grains of calomel with ten grains of compound extract of colocynth and one grain of opium.

Noon. He has vomited, and had two Cholera stools: he is now quite cold, and appears to be rapidly sinking: the pulse is feeble. Four grains of opium were given in a pill; three ounces of brandy

were mixed with six ounces of hot water, and small quantities frequently taken.

At 2 o'clock he remained very low and weak, therefore 3 ounces of port wine were ordered, in hot sago.

Vesper. Vomiting and purging have ceased; he is warm, and free from spasms, pulse low.

℞. Extract. Colocynth. Comp.
Calomel. āā gr. v.—Opii gr. i.
To be taken in pills.

April 26th. He has had no stool in the night; appears much better, and the warmth of surface continues.

The pills ordered last night, are to be repeated three times a day.

April 27th. He has had one natural stool; the gums are slightly sore.

R. Extract Colocynth Comp. gr. x.

April 28*th*. He had one stool in the night, of healthy appearance; and is nearly free from ailment. The extract of colocynth was repeated.

April 29*th*. He has been purged once; the tongue is clean and moist, and he feels well.

R. Pulv. Rhei ʒ ss.
In Aquæ Cinnamon. ℥ i.

May 3*d*. Discharged, to proceed with his detachment up the river in boats.

This man's case appeared nearly hopeless for thirty-six hours after admission into Hospital. I have never known so much opium required to check purging and vomiting, in any other case, which ultimately recovered. It is probable that eleven grains were retained in the stomach, from the time of his admission

into hospital, up to the evening of 26th April, including a period of about sixty hours.

Case XXVIII. John Simms, Æt. 24, of small size and light complexion, six years in India, an artillery-man, was taken ill at 7 P. M. on the Battery guard, and sent to hospital at 9 o'clock, affected with purging, vomiting, and cramps in his legs: the pulse at wrist had ceased before he reached the ward, and the surface of the body was quite cold; his tongue was cold, voice pectoral, and he was suffering from thirst to such a degree as to be indifferent to everything but the desire to drink, hardly giving any answer to questions.

Twenty grains of calomel were given in powder, and washed down with a draught composed of

Spirit. Ætheris Sulphuric.
Tinct. Opii āā ʒ i.

Oleum Cinnamon. gtt. iv.
Aquæ Fontis ℥ i.

The calomel and draught were repeated in an hour.

At half past 10 o'clock, he was cold and insensible; respiration heavy and laborious; vomiting had ceased. Died at 11 P. M. 14th November, 1830.

Dissection—Nine hours after death: stomach externally paler than usual, internally towards the pylorus of a pink colour, and much contracted. Small intestines of a pale pink colour, their coats thickened and pulpy, as if from serous effusion between their membranes: their interior filled in some parts with great quantities of conjee-like fluid, in other parts with mucus as thick as paste; the last foot of the ilium was quite empty, contracted and dry: no bile in the duodenum. No other morbid appearance observed.

Case XXIX.—A medical man, 26 years of age, of slight make and delicate constitution, recently arrived from England, had a severe attack of spasmodic cholic, within a few weeks after landing in Bengal: the constipation attending this disease was most obstinate, and during the treatment he was twice largely bled from the arm, and leeches were repeatedly applied to his belly. After various purgatives had failed, the obstruction of the bowels was removed by large enemas given with the pump. He remained in the course of a tardy convalescence for six days more; using little mild purgative medicine, and observing the greatest caution as to his food, but gaining strength so slowly, that on the evening before the attack of Cholera, when some friends asked how he was, he said this was the first day since his illness, that he really felt an increase of strength. At 9 p. m. on the 27th October 1830, he was affected with a purg-

ing, the stools copious, watery, and of a pale-yellow bilious tinge. He did not send for advice till next morning, not suspecting Cholera; he had then sunk into a state of collapse, affording no hope of recovery; though he had not vomited, and had no spasms. Occasional attacks of vomiting took place during the course of the day, and he died in the afternoon. We had some bad cases of Cholera in the Hospital at that time, but the patient had not left his room for near three weeks. The disease was also occurring in Calcutta.

Case XXX.—Thomas Price, Æt. 32, a stout man, of H. M. 38th Foot, arrived from England on board the ship *Buckinghamshire*, and landed on the 2d June. Admitted into General Hospital at 10 p. m. 14th June, 1827. Has been purged for two days past, but did not begin to vomit until he was put into the dooley to be brought to Hospital. Is at

present vomiting, and purged incessantly, and suffers from distressing thirst. Pulse 106, and hardly perceptible; surface of the body as well as the tongue cold.

℞. Calomel. ℈ i.
Opii gr. ii. misce fiant pil. ii. statim sumendæ.
Apply a blister to the scrobiculus cordis.

11 P. M.—Purged twice; evacuations, a pale greenish water: he is constantly vomiting; tongue cold, moist, and clean; great anxiety and thirst.

℞. Calomel. ℈ ss.
Opii gr. ii. misce fiant pil. statim sumend.
Apply Sinapisms to the feet.

June 15*th*.—Vomited only twice, and purged five times since last report; evacuations watery, and of pale-green colour: he is much better, and quite composed; tongue warm and moist, but

little furred; pulse 108 and weak. Some sago and wine allowed.

℞. Calomel. ℈ ss.—Extract Colocynth. Comp. gr. v.
Opii gr. ½—misce fiant pil. ii.—to be taken at 6 A. M. and repeated at 10 o'clock.
Ol. Ricini ℥ i. at noon.

Vesper.—He is better, and warm; had four stools but no vomiting. Pulse 112 and weak.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v.
Opii gr. i. misce fiant pil. ii. H. S. sumend.

June 16*th.*—Has had frequent, brown, watery stools; and much nausea in the night. Pulse 98, face flushed.

℞. Pil. Hydrarg.—Extract Colocynth. Comp. āā gr. v.

June 17*th.*—Had five stools, a slight degree of pyrexia remains. Pulse 98; skin warm; tongue swollen and fissured.

℞. Extract Colocynth. Comp.
Pil. Hydrarg. āā gr. vi. in pills, at 6 A. M.
Ol Ricini ℥ i. at noon.

By these medicines he was freely purged, the evacuations were of dark colour, and he was much better. Castor oil was administered daily, and he was discharged well on the 20th June.

Case XXXI.—Mrs. Ann Holt, Æt. about 24, landed from England on the 12th May, 1827, and was troubled with vomiting almost every day till the 18th, when I first saw her, at 11 P. M. Her pulse was then 104 and weak; tongue cold; she had been vomiting, and purged violently since dark; and her extremities were cold.

℞. Calomel. ℈ i. in pills.
℞. Opii. gr. ii.—Spirit. Lavand. Comp.
Spirit. Ammoniæ Aromat. āā ʒ i.
Aquæ Menth. Pip. ℥ i. misce,—to be drank after the pills.

May 19*th*.—She has not vomited since

taking the medicine; was purged three times; evacuations copious, like rice-water, with a light slate-coloured sediment: tongue warm, moist, and white; face somewhat flushed, pulse 108, and weak; extremities warm.

Apply eight leeches to the temples.

℞. Pulv. Rhei. ℈ i.

Aquæ Menth. Pip. ℥ i. To be taken at 6 A. M.

Ol. Ricini ℥ i. at noon.

Tea and Sago allowed in very small quantity.

1 P. M.—Vomited six times, but the castor oil was not rejected: purged four times; stools copious and of a pale-grey colour, as fluid as water; tongue cool, moist, and white. Pulse 132.

℞. Pil. Hydrarg. gr. v.

Extract Colocynth. Comp. ℈ ss — misce fiant pil. iii. to be given at two o'clock.

6. P. M. No vomiting; she has had six feculent black stools; tongue warm,

and very much loaded with white mucus.

℞. Ol. Ricini ℥ i.—Tinct. Opii gtt. v.

Half-past 10 P. M. She vomited the oil: had two, copious, watery, bronze-coloured stools. Tongue warm, moist, and white.

℞. Extract. Colocynth. Comp.—Calomel. āā gr. v.
Opii. gr. i.—misce fiant pil. statim sumend.

May 20*th*. Slept, and had one green bilious stool; no vomiting.

℞. Extract Colocynth Comp.
Pil. Hydrarg. āā gr. v. at 6 A. M.
Ol. Ricini ℥ i. at noon.

4 P.M.—She has vomited the pills and oil; had two watery black stools; the tongue is warm, and loaded wth white mucus.

R. Pulv. Rhei ℈ i. Aquæ Cinnamon. ℥ i.

6 P. M.—Had one stool, and has not vomited; says she is better.

Ordered to take some Sago and Wine.

May 21*st*. Had no sleep; has been purged, and vomited often in the night, stools a reddish bronze-coloured water; tongue cool and moist; pulse 116 and soft.

℞. Opii gr. i. statim.

May 22*d*. Was tranquil, and feeling remarkably well all yesterday, therefore no medicine was given in the evening. During the night she vomited occasionally, and had two copious bronze-coloured stools; pulse 98 and soft.

℞. Extract Colocynth. Comp. ℈ ss.
Pil Hydrarg gr. v.—misce, fiant pil. iii. statim sumendæ.

She was purged freely by these pills, and is much better in every respect. She

had no return of unfavourable symptoms: some mild purgative was continued daily till the 29th, when no further treatment was requisite.

Case XXXII. Jas. Beck, Æt. 19, a slight made lad, of light complexion, a sailor of the ship *Resource,* recently arrived from sea. Was attacked with Cholera, and profuse purging, on the 11th October, 1827, and in consequence of extreme coldness of the extremities, water was applied by his messmates, so hot that the skin was blistered on one foot, and also at the elbow. I could not ascertain what other remedies were used: and no cause could be assigned for the accession of the disease.

On the 12th, the most distressing symptoms were cramps in the legs, and purging. He was sent to the Hospital at 5 P. M. on the 13th October; suffering from cramps in his legs, anxiety, and

great thirst: he had a cold tongue, although the extremites were now warm; pulse 116, soft and feeble; and there was pain at scrob. cordis. The eyes were glazed, and suffused with florid or arterial congestion, the face was somewhat flushed. He now vomited immediately every fluid that was swallowed, but had only been purged four times since the morning. Some of the existing symptoms might have authorised V. S. but the use of the lancet was at the present stage of the disease, deemed hazardous, in consequence of the long continued and profuse purging, feebleness of pulse, and coldness of the tongue; for although the extremities had been blistered by boiling water, the temperature of the body was not uniform.

Eight leeches were applied to the temples.
A blister was put to the scrob, cordis; and
Calomel. ℈ i.
Opii gr. i. were given in a pill immediately.

9 P. M.—No return of vomiting or purging since 5 o'clock; the leeches bled profusely, whereby the flush of face and redness of eyes are diminished; he suffers less from thirst, and the tongue is warm, but pulse continues 116, weak and low; cramps in the legs have ceased.

℞. Calomel. ℈ i.
Opii gr. i.
Extract. Colocynth. Comp. gr. v. in three pills.

11 P. M.—Thirst subsided, no vomiting or purging since admission.

Ol. Ricini ℥ ii.

Oct. 14*th.*—Vomited once, and purged three times; the stools are as black as ink, and scanty; he feels much exhausted; the pulse 104, soft and weak, but face slightly flushed.

℞. Extract Colocynth. Comp.
Pil. Hydrarg. āā gr. v. in two pills at 7 A. M. and repeat at 11.

Ordered to take Ol. Ricini ℥ i. at 3 P. M.
Diet Tea, and thin Sago, with 3 oz. Port Wine.

Vesper.—He has vomited twice, a pale watery fluid, nearly transparent.

7 P. M.—Had five stools, which are rather scanty, and of a very dark bottle-green colour; pulse 98, soft, and weak; tongue quite cold, soft, clean, and moist.

℞. Extract Colocynth. Comp.
Pil. Hydrarg. gr. v.
Opii gr. ss. in two pills at 7 P. M. and repeat at 10.

Oct. 25th.—Had four copious, dark, watery stools; did not vomit in the night; suffers anxiety, but no head-ache; eyes still suffused.

Capiat Ol. Ricini ℥ i.

Vesper.—Vomited once, and purged four times during the day, evacuations partly of a yellow colour. Pulse 98, soft,

and natural; tongue continues quite cold.

After this date, he had mild purgatives repeatedly, and was discharged well on the 12th November, 1827.

Case XXXIII.—Mrs. Mary Ann Kelly, Æt. about 24, a soldier's wife of the 44th Regiment, received into General Hospital at half-past 9 P. M., May 19th, 1827: states that she was seized with extreme sickness at 1 o'clock last night, (20½ hours ago,) at first she vomited and was purged about once an hour, but lately purged every minute; and she appears exceedingly exhausted.

℞. Calomel ℈ ss.—Opii gr. i. statim.

Half-past 10 o'clock. Has cramps in her legs, great anxiety, and thirst; pulse 132 and not very weak; tongue warm. Neither vomited nor purged since taking the pill.

℞. Calomel. ℈ i. in a pill,—to be washed down with a draught of

Spirit Lavand. Comp.
Spirit Ammoniæ Aromat. āā ʒ ss.
Aquæ Menth. Pip. ℥ i.

May 20*th*. She has slept, the cramps have ceased, and she feels better: pulse 86; had one scanty green stool.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A. M.
Ol. Ricini ℥ i. at noon.

4 P. M. No stool nor vomiting; cramps in the legs have returned.

℞. Ol. Ricini ℥ i.

6 P. M. She is quiet, and easy; had no stool.

Repet. Ol. Ricini ℥ i.

Half-past 10 P. M. She remains tranquil, and is much better; had two dark watery stools.

May 21st. Had one black watery stool in the night, with some lumps of fæces; pulse good, and skin warm; she feels weak.

℞. Pulv. Rhei. ℈ i. in
Aquæ Cinnamon. ℥ i.

Vesper. She has been freely purged, and is better. Mouth sore.

May 22d.—Had one stool, consisting of films of mucus in yellow bilious matter. After this date she used rhubarb as an aperient, and was discharged well on the 8th June.

CASE XXXIV. John Fergusson, Æt. 23, a sailor of the Ship *Euphrates.* A middle-sized man, of dark complexion, arrived in the Hooghly ten days ago, from Europe; has not been on shore, but he and the rest of this ship's crew have been exposed to the sun, and worked hard for some days past in get-

ting up the anchors, &c. the ship having met unusual difficulties in coming up the river. Admitted into General Hospital a quarter before 10 A. M. 18th June, 1828.

Has had a purging for five days, and began to vomit at 1 P. M. yesterday; says he has had fifty stools, like pure water, since that hour. Is now suffering from great anxiety, thirst, and cramps in the belly: face flushed; pulse low, and oppressed; tongue cool.

Apply twelve leeches to the temples.
℞. Calomel. ℈ i.
Opii gr. ii.—misce, ft. pil. ii. statim sumend.

Noon. No vomiting or purging; excessive thirst. Pulse 114, and weak; face still flushed.

℞. Extract Colocynth. Comp.
Calomel. āā ℈ ss.—misce, fiant pil. iv. statim sumend.
Habeat Enema Purg. cum. Ol. Terebinth ℥ ii.

2 P.M.—Vomited twice, and had three stools, of pale grey colour. Pulse 114, weak, and oppressed. He seemed to be sinking; and therefore was ordered a small quantity of sago, with Madeira wine.

5 P.M.—Pulse more free; face flushed; has pain at the navel; he feels warm and better, and the tongue is warm, but he is suffering from great thirst.

Apply sixteen leeches round the navel.
℞. Pil. Hydrarg. gr. vi. statim.
Cream of Tartar drink 4 oz. at a time.

June 19*th*.—Vomited once this morning, and had two scanty watery stools, of grey colour. He is restless and very thirsty; face flushed; pulse 106, soft, and natural; tongue warm and moist.

Apply sixteen leeches to the nucha.
℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v.
Opii gr. ½—misce, fiant pil. ii. statim sumend.

Ol. Ricini
Aquæ Cinnamon. āā ℥ i. to be taken at noon.

3 P.M.—Vomited several times after taking the pills; and the oil was quickly rejected; he has had two black, fluid, feculent stools. Is weak, and anxious; and has been tossing about in bed all day.

Ordered to take Pil. Hydrarg. gr. vi. immediately.

A small quantity of sago and wine was given an hour after the pill.

9 P.M.—He feels much better: has had two black watery stools.

Repeat the Blue Pill.

