1. After cases promise an outbreak in the Army.
2. Spread with wonderful rapidity with territorial differences.

3. Preventive accorded to Nelson, Lord.
   - R.
   - Chlor. Zephyr.

** Asiatic Cholera **

its history, prevention, symptoms,
pathology, and treatment.

Arthur John Graham Cross.

M.R.C.S. Eng.

Colonel in large doses or frequent leaded.

The best treatment.

39. Reduce salts of blood into a mixture of:

January 1860. Cholera appeared! Hypochlorite of Silver!!

first hit our China expedience.
** Asiatic Cholera:**
its history, prevention, symptoms, pathology, and treatment.

**Introductory History of the Disease.**

The subject of Asiatic Cholera
derives a peculiar interest at the present moment from the fact that this is for the fourth time its threatened introduction to this country is imminent, a few cases indeed have undoubtedly occurred, though the disease has not at present assumed the character of an epidemic. According to its usual custom, however, its virus will probably remain dormant until the spring when it may be expected to break out with that peculiar violence which always characterizes the commencement of its attack.

Its way of approach on the present occasion has been different from the course it pursued on each preceding visitation. Taking its rise in India which seems always
to have been the source of its origin and propagation, it then successively followed pretty nearly the same line of march, travelling from the North-West province of Hindoostan, through Persia, along the Western shores of the Caspian Sea to Astracan, and traversing Russia, it eventually made its appearance in this country at those seaports having direct communication with the Baltic.

This time however it seems to have been brought from its native soil India, and the adjacent countries by Mahomedan Pilgrims journeying to Mecca to assist at the great religious ceremony in honor of the founder of their faith. Thus conducted it has advanced towards Europe by a Red Sea, stirring the borders of the Mediterannean Sea, devastating Egypt, Syria, Turkey, the Levant, and more lightly attacking Italy, Spain and France.

As regards its mode of propagation and course of progress, Cholera does not seem to obey the general laws which govern other epidemics. There is no reliable evidence of its being
contagious, the experience indeed of Medical Men who have had extensive opportunities of observing the various outbreaks of the disease in India are opposed to this opinion, their hospital reports invariably state that the Medical Officers, native attendants, and warders of hospital clothing were very rarely attacked, one and all appear to have enjoyed a remarkable immunity from the disease. The accounts received of the recent epidemic in Syria, which accompanied the vast multitude of pilgrims on their march, and produced so frightful a mortality, might possibly from the notion of its contagious nature, but when their camp site habits and indifference to sanitary precautions are considered, it is far more probable that they continued to carry with them all the personal and local agencies likely to harbour and keep in active operation, the specific elements of the disease, and in this manner perpetuate the germ of its propagation.

The manner and course of advance observed in former Cholera incursions, indicate indeed
a mode of progression differing entirely from the ordinary action of contagious diseases. It was noticed to travel in well defined lines, often across uninhabited districts and appear almost simultaneously in communities having little or no intercourse with each other, wherever it met with local circumstances favorable for its reception it exerted its influence.

The most violent and destructive diacombination of its poison however, rather exhausted its activity, nor arrested its progress, onward it pursued its way with a marvellous triumph over space, and its least wondrous independence of terrestrial and atmospheric obstructions, until it had completed its grand tour of Europe, and the Continent of America.

In these respects the habits of Cholera are peculiar and distinguish it from all other epidemics. It comes to us from a distance; local circumstances do not anticipate its arrival; sea and land tracts cannot prevent its approach; knowing nothing of the means of transport we yet hesitate not to expect...
it when it is in its march.

In the East the limits and direction of these cholera lines have sometimes been made unmisunderstandably manifest by the abrupt commencement and cessation of the disease in bodies of troops and caravans of travellers crossing their path without at all strictly adhering to any particular track. The disease has very usually shown a preference for travelling along watercourses, swaun-ny valleys, and marshy plains, occasionally its incursion has been confined to their immediate vicinity, sometimes even, it has been restricted to the inhabitants of one side of a river, passing by harmlessly the residents of the opposite bank. In this country too during its prevalence, it has attacked the occupants on one side of a street and left those on the other quite free, even when there has been no apparent difference in the habits, circumstances, and local characteristics between them, although in this respect, it may at times, show a peculiar capriciousness.
of action; it is almost certain as a rule, to invade those close and crowded neighbourhoods which are commonly the seat of epidemic outbreaks. In such localities the insanities arising from bad ventilation, defective drainage, and the various putrescent matters suffer to remain more or less exposed, load the atmosphere with morbific elements, and form a fit seed for the development of the Cholera virus. In addition to this the very commonly impure water used for drinking, the ill fed, and badly clothed condition, and frequent intemperate habits of the poor, not only predispose them to the disease, but deprive them of the power of resisting the violence of its attack.

The circumstances of elevation, and open and detached positions, as not however secure an immunity from these predisposing influences. A remarkable instance of this occurred this last autumn at a farm residence, standing upon a hill, in the vicinity of Epping, on the spot five persons were carried off by Cholera, super-

- bluing on obstinate alienation; an investigation
it was discovered that there was a leakage from
the cesspool, through the soil into the well which
supplied the family with water, and poisoned
its contents.

