John P. Challacombe.
March 26th, 1850.

1850

Epidemic Cholera.
Epidemic Cholera.

I have chosen Cholera, or as some emphatically call it the Cholera, for the subject of my Thesis, from being deeply interested in it as a disease, from having had experience upon it, and from having had some amount of experience in it practically in Bridget during the Autumnal months of 1849. Whereupon my return from Edinburgh for the recess, I had the good fortune to be appointed Medical Officer to one of the Cholera Districts by the Corporation of the Poor of that City.

Epidemic Cholera, Spasmodic, Intestinal, Asiatic & Black, Asiatic Proctus, Cholera. Nepthia & Cholera India, are but so many different names for one and the same Malady. But the term Cholera employed here is itself a misnomer for whether it derive it from Xolz, Bila, or from Xolz, Intercine, each derivation is equally inappropriate. Since in this disease the Stutation of the Laxer, or the Intestinal Evacuations are themselves but symptomatic.

It seems to me not improvable that the Cholera, or a disease extremely similar to it has been in India for ages past. From this circumstance, that...
upwards of two centuries ago Bonitus writing on Indian Diseases says "Poletta Morbus is attended with a weak pulse, difficult respiration a coldness of the extreme parts, to which are joined great internal heat, insatiable thirst, protracted watching, a deceased incessant losing of the body. If together with these symptoms a cataract fluid sweat should break forth, it is certain that death is at hand."

Sydenham describes an Epidemic which prevailed in England in 1669, with the following symptoms: "Tonging or purging of watery matter, without any appearance of bile, Swarms of abdominal muscles a inferior extremity with rapid failure of the vital powers."

In the year 1775 it assumed the character of an Epidemic in Antroban an spread as far as the Island of Mauritius. Dr. MacIntyre of Calcutta observed it in 1821, & in 1829.

Some cases resembling Cholera occurred in a School at Clapham. - Burford, Paisley, Soweral, St. Albans, Johnson & many others describe the Cholera as appearing in India in 1782.

Between 1827 & 1833, Epidemic Cholera made such ravage in Asia & Europe, it was attended with such fearful mortality that it attracted the eyes of the whole Profession. In it, as many eminent practitioners contend
that prior to this period, Cholera did not prevail epidemically in any part of the world.

In August 1817, Cholera broke out at Scutari in the centre of the Delta, in a few weeks ten thousand of its inhabitants are said to have perished, a such was its rapid progress that before Sept it extended over a district 400 miles in diameter, as in Patna, the grand army of the Marquis of Hastings was attacked by it, 8,000 men were destroyed—prior to this it would appear it have been confined to the Indies. The progress of the disease in India seems to have been from North to South for after prevailing in the Upper Bengal Province, it passed through it, the Bombay territories reaching Madras the 8th of Nov. 1817, a Cape Comorin the most southern part of Hindostan Jul 7th 1829.

In 1818 travelling to the east it visited the Burmese Empire, the Kingdom of Arakan, and the Peninsula of Malacca.

In 1819 it appeared in the Island of Penang, Sumatra, also Singapore, Java, Malaya, the Isles of France & Bourbon.

During 1820 Tongrui, Cambodia, Cochini China, Southern China, Canton, the Philippine Islands were visited.

In 1821 Java, Bantam, Madura, Borneo, and many places in the Indian Archipelago. In 1822, 23, & 24, Portin Central, Northern China, the Moulus, Macassar, India.
In July, 1821, in its western course, it attacked the inhabitants of Persia in Arabia, as of various places in the Red Sea; in the same month it appeared at Bagdad, a Burrough, and during 1822-1824 it reached many of the principal cities of Persia, Mesopotamia, Syria, and India. It was also ravaged by the year 1822-23. The year 1823 brought this epidemic to Drenthburg and Astrakhan beyond which its trace is not to have extended until 1826 when it reappeared at Drenthburg, and at this period it was prevailing densely in several provinces of Persia, one among several of the Tartar tribes in Central Asia, from which it was conjectured to have been introduced to Drenthburg. In July 1829, Astrakhan experienced a second attack, in Sept. it reached Moscow, in Feb. 1831, Poland, on the Vistula—Warsaw was visited in April 1831, Dantzig and Berlin May 1832, Stettin, June 21, 1831. Both July 14, 1831, Berlin, Aug. 30, 1831, Vienna, Sept. 1831, Hamburg, Oct. 17, 1831, Sunderland, Oct. 24, 1831. The first case in London was in Part 1832. It visited the British Isles very generally, continuing its progress as it now divided into two branches, one continued westward along the broad Atlantic to commit its ravages in America, the other turning south-east visited France and Spain, Italy and the North Coast of Africa—
I shall not particularize the progress of the Cholera during the last epidemic; suffice it to say that it held much the same course as that of 1831, but the first cases occurred this time in Scotland, at Leith, in Sept. 1849.