June 20*th*—He slept little; has had no stool during the night: one scanty brown stool this morning: lies on his back, in a state of great anxiety; there is slight tension of belly, and some tenderness on pressing over the abdomen; tongue moist, and white. Pulse 108.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A.M.
Ol. Ricini ℥ i. at noon.

Vesper.—He vomited some of the castor oil, with bile: had three black watery stools, and feels better.

℞. Pil. Hydrarg. gr. vi.
Opii gr. ss. in a pill at 8 P.M.
Allowed Cream of Tartar drink.

June 21*st.*—He has had no stool or vomiting during the night.

℞. Extract. Colocynth. Comp.
Pil. Hydrarg. āā gr. v. at 6 A.M.

Vesper.—Has had no stool, and says he is well; tongue warm and moist.

℞. Pil. Hydrarg. gr. v.—H.S.

June 22*d.*—No stool; says he is well, and hungry.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v.—misce, fiant pil. iii. statim sumend.

These pills had no effect until they

were assisted by a purgative enema, and then he had four stools. Had a few mild purgatives after this, and was discharged well on the 1st July.

CASE XXXV.—Edward Enderson, Æt. 30, an emaciated man of light complexion; a sailor of H.C. Frigate *Hastings;* six years in India. Admitted into General Hospital 13th February 1826. Has been ill for above two months, with quotidian intermittent, enlarged spleen, and general debility. Bowels free; tongue moist.

Was ordered to be purged daily, with compound extract of colocynth; of which five grains only were given at bed-time; and he took two grains of quinine in solution in two ounces of water, with six drops of aromatic sulphuric acid, daily at 6 A.M. and the same dose was repeated at noon.

Feb. 19*th.*—There has been no return

of ague, and his appearance is more healthy; spleen smaller.

Quinine omitted.—Comp. Ext. of Colocynth. continued.

Feb. 20th.—Was attacked in the night with vomiting, purging, and dreadful cramps in the muscles of legs, and belly; but made no report of this illness till daylight, when he was observed to have the sunk ghastly visage, and hollow eye, peculiar to Cholera; the pulse at that time was not very low, the limbs and tongue not quite cold: but his appearance was exceedingly altered.

R. Calomel. ℈ i.
Opii gr. iii.—misce, fiant pil. ii. statim.
A blister was applied to the scrob. cordis.
Brandy and hot-water each 1 oz.—ordered to be taken now, and repeated in an hour.

The appearance of Cholera subsided in the course of the day, and the next morning he was ordered to take

Magnesiæ ℈ ii.
Pulv. Rhei
Pulv. Jalap. āā ℈ i.
Aquæ Menth. Pip. ℥ iss.—to be repeated in six hours, if the first dose should not operate freely.

Feb. 22*d.*—Purged freely by the first dose of medicine.

He recovered under the use of aperient medicine frequently repeated.

Case XXXVI.—Mrs. Brannigan, Æt. 30, a small and thin woman; was seized at midnight with purging, vomiting, and cramps in the legs; and sent to General Hospital at 6 A.M. on the 23d May, 1827. The commencement of collapse was at that time evinced by extreme prostration of strength, sunk eye, coldness, and a weak pulse at 120: the tongue was cool, moist, and nearly clean; voice feeble and pectoral. She had not taken any remedies.

℞. Calomel. ℈ i.
Opii gr. ii. to be taken in pills immediately.
Apply a blister to the scrob cordis.

At 8 A.M.—She had vomited twice, but not rejected the pills; had two stools, quite white, like magnesia and water; in other respects no change since admission: she has occasional cramps in the legs.

℞. Calomel. ℈ i.
Extract. Colocynth. Comp. ℈ ss.
Opii gr. i.—misce, ft. pil. ii. statim sumendæ.
To take Ol. Ricini ℥ i. at 11 A.M.
Some sago with port wine to be given two hours after the castor oil.

Vesper.—Has had several stools: the pan of the night-chair is nearly full of dark-brown water: surface of the body, as well as the tongue, warm. Cramps ceased, and the pulse free.

℞. Pil. Hydrarg. gr. x.
Calomel. gr. iv.
Extract Colocynth. Comp. gr. vi.

Opii gr. i.—misce et divide in pil. iv.

Two pills to be taken at 6, and two at 9 o'clock P.M.

May 24*th*, 2 A.M.—Has had several feculent stools, of brown colour. Extremities and surface generally warm, tongue dry and hot, the pulse has risen.

℞. Extract. Colocynth. Comp.

Pil. Hydrarg. āā gr. v.—misce, fiant pil. ii. statim sumendæ.

These pills had produced several dark-grey copious feculent stools before 7 A.M. the patient was then suffering from hiccup, but was free from other unfavourable symptoms; pulse 84 and soft; tongue warm, moist, and little white.

This patient recovered slowly, and required great care; being twice during her convalescence affected with dysenteric symptoms; and then she passed some blood with her stools. She used mild purgatives for many days, and left Hospital on the 25th June, to proceed

in a boat to Chinsurah with her husband; being still very weak.

This woman was nursing a child about six months old, when she was seized with Cholera: she would not be separated from the infant, which remained in the bed crawling over its mother when she was suffering severely from the cramps. While the bad symptoms of Cholera existed, no milk was secreted; but during convalescence the flow of milk returned, and after an interval of twelve days the mother nursed her child again, on the 5th June.

If Cholera were very liable to be contracted by personal communication, this child was exposed to its influence in the highest degree, but shewed no sign of ailment.

CASE XXXVII. John Berrigan, Æt.

19, rather a slight made man, with thin face, and red nose: recently arrived in Bengal: was admitted into General Hospital, on the 21st February, 1826, for a cough of two weeks duration. He was well on the 1st March, and would have been discharged next day, but he was attacked at 4 A. M. 2d March, with watery purging, and was twenty times at stool before half-past 7 A. M. The eyes were then sunk, the countenance was anxious, and he suffered from dreadful thirst, had a white moist tongue, and the skin was moderately warm. He spoke of having pain in the belly, but rude pressure over the abdomen was borne without complaint.

℞. Opii gr. ii. statim sumend.
Apply a blister to the Epigastre.
Allowed brandy ℥ iii. with hot water ℥ vi.—to be given in small quantities.
Ordered a flannel dress.

Half past 8 A. M.—The brandy and

opium were quickly vomited, and he is becoming colder and lower. Pulse very feeble, purging continues.

℞. Tinct. opii—Spirit. Æther. Sulph. āā ʒ ss.
Ol. Cinnamon. gtt. v.
Aquæ Font. ℥ iss.—misce, to be taken now.

11 A. M.—Much nausea and anxiety, with dreadful distress from thirst, continue; but the purging has ceased; his extremities are warm, and there is an equal general perspiration over the surface.

℞ Extract Colocynth. Comp.
Calomel. āā ℈ ss.
Camphoræ gr. ii.—misce, fiant pil. iii. statim sumend.

Vesper.—Had no stool since 8 A. M. he suffers much from thirst.

Habeat Enema Purg. cum. Ol. Terebinth. ʒ ii

March 3d.—Had no stool: he is suffer-

ing from great anxiety, but his pulse is soft, even, and moderate.

Enema Purg. cum. Ol Terebinth. ℥ ii.
℞. Pulv. Jalap.
Pulv. Rhei. āā ℈ i.—Magnesiæ. ℈ ii.
Aquæ Menth. Pip. ℥ ii.—misce, to be taken at 6 A. M.

March 4th.—He has been freely purged, the stools are black and feculent; the circulation is free, and all bad symptoms have ceased,

Repeat the purgative as yesterday.

A slight feverish disposition remained after this, which required a repetition of mild purgatives almost every day, till he was discharged from Hospital on the 17th April, 1826.

CASE XXXVIII. — Joseph Cocket, Æt. 19, a middle-sized lad, of dark complexion, a sailor of the French Ship *Ma-*

gellan, arrived in the Hooghly twenty days ago; went on shore on the morning of 13th December, 1829, and was soon after seized with purging, which continued all day; but he paid no attention to it, and took no medicine. In the course of the night he became weaker, and had spasms in his legs: finding himself very ill on the morning of the 14th, he desired to be sent to Hospital, but did not arrive there till a quarter past twelve at noon. The stage of collapse was then established; the surface was cold, the fingers were shrivelled; pulse at wrist hardly perceptible; voice feeble, tongue cool, purging and vomiting had ceased: he was drowsy, and did not appear to suffer pain. Torpor and death were evidently approaching, but we were unwilling to abandon the man while he was breathing; therefore an attempt was made to excite action by stimulants. A blister was applied to the scrob. cordis, and sinapisms to the feet, the limbs were rubbed dili-

gently with spirit of turpentine. Twenty grains of calomel, with two grains of opium, and two drops of croton oil were given in pills; and enemas with oil of turpentine were given at 2, and repeated at 4 P.M. These remedies had no effect. The galvanic pile had been in the meantime prepared, and when it was acting so strongly as to have a powerful effect on several healthy persons, who with myself tried it; shocks were passed through the patient's arms, chest, diaphragm and liver; and the galvanism was directed so as to pass through the situation of the great solar plexus of nerves: but he shewed not the least symptom of feeling its influence. Those persons in health, who touched the wires after we had ceased to apply them to the patient, received severe shocks.

Calomel. ℈ i. with Extract. Colocynth. Comp. gr. vi.

Ol. Croton. gtt. ii. were given in pills at 6 o'clock.

The patient died at half-past 8 P. M. $8\frac{1}{4}$ hours after admission.

On dissection—$11\frac{1}{2}$ hours after death, we found extreme venous congestion of the brain and lungs; the auricles of the heart, and great veins of the chest and abdomen, were exceedingly gorged with blood. Liver soft, and of darker colour than usual; gall-bladder somewhat flaccid; bile of lighter colour than natural; spleen small and soft, adherent to the adjacent parts; the adhesions apparently not recent. Slight morbid vascularity of the omentum majus, and of exterior of stomach: interior of stomach covered with thick paste-like mucus, on scraping off which, much general redness of the mucous membrane was seen. The small intestines distended with flatus, and a fluid resembling thin gruel; they were exceedingly vascular, and of florid red colour, their lining membrane much corrugated. There was some morbid vas-

cularity of the great intestines; many of the mesenteric glands enlarged, but not inflamed. Much emphysema of the cellular structure, about that part of the duodenum which approaches the right kidney, was observed.

Although mercury is found so useful in the treatment of Cholera, especially in its febrile form; it will not prevent the accession of the disease, even if taken to such an extent as to produce salivation, of which the two following cases are examples; and I have known several other instances where persons in a state of salivation, have been attacked with the worst descriptions of Cholera, with collapse.

Case XXXIX.—James Day, Æt. 29, sailor of the Ship *Norfolk*. Had ulcers at the orifice of the urethra, for which he

took mercury on board ship, and the mouth was sore: a looseness of the bowels became troublesome for two days, and therefore he was sent on shore, to the Hospital, in the evening of the 20th March, 1828. There were then no symptoms except those of common diarrhœa, but he was very thirsty; the pulse was good; tongue white but moist. He was directed to take some castor oil.

About midnight he began to vomit, and was attacked with cramps in the legs and arms. He did not make these symptoms known till day-light, when he was found in a state of extreme exhaustion, having been at stool fourteen times, and the pan of the night chair was filled with a conjee-like fluid. There was morbid sensibility at scrobiculus cordis; pulse 96 and soft; tongue moist, warm, and white. Twenty grains of calomel, and two grains of opium were given; and a blister was applied to the epigas-

tre. Calomel, colocynth, and blue pill with a small quantity of opium were afterwards taken. Vomiting and purging ceased before 11 A.M, ; but cramps, thirst, and anxiety continued, attended with increasing coldness, which continued till he died at 2 A.M. next morning.

CASE XL. William Shannon, Æt. 35, an emaciated man, came from England in the Ship *Herefordshire* : and had intermittent fever for two months during the voyage, for the cure of which disease he was salivated, and the mouth remained sore when the attack of Cholera came on. He landed on the 16th May 1827. His bowels were very costive on the 20th ; and he was, without any known cause, taken ill with symptoms of Cholera at 5 A. M. on the 21st. He was then bled to ℥ xiv. and took two grains of opium dissolved in water. At half past 9 A. M. he was sent to Hospital in a state of collapse ; and died at a quarter past 3 P.M.

Case XLI. John Brown, Æt. 22, a sailor of the Ship *Moira:* a stout man of light complexion, arrived from England, ten weeks ago; he was on shore all yesterday, but returned to his ship at 8 o'clock in the evening, and was taken ill at 11 P.M. with vomiting and purging, attended with cramps in his feet: for which he was bled in the night, and took some brandy, with a medicine, the nature of which he does not know. As he seemed to be in a dangerous state, he was landed and sent to the General Hospital, where he arrived at 3 o'clock P.M. 20th February, 1832. He was then suffering from great anxiety, and pain in the head, loins, and epigastre: the peculiar expression of countenance indicative of Cholera was present in a very marked degree, there was a livid circle round the eyes, and his fingers were shrivelled; but the pulse was tolerably free, face flushed, and surface warm, although the tongue was cool. The pupils were di-

lated, and he was thirsty, but not calling anxiously for drink. He was ordered to be bled immediately, but only ten ounces of blood could be got from the vein: it appeared black as it flowed; on being left at rest, a small quantity of bloody serum separated; and the cruor was very soft, and black. He was ordered to take

Calomel. ℈ i. in pills, and a draught of
Tinct. Opii gtt. xx.
Aquæ Cinnamon. ℥ i.

At 4 P.M.—He is much weaker, and his face is more livid. the hands are still warm, and he is not suffering from spasms; pulse 132, and much more feeble: he suffers from increased anxiety, and at times lies in a torpid state for a few minutes.

Apply a blister to the Epigastre and another to the spine.

℞. Liquor. Ammoniæ Puræ ʒ i.
Aquæ Cinnamoni ℥ iiss.—misce, to be taken

immediately; after which, let him have brandy, 3 ounces, in hot sago.

At 5 P.M.—There is slight increase of warmth, but no other favorable symptom; his pulse continues rapid and weak, there are cramps in his legs at present, and he has occasional nausea, but has neither vomited, or been purged since admission.

Apply sinapisms to the feet.

Liquor Ammoniæ to be repeated at 5, 6, 7, and 8 o'clock.

At 9 P.M.—He is weaker, and colder; the voice is feeble, pulse 132 and weak; he has had no vomiting or purging.

Let him have 3 ounces of brandy with hot sago.

Apply a large mustard plaster across the lower part of the chest.—The Liquor Ammoniæ to be repeated every hour till midnight; after that, every second hour.

February 21*st*, at 6 A.M.—He has had

a restless night, with constant distressing nausea, but he has not actually vomited, nor has he been purged. The voice is stronger: pulse 114, but very weak. His tongue is warm, and he says the pain at the epigastre and in the loins has ceased. The mustard plasters have blistered his feet; and the blisters which were applied yesterday had commenced to vesicate, when he pulled them off in the night.

℞. Extract. Colocynth. Comp.—Pil. Hydrarg. āā ℈ ss.

Ol. Menth. Pip. gtt. ii. to be taken in pills at 6 A.M. and repeated at 8 and 10 o'clock.

Ol Ricini ℥ iss. to be given at 12, and repeated at 2 o'clock.

At 5 P.M.—He has had no stool, and has not vomited; there is now an uniform warmth of the extremities, the pulse is 104 and soft, the tongue moist and warm. He is free from pain, and the voice is much stronger; but debility continues to such degree that he cannot

raise himself in bed without assistance; he has slept for two hours this afternoon. A purgative enema was ordered at 5 o'clock, and repeated at 7, by which a considerable quantity of dark-coloured watery fluid, of a feculent smell, was brought away; the lurid colour of the face is much decreased. Hot sago with three ounces of brandy allowed.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v.
Olei Menthæ Pip. gtt. ii. to be given in three pills at 10 o'clock, and repeated at midnight.

Feb. 22*d.*—He slept little; the pulse is 94 and soft, the tongue warm, of a lurid red colour, moist, and nearly clean; the skin is now nearly of a natural temperature, but not so warm as last night; the abdomen is doughy, inelastic, and rather full, and he complains of pain in the belly. He has not vomited, and had no stool during the night.

R. Extract. Colocynth. Comp.
Pil. Rhei. Comp. āā gr. vi.
Olei Menthæ Sativæ. gtt. ii. to be taken in two pills at 7 A.M. and repeated at 9, and again at 11 o'clock.