Habitations, however, favor'd in other respects,
if situated on a soil liable to be impregnated
with organic decomposition, through which
they cannot percolate, or from which they are
not removed by artificial drainage, will
always be subject at certain seasons, to an
corporation of these putrescent sources of pre-
disposition into the surrounding air.

There is also during Cholera epidemics,
an oppressed, stagnant, and heavy state of
the atmosphere; which has the double tendency
of favoring the chemical decomposition of
putrescent substances, and of preventing
their being dissipated into space.

The Meteorological conditions of the
atmosphere at such times are very peculiar,
and have been carefully noticed and described
by Dr. C. Lauder.

According to his observations made at each
Cholera period, there was a high temperature, a cloudy sky, and but little or no rain, scarcely any motion in the air currents, a want of ozone, and no electricity in the atmosphere. The scarcity or absence of these sanitary agents, which by means of showers, breezes, and thunderstorms, change,refresh, and purify the air; are undoubtedly not only attendant circumstances on the presence of Cholera, but as a consequence, enable that disease more easily and surely to exert its influence on the human economy.

The abstraction indeed of these elements from the air, mixed in a measure deteriorate the material of respiration, and affect its vital properties; while the morbid phenomena which characterize the Cholera attack, would seem to indicate, that the electric forces of the nervous system are also in the manner subverted.

The power of the Cholera poison to neutralize or destroy electric action, is a fact too clearly established by these meteorological...
investigations to be ignored; and it is a question for further consideration, in the due course of the subject, whether such a fact does not help to explain the mode of operation of this mysterious disease on the system; and at the same time, whether it does not also afford a valuable hint, as to an important feature in its treatment.

**Preventive Influences and Preventive Measures.**

A more careful study of the subject hygiene, has established a system of prophylactic treatment in view of a threatened Cholera epidemic, secretly if at all less important in its object, than the remedial treatment of the disease itself; the successful exercise of the one indeed assures the more effective practice of the other.

It is necessary therefore to give a due share of consideration to those preventive means, which properly resolve themselves into the two divisions of public or general, and individual or domestic measures.

The Public department will be able to future
Reforms come more immediately under the
management of the recently appointed Medical
Officers of Health, and Inspectors of nuisances,
who in their several districts, constitute an ef-
ficient staff, ready in case of emergency, to
enforce with authority, whatever provisions they
may deem it necessary to adopt. Much im-
provement has already in fact been effected
through their instrumentality, in the sanitary
condition of the localities over which they preside;
at the same time, the publication of official reports
on the subject, has diffused a large amount of
useful information among the general community
and taught a better acquaintance with the laws
which govern health, and the consequences of
ignorantly or wilfully violating them; Knowledge
of this kind however, is little likely to reach, and
less likely to impress, the minds of the lower classes
whose habitual negligence, of, and indifference to
the most ordinary rules of precaution against
disease, exposes them especially to its ravages.
It is needful therefore to devise a more di-
rect means of coming into contact with them,
and practically defending them from the conseque-
ences of their own carelessness.

The first step for this purpose is to organize a plan of house-to-house visitation, by which course alone is it possible to detect, and provide against, the various local circumstances which predispose them for the deception of the Cholera poison.

The greatest objects to be had in view are, the state of ventilation, and cleanliness of these proper habitations; the conditions of the various kinds of drainage, in connection with them; and the provisions made for the disposal of all decaying refuse matters.

The subject of ventilation, at all times important, but especially so at a time of a threatened Cholera epidemic, is one for which the poor have ever shown the greatest apathy. They have an in-
vertebrate habit of keeping their windows closed at all seasons, and of otherwise impeding the free circulation of air through their rooms. A striking proof of this occurred some time ago, when an entire court in the metropolitan parish of St. Giles was pulled down and rebuilt.
by the Society for improving the dwellings of the labouring classes; the new building was supplied amongst other sanitary provisions, with a ventilating apparatus, in the ceiling of each apartment. So ineradicable however was the habit alluded to, that at an inspection shortly after their occupation, it was discovered that almost all these ventilators were plastered over with paper, for the purpose it was stated of preventing drafts.

It is no less a common practice with them, to leave their slops, and other offensive matters exposed in their rooms, in close proximity with the water they drink; and to suffer the remains of vegetables, fish bones, and other such like refuse articles of food, to putrefy in a corner, or decompose on the dungh heap.

Nor indeed are they more attentive to the state of their drainage; defects in the waste pipes of dunks, desert, and water closets, jet stop-page or leanage, but too generally remain unheeded, partly from the indifference of the inmates themselves, and partly from their
inability to induce their landlords to remedy the evil.

An atmosphere charged with effluvia from many polluting sources, is prepared as if were for harbouring the cholera poison, while it shockingly depresses the vital powers of all who breathe it, and renders them extremely susceptible of the action of the poison itself.