We shall now pass on to a consideration of the Symptoms which arise in this truly frightful Disease. The attack generally comes on during Sunset or Sunrise, or may commence quite suddenly, or with Diarrhoea. This last was by far the most common kind during the recent epidemic. The individual attacked would at first have frequent evacuations, but the characters of these would rapidly change to the peculiar rice water stools, a generally frequent vomiting of the same sort of fluid, all this was accompanied by rapid prostration of the strength, vomiting, a collapse, the pulse became very small, frequent respiration, as at last became imperceptible at the most a few over the region of the heart; in some cases hours prior to death, the animal beat would rapidly, the surface of the body grew cold, the tongue soon the breath became the same, the temperature fell to 99° or even 77° of Fahrenheit. The eyes sunk in their sockets a were surrounded with a dark circle, the cheeks fell in, the nose a chin looked sharp & prominent. The hands, fingers were watery & shrivelled, resembled more of a Malaria woman, the whole
body appeared shrunken & corpse-like - the skin assumed a blue or leaden hue, as also the finger-nails - cramps more or less severe in the superior & inferior extremitie\[s\] abdominal muscles, frequently drawing them up into knots - a cold clammy sweat suffused itself over the body of the patient - the various secretions, the biliary, urinary, salivary, lacrimal & are entirely suppressed - the voice during the Epidemic of 1831 underwent so remarkable a change as to attain for it the name of 'Boy Cholera,' some authors describe it as 'saintly & far away,' others as 'a plaintive whisper,' a medical friend of mine told me that in those cases which came under his observation, he could compare it to nothing else than the weak voice of a child at a distance - this vocal change was I believe generally admitted not to be characteristic during the prevalence of the Cholera when recently amongst us - The patient complains of great thirst, or is continually craving for cold water - also of pain, a great weight in the epigastric region - after a time an universal tremor pervades his body, with violent agitation, & in some cases convulsions occur at short intervals - the peculiar of the third mostly remain clear to the last moment - Death generally takes place in from six to forty-eight hours - But in some cases when the patient apparently gets stronger, feve sets in, attended mkt.
Delirium a strong tendency to coma—In these cases death may take place by way of coma in a few days, or even a fortnight from the attack. During this stage or Comatose state says Professor Allen in his Chemistry although the secretion of bile (of morbid quality) is generally restored, that of urine is still suppressed, as if passed it is generally in small quantities, of low specific gravity often albuminous—His Secondary five, he says is peculiar to our Climate.

Having mentioned the symptoms of Cholera, we now have to enumerate such of them as are considered favorably or unfavorable, upon which we have to form our Progress. Favorable Symptoms—If we find the pulse of our patient becoming restored, the Animal heat rising, the blueness a peculiarity of uria disappearing, Carvation of Aliments, purging and vomiting, the defecation once again containing bile, the urine being yellow, these together with return of voice and muscular strength may be counted very favorable. Youth, a previous good health are also in favour of the patient.

Unfavorable Symptoms. Stades on the teeth, lips, a guan of our patient. Delirium. Vital process continuing so one a also the temperature of the body, blueness, hippocratic Confinement. Involuntary passing of stools. Small.
irregular & breathy pulse. Inflammations of the lungs -
Considered more dangerous to females than males.
Old age & infancy, if previous ill health, are against
the chances of recovery.
As an example of the fatality of this disease with regard to
the aged or very young, I may mention that at the
Stapleton Asylum near Bristol out of between six or seven
hundred inmates composed of these; one hundred &
seventy died.

Dr. Hamilton Bell, who saw much of Cholera in India
says "the more violent the prominent symptoms are, the
more likely is a cure to be effected." I cannot however say
that my experience confirmed this statement - it also
he states "the prognosis is very unfavourable when the
disease is attended with rapid collapse, bile or no
vomiting & purging & no cramp." I saw several cases
of this kind.

Prior to speaking of the Post Mortem Appearance.
In a case of Cholera, let me say a few words respecting
Convulsive movements, said to have occurred after death.
The following is extracted from the Disease Reports.15
"Twenty minutes after his last death, when the corpse had
been already washed & dressed, it was affected all at once
with frightful movements - Convulsions motions took place
in the hands a fit like those excited by Galvaniism, commencing
just in a few muscular jerks, especially in the neck and
thighs, extending in a vermicular manner, a sudden
prostration leading up of the head, a agitation a elevation of the
neck. These spasms continued with intervals for ten
minutes becoming in the end print a race. The same
phenomena but in a less marked degree, were observed on
another occasion only, but long as sixty seven hours
after the termination of the symptoms of the disease.

"These muscular contractions after death were also
occasionally observed in the Cholera of the East Indies"

I cannot help thinking that in the above cases the vital
spark had not fled, a that if proper means had been used
a persuaded in, perhaps recovery might have taken place.
The following case will show how very cautious a Medical
Man should be in pronouncing a giving up a Cholera
patient for dead.

During the prevalence of Cholera in Glasgow in 1832
Dr. Aitchison, Surgeon to the Royal Hospital told a
Medical friend of mine that the only case of recovery from
pure Cholera up to that date, was attended by the following
extraordinary circumstances - the day in passing through
the wards he saw one of the sufferers, as he considered in
Adulce Proust's, ordered that the body should be..."
removed to the Dead House. This was done, at next day on his entering it, the Man was sitting up – the Dead as it were had come to life –

We must now describe the Post Mortem appearance of Cholera - The appearance of the body of an individual who has died of Cholera is peculiarly striking, if once seen likely to be forgotten, the whole external surface is discoloured as if a lived hue, the body shrivelled, a countenance marred, with eyes deep sunk, nose a chin sharp a prominent, cheeks fallen in, altogether it seems rather the body of one upon whom some fell disease had exercised its withering influence for months, or years instead of a few short hours. The discolouration however is not always present, for in some cases although the leaden colour of the skin had been very characteristic during life, yet it had rapidly disappeared with death. Upon examining the Throat, the Lungs are found to be of black color, on opening making an incision into them thick black Blood freely flows out, the Right Auricle & Ventricles contain the same kind of Blood – in some cases it has been found even in the Left side of the Heart, in the Arterial cases are on record in which this black, gumous blood has been seen in the Carotids –