At Noon.—Pulse 92, the skin warm, tongue moist, and rather more loaded; he has had three fluid stools of a yellowish grey colour; he feels sleepy and thirsty. There is a slight flush in the cheeks, and he has made urine for the first time since his admission.

Let two more pills be repeated at 3 o'clock.
Allowed some hot tea and bread.

At 7 P.M.—Pulse 96 and soft; he had two free, fluid stools, of natural colour; he made urine again when at stool.

R. Tinct. Camphoræ Comp. ʒ ii.
Aquæ Tepidæ ℥ iss.
Sacchari ℈ ss.—misce, to be taken at 8 o'clock.

Feb. 23*d.*—He had three fluid stools in the course of the night, of natural

colour; pulse 88, soft, and free; tongue moist, nearly clean, and still retaining some degree of the lurid red colour before reported. The belly is soft, flat, and elastic; voice strong, and countenance cheerful; he is thirsty, but the appearances of Cholera have subsided. The feet are very sore from the strong mustard plasters.

After this date he required only mild purgatives, and regulated diet. On the 28th February he joined his ship, as she was about to sail.

Case XLII.—David Murray, Æt. 21, H.M. 26th Foot, a stout and tall man of light complexion, two years in India; came from Chinsurah on business, and walked all day in the sun, in Calcutta. Was seized at a quarter before 9 o'clock, P.M. 24th Nov. 1830, with violent cramps in the extremities, and so much pain in the fingers and toes, that he

roared aloud with agony. A serjeant of his regiment put him into a palankeen and brought him directly to Hospital, where he arrived just after 9 P.M. suffering the utmost pain from the spasms; but his circulation was free and surface warm: he had neither vomited nor been purged. He was immediately bled to lb. iss. and ordered

Calomel ʒ i.
Extract. Colocynth. Comp. ℈ ss. in pills.

The spasms decreased while the blood was flowing, and ceased altogether within ten minutes after the arm was bound up. As the blood cooled, a moderate quantity of serum separated; and the surface of the cruor was rather more florid than usual with venous blood.

Nov. 25th.—He had one stool during the night, and feels well, but weak. Diet—tea, bread, and sago.

℞. Extract. Colocynth. Comp. ℈ ss.
Pil. Hydrarg. gr. v. in pills.

These pills purged him freely.

He was well enough to proceed in a boat to his regiment at Chinsurah, on the 26th November.

At the time this man was attacked, we had many very bad cases of Cholera in the General Hospital; and the men of his regiment at Chinsurah, about 18 miles distant, were suffering from a severe description of Spasmodic Cholera. Therefore I am inclined to think that if this patient had not been promptly bled, he would have had vomiting, purging, and other bad symptoms in a short time.

In many of the foregoing cases, there was coldness, sinking of vital power, and failure of the pulse; coeval with the earliest symptoms of the disease; and under

circumstances in which blood-letting was not considered justifiable. We find that these patients derived benefit from opium and small quantities of stimulants: their most distressing sensations of debility, and the lowness of the pulse, were often relieved by hot sago and wine. In many instances an opiate given early; and a dose of castor oil a few hours afterwards; seem all the treatment that is requisite.

In other patients, a slight and transient feverish affection, was followed by collapse of the most formidable description; in which it was necessary to give a small quantity of opium and stimulants, before it was safe to employ purgatives and apply leeches. The patients who were treated early, in the low form of the disease; had in general more prompt recoveries, and were less liable to relapses, or to febrile affections, on returning to their usual food; than those who had febrile and inflamma-

tory symptoms from the commencement.

On perusing the accounts we receive from home, I observe that the low form of Cholera, with early collapse, has occurred in some parts of England. Should the disease prevail extensively in Great Britain, I think it probable that cases will occasionally be met with, which commence as diarrhœa, catarrh, or slight fever; and after a few days evince a tendency to Cholera.

Cholera in Children.

European children under two years of age, do not very often suffer from Cholera; but among those who are attacked by the disease at that early period of life, a large proportion die: which I ascribe as much to the early treatment employed, as to the malignity of the disease, for, when called to see children suf-

fering from this complaint, I have usually found that Cholera had existed for several hours before the relatives were alarmed by suspicion of the real nature of the disease; and then such powerful doses of laudanum were given, that the child has been found in a state of stupor; the coldness of extremities remaining, and the fatal event quickly followed. In children under two years of age, the disease, if left to the course of nature, usually soon sinks into the stage of collapse, with mortal coldness; and a distinct reaction rarely takes place: some morbid heat of head and chest usually occur just before death, but too transient to afford room for hopes of a favorable termination. Spasms are not a general attendant on the complaint in these young subjects, who are quickly oppressed by the venous congestion. After the contents of the stomach are thrown up, violent efforts to vomit usually cease; occasional nausea, and slight ineffectual retching occurring

now and then; but unless the patient be indulged in much drink, nothing is vomited, though the watery purging continues, with gradual sinking of the pulse, and increasing coldness.

When Cholera in young children supervenes on Diarrhœa or Dysentery of several days' duration, the disease is almost inevitably fatal.

When Cholera attacks children under two years of age, the first symptoms of the disease are generally attended with extreme prostration, and cold perspirations. In such cases, four drops of *Cholera Tincture* *, mixed with a little sugar in a tea-spoonful of water, will very often completely arrest the disease.

---

* The *Cholera Tincture* is composed of
Tinct. Opii
Spirit. Æther. Sulphuric. āā ℥ ss.
Ol. Cinnamon. gtt. xv.—misce.

If the coldness and profuse watery evacuations from the bowels should continue, the dose may be repeated in an hour: after which, if farther stimuli should be requisite, we must make use of liquor ammoniæ, with infusion of ginger, or of capsicum; and apply mustard plasters to the pit of the stomach, spine, and feet. Should these means fortunately resuscitate the patient, much care will be requisite to prevent a return of the symptoms: mild aperients must be used, and great caution in diet observed for some days.

In the treatment of young subjects, when they are seen in the febrile stage of the disease; I have usually given to patients between two and four years of age, four grains of calomel: and if the evacuations have been profuse, I add fifteen drops of tinctura camphoræ comp. in a tea-spoonful of hot water; and repeat the dose in an hour if the symptoms con-

tinue. Should these means not check the disease, a third dose of calomel is given in an hour more, with six drops of the Cholera Tincture. And if the disease still be not arrested, the calomel is persisted in every hour; and the Cholera Tincture is given with every second dose. As soon as the stomach is tranquillized, and will retain food, let a tea-spoonful of brandy, or a desert-spoonful of sherry wine, be mixed with a coffee-cupful of thin arrow-root; a table-spoonful of this may be given once every half-hour, until the coldness of surface subsides; after which it is necessary to give a dose of rhubarb with two grains of calomel every eight hours, and a dose of castor oil in the intervals between the doses of rhubarb; so that a mild purgative shall be taken every four hours during the day, until a moderate purgative effect is produced; smaller doses, at more distant intervals, being requisite for some days afterwards, till the secretions are restored to a natu-

ral state. There is usually some obscure pyrexia, with much languor for several days, in European children who survive an attack of Cholera; and therefore the diet should be regulated so as to support strength, without exciting fever. Where the Cholera symptoms in children are less severe and more protracted, while the coldness, and low form of the disease remain, there is usually great thirst and anxiety. In this case, large draughts of cold water have decidedly caused a return of the vomiting, and hurried on the stage of collapse. The least injurious drink, is an infusion of mint, with a moderate proportion of cardamoms, or a weak infusion of ginger, or pepper in water, drank in small quantities, and cold.

During an attack of Cholera, children should be wrapped in warm flannel, and encouraged to be quiet in the recumbent posture. In patients between six and eight

years of age, the above doses of medicine are to be increased one-half; and may be doubled for those more than eight years old.

Cholera in Asiatics.

When Cholera attacks robust Asiatics, who are living in affluence, they very seldom have that form of the disease which is at the commencement combined with pyrexia and inflammation: and that description of the disease which usually affects the poorer natives of Bengal, is still more rarely attended with febrile or inflammatory symptoms; they commonly suffer from the low form of Cholera with sudden coldness and early collapse. Visceral disorders are seldom found to occur as its sequelæ in natives; though I have several times seen a sub-acute description of Dysentery; and more frequently, dyspeptic symptoms and emaciation, occurring

in native patients who had previously suffered an attack of that disease.

The Cholera happening to natives of this country, marked by early coldness and collapse, and occasionally attended with severe spasms, is usually a more rapid and more fatal disease than we find it in Europeans: consequently we do not often see Asiatics in a state requiring V. S., or at that stage of the disease, when we might hope by bleeding to relieve the system from increasing congestion. Very few natives of this country recover from Cholera, if left without remedies; whereas, if promptly treated, the majority of ordinary cases are cured. A tea-spoonful of laudanum with a spoonful of brandy, or a tea-spoonful of laudanum with as much spirit of sal volatile, in a wine-glass of water, if given at the first moment of attack, very generally arrests the disease instantly. A gentleman who had a numerous retinue

of servants, used to keep a vial of laudanum, and another of spirits of hartshorn, on his dressing table, in charge of a sirdar bearer, who being always present in the house, had orders to administer a teaspoonful out of each vial, mixed with a spoonful of water, to any native that might be attacked with Cholera. Under this mode of treatment, no man died for many years. Others have been nearly as fortunate in checking the early stage of Cholera, by keeping a bottle of Tincture of Rhubarb in readiness, and giving a table-spoonful to any native immediately he was attacked with Cholera. If stimuli are requisite after the second dose of Laudanum, Liquor Ammoniæ is the best. I have found it convenient to keep the *Cholera Tincture*, mentioned at page 226, always in readiness: a desert-spoonful, given in a wine-glass of water to an adult, I think generally answers better than any of the above remedies, if given equally early in the disease. By

whichever of these modes the first approach of an attack of Cholera in a native is arrested, it is usually proper to order a cup of hot sago, within an hour after the medicine; and if the patient be a weak person, and any degree of coldness remain, a spoonful of brandy ought to be added to the sago. If the first dose of either of the above medicines be rejected by the stomach, or fail to have the desired effect, it should be repeated in one hour; after which, if the symptoms continue, six grains of blue pill, with one grain of opium, and two of asafœtida in a pill, are to be given an hour after the second dose above ordered, and repeated every second hour while vomiting and purging continue. More sago may be given after a few hours; and provided the disease be arrested, we should allow the patient to remain quiet wrapped in a blanket for eight or ten hours; and then give him a dose of castor oil. In a few cases, where febrile symptoms re-

main after a Cholera attack in natives, leeches are requisite to remove local congestions and inflammations; and four grains of blue pill with eight grains of compound extract of colocynth, may be given daily in the morning; followed in six hours by an ounce of castor oil, if the patient be not purged by the pills. In native Cholera patients, having symptoms of Spleen Disease, mercurial preparations should be omitted. Asafœtida combined with opium often has a remarkably good effect on natives who are slowly becoming cold, with Cholera symptoms; the oriental mode of administering it, is to make a soft pill of two grains of opium with as much asafœtida, which is chewed and swallowed slowly with the saliva. I have ordered this prescription, with the addition of six grains of blue pill, and two drops of Ol. Menth. Pip. directing the medicine to be chewed and swallowed. It has been the means of curing many natives who had become cold, and had a

rapid feeble pulse that was hardly perceptible. The warmth was gradually and slowly restored, and circulation recovered its natural strength, after the use of this medicine: nothing being required but a few moderate doses of castor oil; and attention to regulate the food used by the patient for some days.

There is such variety in the symptoms and course of Cholera in different patients, that I am induced to state two cases of Europeans, and one of an Asiatic, in which the secretions were carefully analysed; so that there may be no doubt of the exact nature and stage of the disease, corresponding with the fluids examined: and I may observe, that the general account of Chemical Analysis stated at page 23 to 34 is the result of experiments made in every stage of the disease. The conclusions deducible from all my inves-

tigations relative to this part of the subject, are adverse to the opinions of those authors who say that the sub-albid stools, resembling barley-water, are pure serum, as some state; or serous evacuations, as others have asserted. This, like every truth connected with the pathology of acute diseases, may be deemed important; for it will influence our opinions regarding the condition of a patient; and our practice must of course be more or less modified by such opinions. Moreover, attention to the nature of those secretions may be of use in fixing the identity of the disease now treated of, and establishing its affinity with the Cholera of remote countries; or with the varieties of disease which may hereafter appear in India. With this view, I have been willing to state particularly the nature of a few of the cases from which the fluids examined have been taken.

Case XLIII.—Pierre Vinceau, Æt.

19, a sailor of the French ship *Cygne,* sent to Hospital in the most alarming state of disease: no written account of his case was received with him. Admitted 4th December, 1830, at 10 A.M. A slight made lad, of dark complexion, six weeks arrived in Bengal; states that he was taken ill at 5 P.M. yesterday, with a sensation of weakness, and pain at the heart: vomiting and purging took place soon after, and he had cramps in his legs during the night. He has been very often to stool, but only vomited four times in the night, the last time at 10 P.M. Has been thirsty, and drank much water. His voice is good and strong, and there is very little anxiety at present. Pulse 120 and feeble; extremities cool and perspiring, but not cold; tongue cool, moist, and nearly clean; the eyes are not sunk; he is tranquil, and not now calling for drink. Had one grey fluid stool, in quantity about 10 oz. soon after admission.

When the bulb of the thermometer was placed under his tongue, the mercury stood at 91, and temperature of the extremities was ascertained to be 82. The atmosphere being at this time at 76 degrees of Fahrenheit.

Spirit of turpentine was rubbed to the extremities constantly. He was made to swallow half a drachm of Cajeputi Oil, in half an ounce of cinnamon-water; and the dose was repeated in half an hour. No effect being produced by the two first doses, one drachm of the oil was given at 11 o'clock, and repeated every hour till 3, making in all, six drachms of the Cajeputi Oil.

Half past 3 *o'clock.*—The patient has been frequently visited, during the interval since 10 o'clock: the Cajeputi Oil has had no effect; he appears rather worse, and is very slowly sinking into a state of torpor: there has been no vo-

miting, but he has had three more conjee stools, each in quantity about 8 oz. Hot sago 3 oz. brandy 1 oz. directed to be taken just after the last dose of Cajeputi Oil.

℞. Calomel. ℈ i.—Opii gr. ½.
Extract. Colocynth. Comp.—Asafœtidæ āā gr. v.
Ol. Menth. Pip. gtt. ii. to be taken in three pills; and repeated every hour.
℞. Spirit. Ammoniæ Aromat.
Tinct. Cardamom. Comp. āā ʒ i.
Aq. Cinnamon. ℥ iss. misce,—to be drank after each dose of pills.

Six o'clock.—He continues slowly sinking. The same pills and draft as ordered at half past 3 o'clock, are to be given every hour till six doses are taken. Hot sago and 1½ oz. of brandy at half past 9 o'clock. Castor Oil ℥ i. at 10.

Dec. 5th.—No stools or vomiting during the night; the extremities and tongue are cold, but the forehead, neck,

and chest, are hot; the face is livid; pulse at the wrist is barely perceptible: he is restless, and asking for drink; respiration hurried and feeble; voice weak and pectoral. Large sinapisms were applied to the belly, also to both feet. Ol. Ricini ʒ i. was given every hour, and fifteen minutes after the oil, he was ordered an Enema of Ammoniæ Carb. ʒ i. in three pints of hot water, to be given with the pump. He derived no benefit from the remedies, and died at 11 o'clock A.M.

Dissection at 4 P.M.; five hours after death. Much venous congestion of the brain. Both lungs universally adherent, but not bearing marks of the adhesions being recent; there were a few small dark-grey tubercles in the lungs. All the cavities of the heart were gorged with coagulated blood; the anterior portions of the coagula white. The liver was rather large, its surface mottled; its

structure soft, and bleeding freely when cut into.

The omentum and mesentery were in a state of high morbid vascularity; also that part of the peritoneum placed across the bodies of the vertebræ: glands of mesentery and mesocolon enlarged.

Peritoneal surface of stomach, and intestines, rather more coloured with pink, than in the healthy state.