To deal effectively with these various noxious elements, wherever they are found to exist, it will be necessary not only to urge the people themselves, to do all in their power to prevent accumulations of filth, but also to enforce the cooperation of contractors, whose duty it is, promptly and regularly to remove all accumulations.

In case of obstructed drains or defective cesspits the resposible parties must be compelled by an appeal, if needful, to the proper authorities to restore them to a state of efficiency.

At a very small expense the ventilation of any room may be improved, and at any rate its occupant may be taught to purify the air,
by the simple processes of throwing open the door and windows, and regularly scouring the floor with sand and Fuller's earth.

The walls of close and damp rooms, especially underground cellars, and of narrow courts and alleys, should be thoroughly cleaned and coated with lime.

In all crowded habitations it is desirable to employ disinfecting agents. Preparations of chlorine, such as the chlorides of lime and Iron, are those most usually recommended. For ordinary and extensive use, however, a very cheap and effective deodorizer is furnished by the by-product left after the manufacture of chlorine. It consists of chloride of manganese, a variable proportion of chloride of Iron, and free chlorine. It acts by decomposing that poisonous element of putrefaction, the Hydrosulphate of Ammonia, and converting it into the harmless compounds, of Hydrochlorate of Ammonia and Sulphuret of Manganese. It has been fairly tested and found convenient for purifying receptacles of filth of every kind. In the presence of Cholera some such means ought.

* Lancet January 9th 1848.
invariably to be had recourse to, for the purpose of disinfecting the above and gastric evacuations, and soiled linens of the patients; while it would be expedient to subject it, as well as the sheets and blankets to the further process of boiling, and to expose the bedding to the action of the open air for some days.

All personal preventive measures must of course depend for their efficacy on the willingness and aptitude of individuals, to understand and carry out, whatever instruction they may receive on the subject.

Such advice is of course applicable to all, but in certain particular more especially to the poor.

They are as a rule improvident of their little means, mostly uncleanly in their persons, but too commonly intemperate in their habits, and singularly disposed to panic of fear at the approach of Cholera.

These personal predisposing influences, added to those of a general and local character already mentioned, increase very considerably their
inability to resist an attack of the disease, should it become prevalent among them.

Prophylactic means of defence as far as individual management is concerned, consists in maintaining a healthy condition of the organs of excretion, secretion, and digestion, and a firm and resilient state of mind, through the nervous system.

For this purpose:—Care is to be taken to preserve the proper temperature of the body throughout its entire surface, by the use of sufficiently warm and dry clothing, and undergarments of flannel. Persons whose means will not afford these, should at least be provided with a flannel belt, broad and long enough to well cover the loin and abdominal region.

To prevent suppressed perspiration; sudden chills, and exposure to damp and unwholesome, are to be avoided: attention is to be paid to personal cleanliness, that the pores of the skin may freely perform their functions.

A plentiful supply of water for domestic purposes is essential, when it is too impure.
to drink with safety, it should be filtered.

A homely apparatus for filtration may be contrived by placing a loose bag of charcoal at the bottom of a vessel with a hole in it just large enough to allow the water to percolate very slowly.

Strict regard is to be given to diet. Indiscretions both in eating and drinking during the prevalence of Cholera, are extremely liable to produce dis-
turbance of the Stomach and bowels.

Sufficient food of a light and nutritious kind is especially required, at such times, when the vital powers need to be sustained, with more
than ordinary energy for the resistance of disease.

It is desirable to be guided by individual experience, with regard to the choice of food.

As a rule however Soups, mutton, fresh beef, white fish, poultry, and game, are a suitable diet for all who can obtain them. Pork, veal,
salted meats, and pastry, being more difficult of digestion, had better be avoided.

It is necessary for persons having a tendency to relaxed bowels to be contented with well boiled
potatoes and rice, abstaining altogether.
from green vegetables and fruits.

The habituated to the temperate use of Still-
-clanks should continue to take them, they can-
-not safely be dispensed with at a time, when
if ever, they are required.

As regards the poor, every effort should be made
to supply them with sufficient and wholesome
nutriment.

District soup kitchens have become an In-
stitution, and would be available in part for
that purpose. Perpetual Boards would under-
such a pressure of need, do doubt afford more
liberal and extended our door relief, and ap-
peals to public charity, might as least fore-
be confidently relied on, to further so philan-
thropic an object.

An earnest caution particularly to the poor,
should be given, against indulging in intem-
perate, and irregular habits.

Intemperance is a vice at all times destructive
both to body and soul. In the season of Cholera
it exposes to almost certain death.

Each time the disease has made its appearance
In this country, dreadfuls have ever been its direst victims; the first to be attacked, and the most likely to be carried off by it.

No less urgent is it to warn the general public of the consequences of giving way to fear.

In the prevalence of Cholera, all are in contact with its poison. So long however as the vital energies, and moral nerve of the constitution, are fully and rigorously sustained, they constitute a powerful prophylactic means of resistance to an attack of the disease.

Fear exercises the contrary effect on the system. It depresses its nervous tone, paralyses the resisting power of the vital functions, and completely incapacitates the mind for the performance of the duties incumbent upon all, at such a season of emergency.