We next come to the Abdominal Cavity, upon opening it
A solid odour is often perceived. The Peritoneum or ovarian are natural, the viscera of a purplish colour, shading to purple. The coats of the Flattening Viscera feel thickened. The solid viscera appear purple, or are mottled. The stomach may or may not be contracted; its mucous coat is also that of a portion of the Duodenum presents frequently vascular patches, not inflammatory but as if replaced. Vesicles, as though blood had been extravasated through the coats. These spots says G.H. Bell, "though no doubt come from extravasation." Patches also are described, he continues, as having the character of inflammation, generally near the Pylorus; which are by some considered the result of local irritation, produced by portions of the remedies prescribed having adhered to those parts of the stomach; they must be taken as a proof that digestion had begun before death." With regard to the Small Intestines though small they are not invariably distended, according to the observations of Bell, the Large Intestines are found to be alternately dilated and contracted—occasionally the whole canal is found distended with flatus. Upon examining the contents of the Intestinal Canal to find no faecal matter, but always more or less flatus, a whitish fluid similar to that vomited, which has passed by stool containing white flatus.
The Saidary Gladdens, a Node of Bubur are usually large as 
visible, the mucous Membrane is generally covered with 
a thick mucous substance probably an accumulation 
of the same kind with that of the white flakes - the Bula Patla, 
all the Abdoninal Veins are found gorged with blood 
resembling far more than anything else - Occasionally the 
Liver is said to have been found natural in appearance, but 
generally it is of a dark purple colour, or its lower parts 
filled with black Blood - The Gall Bladder is mostly 
depended with thick bile, its ducts may, or may not be 
contracted - The Pancreas, Spleen & Kidney may be natu- 
ral, or congested with Blood - The Bladder is invariably 
found empty & contracted commonly about the size of 
a Walnut - I have the Urine of several Indians who died 
of Cholera, and they have invariably been much congested. 
Last of all we come to the cranial Cavity - the Cerebrum is 
found generally congested, and with flakes of arterial Blood. 
Sometimes a little Serum is discovered at the base of the Brain, 
In the Ventricles - This concludes what I have to mention 
with respect to the post-mortem appearances in a case of Cholera. 
We shall now pass on to the Treatment of this most interesting 
disease, with regard to it I suppose Is disgust to this ease ever caused 
the Materia Medica to be so unceased for remedies. 

Certainly, was the Arteriy of Medicine more vigorously plan.
Never was troops, regular or Volunteer, more meritoriously active," says Dr. Nelson, "but to the point. - The Indian Surgeons lay great stress on Blood-Letting, it seems quite a sheet-anchor with them; its modern operation is thus explained: - the circulatory organs being no longer able to discharge their duties efficiently, secretion having ceased, a respiration to some extent interfered with, all the various discharges having caused the blood to become totally unfit for the purposes of the Animal Economy, by destruction the gorged vessels are unloaded, the reunited circulating fluid is restored, a pure blood once more flows through the system. But Bill on Cholera-Aphphys.- Dr. Moseley, in his work on the Diseases of India, says, "Although I recommend bleeding to be attempted at all times, in every stage of the disease, I am fully aware that many cases have recovered when it has not been used at all, nor do I demand for its universal success; but I do venture to assert, that if it can be accomplished in the early stage of the disease, or before the circulation has ceased at the wrist, in nine cases out of ten it will prove successful, especially if the colour of the blood be changed from black to red, if the pulse get up, or the spasms be relieved." - Dr. Annesley in the next page speaking of the successful practice of Mr. College, Surgeon, to the General Harris East-Indianman continues "The gentleman whenever he observed any of the crew depressed
a long-spirited, at once inquired into their feelings, and, without a moment's hesitation took Twenty or Thirty ounces of blood from the arm, gave a scruple of Calomel, a few grains of Opium, a sent them on shore till they were up to the General Hospital under my charge; a the subsequent duration that might have been expected from less energetic means.

Upwards of fifty men were thus treated, a very one of them recovered, so as to be able to join their ship before she left the Channel Roads. — Dr. Ancre in his "Outlines" speaking of the Epidemic Cholera in Great Britain has this note "and the cases in which the full effect of the poison (of Cholera) in the circulation, took place within a very short time from the origin of the disease, are almost uniformly fatal. Hardly any of these cases of fatal collapse, showed any favourable reaction after their loss of blood, a many were evidently further depressed by it; but cases which began with cramp or pain with Jerin pulse, often improved rapidly after blood-taking, followed immediately by full doses of Opium and Calomel."

From personal experience I can say little, or nothing regarding the abstraction of blood in this disease, it was neither practised at the Cholera Hospital in Bristol, nor by any of the Gentlemen composing the Medical Staff to which I belonged, of which I was the junior, but should I ever have another opportunity of combating with this fearful
disease I would certainly by its efficacy from a conviction that it would prove a most useful weapon— but at the price of my appointment. Calomel was at the time with my colleagues, as I had not then seen anything of the disease previously, neither had read much on the subject, except Dr. Watson, who also speaks favorably of it, as Dr. Pareira. Calomel accordingly used, with what success I shall not go on to detail— but however to do so let me insert a few extracts from various authors relative to the exhibition of this medicine in this disease— Pareira states that he have the concurrent testimony of many practitioners, that in Cholera, Calomel in doses of a scruple to a pound, always acting as a purgative on this account has been denominated a Sedative. Dr. Peirce in the London Medical Gazette xx i. 880. asserts that Calomel proved a most successful medicine in Cholera, controlling or arresting its progress in 94 cases out of 100, when administered while the pulse was still perceptible at the wrist, but that on the contrary, it proved detrimental when given in collapse. This practice was tried in 143 cases. The dose was from one to two scruples every hour or half-hour.