The mucous membrane of the stomach was exceedingly vascular; the coats of the small intestines slightly thickened: there was much pale brown fluid in the stomach; and some fluid in the upper third of the small intestines, which was tinged deeply with orange-coloured bile; the lower portion of the small intestines contained a pale-grey fluid. The large intestines contained much dark-brown

watery fluid. No other morbid appearance noticed.

It may be sufficient to state the result of the analysis of the third *conjee-stool* voided by this man after his admission into the Hospital. That fluid was left to stand for two hours, and a quantity of grey paste-like mucus had then subsided; the following was the result of examination.

1. The mucus which had subsided to the bottom of the test tubes was found partially soluble in cold water, affording an opalescent turbid fluid.

2. Another portion of the sediment, measuring ʒ ss. and of the consistence of thick mucilage; was entirely soluble in a mixture of ʒ x. of Liquor Ammoniæ, with the same quantity of distilled water.

3. Another portion of the same sort of mucus, measuring ʒ ii. was heated in a small evaporating dish over a spirit lamp; and during the process an odour of putrid flesh was evolved. It dried into a thin film, which became charred and black, without burning in a flame.

The watery fluid was next examined.

4. It had a slight effect in reddening litmus paper; the colour of which was restored by dipping the the paper into a mixture of four drops of Liquor Ammoniæ, and half an ounce of water.

5. Heated slowly over sand, to 200 degrees of Fahrenheit, it did not coagulate. When the heat was raised to the boiling point, a few small grey flocculi formed.

6. The addition of a solution of oxymuriate of mercury, produced a slight turbid appearance, and at the end of 12 hours, a minute precipitate had formed, which was estimated at $\frac{1}{32}$ of the quantity of fluid submitted to this experiment: the fluid at the upper part of the tube having a slight opalescent appearance.

7. Solution of subacetate of lead, instantly caused a dense curdled appearance, which quickly pervaded the whole tube, and in a short time began to subside; at the end of 12 hours it had settled down, so as to occupy $\frac{1}{8}$ the space of the tube that had contained the fluid examined.

8. The addition of alcohol to another portion of the fluid, produced no effect.

9. The addition of infusion of galls to another portion of the fluid caused a slight turbidness, and after some time a very few minute flocculi subsided.

The examination of the fourth conjee-stool voided by this patient afforded similar results.

Case XLIV. — Torrens, Æt. 29, a muscular man, of middle size and light complexion; a sailor of the ship *Mount Vernon;* arrived from sea about the middle of October, 1831; and after remaining a week on board, he landed in the afternoon of the 21st, and drank some spirits in the bazar, but says he was not drunk. Late in the evening he was wet by a shower of rain; and failing to get on board, he slept in a shed near the bank of the river. About midnight he was seized with cramps, followed by vomiting and purging; at 9 o'clock A.M. he succeeded in getting on board, and the Captain gave him 60 drops of lau-

danum in a glass of brandy; after which, the vomiting and purging ceased: but he remained so much distressed by anxiety and feeling of debility, that it was considered best to send him to the Hospital, where he arrived at 1 P.M. 22d Oct. The stage of collapse was then commencing: his face was pale; he was covered with a profuse perspiration, and suffering from much anxiety; the tongue white and clammy; pulse tolerably free; the belly tense and tumid. A vein was opened, and when ʒ x. of blood had flowed, the pulse sunk so rapidly that it was not deemed safe to take more. Twenty grains of calomel with two grains of opium were given. Within an hour the pulse rose, and the orifice of the vein being opened, six ounces more blood were allowed to flow, by which the pulse was rapidly and permanently sunk. A large sinapism was now applied over his belly, and spirit of turpentine diligently rubbed to the extremities. The

ten ounces of blood first drawn, coagulated; and a small quantity of bloody serum separated, which on exposure to heat of 160° formed a firm coagulum. The blood last drawn coagulated, but no serum was separated: the cruor of the blood in both cups was remarkably dark-coloured.

Calomel, with colocynth, asafœtidæ, and oil of cinnamon, were repeatedly administered, and stimulants used: and he took a dose of spirit of turpentine and castor oil, each one ounce; but no medicine had any effect; he gradually sunk into a state of torpor, pulse at the wrist ceased, and the fingers became shrivelled. He died at 3 A.M. on the 23d October, fourteen hours after admission into Hospital: during which period he had four scanty fluid stools of a brown colour, and vomited several times.

Dissection.—Twelve hours after death.

Muscles rigid; lungs gorged with blood, especially at the depending parts; and there was a small quantity of mucus in the trachea and bronchial tubes. There were a few small ecchymosed specks on the right side of the heart. Some morbid vascularity of the omentum and mesentery was observed, and the glands of the mesentery and mesocolon were enlarged. The stomach was pale externally, and its coats much thickened; its mucous membrane corrugated, and covered with a large quantity of thick tenacious mucus: when that was scraped off, several vascular patches of deep-red colour were seen. The pills, in solution, and some turpentine with castor oil, which had been taken several hours before death, remained in the stomach.

The coats of the small intestines were much thickened; at no part could they be deemed paler than natural, but several portions for the extent of a foot in

length, had the minute vessels injected with red blood, in a very extreme degree. The small intestines contained much watery fluid; in some parts this was tinged with yellowish bile, in other parts of a pale-grey colour, mixed with many large masses of white mucus. The coats of the colon presented no morbid appearance, and this intestine contained much fluid of dark-brown colour. The liver was large, and its texture soft; the colour was natural, with the exception of a slight mottled appearance, from a few small pale spots on the surface of the left lobe. Gall-bladder, adherent to the adjacent parts; it was much enlarged, round, and distended with very fluid bile, of a natural colour. There was a great degree of venous congestion of blood in the brain, and the large veins along the spine were gorged with black-coloured blood. Some serous effusion was observed between the tunica arachnoidea and pia mater: there were ʒ iiss.

of serum in each lateral ventricle; and ℥ iss. below the tentorium.

A portion of the fluid vomited, (and on the top of which some castor oil floated,) was filtered; it was transparent, with a slight tinge of straw-colour: when examined, the following appearances were observed:

1. Litmus paper was quickly changed to a pale-red colour.

2. Solution of oxymuriate of mercury produced a slight turbid white appearance, but no precipitate formed.

3. Another portion of this fluid, exposed to heat, which was gradually increased up to 212°, assumed a slight smoky colour; and at the end of twelve hours, a few minute grey flocculi were observed floating in the fluid.

4. Solution of subacetate of lead, dropped into a test-tube containing some of the fluid, quickly produced a dense curdled appearance, which at first seemed to consist of all the fluid; but a precipitate soon subsided, and in twelve hours occupied a quarter of the tube which had been filled with the fluid tested. This precipitate was a dense pale-yellow mass, not easily mixed with the fluid on shaking the

tube. The liquid which floated above the precipitate was nearly transparent, with a slight bluih tinge; a few small white flocculi adhered to the inside of the test-tube.

5. On addition of the infusion of galls, the fluid became turbid, and a pale lead-coloured precipitate formed, which subsided in twelve hours, so as to occupy $\frac{1}{24}$ of the space in the tube, which had been filled with the fluid tested. The precipitate was light, and easily diffused through the fluid by shaking the tube.

The most fluid of the stools, voided while he was in Hospital, was filtered through paper; and then it had the colour of weak coffee, of a peculiar fœtid odour, not like fæces. The filtered fluid was diluted with equal quantity of distilled water, for the purpose of decreasing the colour, that the effects of re-agents might be better observed: and when tried with various tests, the following effects were observed:

6. Litmus paper was slowly and slightly changed to a reddish colour.

7. A portion of the diluted fluid, exposed to heat gradually raised to 212°, became in a slight degree more transparent; it did not coagulate, but a few

small black flocculi were seen floating in the fluid when it was cold.

8. When solution of oxymuriate of mercury was added to another portion of the diluted fluid, a dark chocolate-coloured precipitate slowly formed, and in twelve hours subsided, so as to occupy $\frac{1}{20}$ of the space of the tube that had been filled with the fluid examined. The supernatant liquor was of a pale tea-colour. The precipitate was dense, and not easily raised or diffused through the fluid by slight agitation.

9. The addition of a solution of subacetate of lead to another portion produced an immediate dense curdled precipitate, that quickly fell to the bottom of the tube; and at the end of twelve hours it occupied $\frac{1}{5}$th of the space in the tube that had been filled with the fluid: the supernatant liquor was nearly transparent; a few pale-grey flocculi adhered to the sides of the tube.

10. In another portion of the diluted fluid, when treated with infusion of galls; a precipitate slowly formed, of a pale-brown colour, which in twelve hours was found to occupy $\frac{1}{5}$th of the space of the tube that had been filled with the fluid examined; it appeared like a very light mucilage, and was easily again diffused through the fluid, on slightly shaking the tube.

Case XLV. — A Mahommedan Burkandauze, named Shaik Sonawalla, aged 35 years, employed at the Calcutta Great Jail; was taken ill with Cholera about 1 A.M. on the 1st December, 1831. He made no application for medical aid, and was watched in the Guard-room of the Jail, by his comrades, who kept him covered with blankets, and champooed the limbs when the cramps were severe. My advice was not requested until 4 P.M., when the friends thought he was about to die: they asserted that he had been vomiting very often; but not purged much until mid-day; at which time cramps in the legs came on, and the purging and coldness were so much augmented as to excite alarm. I found him cold, his countenance sunk and ghastly; eyes blood-shot; the fingers slightly shrivelled; voice weak; pulse 138 and very feeble; tongue moist, and clean; he was anxious, and the respiration hurried; he eagerly requested water to drink.

His friends asserted, that he had not swallowed any thing since noon, and had taken only a few spoonsful of water during the early part of the day. A large panful of clear watery fluid had been voided by stool: it was hardly more coloured than pure water; some uncooked rice, very little swollen, was observed at the bottom of this pan. The patient, on being particularly questioned, acknowledged that he had eaten raw rice at a very late hour on the previous evening. The fluid vomited was slimy, and not quite so clear as the stools.

He was made to take ʒ i. of Laudanum, with as much Spirit. Æther. Sulphuric. and four drops of Oil of Cinnamon, in ℥ iss. of water; which quickly alleviated all the more distressing symptoms; and he was neither vomited nor purged afterwards.

At 6 P.M.—He was free from cramps:

the pulse 118; there was slight return of warmth of surface; tongue clean and moist: he complained much of thirst. Some thin hot sago with ℥ iiss. of brandy was now given, after which he slept.

Dec. 2*d.*—Has had neither vomiting or purging, but is anxious, weak, and thirsty; eyes blood-shot; extremities warm; pulse 92, soft, and weak; tongue nearly clean and dry, with little white appearance in centre. He was ordered ℥ is. of castor oil with cinnamon water, which purged him four times in the course of the day, and he was persuaded to take a small quantity of sago, without brandy. The stools were copious and of dark-grey colour. He now earnestly entreated that his friends should be allowed to take him home to his village, which was near. This request was complied with, and he remained at home nearly a month; but took no medicines except two doses

of castor oil. He recovered, and is now employed on the Jail duties.

The slimy fluid vomited, was strained through muslin; and then had a very slight turbid appearance.

1. It quickly reddened litmus paper.

2. A portion was gradually heated to 212 degrees of Fahrenheit, but no part of it coagulated.

3. Another portion tested with solution of oxymuriate of mercury; indicated no change, except a very minute milky cloud, which was dissipated on shaking the test tube.

4. Transparent solution of subacetate of lead, dropped into another portion of the fluid, caused an immediate white curdled appearance; which slowly subsided to the bottom of the tube, leaving the supernatant liquor transparent, with a slight bluish tinge.

The clear watery fluid of the stools was poured off from the small quantity of rice, and examined without straining.

5. Litmus paper was changed to a red colour when wet with this fluid.

6. A portion of the fluid was exposed to heat, gradually increased to 212°; it neither coagulated, nor did any precipitate form.

7. Another portion of the fluid was tested with solution of oxymuriate of mercury; which slowly produced a slight turbid appearance, and in twelve hours a minute mucilaginous deposit took place at the bottom of the test tube: the fluid above being opalescent.

8. Solution of subacetate of lead, dropped into another portion of fluid, in a tube; produced an immediate curdled appearance, which soon subsided in a dense white mass, and at the end of twelve hours was found to occupy $\frac{1}{10}$ of the tube that had contained the fluid tested: the liquid above was quite clear.

9. Another portion of the fluid was tried with pure alcohol; which produced no turbidness, nor precipitate.

10. Infusion of galls was added to another portion of the fluid in a tube; which slowly produced a slight mucilaginous precipitate, of a pale-fawn colour, which was easily diffused through the liquid, when the tube was shaken.

To avoid the probability of erroneous

conclusions, I have tried similar tests on the various kinds of food and drink allowed to Cholera patients : so as not to mistake the effects of the tests on any of those articles, for their effects on the secretions of the stomach and intestines.

The Cholera stools, and the matter vomited, not coagulating on the application of heat, or on the addition of solution of oxymuriate of mercury ; and containing no uncombined soda; shew us that they do not consist of the serum of the blood, and do not contain any appreciable quantity of albumen : while the indications, when we add the solution of subacetate of lead, give sufficient reason to conclude that the sub-albid evacuations in Cholera, consist chiefly of mucus, and a peculiar morbid secretion. I am not aware of the grounds on which Dr. Bostock has stated that animal mucus is merely a modification of albu-

men*; though I am ready to place the highest confidence in his opinions.

Facts relative to Contagion in Cholera.

It is an object of much importance to ascertain, if possible, whether Cholera be a contagious disease, and liable to be communicated generally to those in health, by means of a virus generated about the persons of the sick: and conveyed either indirectly, by means of clothes or goods; or received directly, by personal contact or near approach to patients: whereby the disease is produced, independent of other exciting causes. If it should appear, that Cholera is *generally* propagated by means of

*. "Animal mucus appears to be nearly related to albumen, and indeed the constituent upon which its characteristic properties principally depends, would seem to be a mere modification of this substance."—*Bostock's Physiology*, vol 1. p. 48.

some noxious emanations from the persons of the sick; the strictest quarantine regulations would of course be advisable. On the contrary, should we observe that the disease is neither generally, nor even frequently, found to affect those who are most exposed to personal communication with the sick, under such circumstances, that if contagion existed, we might reasonably expect it would be present in its most concentrated and active forms: we would then doubtless abandon all idea of retarding the progress of Cholera, by interdicting direct intercourse with the sick, or with those who may be exposed to any emanations from the bodies of persons suffering under that disease.

I will now proceed to state such facts as appear conclusive with respect to the Cholera of India; shewing the results of unrestricted communication with the sick: and if the disease be neither gene-

rally, nor frequently, received, after the most extreme exposure; few persons will deem the danger great, from slight and transient intercourse with the sick. If the disease ever possess contagious properties, assuredly there could be no difficulty in pointing out the particular instances of contagion, at the time that they occur.

The persons most exposed to contract Cholera in the General Hospital at Calcutta, (if the disease were contagious,) are those having charge of the bedding and clothing, and those employed in personal attendance on the patients. The man who has charge of the Hospital clothing, and his assistant, both attend in the wards every morning, changing the bedding of one ward each day, on ordinary occasions. But when Cholera exists, these people are obliged, in the majority of cases, to change some of the bedding of the patients having that dis-

ease daily, or oftener when soiled; for which purpose they come to the bedside, taking away with them the dirty-bedding, which is given to the head-washerman. The clothes-keeper, Shaik Selim, at present employed at this Hospital, has been on that duty for two and a half years; his predecessor Dhowall filled the same office for twenty-three years, and died at his own house, of old age and debility; having been pensioned for long service. The head washerman Gawhee, at present employed here, has been on this duty about one year and a half; his predecessor Hassye, held that office for two years, and died of chronic disease of the bladder, after an illness of near four months. Before this man, Beechuck was washerman for twenty-one years; he died of chronic induration of the liver, and pulmonary disease, Not one of the subordinate washermen or people employed about the clothing and bedding stores has ever had Cholera.

The native dressers have daily the most unreserved communication with the sick, changing the applications over leech-bites, and the bandages to the arms of such as are bled; dressing blisters, and applying sinapisms: not one of these men has ever suffered from the disease. Buctourie, the head native dresser, who instructs the subordinates and attends with them alternately, while at their duty, has been constantly employed at the Hospital for twenty-six years. He is a clever man, of good character, and asserts that he has never known one of the Hospital servants to be attacked with the disease.