In this manner it becomes to common a predisposing agent of Cholera, so to have given rise to the custom, that where Cholera kills one, fear destroys its many. This fact cannot be too well known and too strongly insisted on.

For although fear is an involuntary emotion,
and cannot be controlled as well, some influence may yet be exerted over it, by impressing upon the minds of the times, that in face of danger, greatly increased by the apprehension of it, it would be much more expedient and rational to fear being afraid, than to fear the disease.

Above all it is well to seek assistance from those, in whom to trust, to receive confidence and support, in every time and kind of trouble.

**Symptoms and Pathology of Asiatic Cholera**

The accession Cholera, even in its severest form, is almost invariably preceded by diarrhea of a longer or shorter duration.

Instances it is true have been recorded of the poison of Cholera attacking and destroying life as by a shock, without exhibiting any of the previous indications which usually usher in the disease.

This has been more particularly observed in India, where its preliminary signs are not unfrequently less well marked, though examples
If a like nature have also been reported in this country. Such cases however, exceptions to the general rule, and are only to be met or the outburst of the disease. They are undoubtedly to be accounted for, by the introduction of a highly concentrated form of its poison into the system, sufficiently powerful in effect, to utterly prostrate the vital powers before it has had time to manifest its incipient symptoms.

The same peculiar virulence has also been noticed in the early periods of other epidemic diseases. These exceptions are happily rare, and the prevalence of diarrhea is in effect an almost constant pre-occurrence, and serves the purpose of a providential warning to prepare for its incursion.

The preliminary diarrhea simply consists of the discharge of bilious and feculent matter common to ordinary bowel complaints, and is not to be distinguished from them, by any early specific signs, except perhaps its persistency and the unusual frequency of its secretion, which sometimes amounts to fifteen or twenty
or more in an hour.

In this case and especially when the Cholera epidemic is present, or threatening, the symptoms are very suspicious, and may be fairly regarded as the probable precursor of an attack of the disease.

The preliminary stage may last only a few hours, or it may be extended to several days, according to its intensity, or the existing place of the patient. It is frequently painless and often unaccompanied by vomiting or other functional disturbance, and consequently attracts but little attention. If it be allowed to continue unchecked, it eventually assumes that more advanced form, which has been termed Choleraic diarrhea.

This may be said to constitute

The preliminary stage.

It is characterised by a distressing state of uneasiness and looking about the present, great nausea, retching, and occasional vomiting; some colicude of the bowels, a weakened pulse, and considerable thirst. Ceping, and epaulet of the abdominal muscles, which while sometimes
present in the earlier stage, are red and more constant
and severe.

A remarkable change takes place in the nature
of the evacuations. They become entirely distended
of bile and fecal colostrum, and present the ap-
ppearance of somewhat dirty rice water.

At first they contain a portion of urine from
the intestinal membrane, but afterwards ex-
distinctly of serum, as may be proved
by coagulation when submitted to the test of
heat and nitric acid. They have always an
alkaline reaction, and are said largely to explain
the epithelium of the intestine.

The confirmed stage of the disease is now
completely established. The vomiting and purg-
ing (often involuntary) of serous fluid is
incessant. The thirst is most urgent. The
expansion of the abdominal muscles, and cramps
of the extremities, are intolerable. The tem-
perature of the body is greatly reduced. The
tongue feels moist and cold though it is still
clean. The pulse is very feeble but yet distinct-
ly to be felt. The skin is bathed in cold, clammy
Disease, assumes a shrunken look, and is sometimes
corrugated like a weaker woman's hands. The face
and fingers are often livid. The eye balls sink
within their sockets, and the facial muscles fall
in producing an indescribable expression of
countenance peculiar to the disease. There is
note suppression of urine in this stage; very
commonly a loss of voice, which grows less and
less prominent, and at length is heard only in
a whisper.

The diagnostic signs are here so well marked
that there can be no doubt of the nature of the
disease.

The prognosis up to this point, while much fa-
rorable in the preliminary stage, is almost
always doubtful in this, though not necessarily
hopeless. Recoveries from such a state have
been frequent enough, to encourage the per-
istent use of remedial measures. Still a
successful issue will depend much upon the
age, temperament, constitutional power, and
previous habits of the patient, and no less so on
the circumstances favorable or otherwise,
by which they are surrounded.

Even this must however cannot be prognosticated
of the stage of collapse into which the disease
if not arrested eventually passs.

Vomiting and purging now cease, the blood
being unable to furnish venous for defecation.
Its already rapid and extensive abstraction
completely congeals the circulation, which being
at the same time, and from the same cause
imperfectly oxygenated in the lungs, gives
to the surface a very decided blue tinge, and to
the eyeballs a leaden hue. Animal heat is
no longer generated, and the breath itself
becomes chilled, and the body deadly cold.