Dr. Johnson, Finkler, Hamett, Allwright, Amhurst, Dr. Storer &c. all speak favorably of Calomel. Unfortunately those who advocate its use are not agreed as to the dose, or frequency of repetition; some advising it as a purgative, some as a sedative, in com-
with Opium; others lastly using it as a Stimulant. It is
deserving of especial notice, says Percivall, that when Salivation
takes place, the patient in general recovers. To suffer however
has shown that this is not invariably the case. Loud Hil. Gaz.
xxvi. p. 882: Mr. Henry Stephens in a pamphlet on Cholera lately
published, speaks of Calomel & Bichloride of Mercury as
possessing Antisphe qualities, & using them on this
principle.

The first few cases I had of Cholera were treated with a large
dose of Calomel—a Strupple, or half dramum every half hour
or hour, but did not find it answer my expectations as to its
allaying vomiting & purging. I therefore exchanged its use
for that of the Acetate of Lead & Opium from which I derived
more satisfaction—My plan was to check the second discharge
by mer Astringent, & then to give the Calomel but in small
doses of five grains combined with an Eighth, or a quarter
of a grain of Opium every quarter of an hour until there
were signs of gentle Salivation; when it was omitted, her
mode of treatment—Together with the free use of External, &
internal Stimuli proved successful in many cases.

To excite the vital activity of the System, & to promote
the warmth of the surface of the body is a most important part of
our Cure; & it is for this purpose that to exhibit Stimuli
internally, or apply them externally.
Of the internal Stimuli may be enumerated Opii, Camphor, Opium, Aconite, Capsicum, Spirits, Peppermint, together according to Bell with Calomel, u/ small doses frequently repeated. For this reason that those medicines which in large doses act as Sedatives, in small he says unquestionably Excite the circulation & are consequently to be regarded as Stimulants. Sometimes from the very excitable state of the Stomach it is necessary for us to administer our remedies in the solid form, else probably they would instantly be rejected - a pill I frequently used was composed of Capsicum fij. Op. 5s, Camphor fij. Bell recommends a pill of Calomel fij. Camphor fij. & Opium 5s. One of these was given every half-hour, & sometimes oftener, while the urgent symptoms continued, I was mixed down with a small quantity of Brandy & Water, as soon as the Stomach would admit of it the following draught was exhibited. Bry. 10h. Sulph. 8v. 2 Op. 5s, Mer. Camph. fij. Bist. fij. Gastr. 2 repeated every quarter or half-hour, according to the urgency of the case. I found a draught of this kind very useful. Bry. Lig. Ammon. fij. m: f. Capric. m: f. Camph. fij. given every half-hour.

As to external Stimuli, we should apply Mustards plasters to the Soles of the feet, calves of the legs, also
to the surface of the Abdomen, a Chest. Turpentine sprinkles or hot flannels, or rather I should say flannels wrung out of hot water & applied to the body are of great efficacy. Friction should be used with warm flannels with or without Turpentine to the Extremities. Hot water bottles, bags of hot sand should be applied to Extremities, etc. A tent - the Excellent plan of applying Heat is to place a frame over the naked body of the patient, cover this with blankets, the head only being left free, at the lower end of the frame from introduce a curved fire chimney somewhat of a funnel shape the broad end being placed over a spirit lamp - heat by this means may be applied immediately, generally to the body.

I must not conclude what I have to say with regard to the application of heat in Cholera without remarking that often in the worst cases there exists a peculiar natural sensibility of the skin to heat, also of the Stomach to warm fluids. The patient will throw the clothes off, & slighted gone not to apply warmth, & to give him hot drinks, & soon has been known to jump out of a warm bath some degrees below 100° Fahrenheit with spasmodic energy, a cry not to be again subjected to so painful a remedy.

I have noticed at times that when medicines were not relished by the Stomach a little Brandy or Whiskey
would be, I once heard. A medical friend told me that he once met with a case where nothing was retained by the stomach, but all alike was immediately rejected, she had for some time been giving brandy though with no effect; by mistake a bottle of wine did seem was drawn, a thin mixture discovered was about to be exchanged, but my friend thought he would give it a chance, did so, to his astonishment, that was retained—the patient recovered. Of all nostrums I prefer the saltpetre of dead bodies being the most effective in checking the discharges—I know one gentleman in Glasgow in extensive practice who during the last epidemic using was in the habit of plugging the rectum, & stopping the discharges mechanically so thought he derived great success from this practice—Mr. Barth, of the Hospital of the Salpetrière in Paris, says in a communication to the Archives Générales that he believes saltpetre of snow will prove to be one of the most efficient remedies in cholera—it was exhibited there in fifty-three cases, twenty seven of which recovered. The principal effect appeared to be that of moderating the diarrhea this was often checked in eight or ten hours. No inconvenience arose from the medicine, he gave it both internally & by injection—

With respect to the toning, I found hydrocyanic acid,
Prevent, a ice more useful in checking it - Mustard plaster. Blisters & leeches are also of service.

Dr. Largue, one eminent physician of Bordeaux has suggested a method arresting the vomiting in the first stage
of Cholera. He says he has not known it fail, his plan is to cut a piece of brown paper saturated with Ammonia
via a wash-glue & apply it to the pit of the stomach so as to produce a blister: This is effected in a few minutes.

The blister having been removed a quarter of a grain of
Acetate or Hydrochlorate of Borphine is then placed on the
spot: & the vomiting ceases almost immediately.

To relieve the Cramps I used Boiling & Shampooing,
M. Buch used Chloroform.

In a favourable case of Cholera after the more urgent
symptoms have passed a sort of nebula first action commonly
place in bed tents which much for ordinary nebula attack; after the
stool of slackness continuing for some time, we must
use the Ironic Regimen.