The sweepers who clean and change the close-stools, as well as the pans in which the matter vomited is received; and who wash those patients who are helpless; have never been known to suffer from Cholera. It may be supposed that the occupations of the sweepers, are

usually such as might be expected to blunt their susceptibility to disease, or to the effects of any ordinary exposure; but this will not be urged respecting the Hindoo Coolies; who are employed in ordinary attendance on the sick, and are obliged to be much in contact with all bad cases of Cholera, to keep the blankets from being thrown off, and the men from falling out of bed, when in the worst stages of the disease, and suffering much from jactitation and restlessness. These coolies are also employed to rub and champoo the extremities of the Cholera patients; and often cannot avoid inhaling the breath, as well as the exhalations from the bodies of patients, in the most deplorable stages of the disease. Not one of these men has ever suffered an attack of Cholera. The young students, who are under a course of medical instruction, at the H. C. School for Native Doctors; are usually in attendance and assisting at the Hospital when Cho-

lera is prevailing in a severe form, and when great numbers of patients are admitted with that disease, In March and April, 1827, when the Hospital was unusually crowded with Cholera cases; and all the attendants much distressed and exhausted by the severe duty: a number of the young students from the school, were brought to the Hospital, and placed in attendance over the worst cases; being relieved regularly day and night. These young Asiatics performed their duties with great diligence, assiduity, and humanity, for many days and nights; and none of them suffered by this constant exposure to whatever may be contagious in the emanations from Cholera patients; as well as frequent contact of their persons. I publish these statements, after having made the most careful observations on this subject, when the disease has been prevailing, during my residence at the Hospital: and after the most diligent inquiry relative to the same points

during the last fourteen years. A remarkable instance of exposure, with impunity, to any morbific causes arising from the person, during Cholera, is recorded at page 204 of this work.

By Mr. Henderson's account of the disease which appeared on board the H. C. ship *Berwickshire,* in Bombay Harbour, in June 1830, it appears that ninety-four men were taken ill of Cholera within a few days; of whom thirty-eight died. A large proportion of the sick was landed, and treated at the Bombay European Hospital, and sixteen of the deaths occurred in that Hospital, where there were at the time more than one hundred patients and attendants, not one of whom contracted the disease.

The History of Cholera in India presents us with a vast number of instances, where either a body of healthy troops has joined and encamped along with

those among whom the Cholera was existing in the most violent and fatal form; or where a detachment in which the disease was raging, has joined a healthy encampment: and the disease has not been, in either case, communicated to those in a healthy state. A body of Holkar's Reformed Cavalry, 500 strong, were posted at Mahidpore, adjoining to the camp of above 2,000 Bengal troops and followers, among whom the epidemic was prevailing; and the Cavalry did not suffer from the disease, although a Cholera patient from the Bengal division was brought to their camp, and went through every stage of the disease among them. In like manner, Casement's Regiment of Irregular Horse joined the Hansi division of the Army, and remained with that division without contracting the disease, at the time when the Epidemic Cholera was at its height. On the 11th May, 1818, a company of Bengal troops, ninety in number, encamped at an

unhealthy spot on the bank of a small lake, sheltered by a few trees, and surrounded by low woody hills. The detachment arrived at this place all in perfect health; Cholera commenced at midnight, and before sunrise next morning, twenty men were ill of that disease: they were removed to the Saugor camp, in carts and doolies, in the course of the day; but before arrival there, five men had died, and two were moribund. By the end of the week, every man of this detachment had gone to Hospital with Cholera, or with a purging of some sort, resembling modifications of that disease: so that there could be no doubt of the malignity of the malady from which they were suffering. The men of this detachment had unrestricted intercourse with the troops in camp: not one individual of whom was attacked with Cholera. For these facts, I refer to the Bengal Report on Cholera, p. 133, 134, and 137. More than a hundred such

instances may easily be collected, by any one who will take the trouble to make critical inquiries respecting the history of Cholera for the last fifteen years. The facts above cited are sufficient to prove that the Cholera in India, when existing in its most aggravated form, is not a contagious disease; and that there is no virus generated in or about the sick, by means of which the disease may be communicated to persons in health. The facts which prevent our acknowledging that the Cholera of Bengal is contagious, are numerous, well authenticated, and the details are precise.

It appears, that a body of troops joining a camp at an unhealthy station, after long marches, is very liable to suffer from Cholera; but if a camp in which Cholera exists, should move to a healthy station, and still numbers of their men continue to fall ill of the disease, in consequence of their past exposure; troops

joining them after their removal to the healthy camp, do not suffer from Cholera. It has often happened, that this disease has raged among troops encamped on the low banks of a river: without any evidence of Cholera having travelled to them, or having been propagated from them to others at a short distance, who communicated freely with those suffering from the disease. Epidemic invasions of Cholera, arrive at their acmé so quickly, and then subside, as stated at page 11, continuing in their severest form so short a time, that the effects of change of place can hardly be duly estimated. We know that a body of troops having suffered severely from Cholera, and remaining at the same station during the disease, and after its subsidence; has in many instances been unhealthy for five or six months afterwards: suffering from fevers, and dysentery, with occasional cases of Cholera. Places where the residents are usually very subject to

fever, have of late years been frequently visited by Cholera. These and similar facts afford the grounds on which we should be disposed to ascribe the Epidemic Cholera to some morbid influence connected with locality, sudden changes of temperature, and humidity; more especially when these morbific causes have to act on persons debilitated by disease, or fatigue and privations. Troops having marched through an unhealthy district, and who have been subject to much exposure, fatigue, and privations, are very liable to the disease; both on the march, and when they halt; whether they join a healthy or a sickly camp. Although we have positive proof, that the worst forms of Cholera have not been communicable by means of any virus arising from the persons of the sick, in India: we cannot ascertain why the causes usually exciting Cholera, do not invariably produce the same effect; and why numbers of persons are at times ex-

posed to all those circumstances, which at other times excite the disease, and still Cholera does not appear among them. However, as already observed, the same immunity frequently happens when persons are exposed to the ordinary exciting causes of Fevers, and many other diseases; concerning the proximate cause, and essential nature of which, we can hardly boast of knowing more than we do of Cholera.

Contagious diseses differ in many respects from Cholera: they go through a regular course, and persons who are exposed to the virus by which they are produced, only shew signs of disease at a certain period after exposure; and that interval in the majority of cases is uniform. We find nothing of the sort in Cholera, which in some cases has attacked men the day after landing from ship, and second day after arrival from sea, as reported by Mr. Scott, in the instance of a portion of the 41st Regiment

on arrival at Madras roads. If we examine critically the circumstances connected with any attack of Epidemic Cholera at a station, we find reason to conclude, that the disease is dependent on some morbific influence connected with the locality: for it often happens, that a short time before the appearance of numerous severe cases of Cholera in a town; a disordered state of the digestive organs, and tendency to diarrhœa and nausea from slight causes, have been observed among numbers of the inhabitants; after which the Epidemic Cholera bursts forth suddenly, affecting numbers of persons at the same time; and in many instances, attacking persons who have had no sort of communication with those who were suffering from the disease. Those who are sickly and predisposed, are destroyed in three or four days, and at the end of another week, the severe form of Cholera disappears. There is no progressive course, or succession of

attacks in the individuals of a town, during a severe visitation of the disease; so as to warrant the belief that it is communicated by a virus received from sick persons. Diseases which are distinctly proved to be contagious, namely Variola, Rubeola, Pertussis, and some others; attack persons in good health, nearly as readily as they do the debilitated and infirm; without being influenced by abrupt atmospheric vicissitudes, in the degree to which Cholera seems to have been, on almost every occasion when the severest epidemic visitations have occurred. Nevertheless, we are obliged to acknowledge that the contagion of Fevers readily affects persons suffering from poverty and mental inquietude, exposed to much fatigue, ill fed, and insufficiently clothed: while men who are in circumstances which enable them to preserve a tranquil state of mind, and whose digestive organs and general health are unimpaired, are very often exposed to

similar degrees of febrile contagion, with impunity. The extreme proclivity to Cholera, produced by debility, from whatever cause it arises, is also a very remarkable fact.

Having already stated the entire exemption from Cholera, of those persons employed in the General Hospital, and who were most exposed to unreserved and constant communication with the sick; I am desirous to mention that when Epidemic Cholera has prevailed in Calcutta, and we have had numerous admissions of that disease into General Hospital, more especially if the wards have been much crowded at the time; we have very frequently had sick and convalescents attacked in Hospital; and there has evidently been a strong tendency among the patients who have been for many days, or weeks under treatment for other diseases, to lapse into the low form of Cholera, with early accession of collapse, coldness, and ces-

sation of the pulse.* It has generally happened that those attacked in this manner, have been in parts of the Hospital remote from Cholera patients; very often in a different building, and precluded from any direct communication with those who were brought in with Cholera. Moreover, these cases of the disease occurring in Hospital, have generally happened at times when we knew that severe and sudden attacks were frequently occurring in persons living at various and distant parts of the town and suburbs of Calcutta.

I have never known a man to be attacked by Cholera in Hospital, whose bed was next to that of a man suffering from the disease: and the only two instances where Cholera supervened on other diseases, in men already in Hos-

* See pages 15 and 20.

pital, and in the same room with Cholera patients, were the following:

Case XLVI.—Benjamin Fowle, was admitted into Hospital on the 15th November, 1830, labouring under Cholera in an advanced stage of collapse; he died in the course of the night. His bed was the fourth from that of the patient whose case is next to be mentioned.

Case XLVII.—James Poste, a tall man, 20 years of age, recently arrived from Europe: came to Hospital at 8 A.M. on the 14th November, 1830. He had been ill fourteen days with dysentery, and induration of the cœcum; for which he had used calomel, and his mouth had been sore for one week before he came under my care. On admission, he was suffering from pyrexia, induration of the belly, and the usual dysenteric symptoms in an aggravated

degree, and he voided much blood. He was freely bled from the arm, and seemed to be improving daily, till he was seized with Cholera at 10 P.M. on the 17th November; the vomiting was frequent and violent, and he voided by stool a clear water, in which seven or eight small flat pieces of fæces were observed; they were of natural colour, and the size of a flatten pea. This man sunk rapidly, and died at 2 A.M. on the 18th November. On post-mortem examination, eleven hours after death, the subject was found not much emaciated. There was much venous congestion at the base of the lungs. Liver, gall-bladder, and biliary ducts perfectly healthy; omentum, mesentery, and mesocolon, very vascular. The stomach and small intestines were distended with gas, and externally of a pink colour; their coats very little thickened; but there was no sort of morbid vascularity of their mucous surface: there was a small quantity of thin subal-

bid mucus, like flour and water, in the stomach and small intestines. The cœcum was distended with gas: and there was a small abscess, surrounded with much induration, found between the cœcum and the iliacus muscle; and in the abscess a small rounded earthy mass, larger than the stone of an olive. There was no opening from the abscess into the intestine, but a small aperture communicating with the appendix vermiformis: and the natural aperture from the appendix into the intestine was closed. The whole of the colon, except the ascending portion, was contracted, and a few superficial ulcers were observed on its mucous membrane: there were several dark purple ecchymosed spots, like scorbutic blotches, on the peritoneal surface of the transverse colon; but no corresponding ulcers on the interior of the intestine. Many of the men who came from Europe, in the same ship with this patient, were suffering from a scorbutic condi-

tion, on landing. This man, in addition to Dysentery, had an abscess exterior to the cœcum; which appears to have been excited by the stone of some fruit having got into the appendix vermiformis, where it caused inflammation, adhesion of parts, and abscess exterior to the intestine.

The only other patient attacked with Cholera, in this ward, in the course of this month, was placed in the opposite side of the room, about twenty-six feet from the place where Poste died: but he did not come into Hospital until four days after the death of the last-named man: and although I have no reason to suspect that his disease could be ascribed to any contagious influence generated by the other two patients; I will mention the particulars of his illness.

Case XLVIII.—Samuel Cox, Æt. 22, arrived from Europe on the 10th November, 1830, and was admitted into

General Hospital on the 22d, with very severe Dysentery, attended by much pyrexia, and some enlargement of the liver. This man was twice freely bled from the arm; and had leeches applied to the belly daily till the 25th; and the other remedies usually ordered in Dysentery were employed. On the morning of the 26th, some slight appearances of Cholera were manifest; such as anxiety, languor, and exhaustion, with inclination to vomit. He had had ten stools between midnight and 6 A.M.; the evacuations a scanty watery fluid, tinged with blood.

The case was carefully watched, and medicine omitted. From 6 A.M. to 4 P.M. he had twenty stools, the same as above described: anxiety and debility were much increased. Still we were unwilling to consider it an attack of Cholera, and as the man's ailments had been so distinctly febrile and inflammatory, there

was less fear of sudden collapse from waiting a few hours. From 4 to 10 P.M. he vomited very often, and had four stools, in appearance like pure water; he suffered from cramps in the right thigh and belly; the pulse was feeble; tongue cold, moist, and blanched, or bloodless, like a piece of flesh that had been steeped in water; and his countenance was expressive of that extreme anxiety and exhaustion so remarkable in Cholera. He was ordered to take two grains of opium with twenty grains of calomel in pills, and immediately after them a cup of hot sago, with ℥ iss. of brandy. He soon became warmer, and the pulse revived; the vomiting and disorder of the stomach and bowels were arrested; he slept, and the Cholera symptoms ceased. Afterwards the dysenteric affection, with bloody evacuations, became again predominant, and was only cured by a long and careful treatment.

He left Hospital quite well on the 12th January, 1831.

We have no doubt that debilitating diseases of any sort, and more particularly bowel complaints, render patients in Hospital very liable to attacks of Cholera of the worst description; but I am unacquainted with the history of any hospital, which affords proof, that the most aggravated forms of Cholera have ever proved contagious.

Mr. Hitchcock's account of the Cholera on board the H. C. ship *Abercrombie Robinson*, exhibits an excellent example of the proclivity which debility and impaired health induce to attacks of the worst and most untractable descriptions of Cholera. That ship, direct from Europe, arrived at Bombay on the 4th June, 1828, and sailed from thence for China on the morning of the 10th Au-

gust: during this long detention in harbour, the greater part of the crew had suffered from the ordinary diseases of Europeans on arrival in hot climates, by which the constitutions of many of the men had become impaired.

On the morning of the 10th August, before leaving harbour, the boatswain had a violent attack of Spasmodic Cholera: and no other case of the disease appeared till the night of the 12th, when two of the crew were taken ill with the low form of Cholera, attended by early collapse, but did not report their illness till the next morning. In the course of a few days, thirty-eight men were attacked with the disease.

Of these, ten men were at the time in the sick list, and they all died; ten more were weak and in bad health, in consequence of former illness, while in Bombay harbour—of these seven died, and three recovered; the remaining eighteen were

well, and at duty when attacked—of these seven died, and eleven recovered. The men who first fell ill, with the exception of the boatswain, had the low form of the disease, which commenced with collapse; those occurring at a later period suffered from the inflammatory and febrile form of Cholera. Mr. Hitchcock's narrative is the most complete account I have seen of a local epidemic attack of Cholera: it exhibits all the circumstances connected with the disease on board a ship, whose crew consisted of about 150 men.

When we observe Cholera to have appeared progressively along great roads and navigable rivers; where frequent communications by travellers, and much commercial intercourse exists; the idea of contagion is readily suggested, and it is not easy for any one to give positive proof that such idea is erroneous, except a person were on the spot, and able to

examine all the circumstances connected with the origin of the disease, at the time when it was supposed to have been produced by means of contagion. When Cholera appears in a town on a much frequented road, it is always possible to ascribe its importation to the travellers last arrived. When a proclivity to the disease exists at a station, from some circumscribed endemic influence; it is evident that when travellers arrive after long journeys, during which they had been deprived of their ordinary domiciliary comforts, and subjected abruptly to change of air, water, and food: they are under circumstances in some respects resembling our recruits on arrival from Europe, who are prone to the severest forms of the disease. Thus predisposed, it is not surprising that travellers arriving at a town should be the first attacked, when the disease was on the verge of breaking out among the residents. Much the same observation may be made

respecting ships trading to a port at which Cholera appears: the arrival nearest to the appearance of Cholera is likely to bear the blame of having brought the contagion. If we assume that Cholera is contagious, and look only at those circumstances where it is *possible* the disease may have been communicated by personal intercourse; many circumstances may be found where contagion might be *suspected:* but proofs of the fact are wanting in India, while proofs adverse to the belief in contagion are numerous.