The patient though perfectly conscious needs
often to be bound, the defective circulation
producing torpor of the brain. The eyelids
are partly closed, and the eyeballs evaded
upwards. The pulse cannot be felt, and the
motions of the heart are scarcely if at all
to be detected. The greatly solidified blood
 stagnates at its source, from want of pro-
jectile force; the vital powers being
Thoroughly prostrated. The animal functioned for a very brief period outside the organic, and then slowly succumbed, the mind being in a great measure unimpaired to the last.
The successful termination of the cholera symptoms is not, however, always bad in convalescence. Occasionally they take in the form of febrile reaction, and are succeeded by a typhoid stage of the attack, identical in character with that, into which diarrhea is apt to degenerate, during an epidemic of typhoid fever.
The transition generally takes place in the advanced premonitory stage. The covering of the surface is succeeded by a hot and dry skin. The tongue also becomes dry and glossy and sometimes red. The thirst which had subsided again urgent. Incessant and vomiting are commonly continued or recur, the objection being tinged with bile.
There is great tenderness to pressure over the epigastric region. The respiration is quickened and the pulse rather, though it
becomes and remains, rapid, small, and hot. A sense of heaviness is felt in the head, or there is decided headache; when this is severe, the mind becomes clear, is confused and even delirious. The eyes are always dull and sunken, sometimes they are bloodshot, indicating serious congestion of the brain. In that case coma, and complete insensibility supervene, and the prognosis under such circumstances does not admit of hope.

If these greater symptoms however do not present themselves, or are promptly subdued by treatment at their onset, there is fair hope of recovery. A spontaneous diarrhoea is frequently occurs in this stage. It is a favorable crisis, and generally brings the attack to a successful termination.

The pathological phenomena attendant upon the accession of the true cholera symptoms, indicate that its poison exerts its influence primarily and directly on the ganglionic nervous centres. There is always a marked consciousness of sinking and weakness at the region of the great Solar plexus, the head quarters of that
department of the nervous system. It is not so much characterized by mortis sensibility, as by a sense of deadly prostration.

The powers of the nervous centres, which have been termed the citadel of organic life, go down before the attack as from a blow. It fails in the organs supplied from this source like a shock. The vital functions of circulation, respiration, secretion, absorption, and the generation of animal heat are early and seriously under-rased in their action. The blood loses its vital activity and becomes disorganized, as a separation of its principal component parts takes place. Its serous portion is rapidly drained off, while its chressamentum is retained in the vessels, and eventually arrests the flow of the circulation and contributes greatly to the fatal issue of the case. At the same time the function of secretion, being thus deprived of the materials which it is its office to transform, ceases to perform its duties; whilst the process of absorption dependent on that of the circulation for its means of action, is also suspended and
fails to appropriate either nutrient or med- 
iment to their intended purpose.
The spinal nerves centers preserve their nor-
mal rigor and sensibility with considerable 
permanency, and by their reflex action throw 
the muscles of the abdomen and extremities 
into the most violent and painful contractions. 
So regular and constant are these convulsive 
paroxysms, that they would seem like efforts of 
nature, to rouse up and sustain the flagging 
energies of organic life.
The cerebral organism appears also capable 
of resisting the influence of the disease, to a 
considerable extent; throughout the attack, 
indeed, the intellectual faculties retain their 
power, and the mind is almost always suf-
ficiently at command to enable the patient 
to arrange affairs, and set in order all things 
needful for such an occasion. The emotional 
delicacies however become singularly 
apathetic. The feelings of hope, sympathy, 
and fear, though the latter may have been 
distressingly urgent previously, are now
alive subverted. The patient seems to lose all care about his own condition, and to be in a great measure regardless of the anxiety of others for him. He is perfectly conscious of the exigencies of his case, but at the same time indifferent to them.

This is a curious psychological phenomenon, little to be anticipated from the state of mind immediately antecedent to the attack, and is only to be accounted for by the more intimate association of the emotional, than of the intellectual faculties, with the sympathetic nervous system; by which means the former are brought more directly under the morbid influence of the disease.

This paralysis of organic nervous power, is probably owing to the action of the Cholera virus on its electric force, which is believed to be at once the source and sustenance of vital energy. The fact that the presence of Cholera in the atmosphere, has the effect of subverting or neutralizing its electric element, might certainly warrant such a supposition.
In that case the blood vessels being thus deprived of their contractile properties, and their contents being simultaneously decomposed, the escape of their fluid portion is readily accounted for.

The pathology of the disease would therefore indicate that the dominant object of remedial treatment should be, to preserve, or failing that, to restore if possible, the vital energies, and functional powers of organic life.

**Treatment of the Disease.**

The treatment of Cholera is still a subject of controversy, but so indeed is that of most other important diseases.

It ought not therefore to be considered a special reproach against Cholera, that no one system of treatment, has at present been determined; on which the profession at large, may be disposed to rest with entire confidence. It is possible that a further study of its morbid conditions, the employment of yet
of those already in use; may eventually lay
the foundation of some general principle
of practice.
Meanwhile however, the most approved means
of treatment have the authority of extensive
experience, and tested by their efficiency, in
comparison with that of others in epidemic
diseases generally, show results by no means
to their disadvantage.
A very common success indeed, has attended
the treatment of the earlier stages of Cholera;
failure in fact being only remarkable in the
state of collapse, a condition always regarded
as next to hopeless, under whatever circum-
stances it may have superintended.
The objects of remedial measures, may be
briefly summed up in the following indications.
1. To check the preliminary diarrhoea.
2. To preserve the circulation its elements
of fluidity, and its saline properties.
3. To excite the dormant action of the liver,
Skin, and Kidneys.