Before quitting the treatment of this disease however must
say a few words on the Injection of warm water into the
Dress. This is attended by most striking effect in some few
cases, even the restoration to life as it were of an individual
about dead, but in by far the greater number of cases it
is of no use, & the practice is blameless with great danger.
Dr. O'Shaughnessy recommended saline injections.

D. Martin, of Edinburgh, used it extensively in the epidemic of 1831 & 2, employing a solution of 355 g. of Murieke of Soda, and 111 g. of Salicylic acid of Soda in 10 parts of water, at a temp. of from 106°F. to 121°F. half an hour would be spent in its gradual introduction. But of 156 patients treated there, in the Drummond St. Hosp., only 25 recovered.
All is very liable to be infected with the murr, or inflammation of the brain so as to occur from violence done to it, or on auscultation a distension of the vessels by the liquors. Nevertheless where we wish to gain time it may prove useful, for example to enable an individual to execute a will.

In a pamphlet published lately by Henry Stephens, surgeon, he states that Cholera ought to be treated by medicines having antiseptic actions upon the fluids and solids. Bit Creasote, Arosine, Charcoal, Alum. Barytes, and Acid. If these W. Stephens recommends Creasote in the proportion of 1 part to 1 part, should the symptoms prove threatening, he has recourse to Calomel or Rochelle Salt of Mercury. The action of which he considers antiseptic.

Before finally quitting the treatment of Cholera I must say one word in favour of Mustard Emetic, these have proved to me of great value, after emptying the stomach apparently promoting warmth a general reaction.

Cholera may terminate either in recovery, prolonged Turric Irritation, or Secondary Inflammation of the Depoid Character.

The average mortality about one-half.

O'Callanley permitted his Cholera patient to drink freely of Lemonade, a a drink composed of Tonic Acid greatly diluted. I permitted mine Dear Fawcett, a cold Spring water. I was also at the same time that it alleged
The Bostonian gave great relief to the intolerable thirst.

In regard to the precautions to be observed against this fearful disease, it is to be remarked, that Indigestion is very common at the close of an Epidemic of Cholera, and the more the Digestive System is out of order, the more probable is it, that the individual will be attacked, the less likely to get the better of it. Therefore all things capable of disturbing the Chylopoietic Viscera should be scrupulously avoided. Viz, long jacts and subsequent heavy meals, fruit, vegetable matters such as greens, cucumbers, celery, &c. &c., drinking freely of cold water when heated, intoxication, also whatever tends to depress the bodily or mental powers, as cold, damp, jett, depressing passions, anxiety &c. sudden changes of weather, &c. of temperature. It is common with the natives of India to ascribe an attack of Cholera to an Early Meal of cold rice.

As to the disputed question of the Non-contagious, or contagious nature of Cholera, I shall dwell but shortly upon the subject, since to enter deeply into it would prolong my theres to too great an extent. Suffice it then to say that I am a firm believer in the doctrine of Contagion as it applies to this particular disease, my opinion was just formed.
from what passed beneath my notice in Bristol, it has since been strengthened, I confirmed by Dr. Simpson’s excellent article in the 49th volume of the Edinburgh Med. & Surg. Journal entitled “On the Evidence of the Contagious Propagation of Malignant Chorea which is derived from cases of its direct importation into new localities by infected individuals.” These cases Dr. Simpson divides into three series: 1st, Cases of the importation of the Contagion from an infected to a distant healthy town or locality; under this head Dr. Simpson brings forward direct proofs showing that the disease was brought by individuals who had either suffered from it, or were at the time of their arrival in the new locality suffering from it, or had been in communication with the sick in the undermentioned towns, villages, etc., Belgate, Doler, East Haddon, Carnwath, Glen, Fernhead & Boddin, KToll, Newick, Compton, Glenoch, Dorva, Broomie & Patagonia in Ireland, Both Shields, Burden Square, Durham, Handpool, Harrington, Prestole Pans, & Cockenzie also Saint Ile (Bateau Ile) 12 leagues from Marseille, Leslie, a Prussia & Kokel in Russia. 2nd Series, Cases of the importation of the Contagion from an infected to a healthy part of the same city, e.g. Half Moon St. London.


Simpson's St. Edinburgh - Regent St. Glasgow - Back Guard St.

Examples of a similar kind are brought forward as having occurred in Paris, Berlin & Reykjavik.

3rd Series: Case of the importation of the Contagion by infected Ships - Brig Amelia, a Smack from 

It would appear from the evidence adduced by Dr. Simpson that those who nursed, or visited the sick, or those who washed their clothes in the water suffered, themselves, became new foci of contagion to others predisposed to the disease as they themselves were. If we admit that a predisposition to the disease exists in some, or not in others, we cannot explain why all alike do not take the disease.

The dead body would also appear to be capable of propagating the complaint, as the following case reported to Dr. Simpson by Mr. A. S. Hopper would go to prove - A Sailor died on board a vessel of Cheltenham, the vessel had previously left an infected port, the body was put ashore for burial at Hartlepool, where prior to this time no cases had occurred. The poorest hired to place the body in the coffin, who conveyed it to the place of interment near the first attack, & the disease then rapidly spread through the town.

Bedding may propagate the disease, as the following case quoted by Dr. Simpson testifies. In the end of June, 1833,
The Smack Eagle from London arrived at Montrose. No cases of cholera had occurred amongst the crew during the passage from London. As soon as the vessel reached Montrose River, the crew dispersed to their several homes. One of them, an inhabitant of Forresden, carried his clothes and bedding there to his house. A day or two afterwards two children in the village, who were reported to have been seen during the preceding day tumbling on the masts of the vessel as it lay exposed to the air, were seized with rapidly fatal cholera. The mother then took the disease, and subsequently spread throughout the village.