The character which the Cholera has assumed in many places in Russia, namely its going through a febrile stage in almost all cases, prior to the fatal termination; would render it possible that some modifications of the fever may be productive of contagion, among a crowded population, where numerous cases of the disease are occurring about the

same time. However, the few accounts of the Cholera in Russia, which I have seen, describe precisely the blue Cholera of India, as predominant among the most early and most frequent cases of each local epidemic visitation; terminating rapidly without re-action, as it often does in Bengal. I observe that Cholera has appeared at some Russian stations, in violent forms; attacking persons residing in distant parts of the town, who had no sort of intercourse with each other, or with those who could be suspected of affording contagion: this was the case at Riga, as appears by the report of the Inspector *D. Dyrsen,* dated 14th May, 1831.

It is only by the most accurate inquiry at the time when the violent attacks of Cholera happen in a town, that any correct judgment can be formed whether the disease be contagious or not. A remarkable instance occurred at Razupna,

where there appeared strong reason to suspect contagion; but after the most rigid investigation instituted by Dr. Schumov, it was proved on the clearest evidence, that there was no just ground for asserting that the Cholera had been on that occasion communicated by contagion. The circumstances alluded to were as follow:

In the year 1830, when the Cholera prevailed at Orenberg, a man went from thence to Razupna; immediately after his arrival at that place, he was attacked with Cholera, and soon died. Four days after this man's death, several of the garrison of Razupna were attacked with Cholera. A most careful inquiry was immediately instituted; whereby it was proved that not one of those who were taken ill, had seen, or attended on, or been near the man who was alleged to have brought the disease from Orenberg: but on the contrary, several persons who had visit-

ed this man and attended on him during his illness, escaped without suffering any sort of indisposition: the result of the inquiry, afforded complete proof that in this instance the suspicion of contagion was unfounded.

I leave the question, whether the Cholera in Russia has been generally contagious, to the decision of those learned physicians on the spot, who have such ample opportunities of investigating the characters of the disease. Having witnessed the ravages of the Cholera so long in this country, we have the most profound interest in the accounts of the nature and progress of the malady in Europe. When we observe that the inhabitants of the hill-provinces of British India live in small, close, ill-ventilated houses; and are clothed in woollen garments, which the poorer classes can rarely change; we might expect to find, that if Cholera were hereafter to appear

in those distritcts, its characters may resemble in every respect the disease now prevailing in Russia. Without assuming that we have sufficient grounds, to deny that Cholera may be contagious in those countries of the north of Europe, where it now rages; we might ask, what good has quarantine and the cordon sanitaire done? Has it either prevented the appearance of the disease, or retarded its progress in any country; or can it be supposed to have excluded the Cholera from a single house or town, in half as many instances, as we know the severest forms of Cholera to have existed, where intercourse with the sick was in no manner restricted, and still the Cholera was not propagated. Whether quarantine regulations be deemed requisite or not; it is probable that the malignant nature, and rapid extension of the Cholera, may be modified and restrained, by improving the drainage and ventilation of towns and their vicinity, in those parts of the

country where Cholera exists, or towards which it seems extending: by repairing the dwellings of the poorer inhabitants, and affording supplies of clothing and food, at such moderate prices as they can afford sufficiently to provide for their wants. Enjoining moderation in laborious occupations, and the strictest temperance in all habits: restricting the working hours in great factories, where the severity of labour, or continuance of occupation, appear very exhausting to human strength. We might also advise early attention to any irregularity of the bowels, whether from diarrhœa or from constipation; and the propriety of avoiding drastic or cold saline purges, whenever a disposition to Cholera has been manifested in the vicinity.

The early symptoms of most cases of Cholera, appearing connected with general disorder of the mucous membranes; it will be proper in cold seasons to ob-

serve carefully the progress of febrile catarrhal affections; for the purpose of ascertaining whether any relation exists between those complaints, and to notice their mutual influence on each other.

THE END.

LONDON:
Printed by COX and SON, Great Queen Street,
Lincoln's Inn Fields.

7, *Leadenhall Street*, *Nov.* 1834.

THE ASIATIC JOURNAL AND MONTHLY REGISTER FOR BRITISH INDIA, CHINA, AND AUSTRALIA.

THE Proprietors of the ASIATIC JOURNAL, having repeatedly noticed that a certain degree of misapprehension prevails respecting the nature and objects of this monthly publication, deem it desirable, and by no means unimportant to the community, at a period when our relations with the East are undergoing so material a change in character and extent; that an exposition of the scope and contents of the work should be generally circulated, being fully convinced that many persons have suffered inconvenience through not knowing where information, of which they were in want, may be readily obtained.

Before the appearance of the ASIATIC JOURNAL, the affairs of British and Foreign India, as well as of other countries in the East, were known to Europe only by means of the rare and imperfect notices published in the newspapers, which, even at the present day, are too much engrossed with subjects more familiar and of nearer interest, to afford more than occasional glances at affairs of the East. Since this work was set on foot, in the year 1816, it has kept up a constant, connected, and copious supply of oriental information of all kinds, and has become a valuable record of important public documents, statistical information, geographical and archæological discoveries, and political transactions, in our remote Eastern dependencies and the contiguous territories. With the enlargement of our Indian possessions, and of our relations with the other hemisphere, the ASIATIC JOURNAL has kept pace, and is now an organ of communicating to Europe, monthly, a digest of intelligence of every kind,—political, domestic, literary, scientific, and commercial,—from the vast empire of British India, and the insular dependencies of Britain in the East, Ceylon, Singapore, Mauritius, &c.;—the Empires of China and Japan;—the extensive Indo-Chinese and Ultra-Gangetic states of Cochin-China, Siam, and Burmah;—the Malay States;—Central Asia;—Persia;—Turkey and Egypt;—Dutch, French, Spanish, and Portuguese India;—the Cape of Good Hope;—Australasia and Polynesia. At a vast expense, files of public journals, from all the countries just enumerated where such publications exist, are transmitted, exclusively for the use of the JOURNAL, by the most expeditious channels

which the extensive connexions and peculiar facilities of the proprietors and publishers enable them to command; and a digest of Asiatic Intelligence, brought down to the last moment, occupying from fifty to seventy closely-printed pages, carefully condensed and arranged, is published every month. It is well known that Eastern papers are rarely to be met with in England, and, were they accessible, their bulk would preclude their examination by most persons.

This feature constitutes, however, but one province or department of the Asiatic Journal. It is, moreover, a popular miscellany, containing nearly one hundred pages of original literary and scientific matter, contributed by able pens in England, on the Continent of Europe, and in India, of a mixed and diversified complexion, adapted to all tastes. Thus this work, whilst, as a periodical vehicle of intellectual amusement, it comes within the category of a magazine, possesses, in addition, a feature of peculiar interest in its summary or chronicle of Asiatic news, which is calculated to attract the curiosity of the public in general, but is of especial and essential importance to every one connected, immediately or remotely, with India, who, in its pages, may watch the welfare and advancement of their relations and friends.

An analysis of the subjects and matters comprehended in each number of the Asiatic Journal, will afford a better notion of the nature of the work than a general description.

I.—ORIENTAL LITERATURE AND SCIENCE.

Under this head, the Asiatic Journal is a receptacle of original papers on all topics of oriental literature, science, and criticism, in the widest sense of those terms, written by oriental scholars of the highest eminence, including occasional translations from various and interesting Eastern works; philological disquisitions; biblical illustrations, &c. Besides these, there will be found biographical memoirs, valuable geographical and commercial papers, and miscellaneous communications. The historical, statistical, and commercial information respecting China and Japan, which will be found in the late numbers of the Asiatic Journal, is of infinite importance in respect to our future relations with those empires, and will be found no where else.

II.—TALES, LOCAL DESCRIPTIONS AND SKETCHES OF MANNERS.

This class of original papers possess considerable interest to the general reader, inasmuch as they superadd to the amusement derived from the perusal of incidents, descriptions of local scenery, remarkable objects, and native portraitures, the advantage of obtaining accurate impressions of Eastern and Anglo-Eastern manners, and of correcting many false notions respecting the peculiarities of Oriental Society, which are imbibed in early life from absurd, though popular, draughts of it.

III.—REVIEWS AND NOTICES OF BOOKS.

All works which fall even constructively within the scope of the Asiatic Journal, receive in its pages a careful and strictly impartial examination, and an analysis proportioned in extent to their importance and their adaptation to furnish amusement and information to its readers. The fidelity of its criticism has never been impugned.

IV.—PROCEEDINGS OF SOCIETIES AND LEARNED BODIES.

Under this head, ample reports are given of the Proceedings of Asiatic Societies throughout the world, with notices of the most important papers and transactions.

V.—PARLIAMENTARY DOCUMENTS.

These include carefully epitomized official accounts of finance, trade, &c.; papers of political interest; reports of committees, &c. Many of these are extremely important, and most are overlooked and unnoticed in other publications.

VI.—DEBATES AT THE EAST-INDIA HOUSE.

This is another feature quite peculiar to the Asiatic Journal, which has reported exclusively, for the last eighteen years, *verbatim*, the debates in the Court of Proprietors of India Stock, in all matters, some of which are of great general, others of much private interest.

VII.—ASIATIC INTELLIGENCE.

This matter (as well as that mentioned under the succeeding title) is methodically disposed under local heads. It comprehends well-digested reports of law proceedings of interest in the Supreme and Mofussil Courts of India; all topics of political, domestic, and commercial moment; incidents and occurrences; military operations; geographical, antiquarian, and historical researches and discoveries made in India; details of native durbars; politics and domestic transactions of independent Hindu states, and generally whatever comes within the well-known designation of "news."

VIII.—OFFICIAL AND STATISTICAL INTELLIGENCE.

Under this title, may be placed the information given in that portion of the Asiatic Journal called the "*Register*," which is a monthly announcement of all general and government orders issued throughout every part of British India, in the various departments; all civil, military, ecclesiastical, marine, and medical appointments, promotions, and changes; courts-martial and courts of inquiry; shipping lists at the several presidencies, including dates of arrival and departure, rates of freight, &c. Complete lists of births, marriages, and deaths, &c. &c.

IX.—COMMERCIAL AND MERCANTILE INTELLIGENCE.

Besides the details interspersed under other heads, relating to trade with India, China, and the various countries of the East, the ASIATIC JOURNAL contains an accurate price-current, or report of the prices of the principal British commodities, at Calcutta, Madras, Bombay, Singapore, and Canton, with a trade-report from each of those places. The statement of Eastern securities and exchanges is brought down to the latest period, and comprizes every essential particular relative to the money-transactions of India and China. Lists of ships arriving and departing between England and the East, with miscellaneous notices of casualties; prices of Eastern commodities at home, commercial reports, prices of stocks and shares, are also given every month.

X.—HOME INTELLIGENCE.

All occurrences and transactions in Europe, relative to the East, find a place under this head, including debates in Parliament, law proceedings (comprehending very full reports of judgments in cases of appeals before the Privy Council, given nowhere else); promotions in the King's forces in the East; names of passengers departing to or arriving from India, or expected; births, marriages, and deaths, &c. &c.

From this outline of the contents of each number of the ASIATIC JOURNAL, it must be apparent that it contains a body of matter, from which scarcely any class of readers in England would not derive information and amusement, in many respects original and attractive. Its papers on Asiatic literature will gratify the *oriental scholar;* its commercial intelligence will prove of great utility to the *mercantile community*, contemplating intercourse with the now free regions of the East; the *student of general history and manners* will find a chasm in his sources of information which this work alone can fill up; the *indolent reader* will delight to have truth presented to him in a genuine native garb, which has all the decorations and charms of fiction; and *those who have connexions with India* are furnished, in each month's journal, with a history of transactions there, and a report of all official matters which intimately concern their interest, up to so late a period, as frequently to anticipate the information communicated by letters. In all book-clubs, reading-societies, and circulating libraries, the ASIATIC JOURNAL ought to be found, since, without it, a material link in the chain of necessary channels of information must be wanting.

The ASIATIC JOURNAL is published on the first of each month, with the other Magazines and Monthly Publications, price 3s. 6d., by Parbury, Allen, & Co., 7, Leadenhall-street, and may be had of all Booksellers in the United Kingdom.

The work will be comprised in Ten Parts of large Quarto size, each Number consisting of Ten coloured Plates, accompanied with descriptive Letter-press. The Plates will be executed with the greatest attention to accuracy, and in the best style of the art, from drawings made under direction of the Author.

"Replete with varied and important facts and references, no one can peruse this work without advantage and great satisfaction. So perfect do we regard this work in all its departments, that we are sensible of no desideratum, except that of the remaining portion of it. The plates are very beautifully executed and coloured. The geological stations of India must be more interesting to the geologist even than the botanist, who will, however, know how to prize them."—*London Medical Gazette.*

"A more valuable contribution has rarely been made to the science of natural history than by the splendid work of Mr. Royle. The prints are beautifully coloured. The work, in short, is highly deserving of public patronage."—*Times.*

"The observations respecting the geographical description of the Flora of Northern India are very interesting, and the work will be valuable in supplying a rich mass of facts on the natural history (using this term in an extended scale) of a part of the world, of which our knowlenge has hitherto been vague and partial."—*Loudon's Gardener's Magazine.*

"Having noticed the former parts of this work, we have now to state, that as it advances its execution continues to be of the first-rate excellence. The book is remarkably well got up, and it ought certainly to find its way into the library of every botanist."—*Ibid.*

"We formerly announced the promised appearance of this important work; a perusal of the very interesting letter-press, and a careful examination of the well engraved and beautifully coloured plates of Himalayan plants and animals, fully realize the very favourable opinion we expressed of Mr. Royle's illustrations, an opinion founded on the well known and highly esteemed practical skill of our author as a naturalist, and his activity and intelligence as a traveller. The forty pages on the geographical distributions of the plants and the animals of the Himalayas, will be read with pleasure and delight, even by those not very deeply versed in the minutiæ of natural history. The getting up of the work is highly creditable to the publishers."—*Jameson's Edinburgh Philosophical Journal.*

"We have great pleasure in announcing the publication of the second number of Mr. Royle's beautiful and valuable work, the contents of which cannot fail to interest the botanist and instruct the general reader."—*Ibid.*

"We may now congratulate the public on a great blank in the physical geography of India being satisfactorily filled up by the appearance of this important work. The plates are remarkably good, and the general execution of the work reflects much credit upon both author and artists."—*Asiatic Journal.*

"The third part of this magnificent work fully redeems the promises tacitly held out by the first. It is pregnant not merely with information of a purely scientific nature, but with facts of general practical utility, bearing upon agricultural and mercantile topics."—*Ibid.*

"It is not too much to say, of this very remarkable work, that it is indispensable to all who would acquire a knowledge of the vegetation, climate, and soil of the North of India. The first part only is yet before us; but if we are to judge of the remainder by such a specimen, it would be difficult for us to speak too highly of its merits."—*Athenæum.*

LIST OF PLATES IN PART I.

PLATE.

ZOOLOGY.

4. Lagomys alpinus, *Desm.* Alpine hare. Nat. size.

BOTANY.

11. 1. Anemone discolor. 2. Ranunculus polypetalus. 3. Isopyrum grandiflorum. 4. I. microphyllum.
12. Delphinium Cashmerianum.
13. Aconitum heterophyllum.
14. Cimicifuga frigida.
15. Meconopsis aculeata.
16. 1. Corydalis Cashmeriana. 2. Corydalis Govaniana.
17. Tauscheria desertorum.
18. 1. Viola serpens. 2. V. reniformis. 3. V. Kunawurensis.
22. Grewia elastica.

LIST OF PLATES IN PART II.

PLATE.	FIG.	
		GEOLOGY.
1.		1. and 2. Sections of the Himalayan Mountains with the Sources of the Ganges, Jumna, and other rivers.
		3. Section of the Central Range of India, from Shergatty to Roghonautpore.
		4. Coal formation of Chinakooree on the Damooda.
		BOTANY.
19.		1. Polygala Myrsinites. 2. P. furcata. 3. P. crotalarioides. 4. P. triphylla.
20.		1. Silene Falconeriana. 2. Lychnis fimbriata.
21.		1. Leucostemma latifolia. 2. L. angustifolia. 3. Arenaria festucoides.
23.		1. Gossypium herbaceum. 2. G. arboreum.
24.		1. Eurya acuminata. 2. Hypericum Japonicum.
25.		Cedrela serrata.
26.		1. Cissus Rosea. 2. and 2.* Cissus capreolata.
27.		Geranium Lindleyanum.
28.		1. Impatiens bicolor. 2. I. glandulifera.