4. To sustain the electric forces of the nervous system.

5. To maintain the animal heat, and renew the feeble vitality of the surface.

6. To control the re-activitory fever.

It must of course be a matter of opinion, as to the choice of means, most likely to accomplish these several intentions.

The preliminary diarrhoea admitted by general consent to require prompt correction, is most commonly treated by some such means as the following.

Ph. Lond.

16 Cape. Aromat. 3

Fr. Catechu 3/t

Pulv. Specie. Comp. gr xvi

Other: Chlorici 3/t

Mixture Curtis 2d 3/t

Disp. Mist.

Per decem quaerat quique hora simulada.

When the diarrhoea is slight, two or three doses of this mixture will suffice for its control, and when even it is of a severe character, a continuance of the medicine, will almost always succeed in arresting it.
The lovery powder does not usually enter
into this combination, but its addition not only
accords with its astringent intention, but also
serves to promote diaphoresis, which has been
regarded as a favorable crisis in every stage
of the disease. The Chloride of Silver, also perhaps
an unusual adjunct, promises to be service-
able in preventing vomiting and relieving
spasms.

In cases of longer standing, and of a more
indecisive nature; exhibiting a scarcity
of bile and fecal matter in the motions, and
approaching in fact to a Choleric state;
it will be desirable to substitute the subjoined
form of prescription: having in view as an
important part of its object, the restoration
of the biliary secretion.

Phi. Lami:

Pdr. Hydr. Chlorid. gr. vifi
Pdr. Speciae: comp. gr. xvifi
Pdr. Cinnamon: comp. gr. xii

M* et divid. in pdr. vi

Sine alterquin quarta quaque hora.
At the same time capsules of Mustard,
Containing two or three tea spoonfuls of turpentine, should be applied alternately to the epigastrium and loins.

Cases which have not come under treatment till they have arrived at this point, are apt to prove obstinate, and even unmanageable. They require the most careful watching.

The discharges should be frequently examined, that the earliest notification of a change, from a fecal to a serous character may be detected. Coldness of the surface, cramps, and spasms, and usually a suppression of urine; mark this transition very distinctly, and indicate the necessity of a more active plan of treatment.

The free use of Calomel with or without opium according to circumstances, has been extensively practiced in this advanced stage of the disease; and from reliable statistics with more success than any other remedy. The treatment committee of the Medical Council, on a former occasion, in their summary of different methods of practice
in Cholera Cases; place (1st) Colomel and opium, and (2nd) Colomel in large doses, highest in the scale of success.

Sir Edward Martin says, "after all our experience, in all parts of the world, the treatment by Colomel and opium in the commencing stage of the disease, and Colomel with diffusible stimulants in its subsequent stages as originally practised in the East, is the treatment which has been most steadily and longest approved by the profession."

As far as my own limited experience goes, I can report favourably of the use of that means. In the early part of October 1863 I had an opportunity of seeing the disease at Shanghai. It had raged to a considerable extent there, during the previous months of August and September, but was on the decline when I arrived. Still there were many cases for observation, both on shore and afloat amongst the shipping.

On board the gun-boat "Tien-cin", one of the Anglo-Chinese Fleet, of which I had charge,
as an assistant surgeon, severe diarrhoea became prevalent. In the cases of two seamen and a marine, it assumed the choleraic form in its most advanced state. The case indeed, exhibited all the signs of malignant cholera, and proceeded to the extent of partial collapse.

A supple of calomel was administered to each of the patients, followed by doses every half hour first of fire, and afterwards of cold grains.

Water was permitted to be drawn ad libitum, occasionally with brandy or ammonium. Mustard poultices were applied to the pit of the stomach and loins, hot water bottles to the feet, and constant friction was employed over the sides and cramped extremities, by means of a stimulating liniment. A desirable one for the purpose may be compounded of oil of cajeput, a drachm, and soap and compound camphor liniments of each an ounce.

After a few hours in every case, the serious dejections became lingers with bile, and smaller doses of calomel were continued at intervals of an hour, until the biliary secretion
was completely re-established. The secretion
of urine was restored at a somewhat later
period.
No opium was given in these cases, under the
impression that it might interfere with the
action of the liver and kidneys; but I have
since had reason to think, that Dover's powder
might have been continued with the Calomel,
without the fear of such a consequence, and
with the probable advantage of producing a
salutary diaphoresis.
The low power of absorption seems to render
it necessary, that to produce any decided effect,
large doses of Calomel should, at any rate,
be commenced with. That this may be done
with impunity is fully proved by the fact,
that physicians is seldom or never induced by it.
But while the exhibition of Calomel may be
regarded as the leading feature of treatment,
other means calculated to meet the indications
previously mentioned, may be advantageously
conjoined with it.
For the purpose of endeavouring to suppress
the flow of serum from the circulation, by constraining its minute vessels, and also for the sake of its general tonic influence; full doses of 30 minims, of the tincture of the Sanguino-Chloride of Iron might be administered every three hours with possible benefit.