From a case which came to my knowledge whilst in Bristol, it would appear that an individual hardly unaffected by the disease, may nevertheless convey it to another or others. A nurse who attended Mr. — during an attack of cholera from which he recovered, upon leaving pent to lodgings, here an individual was seized and died of the disorder; she removed to other lodgings. The same thing again took place, she then removed to third lodgings, where again an individual was attacked but fortunately recovered from the disease.

Dr. Simpson also mentions a case similar to the above as occurring at Lynn.

We have the first-rate authorities of Dr. Alston for believing
in the contagious nature of Cholera. Dr. Alison in a com-
mination to Dr. Simpson relative to the cure of the
Widow MacMillan & her grandson, both of whom died
from the disease, is both clearly by contagion having
taken it, "here these words "From the time when
I was satisfied as to these facts, I have never doubted of
the disease having a contagious property, although I have
never thought it proved that its extension is to be
ascribed to that property alone." Dr. Nelson also in
his lectures on the Practice of Physic expresses his belief in
the contagious nature, a portability of Cholera.

But a far more important agent in the dissemination
of Cholera, than Contagion, is a peculiar general
epidemic influence which Dr. Simpson says is liable to
prevail in certain localities, at certain periods, which,
by its collateral influence, tends to promote in a great degree
the contagious diffusion of the disease, determining by its
presence the particular severity of the malady in some localities,
dis, in absence rendering the contagion, when imported
is inoculated into other new localities comparatively insen-
sible in its effects, a limited in its power of propagation.

In fact, he believe that some special but unknown
epidemic constitution (say of the atmosphere or not) is
necessary for the full spread of Cholera in any place.
or season, as in India in the years 1817, 18, 19, 21, 25, 27 & 30, in the same way that we believe special epidemic considerations are necessary for the occasional full prevalence of a spread of continued Fever, of Scabulara, Measles, Diphther,

post, other similar contagious maladies.

As to what constitutes the essential nature of this epidemic contagion, Prodigious Influence, or Poisonous Dismutation attendant upon the progress of Cholera, Medical men are not at all agreed. Many a Variety are the hypotheses advanced, of these we shall now proceed to deal of.

Dr. Holland in his Medical Notes & Reflections, suggests that the cause of Cholera may be well represented by the propagation or migration of Insect Swarms. In this hypothesis he is supported by very high authorities—Dr. Alison, in his Outline of Pathology & Practice of Medicine says, "The old notion of the dependence of this or other Epidemics on Swarms of Insects, or rather animadherent thrown off from the bodies of affected persons, but afterwards maintaining for a time an indirect influence, agrees better with many of the facts discovered than any other theory that has been proposed—Dr. Watson refers in his Lectures to Dr. Holland's Work & says, "The hypothesis in question squares more readily than any other that I know of, with the ascertained history of the disorder: with its origin after a wet season, or rather
an unusually hot season in the low marshy country at hot atmosphere of Bengal: with its irregular but continuous remnants: with its dying away after a while, it its occasional or partial revivals. Dr. George Budd also in his article on Cholera, in the 'Lice of Peace' Medicine Journal, the same view. Geo. Hamilton Bell, looking upon Cholera as the sudden deprivation of the Former Energy of the Sympathetic System, says it is not impossible that the source of the disease is to be found in some sudden change in the Electric or Vitalic condition of the surface of the Earth. This suggestion, he continues is not made with the intention of supporting the hypothesis, that Vitalism is identical with Former Energy but unquestionably that agent is so intimately connected with every portion of the Creation, that any sudden withdrawal of it from the Animal System, might not improbably produce such a disease as Cholera. Mr. Bell,醺醺 in Cholera as the physical. His notion, but nevertheless true, that Cholera seems always to be preceded, accompanied by various physical phenomena. According to Dr. Clancy's account, the appearance of Cholera in Sunderland in 1831 was accompanied by peculiar atmospheric changes, especially thunder-storms and lightnings during the night. Dr. Müller, a German physician in speaking of Cholera at St. Petersburg during
The last epidemic deserves that the air the whole time of the presence of Cholera here, was oppressive, heavy, a very changeable in its temperature. There were frequent Thunder-storms; Rain fell almost daily; the sky was gloomy—very misty in the evening; the Sun seldom broke through. The depressing influence acted more or less on everyone; almost without exception all experienced a certain feeling of discomfort, weakness, pressure at the pit of the Stomach, a burning pain in the lower limbs. The above observations tally very much with those I made while in Bristol. Hurricanes and Thunder-storms of unusual violence have generally attended the march of Cholera through India. The Northern Lights were also very common; a unusually beautiful prior to the Epidemic of 1841 & 1842 in this country. But the observations of the French Electrician M. Andreiucl during the prevalence of the recent Epidemic in Paris were most striking, a clearly point out some connection between Electricity and Cholera. These observations were quoted by him in the French and English Journals of the period. From which it would appear that an Electrical Machine he was continually using suddenly ceased to give sparks of anything like the magnitude in general, & this without the operation of any discernible cause. The Machine the day would yield no sparks, & it was not until after a violent
Thunder-storm that it would again act - To his surprise Mr. Andriveau found that this variation of the electric capacity of the machine corresponded so exactly with the progress of the Epidemic in Paris that he was enabled to foresee the state of the daily lists of mortality - The irregularities of the Machine began with the appearance of Cholera - The day on which the machine stopped was the one on which the cases were most numerous, a the same thunder-storm that stopped the machine to working condition restored Paris to a better sanitary state - Mr. Andriveau from these facts came to the conclusion that in the atmosphere of the Earth there is a permanent mass of electric fluid, and that the increase or decrease of this Mass may be a cause of disease.