LIST OF PLATES IN PART III.

PLATE.	FIG.	
		GEOLOGY.
2.		Fossil Plants of the Burdwan Coal Formation.
		ZOOLOGY.
5.		1. Cervus Rutwa. *Hodgs.* 2. C. Dodur.
		BOTANY.
29.		Dictamnus Himalayanus.
31.		1. Evonymusechinata. 2. Odina Wodier.
31.		1. Edwardsia mollis. 2. Thermopsis barbata.
33.		1. Astragalus leucocephalus. 2. Uraria lagopoides.
34.		1. Genista versicolor. 2. Caragana Gerardiana.
35.		1. Parochetus communis. 2. Smithia ciliata.
37.		Cassia (Senna) lanceolata.
38.		1. Prinsepia utilis. 2. Cerasus cornuta.

LIST OF PLATES IN PART IV.

PLATE.	FIG.	
		BOTANY.
30.		Biebersteinia odora.
39.		1. Sieversia elata. 2. Dalibarda calycina.
40.		1. Potentilla Cautleyana. 2. Potentilla pteropoda. 3. Sibbaldia purpurea.
42.		1. Rosa sericea. 2. Rosa Webbiana.
44.		1. Lythrum Cashmerianum. 2. Myricaria bracteata.
45.		1. Conocarpus latifolia. 2. Sonerila tenera.
46.		1. Philadelphus tomentosus. 2. Deutzia corymbosa.
64.		1. Rhododendron lepidotum. 2. Rhododendron anthopogon.
75.		1. Primula rosea. 2. Primula elliptica.
78.		1. Rheum spiciforme.

Vol. I. price 16*s.*, cloth boards (to be completed in two volumes),

PRODROMUS FLORÆ PENINSULÆ INDIÆ ORIENTALIS,

CONTAINING

ABRIDGED DESCRIPTIONS OF THE PLANTS FOUND IN THE PENINSULA OF BRITISH INDIA;

ARRANGED ACCORDING TO THE NATURAL SYSTEM.

By ROBERT WIGHT, M.D., F.L.S., Acad. Cæsar. Nat. Cur. Soc. Surgeon on the E. I. C. Madras Establishment; and G. A. WALKER ARNOTT, A.M., F.L.S. & R.S.E., &c.

CONTRIBUTIONS TO THE BOTANY OF INDIA.

By ROBERT WIGHT, M.D., F.L.S., &c. In 1 vol. 8vo., price 7s. 6d. bds.

QANOON-E-ISLAM;

OR, THE

CUSTOMS OF THE MOOSULMANS OF INDIA;

Comprising a full and exact Account of their various Rites and Ceremonies, from the moment of Birth till the hour of Death; including their Fasts and Festivals (particularly the Mohurrum); their Vows and Oblations for every Month in the Year; their different Tribes and Sects, Saints, and Devotees; Religious Tenets, Prayers, and Ablutions; the Calculation of Nativities, Necromancy, Exorcism, Casting out Devils, &c. &c. &c. By JAFFUR SHURREEF (a Native of the Deccan); composed under the direction of, and translated by G. A. HERKLOTS, M.D., Surgeon on the Madras Establishment. In 1 vol. 8vo., price 16*s.* boards.

"In this work, the student at home, but especially the public servant in India, will possess a fund of indispensable information."—*Asiatic Journal.*

"This work minutely describes the whole ceremonial life of a Moosulman from the womb to the grave. A more curious, and for the subject a more valuable work, has not appeared in the department of oriental literature."—*Spectator.*

A MEMOIR OF CENTRAL INDIA,

INCLUDING

MALWA AND ADJOINING PROVINCES,

With the History and Copious Illustrations of the Past and Present Condition of that Country. By Major-General Sir JOHN MALCOLM, G.C.B., K.L.S., F.R.S., &c. Third Edition, illustrated with an Original Map, Tables of Revenue, Population, &c. In 2 vols. 8vo., price £1. 8s. boards.

"Sir John Malcolm is too well known as a soldier, statesman, and author, to require from us any eulogium. We shall only, in reference to the latter capacity, observe, that his 'Memoir on Central India' is in every respect worthy of his former productions."—*Quarterly Review.*

"The work before us is stamped in every part with the thoughts of a statesman, and the high and honourable feeling of a gentleman."—*British Critic.*

"In recommending this work to the notice of the public, we could not employ terms too strong to convey our high opinion of its great interest, value, and importance."—*Asiatic Journal.*

"Such a work cannot be too highly characterized."—*Oriental Herald.*

"It furnishes a vast accession of knowledge with reference to some parts of India hitherto very imperfectly known to Europeans."—*Literary Museum.*

"We feel it quite impossible to do any thing like justice to this full and excellent work."—*Literary Gazette.*

THE EAST INDIA GAZETTEER;

Containing particular Descriptions of the Empires, Kingdoms, Principalities, Provinces, Cities, &c. of Hindostan, and the adjacent Countres, India beyond the Ganges, and the Eastern Archipelago; together with Sketches of the Manners, Customs, Institutions, Agriculture, Commerce, Manufactures, Revenues, Population, Castes, Religion, History, &c. of their various Inhabitants. By the late WALTER HAMILTON. In 2 vols. 8vo., price £1. 12*s.* boards.

THE MYTHOLOGY OF THE HINDUS,

WITH

NOTICES OF VARIOUS MOUNTAIN AND ISLAND TRIBES WHO INHABIT THE TWO PENINSULAS OF INDIA AND THE NEIGHBOURING ISLANDS.

In three Parts:—The first containing the Hindu Mythology; the second, Notices of Various Tribes; and the third, a Dictionary of the Mythological and religious Terms of the Hindus. Compiled from the best Authorities, with Plates, illustrative of the principal Hindu Deities. By CHARLES COLEMAN, Esq. In 1 vol. 4to., price £2. 2. cloth boards.

"We cannot exaggerate the utility of a work like Mr. Coleman's. Although there are works in our language which furnish a thread of direction—at the head of which we should place the excellent Hindu Pantheon of Major Moor—a more copious work was wanting, and Mr. Coleman seems to have diligently availed himself of the materials already in print in addition to his own Oriental collection (which we believe is one of the largest private ones) in the volume before us."—*Asiatic Journal.*

"It appears to be the fruit of great and well-directed research. Its information touching Hindu mythology is of the most authentic, and, in many points, novel description; and the engravings, about forty in number, admirably illustrate the subject. Mr. Coleman has added a contribution of sterling worth to our Oriental literature."—*Literary Gazette.*

"We have rarely perused a work more entitled to attention than the learned but highly interesting volume now under notice. It is impossible, within the space to which we are necessarily limited, to render justice to the extraordinary industry, skill, and talent, displayed by Mr. Coleman."—*New Monthly Magazine.*

"The subject has been already handled by various writers on India, but by none so comprehensively, and at the same time so intelligibly, as by the gentleman whose work is now before us. The author has displayed great industry as well as ability, in the description of a subject replete with difficulties."—*Monthly Review.*

TRANSLATION OF SEVERAL PRINCIPAL BOOKS, PASSAGES, AND TEXTS OF THE VEDS,

AND OF

SOME CONTROVERSIAL WORKS ON BRAHMINICAL THEOLOGY.

By RAJAH RAMMOHUN ROY. In 1 vol. 8vo., price 7s. boards.

"This work embodies, in a convenient and authentic form, some valuable materials for appreciating the real character of pure Brahminical Theology."—*Asiatic Journal.*

"This is one of the most curious collections that has ever appeared in print; we sincerely admire his character and learning, as well as his writings, which are expressive of the highest intelligence, devoted to the progress and happiness of mankind, as the first link which connects the eastern and the western world."—*Revue Encyclopédique.*

"Few works possess so many claims to the attention of persons interested in the study of Indian philosophy and religion as these translations of fragments of the Vedas and controversial treatises by the celebrated Brahmin Rajah Rammohun Roy."—*Journal des Savans.*

"We have no hesitation in recommending this work as well worthy of attention, in consequence of the pecullar nature of the subject, and still more singular character of the author."—*Monthly Review.*

"A work well worthy of the attention of those who desire to form a correct estimate of pure Hinduism. We may add, as another recommendation to the work, that it may eventually prove a help to the diffusion of Christianity."—*Times.*

"It is interesting to mark the spirituality and benevolence of his mind; its superiority to the common tone of controversy."—*Monthly Repository.*

"This book is a curiosity in literature."—*Courier.*

TRAVELS FROM INDIA TO ENGLAND,

Comprehending a Visit to the Burman Empire, and a Journey through Persia, Asia Minor, European Turkey, &c., in the Years 1825-26; containing a Chronological Epitome of the late Military Transactions in Ava; an Account of the Proceedings of the present Mission from the Supreme Government of India to the Court of Tehran; and a Summary of the Causes and Events of the late War between Persia and Russia. With Sketches of Natural History, Manners, and Customs, and illustrated with Maps and coloured Lithographic Prints. By JAMES EDWARD ALEXANDER, Esq., H.P., late H.M. 13th Light Dragoons. In 1 vol. 4to., price £1. 11s. 6d.

SELECT SPECIMENS

OF THE

THEATRE OF THE HINDUS,

Translated from the original Sanscrit; together with an Account of their Dramatic System, Notices of the different Dramas, &c. By Professor HORACE HAYMAN WILSON, of the University of Oxford. In 3 vols. 8vo. Second Edition (reprinted from the Calcutta Edition).

*** The dramas selected are the Mrichchakati, Vikrama and Urvasi, Malatí and Madhava, Uttara Râma Cheritra, Mudra Rakshasa, and Retnavali.

"This work, by one of our most accomplished oriental scholars, is delightful from its novelty; but its true praise is that it unfolds before us the finest part of a national literature, and thereby illustrates a highly interesting national character."—*Blackwood's Magazine.*

"This is a most important addition to our literature, and will surprise those literary men who were, till now, but little acquainted with the learning of the Hindus. No man with a library will find it complete without these volumes, for which we are deeply indebted to Mr. Wilson."—*New Monthly Magazine.*

"That there is a Hindu Drama, and a noble one, was hardly known in England till Professor H. Wilson published his Select Specimens; and how few people in England even know any thing more about it than what we have shewed by extracts and analysis of the beautiful romance of Vikrama and Urvasi, or the Hero and the Nymph. Many thousands must have been surprised to find so much of finest fancy and of purest feeling in a poetry which they had before supposed was all emptiness or inflation, and that the Hindus have a Shakspeare in their Kalidasa. The Translator has nobly done his duty, and his volumes are an important addition to dramatic literature."—*Blackwood's Magazine.*

THE EAST-INDIAN CALCULATOR;

Or, Tables for assisting Computation of Batta, Interest, Commission, Rent, Wages, &c. in Indian Money; with copious Tables of the Exchanges between London, Calcutta, Madras, and Bombay, and of the relative Value of Coins current in Hindostan; Tables of the Weights of India and China, with their respective proportions, &c. To which is subjoined, an Account of the Monies, Weights, and Measures of India, China, Persia, Arabia, &c., collected from the best Sources and latest Authorities. By THOMAS THORNTON, M.R.A.S. In one large vol. 8vo., price £1. 1s. boards.

THE MAHÁVÁNSI, THE RÁJÁ-RATNÁCARI, AND THE RÁJAVÁLI,

FORMING

THE SACRED AND HISTORICAL BOOKS OF CEYLON;

Also a Collection of Tracts illustrative of the Doctrines and Literature of Buddhism; translated from the Singhalese. Edited by EDWARD UPHAM, M.R.A.S. and F.S.A., Author of the History and Doctrines of Buddhism, the History of the Ottoman Empire, &c. &c. In 3 vols. 8vo. price £2. 2s. boards.

CHINA.

AN OUTLINE OF ITS GOVERNMENT, LAWS, AND POLICY.

And of the British and Foreign Embassies to, and Intercourse with, that Empire. With a Chart of Canton River. By PETER AUBER, Secretary to the Honourable the Court of Directors of the East-India Company. 8vo., price 10s. 6d. clo. bds.

"This work shews very extensive reading on the topic to which it relates, and will be perused not only with satisfaction but with pleasure and interest."—*Times.*

"The subject is good, and the author a man of business, who has had access to the best sources of information."—*Spectator.*

"No person but a gentleman in Mr. Auber's official situation, and like Mr. Auber thoroughly conversant with the subject, could have produced the work before us; a work which we trust will meet with the attention of every individual about to embark in the China trade; it evinces an intimate knowledge with the abstruse science of political economy, in all its branches, an accurate acquaintance with the history, commercial policy, and navigation laws of Britain, and contains the most complete description of the Chinese policy which has ever appeared. In fact, this important work displays the operations of a comprehensive mind, actuated by generous and liberal views, and stimulated into action by patriotic motives."—*Naval and Military Gazette.*

"The important change which has been made in our commercial relations with the Chinese empire naturally excites, in those who intend to avail themselves of the change, a desire for information upon all points connected with those relations. The British public could not look to a better source for such information, than to a gentleman whose official situation and experience have afforded him the real means of acquiring extensive knowledge of the various topics relating to British intercourse with China, and whose talents, diligence, and accuracy, are well ascertained by his excellent 'Analysis of the East-India Company.' We can hardly add to the recommendation which it receives from the name it bears on the title-page."—*Asiatic Journal.*

"This is a work that may be emphatically called practical. All that the Chinese will permit us to know of themselves is here decidedly set forth, and those who may be compelled, or who are desirous to have dealings with them, may learn what they have to expect. We hesitate not to say, it should be very generally perused. To the merchant, such perusal is a matter of the most urgent necessity. We conclude by saying, that this work on China is got up with the temperate good sense of a man inured to business, and it is not only a valuable, but a most opportunely-produced volume." —*Metropolitan Magazine.*

"We cannot conceive a publication of greater utility than the volume before us. Mr. Auber's outline of Chinese history is clear and concise; not only sufficient as it refers to the principal subject under his consideration, but interesting in its general features. It is exactly the kind of book which the times want; a book of much information for the public, a wholesome guide to merchants and ship-owners, and a vade mecum to those who actually embark in the just opening trade to China. This panegyric will no doubt lead to its being widely consulted. In conclusion we have only to repeat, that we consider this volume to be one of great value, and worthy of being relied upon by the many who are deeply interested in the matters it so ably developes."—*Literary Gazette.*

REMARKS ON THE EXTERNAL COMMERCE AND EXCHANGES OF BENGAL;

With an Appendix of Accounts and Estimates. By G. A PRINSEP, Esq. In 8vo., price 5s. 6d. boards.

"Mr. Prinsep's Remarks betray a close and accurate knowledge of the subject; they are calculated to dispel doubt, and obviate errors; and must prove extremely useful, not only to the merchant and manufacturer, but to all persons interested in East-India funds at home or abroad."—*Asiatic Journal.*

ZOOLOGICAL RESEARCHES in JAVA and the Neighbouring Islands; with coloured Plates, representing Native Quadrupeds and Birds. By THOMAS HORSFIELD, M.D. F.L.S., &c. In 1 large vol. royal 4to., price £8. 8s. boards.

"The present work of Dr. Horsfield's discovers several species of animals hitherto unknown to zoologists, and which are not in the large collection at Paris or Leyden. It is formed with much care, and will be of great use in the advancement of natural sciences."—*Bulletin général et universel des Annonces et des Nouvelles Scientifiques.*

"This is a valuable work. The plates, by Mr. W. Daniell, are in his best manner, and those containing the anatomical details are superior to any hitherto published in this country. The author appears to be actuated by a sincere and zealous spirit of investigation. What he has observed he has minutely described, and those details are useful, and indeed highly valuable to the scientific."—*Philosophical Magazine.*

THE POLITICAL, FINANCIAL, AND COMMERCIAL CONDITION OF THE ANGLO-EASTERN EMPIRE, IN 1832;

An Analysis of its Home and Foreign Governments, and a Practical Examination of the Doctrines of Free Trade and Colonization, with reference to the Renewal or Modification of the Hon. East-India Company's Charter. By R. MONTGOMERY MARTIN, late of H.M. Ships "Leven" and "Barracouta," and Member of the Asiatic Society of Bengal, &c. Second Edition. In 1 vol 8vo., price 9s. boards.