With the view too of attempting to restore to the blood its saline properties, a beverage, not unpleasant to the stomach, may be made, consisting of four drachms of the Chlorate of Potash, and two drachms of the phosphite of Soda, dissolved in two pints of water; three or four tablespoonfuls to be given as often as convenient, occasionally with a full draught of water.

It has been suggested that these evacuations should be regarded as an effort of nature to eliminate the cholera poison; and purgatives especially of Caster oil, have been recommended to further this object.

No success however seems to have attended this practice. It is more than doubtful whether these serum discharges can be
regarded as a voluntary process, exhausting as they do the circulating medium of the blood, and otherwise deteriorating its elementary properties. Purgatives under such circumstances would only threaten still further to prostrate the vital powers, and aid in precipitating the case into a state of probable hopeless collapse.

The action of Colonel especially when combined with Dorr’s powder, is not that of a purgative, but an alterative; and its beneficial effect is only evident, when the secretions purging is superseded by the proper bileless and fecal stools; and the re-action of the kidneys and skin is established. If therefore the eliminating theory be a fact, it is more likely to be safely effected, by means which tend to restore the healthy action of these several secretory functions, than in any other way. The arrest of this secreted drain from the circulation, may be well regarded as a very important object of treatment. The poison of Cholera evidently attacks primarily,
that department of the nervous system, which
supplies the blood vessels with nerve force; and
its secondary effects would appear to be exerted
on these vessels themselves, and their contents.
The blood is decomposed and the vessels lose
their capillary power, suffering its fluid
portion to escape their grasp.
Regarding electricity or some modification of
it, to be the agency of nerve force, and having
good grounds to believe, as has been before
stated; that the poison of Cholera possesses
the power of "neutralizing or counteracting its
action;" it is at least desirable, and it can-
not be harmful, to attempt to preserve to
the system its electric energy, and to en-
deravour to stimulate these nerve centres,
by an additional supply of it.
For the first of these intentions, the patient
should be isolated as far as possible, from
all objects capable of conducting off electricity
from the system; and for the second, electric
currents should be persistently introduced
into the system, in order to produce an increase.
of vital action.

The most ready apparatus for use, is the magnetic friction machine; though it is doubtful whether its interrupted current, is as effective in exciting vital action, as the constant stream of the voltaic plates. In this respect Daniel's battery would be preferable, but it is cumbersome, and inconvenient to manipulate under circumstances of emergency. The pocket capillary battery of Palmarincher is very portable, and more manageable, and might be advantageously employed for this purpose. The object is, observing St. Suchem's method, to stimulate the nervous centres, through their peripheral branches, without exciting, more than possible, muscular contractions.

In a case of Acute Cholera, occurring last autumn in London, which I was asked to watch; I had the privilege of trying the effect of electricity as a part of the treatment. I caused the curtains to be removed, the bed to be drawn away from the wall, and its feet elevated.
upon the bottoms of four glass bottles, broken down for that purpose. On board ship the same object would be attained by clinging the hammer or death knell by a silk handkerchief instead of the ordinary cords.

The electric current was then abundantly applied, in conjunction with the Calomel treatment in full doses, frequently repeated, the saline minims, stimulating liniment, mentholated cataplasm, hot water bottles, and other means before mentioned.

The patient was a Madame V., a Frenchwoman. She was a Belgian by birth, and 40 years of age. She had been in bad health, and under medical treatment, the whole of the summer. Gently debilitated, she had been recommended to go into the country for a month or two to recruit. Instead of following this advice, she undertook a journey to Paris on business; during the prevalence of cholera there. Four days after her arrival, she had an attack of diarrhoea, which lasted several days. She took advan-

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The next morning it recurred, and continued the three following days. On the fourth she sought advice, and it was found that she had been passing rice water evacuations about every quarter of an hour or so, throughout the previous night, with frequent vomiting of a similar fluid. The secretion of urine was completely suppressed, and little or no nourishment had been retained in the stomach. She was almost pulseless, very cold, her face was pinched, and the eyeballs sunken. There were but slight cramps and spasms, probably owing to her already undertuned condition. Under the combined treatment just alluded to, the bilious secretion was restored in less than five hours. Healthly looking fecal stools succeeded at increased intervals, until they became natural and regular. She now passed water freely. The skin returned to normal temperature, the pulse called to a considerable extent, and all symptoms of Cholera disappeared. The case never went into a state of complete collapse, and so
Consecutive fever followed. Extreme debility however remained, her stamina having been undermined by previous illness. Nutriment failed to sustain her, and two days afterwards she slunk from simple exhaustion. Had she possessed the ordinary amount of constitutional strength, she would no doubt have recovered.

It may be mentioned, that no hope was at first entertained of subsiding the Cholera symptoms.