O. Russell, in a lecture on Epidemic Cholera just published remarks that the true or typical attack of the disease consists not in the usually known dysenteric symptoms, but in the immediate nervous collapse, as if, by an electric stroke, that gives these their significance: The fact also mentioned by O. Russell that attacks of Cholera are most frequent in the night-season, when as is well-known, the natural electrical condition of the body is more depressed than during the day - all this is in favour of an Electrical hypothesis.
Before quitting the subject of Electricity in connection with Cholera, I must dwell shortly upon an apparent connection between Electricity and Influenza between which last is the subject of my thesis. There are many analogies.

The Epidemic of Influenza followed the Cholera of 1831, also its last variation amongst us. Both broke in the East and both in their onward progress followed much the same geographical course, visiting the Northern part of Europe, until reaching its Western boundaries, they divided into two great branches, one spreading across the Atlantic Ocean to the other retrograding towards the South East. The chief distinction between them however seems to be that whereas the few Influenza spread very of the Community but was seldom fatal - Cholera on the other hand attacked but very few, but of those few, half are computed to have died.

Both are general disorders affecting the whole system but in Influenza the mucous membrane lining the air-passage was mostly affected, as in Cholera those of the alimentary Canal. Both were preceded by various physical phenomena, both apparently are connected in some way with Electricity, if its relation to Cholera we have already treated, a word or a few words with regard to it, a Influenza...

During the prevalence of an Epidemic, Meat was sent...
high up into the atmosphere by means of a kite, came down in a state of sub stance. Prior to the setting in of the epidemic of Influenza, large heavy separate clouds in a state of negative Electricity have been observed. Thunder storms also seem to be in the atmosphere have occurred at the same periods. During the inquiry of the epidemic Dr. Watson remarks, "Three hundred women engaged in coal-dredging at Newcastle, working all day in the sea escaped the complaint. It has been thought that this exemption might be accounted for by supposing that the almost constant immersion of the body in a conducting medium prevented any undue collection of Electricity.

We shall now pass on to notice a curious discovery of Dr. Proud's relative to the increased weight of the atmosphere in London during the epidemic of Cholera in 1832. Dr. Proud had for some years been employed in investigating the atmosphere, a few months prior to the appearance of Cholera in London, had almost daily been engaged in determining with the greatest accuracy the weight of a given quantity of air under precisely the same circumstances of temperature and pressure. On the 9th of Feb. 1832, the weight of the air suddenly appeared to rise above the usual standard.
As the rise was at the time supposed to be the result of some accidental error, or of some derangement in the apparatus employed, in order to discover its cause, the succeeding observations were made with the most rigid scrutiny; but no error or derangement whatever could be detected. On the days immediately following, the weight of the air still continued above the standard, though not quite so high as on the 9th of Feb. 1. When the change was first noticed, the air retained its augmented weight during the whole time these experiments were carried on. It is about six weeks longer ... About the 9th of Feb., the wind in London, which had previously been west, veered round to the East. It remained pretty steadily in that quarter till the end of the month. How precisely on the change of the wind, the first cases of Epidemic Cholera were reported in London; from that period the disease continued to spread. Did Dr. Russell's work on Cholera ... From the above description of Dr. Ronse, it would appear that during an Epidemic of Cholera the weight of a quin of air is increased: so what can this be attributed to, if it probably the peculiar virus of the disease?

Another theory is founded upon the supposition that such a change takes place in the relative proportions of the atmospheric components (Oxygen, Nitrogen, Carbonic Acid, etc.)
The same fellow attended a similar specimen made subsequently in the Brindell, Bristol.
as to convert it into an actual poison which would then be a wholesome fluid. A sudden addition, or diminution of the quantity of moisture is thought might effect such a change.

The Sanitary Commissioners say that Asiatic Cholera "appears to be produced by a poison diffused through the atmosphere, which acts with peculiar intensity on the mucous membrane of the alimentary canal."

We shall now consider the Fungioid theory of M" Dr. Brinna, a Surgeon, of Bristol. From investigation, experiments made by these gentlemen, as reported in the Provincial Medical & Surgical Journal it would appear that they discovered by means of the microscope certain cells in the matter vomited, a also in the dejections of Cholera patients, which were regarded by them as peculiar to Cholera, as bearing some essential relation to the disease. Mr. Brinna also condensed the exhalation of the atmosphere of a house from which five patients had been removed to the Cholera Hospital, of whom two had subsequently died, the removal took place the day prior to the diarrhealis, and in this fluid he discovered bodies identical in appearance with some of the Smaller Cholerae Bodies. Afterwards, the atmosphere of districts free from Cholera was examined, but it yielded no evidence of the bodies in question.
CUT 1.

Fig. 1.—Large and small cells with mucous globules.

a Large cells in the imperfect state in which they are usually found.
b Large cells crushed by pressure.
c Medium-sized cells.

d Medium-sized cells crushed by pressure.
e Small cells from same specimen.
f Muscles, with hyaline burs.

Fig. 2.—Lithate of ammonia and lichic acid from cholera evacuations.

Fig. 3.—Oxalate of lime from cholera evacuations.

Fig. 4.—Phosphates from ditto.