"One of the most comprehensive publications on the East-India Question we have yet seen, and which contains a variety of striking facts very forcibly put. We simply recommend those who wish to form a correct opinion upon the subject, to read this book, and those who are obliged to retain their opinion, to answer it—if they can."—*Asiatic Journal.*

"We are not insensible to the value of Mr. Martin's statements; in these there is a fulness, an accuracy, a desire to make no reservation, which will win many readers to his volume."—*Athæneum.*

"This very able work is calculated to throw more light on the true position in which England and India now stand, than any other we have yet met with."—*United Kingdom.*

"We have no hesitation in recommending this work to our readers as a text book of useful facts relative to the British possessions in the East-Indies."—*Courier.*

Also, by the same Author,

The PAST and PRESENT STATE of the TEA-TRADE of ENGLAND, and of the CONTINENTS of EUROPE and AMERICA; and a Comparison between the Consumption, Price of, and Revenue derived from, Tea, Coffee, Sugar, Wine, Tobacco, Spirits, &c. In 8vo., price 5s. sewed.

ORIGINES BIBLICÆ;

OR

RESEARCHES IN PRIMEVAL HISTORY.

By CHARLES T. BEKE. Volume the First. (With a Map.) Price 10s. 6d.

This work is an attempt, from the direct Evidence of the Scriptures themselves, to determine the Positions of the Countries and Places mentioned in the Old Testament, and the Order in which they were peopled; and to explain the Origin and Filiation of the various Races of Mankind, and of the Languages spoken by them. It is intended to be completed in another volume.

"The title of this work is sufficiently indicative of its contents. The author maintains the high authenticity of the Hebrew Scriptures in all matters relating to the history of the world, and their superiority over all heathen authorities whatever, and argues for the correctness of Scripture Geography. His researches and deductions are given in that fair and amiable spirit which we hope will not be lost upon the opponents that he seems prepared to expect."—*Globe, June* 3.

"It does not fall within the plan of a newspaper to criticise such a learned and elaborate work as Mr. Beke's *Origines Biblicæ;* otherwise we should have had great pleasure in noticing the extensive, yet unpedantic research, and the earnest and judicious reasoning with which he supports his different hypotheses."—*Times, June* 16.

"It will be seen from this work, that the ingenuity of its author is supported by as much proof, in general, as criticism and the remains of antiquity are capable of affording. His hypotheses are rendered as probable as reasoning from scriptural hints can make them, and reflect equal credit on his ingenuity and on his research."—*Asiatic Journal, June* 1834.

"We regret that our narrow limits must prevent us from paying the tribute so justly merited by the author of this scholastic and deeply interesting work. It is much too important to be passed over with a brief notice; and as it is impossible for us to enter deeply into the subject-matter, we must content ourselves with recommending it to the study of those who are anxious to penetrate the veil thrown over early history, and to arrive at satisfactory conclusions upon points which tend to the establishment of the authority of the Bible."—*Court Journal, June* 14.

HINDU LAW; principally with reference to such Portions of it as concern the Administration of Justice in the King's Courts in India. By Sir Thomas Strange, late Chief Justice of Madras. In 2 vols. royal 8vo., price £1. 11s. 6d. boards.

"The work has been abl executed."—*Asiatic Journal.*

WORKS

IN THE

ORIENTAL LANGUAGES.

By JOHN SHAKESPEAR, Esq.

A DICTIONARY, HINDUSTANI AND ENGLISH.

Third Edition, much enlarged in 4to.

A GRAMMAR OF THE HINDUSTANI LANGUAGE.

Third Edition, enlarged and improved, in 4to., price £1. 1s. boards.

MUNTAKHABAT-I-HINDI; OR SELECTIONS IN HINDUSTANI.

With Verbal Translations and a Grammatical Analysis of some parts, for the Use of Students of the Language. In 2 vols. 4to, price £2. 2s. boards.

A DICTIONARY OF THE ENGLISH AND SINGHALESE,

AND

SINGHALESE AND ENGLISH LANGUAGES.

Under the Patronage of the Government of Ceylon. By the Reverend B. CLOUGH, Wesleyan Missionary. (Colombo, printed 1821.) In 2 vols. 8vo., price £2. 5s. boards.

Also, by the same Author,

A COMPENDIOUS PALI GRAMMAR,

With a Copious VOCABULARY in the same Language. (Colombo, printed 1824.) In 8vo., price 15s. boards.

A GRAMMAR OF THE T,HAI, OR SIAMESE LANGUAGE.

By Captain JAMES LOW, of the Hon. East-India Company's Military Service. In 4to., price £1. boards.

HAFT KULZUM, OR THE SEVEN SEAS:

A Dictionary and Grammar of the Persian Language, by His late Majesty the KING of OUDE. In 7 vols. folio. Price £30.

This splendid work was printed at the Royal Press in the city of Lucknow. The first six volumes contain the Dictionary, and the seventh the Grammar.

THE GULISTAN,

OR

ROSE-GARDEN OF MUSLE-HUDDEEN SHAIK SÂDY OF SHEERAZ.

In the original Persian, being a carefully corrected and revised Edition of that formerly published by FRANCIS GLADWIN. In 8vo., price 16s. boards.—Or a Translation in English. 8vo., 9s.

A GRAMMAR OF THE TURKISH LANGUAGE:

With a Preliminary Discourse on the Language and Literature of the Turkish Nations, a copious Vocabulary, Dialogues, a collection of Extracts in Prose and Verse, and lithographed Specimens of various Ancient and Modern Manuscripts. By ARTHUR LUMLEY DAVIDS. In 4to, price £1. 8s. boards.

"A work replete with intelligence—deformed by no hypothesis or theories—sensible, clear, acute, and though on a dry subject, exceedingly entertaining."—*Literary Gazette.*

"Never perhaps were the rules for acquiring a difficult language laid down in a manner so simple, and at the same time intermixed with so great a variety of the most interesting information. Indeed, we may venture to say, that a glance at this work would be sufficient to induce one to study the Turkish Language. It is without exception the most beautiful specimen of Oriental Typography we have ever seen."—*Gentleman's Magazine.*

"We are quite astonished at the extent of reading displayed in Mr. Davids' Preliminary Discourse. We most cordially recommend the work to the notice of every lover of Turkish Literature. —*Asiatic Journal.*

IMPORTED FROM INDIA:

PUBLISHED UNDER THE AUTHORITY OF THE COMMITTEE OF PUBLIC INSTRUCTION AT CALCUTTA.

1. MOOLUKHKHUS - OOL - TUWAREEKH (in Persian), being an Abridgment of the celebrated historical Work called the Seir Mootakherin. Royal 4to. £1. 15s. boards.

2 MOOJIZ-OOL-QANOON; a Medical Work (in Arabic). By Alee bin Alee Il Huzm (Ibn-ool-Nufees). 4to. £1. bds.

3. BHATTI KAVYA; a Poem, on the Actions of Rama (in Sanscrit). With Commentaries. In 2 vols. royal 8vo. £2. 10s. boards.

4. LAGHU KAUMUDI: a Sanscrit Grammar. By Vadaraja. Royal 12mo. 7s. 6d. boards.

5. MUGDHABODHA: a Sanscrit Grammar. By Vopadeva. Royal 12mo. 7s. 6d. boards.

6. NYAYA SUTRA VRITTI, the Logical Aphorisms of Gotama (in Sanscrit). With a Commentary. 8vo. 10s. 6d. boards.

7. BHASHA PARICHHEDA and SIDDHANTA MUKTAVALI: an Elementary Treatise on the Terms of Logic, with its Commentary (in Sanscrit). Royal 8vo. 7s. 6d. boards.

8. LILAVATI, a Treatise on Arithmetic, translated into Persian, from the Sanscrit of Bhascara Acharya. Royal 8vo. 8s. 6d. boards.

9. SELECTIONS, Descriptive, Scientific, and Historical; translated into Persian, for the use of Native Youth. Royal 8vo. 14s. boards.

10. SAHITYA DERPANA; a Treatise on Rhetorical Composition (in Sanscrit). By Viswanath Kaviraja. Royal 8vo. 14s. boards.

11. MEJMUA SHEMSHI: a Summary of the Copernican System of Astronomy (in Persian). 12mo. 2s. 6d. stitched.

12. FUTAWA ALEMGIRI: a collection of Opinions and Precepts of Mohammedan Law, compiled by command of the Emperor Arungzeb Alemgir (in Arabic). 3 vols. royal 4to. £9. 15s.

13. Short ANATOMICAL DESCRIPTION of the HEART, translated into Arabic, by JOHN TYTLER. 8vo. 3s. 6d. boards.

14. DAYA TATWA: a Treatise on the Law of Inheritance, by Raghunandana Bhattáchárya (in Sanscrit). 8vo. 8s. bds.

15. DAYA KRAMA SANGRAHA: a Compendium of the Order of Inheritance (in Sanscrit). 8vo. 8s. boards.

16. DAYA BHAGA; or, Law of Inheritance; with a Commentary by Krishna Terkalankara (in Sanscrit). 8vo. 12s. boards.

17. KAVYA PRAKASA: a Treatise on Poetry and Rhetoric, by Mammata Acharya (in Sanscrit). 8vo. 16s. boards.

18. VEDANTA SARA: Elements of Theology, according to the Vedas; with a Commentary (in Sanscrit). 8vo. 12s. boards.

19. VYAVAHARA TATWA: a Treatise on Judicial Proceedings, by Raghunandana Bhattáchárya (in Sanscrit). 8vo. 8s. boards.

20. CH,HUTRU PRUKASH: a Biographical Account of Ch,hutru Sal, Raja of Boondelkund, by Lal Kuvi (in Brij Bhakha). Edited by Capt. W. PRICE. 8vo. 16s. boards.

21. The KIFAYAH, a Commentary on the Hidayah; a Treatise on the Questions of Mohammadan Law. By Hukeem Mouluvee Abdool Mujeed, and others (in Arabic). 4to. £2. 10s. sewed.

22. The INAYAH: a Commentary on the Hidayah: a Work on Mohummudan Law, compiled by Mohummud Akmulooddeen, Ibn Muhmood, &c. (in Arabic). 4to. £1. 17s. 6. sewed.

23. MENU SANHITA: the Institutes of Menu, with the Commentary of Khulluka Bhatta (in Sanscrit). 2 vols. 8vo. £1. 5s. sewed.

24. MITAKSHARA: a Compendium of Hindu Law, by Vijnánéswara, founded on the Texts of Yajnawalkya. The Vyavahara Section or Jurisprudence (in Sanscrit). 8vo. 14s. sewed.

25. UTTARA RAMA CHERITRA, or Continuation of the History of Ráma, a Drama, by Bhavabhuti. (Sanscrit.) 8vo. 2s. 6d. sewed.

26. MALATI and MADHAVA: a Drama in Ten Acts, by Bhavabhuti. (Sanscrit.) 8vo. 2s. 6d. sewed.

27. MUDRA RAKSHASA, or the Signet of the Minister, a Drama, by Visakha Datta. (Sanscrit.) 8vo. 2s. 6d. sewed.

28. VIKRAMORVASI, or Vikrama and Urvasi: a Drama, by Kálidása. (Sanscrit.) 8vo. 2s. sewed.

29. MRICHCHAKATI, a Comedy, by Sudraka Raja (in Sanscrit). 8vo. 16s. sewed.

30. RETNAVALI, a Drama in Four Acts, by Shri Hersha Deva (in Sanscrit.) 8vo. 2s. 6d. sewed.

The ORIENT PEARL for 1834. Silk, price 16s.

THE BENGAL ANNUAL. A Literary Keepsake for 1834. Price 18s. Also for 1830, 1831, and 1832. Price 15s. each.

Dedicated by permission to his Excellency the Right Hon. Lord William Bentinck, G.C.B. and G.C.F., Governor-general and Commander-in-chief in India.

A NEW and IMPROVED MAP of VARIOUS ROUTES between EUROPE and INDIA, comprehending WESTERN and NORTHERN ASIA, together with ASIA MINOR and Egypt. By J. B. TASSIN. Four Sheets, coloured, cloth case, £2.

ASIATIC RESEARCHES. Vol. 18. Royal 4to., price £2. 2s. bds.

FLORA INDICA; or, DESCRIPTION of INDIAN PLANTS. By the late WILLIAM ROXBURGH, M.D., F.R.S.E., &c. &c. Edited by W. CAREY. A New Edition. (Calcutta, 1832.) Vols. I., II., and III. 8vo. price £3. 18s. boards.

*** The present edition to be completed in four volumes.

TRANSACTIONS of the AGRICULTURAL and HORTICULTURAL SOCIETY of INDIA. Vol. I. in 8vo., price 10s. boards.

An ACCOUNT of STEAM VESSELS; and of Proceedings connected with STEAM NAVIGATION in BRITISH INDIA. Compiled by G. A. PRINSEP. In royal 4to., with Map and Plates, price £1. 1s. boards.

MEMOIRS of MOMUMMUD AMEER KHAN, translated from the PERSIAN, by H. T. PRINSEP. In 1 Vol. 8vo. 15s. boards.

Captain POGSON'S NARRATIVE during a TOUR to CHATEEGAON, 1831. In 8vo. price 5s. sewed.

An English Index to the PLANTS of INDIA. By H. PIDDINGTON Foreign Secretary, Agricultural and Horticultural Society, Calcutta. In 1 Vol. 8vo., price 9s. boards.

VALUABLE MAPS, CHARTS, ATLASSES, &c.

ALL COMPILED FROM ORIGINAL DOCUMENTS.

MAPS OF INDIA.

A NEWLY CONSTRUCTED and EXTENDED MAP of INDIA, and of the BURMAN EMPIRE, from the latest Surveys of the best Authorities. On six sheets, price £2. 12s. 6d.; or on cloth, in a case, £3. 13s. 6d.; or on cloth, with Rollers, varnished, £4. 4s.

Among the great mass of materials used in the construction of this Map, the following may be particularized:—the Surveys of Colonel M'Kenzie in the Mysore; of Brigadier Lambton, as well as numerous Positions determined by him in the course of his Trigonometrical Operations; of Colonel Hodgson and Captains Webb and White in the Mountainous Districts; of Captain Franklin in Bundlecund; of Captain Johnson in Bhopal; of Lieut. Wilcox in Assam; of Lieut. Fisher in Sylhet; and of Lieut. Pemberton in Munipoor. Malwa is copied from Sir John Malcolm's Map. The latest routes of Mr. Moorcroft have also been inserted.

SMALLER MAP of INDIA, and of the BURMAN EMPIRE, compiled from the latest Documents. On One large Sheet, 18s.; or on cloth, in a Case, or with Rollers, £1. 5s.; or with Rollers, varnished, £1. 9s.

MAP of the WESTERN PROVINCES of HINDOOSTAN, constructed from the most recent Surveys, and Inscribed to Major-General Sir John Malcolm, G.C.B., K.L.S., &c. On Four Sheets of Atlas, price £1. 11s. 6d.; or on Cloth, in a Case, £2. 5s.

MAPS of INDIA, *viz.*—1. General and Commercial.—2. Political.—3. Military.—4. Revenue.—5. Judicial. Compiled by JOHN WALKER, by order of the Right Hon. the Board of Commissioners for the Affairs of India. On One Sheet 4to. atlas. Each 1s.

A MAP of CHINA and the ADJACENT COUNTRIES, including Corea, part of Japan, the Islands of Formosa, Philippines, &c. Compiled from the Charts by Captain Ross and other Surveyors of the East-India Company, and the latest authentic Documents. One large Sheet, coloured 8s.; on Cloth in a Case, 11s.—on Cloth, with Roller, 12s. 6d.—or varnished, 14s.—or in frame, varnished, £1. 14. 6d.

INDEX, containing the Names and Geographical Positions of all Places in the MAPS of INDIA, designed to facilitate the use of those Maps. In 1 vol. 12mo. price 10s. boards.

GENERAL CHART from ENGLAND to CHINA, including the Indian Seas; inscribed to James Horsburgh, F.R.S., &c. &c. On One large Sheet, price 7s. 6d.; or on Cloth, bound, 10s. 6d.; or on Cloth, bound and coloured, 12s.

"Its utility is not confined to nautical persons, or passengers on board ship; but it will afford a most convenient means of reference in the library and counting-house."—*Asiatic Journal.*