Whether or not, the electric treatment, aided materially in effecting these salutary changes, it would not be becoming to venture an opinion.

All that can be said is, that the early and unexpected reaction which took place, under such unpromising circumstances, seemed to indicate a curative power more prompt than that usually derived from the other means employed.

Without wishing to attach any particular importance to this solitary experiment, or to adapt an electro-physiological theory
to the subject, it is yet not unreasonable, from the peculiar habitability of this agent, to the nature of the disease, to expect benefit from its action.

Its use is not contra-indicated by any symptom likely to arise in the course of the disease, up to, and during, the collapse stage. It cannot counteract the effect of other remedies administered with it, and it is intended only to be employed as an auxiliary to them.

For these reasons I should certainly be disposed to try it on any future occasion, and especially I should be anxious to do so in a state of collapse.

When this stage has been thoroughly established, purging and vomiting, and cramps and spasms, have most commonly ceased; animal heat has become all but extinguished, and the circulation has almost come to a standstill. The patient indeed is scarcely more than a breathing corpse; and its object for treatment remains, but that of endeavouring
to effect a re-action of the vital powers. For this purpose the continued use of large doses of Colonel, or Colonel and opium, (though I confess that I myself should be unwilling to give opium in collapse,) the administration of disagreeable stimulants, and the application of heat and friction to the surface, have been the means depended on; and though taking the first place in the scale of statistics before mentioned, have yet been supplemented by a death rate of 59.2 and 60.9 per cent. Under such circumstances, it was at least desirable to keep fairly, the value of an agent which has already been had recourse to with advantage, in suspended animation, and other kinds of condition.

The use of stimulants in this disease, has been recommended by some practitioners, and condemned by others. In the earlier stages and in the re-actinny fever, they may certainly be very generally dispensed with; but in the confirmed and collapsed stages, the most experienced authorities regard
As being absolutely necessary.

No difference of opinion however can occur on the subject of nutriment. As it is liable to be rejected by vomiting, or lavaged through the alimentary canal with the evacuated fluids; and even if retained, is but partially appropriated from defective absorption; it ought to be of the highest quality. Concentrated beef tea, mutton broth, properly seasoned; milk containing the yolk of an egg, varied with arrowroot, and other farinaceous foods, are those most desirable and convenient as means of support. They should be administered frequently and in ample quantities.

The same regimen is equally appropriate in the Consecutive fever. Though commonly of a low type, there is frequently considerable disturbance of the vascular system. It is therefore an object, dietician and otherwise, to support the vitally effort of the vital processes, without adding to the excitement of the re-activatory process.

This process, accompanied sometimes by
a recurrence of diarrhoea, usually controlled
however without much difficulty by astringents,
is characterized by the usual febrile symptoms
of a hot and dry skin, and more or less Sup-
pression of the urinary secretion.
In this simple form, the treatment is obviously
to restore the functions of the skin and kidneys;
and the following prescription will generally
accomplish this object. Ph. Lond.

β Lbg : Aurum : acetae : 3ż
Spirit. Aeth.: Nitroci. 3DC
Spirit. Jupic. 3111
Aquæ çæ 3ż. Sept. M. 

Cepiar Cochlearia duo ampulæ quartaaque hom. 
If this should prove unsuccessful, it would be
well to order a powder, consisting of four or five
grains of Auric powder, and two of Stannic
powder, alternately every two hours; with a
draught containing XX minima of the tincture
of the Sesqui-chloride of Iron, and a draught
of the nitrous spirit of aeth.

These means failing however, lead symptoms,
not uncommon in this form of fever, are apt to
occur; the blood shot eye, and contracted pupil,
indicating congestion of the brain.
In this condition blood letting was formerly
recommended; but it would scarcely be had
reverted to now, in such a low state of vitality.
It is certainly preparatory to have the head,
apply cold fomentations to it, blister the neck
of the neck, and administer minute doses of
Camomile and branded powder, with the view of
counteracting this subacute inflammatory
action. The prospect however of recovery
from such a state, under any treatment, is
very doubtful, and in the event of coma
supervening, there is little room for hope.

Reviewing the established means
of treatment in Cholera, particularly with
reference to its advanced stages, it is im-
possible to avoid the conclusion, that our
defence lies rather in the preventive, than
in the curative measures in present use.
New suggestions however are constantly
and from various quarters being offered,
indicating at least aearable decline in
The part of the profession to contribute some-thing to the general object of the public safety. There is in fact an earnest anxiety to prepare for any forthcoming incursion of the disease, which cannot be altogether unprofitable. And as the physiological and pathological phenomena of Cholera are better understood, it may reasonably be expected, that a method of treatment, more exactly adapted to the nature of these phenomena, will result from the combined efforts of the many acute and practical minds, engaged in the investigation of the subject.

Meanwhile it is a matter of thankfulness that it has pleased Almighty God, in His providential dealings, to direct special atten-tion to the Sanitary Laws, moral and physical; that govern this, and all other Epidemic Diseases; the Knowledge and observance of which, after all, constitute our primary safeguard against the consequences of their attack.