Fig. 5.—Chloride of sodium from ditto.
While about the same time of these Gentlemen discoveries, Dr. Budd also discovered bodies identical with the Cholera corpuscles in the drinking water of infected localities, he likewise examined numerous specimens of water from healthy districts, but although he often found in it he says a good deal of matter of various kinds, organic and other, yet in no single instance did he see anything resembling the peculiar bodies in question.

Mr. Smarte in a communication to the Lancet describes cells of three different sizes - the smallest are the same size as 02, even much less than, blood globules. These cells are most commonly found in the first portion of the alimentary canal, especially in the matter ejected by vomiting. Cut II. Fig. 4, but were also found present in large numbers in the feces, together with other Cholera Cells of much larger size. Cut I. Fig. 1-2. These small cells precisely resemble, are in fact identical in appearance with, those which Cut II. Fig. 2.

Mr. Brittan has discovered in the atmosphere - the medium a large- sized cells distinctly resemble the small cells, but are coarser, more granular in structure. Between the three every gradation may be met with in form and size - the purer cells contained a mass of granules in its interior, but upon crushing it, this granular matter escapes, somewhat resembling the most minute Cholera cells; in
Fig. 1.—Large cells from cholera evacuations, (Cases 9 and 84.)

1. Large cells from Case 9.
2. Large cells from Case 24.
3. Large cells, the centre only in focus.
4. Large cells, with rather more of the circumference in focus.

a. Large cells not fully developed.

b. Small cells, with development of buds externally.

c. Broken and imperfect cells from some specimen.

Fig. 2.—Cells from condensed atmosphere.

Fig. 3.—Cells from drinking water.

Fig. 4.—Cells from vomited matter.

Fig. 5.—Cells from drinking water.
appearance. Act. 11th Fig. I. Mr. Smythe reports that
he has observed buds projecting from the external
surface of the cells, in some instances, completely
detached. This observation suggests that the mode of
production may be that of generation, as well as endog-
oms. For a full account of this, Britannia Smythe's
1849—But this theory, although it staked much interest
at first, has since been rejected, or at least its accuracy much
doubted. Mr. Buck, President of the Microscopical Society,
in a communication to that Society in Oct. 1849, de- mon-
strated that the large bodies figured by Mr. Smythe are nothing
more than a species of Uredo, a kind of fungus frequently
present on wheat, specimens of which Mr. Buck found
in a loaf of brown bread purchased in Greenwich.
The Uredo is not destroyed, even by the action of Crowdie Potatoes,
and slowly passes unaltered through the intestinal tract.
The smaller, so-called Accumular Bodies, are not, according
to Mr. Buck, spores in an early stage of development
than the larger bodies (Uredo) but are evidently
Starchy granule Satin by the patients.
In addition to the Uredo & the Starchy granule, Mr. Buck
demonstrated, in a specimen of chlorellaSoratia supplied
by Mr. Smythe, the cellular structure of the outer coat of the
bran of wheat. The identity of the bodies in the cholera evacuation with the Urea in the bran of wheat was quite unequivocal, and there appears every reason to think that the small annular bodies were, as Dr. Busk stated, merely starchy granules, derived from the bread previously eaten. The Urea was present in the specimen of cholera evacuation supplied by Dr. Brunton, but it was not observed in those exhibited to the Society by Dr. Busk. Dr. Basham has discovered the same bodies in the urine of a dyspeptic patient, thus ascertained, moreover that in certain cases at least, they do not make their appearance in the cholera depression until some hours after they have been passed. This will explain why the Urea was not detected in the specimen exhibited by Dr. Busk to the Medical Society. Medical Gazette, Oct. 19th, 1849.

The little annular bodies discovered in cholera depositions by Messrs. Brunton & Brunton, have been stated by W. Scott to undergo a further development by the production of buds, or cells, which subsequently become converted into long jointed filaments, somewhat similar to the Porum, or grass plant. Lancet, Oct. 26th, 1849.

We have now spoken of the various hypotheses theories relative to cholera, my own idea i
that Dr. Holland's hypothesis is the most likely to turn out the true one, but at the same time Electricity also appears to me closely connected with Cholera, so I would most respectfully suggest, whether the peculiar Electrical Condition of the Atmosphere may not perhaps be the means of calling the Cholera Animalcule into an active state of existence, or of maintaining it in such; but be this as it may, one thing seems pretty clear to me, that is, that the poison be it organic or inorganic being introduced into the body is peculiarly noxious to the Sanguinonic portion of the Nervous System. This seems to be highly probable for in Malignant Cholera we have the circulating power failing a with it, the Animal heat, also secretion, now these Vital functions are without doubt dependent upon the Nervous System, as Physiologists generally believe, upon the Sympathetic portion of it. In confirmation of this view we have also negative proofs. The respiration generally continues pretty natural up to the time of death, and the intellect mostly clear, consequently the respiratory involuntary nerves, and the Sensuous voluntary nerves must remain intact. The Sympathetic System also remains uninjured, it is commonly very much excited; moreover, whereas we have the branches of the Sympathetic most...
distributed here we have the symptoms of the disease most apparent—again it would seem from the experiments of Dupuy that the sinking of the eye may be attributed to the failure of sympathetic power. Dupuy found that the removal of the superior cervical ganglion of the sympathetic nerve of a horse was followed by the sinking of the eye in its socket, he says. "Le 24 Juin, on lui extirpa le ganglion cervical gauche. Aussitôt après l'opération, l'œil de ce côté paraît plus enfoncé dans l'orbite."—JOURNAL DE MÉDECINE. I. XXXVII. p. 343.

In concluding my observations on Epidemic and Cholera, I have only to state Professor Henderson in speaking of Quarantine in connection with it, observed that it was of little use, as Cholera never became Epidemic when imposed.