SHORT STAGE OF INCUBATION IN ENTERIC FEVER.

The stage Incubation in Enteric Fever, i.e. the Latent Stage, as generally accepted, is put down as "two weeks". Sometimes, however, a longer period elapses before symptoms of Incubation assert themselves. In other cases again one or two days only have elapsed before symptoms of Invasion were noticeable. An Endemic of Enteric Fever seven years ago warrants us to still further shorten the period of Incubation to only two to three hours. The conditions which at that time seemed to favour such a virulent onslaught by the Bacillus of Eberth were briefly as follows.

The Berg river runs along the boundary of the division of Malmsbury, Cape Colony. On the banks of the river are a few townships, and all along the river are the homesteads of many farms. The river is about 50 miles long, and like most South African rivers comes down with great force in winter, being the receptacle of rain water flushing about 50 square miles of country as catchment area.

In addition to this source of pollution every imaginable kind of refuse is thrown into the Berg river by the townships and homesteads on its banks.

The perennial pollution which goes on summer and winter consists of (1) Tannery refuse (2) Washing of clothes along its course (3) Dead animals thrown into the river (4) Bathing and (5) Whatever is swept from the country side into the river during the rainy seasons.

In summer the current is very sluggish with deep ports here and there and for the rest very shallow.
The surface water in summer looks very clear, but slight agitations near the bottom brings about turbidity right to the surface where water is not deep.

I have seen this beautifully clear water, kept in a closed cask of a water cart for a few days only, render the cask unfit for use on account of the odour of putrefaction which it generated in a previously clean and sweet cask.

Under such circumstances there is every facility for the Berg river to become so polluted in the course of time as to render it a source eminently fitted for the breeding and dissemination of Typhoid Bacillus on a very large scale.

Such a state of pollution must have been reached in 1893 to have given rise to a particularly virulent endemic of Enteric Fever; inoculation of six cases out of 58 being directly traceable to the Berg River.

These six cases, of which I submit a brief account, with the object of laying stress on the short period of Incubation, all go to prove the possibility of incubation in from 2 to 3 hours.
CASE 1.

Johanna S----- female aet 19 years. Had enjoyed perfectly good health up to November the 19th. On that morning travelled a distance of seven miles by cart in order to get to the Berg river to do a days washing of clothes. Had arrived at the river at 10 a.m., and began washing at once, standing for the greater part of the time knee deep in the stream. Was a very warm day and she drank a great deal of river water. Towards midday she felt headache coming on and her legs began to feel heavy and aching. Came away from the river about 4 p.m. suffering from intense headache and had cold shivers on the cart before reaching her home. Took to bed at once on arrival home. Was restless and off and on delirious in the night. I saw her the next morning i.e, on the 20th November. Her condition was then as follows:- Temperature 104. Pulse 160 and bounding. Respiration 30 per minute and regular. Administered six grains of calomel which operated four times about midday. I saw her again towards sunset-§. Temperature 102. Pulse 130. Respiration 22. Prescribed febrifuge and for headache small doses of Antipyrine and Ammonia.

November.

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November 28th

Temperature M 103 E 105

29th Died of Perforation.

Three weeks later two more cases of Enteric fever occurred at the same farm, the mother of the deceased and a sister who had been nursing her, contracting the disease. Both these cases, however run an uneventful course and both ended in recovery in about six weeks.
CASE 2.

Martha H-------female, aet 23 years. Went to the Berg river on the morning of the 27th November feeling in her usual good health. Commenced washing clothes about 9 a.m. Being a warm day she drank largely of the river water. About 11 o'clock she felt headache coming on, also felt sick and vomited twice. By two o'clock p.m. felt so bad that she was obliged to stop her washing and come away home having to travel a distance of ten miles. Went to her bed about 4 p.m. with intense headache and was very delirious during the night.

I saw her on the 28th of November. Complained of severe headache, sick feeling and abdominal pains. Temperature was 104. Pulse rapid. Respiration normal. Administered Calomel gr 6, which in a few hours operated three times.

Saw her again toward evening. Headache was better then, but temperature continued 104. Gave febrifuge.

November.

29th  Temperature M 102  E 104  Motions  0
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"  2  103  105  Bloody  2

" 3. Died 6 a.m. of Perforation as revealed by Autopsy

Subsequently five more cases of Enteric Fever occurred at the same farm sufficiently long after to have contracted the disease from infection carried thither by the deceased, and later on two more. These seven cases were comparatively mild but had a typical temperature curve of Enteric Fever, and all ended ultimately in recovery.
CASE 3.

Mrs. Sarah van D----widow, aet 36. Travelled by cart on the morning of the 2nd December a distance of 14 miles to get to the Berg river. Began washing clothes about 9:30 a.m. and spent the greater part of the time till about 2 p.m. in the water, and like the cases before, drank pretty freely of the water.

About 11 a.m. she felt very giddy and later on severe headache and although the day was very hot, felt cold in the water—but she continued her washing till 2 p.m. when she felt too ill to continue and consequently left for home.

Saw her at 12 p.m.
Complained of intense headache—tired feeling and whole body felt sore and ached all over. Face looked cyanosed.
Tongue coated large and Flabby.
Temperature was 104.
Pulse intermittent 135.
Respiration laboured.
Heart, marked Mitral regurgitation.
Applied mustard sinapism to back of neck and prescribed febrifuge mixture with Digitalis.

December.

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<td>Cyanosis worse</td>
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Died during night of Heart-failure.
Case 4. Anna B---aet 17.
Case 5. Rachel H---aet 19.
Case 6. Caroline L----aet 23.

These three cases were all healthy young women who contracted the disease in a very similar manner to cases 1, 2 & 3 viz:-- washing clothes in the Berg River and feeling headache and general malaise coming on whilst busy washing and standing in the water. The disease however run a milder course, no complications arose, but the temperature, splenic enlargement, diarrhoea etc., were all present some time or other during the course of the illness making up a complete picture of Enteric Fever as seen generally in South Africa.

To sum up then, these young women (six altogether) had all felt perfectly well up to a few hours after their arrival at the Berg river. They had all come from farms some distance from the Berg river, where there had been no cases of Enteric Fever. These were their first visits of the Season to the river thus precluding the possibility of having contracted the disease on the occasion of a previous visit; and as further proof that the fever was not contracted on the farms, cases broke out one and two months later in the season at the farms, and of these 58 altogether were treated by me.
Elizabeth, a coloured girl, aged 17. Was asked to come and see her on account of convulsive fits which came on whenever her friends tried to raise her body, and by so doing touched the left side of her chest, more particularly the left axilla. These convulsive seizures pervaded indiscriminately apparently any of her voluntary muscles—there were jerkings, contortions, opisthotonus, lateral deviations of the head, jaws fixed. She could not swallow, lost power of speech and apparently of sight too. The eyelids were closed but could easily be opened. On opening the eyelids and touching the conjunctiva, I was rather disappointed to notice absence of both conjunctival reflexes. I thereupon touched the left side of the chest in the axilla and all at once a severe convulsive seizure supervened, which however subsided into a calm in a few minutes, unconsciousness continuing. I then touched the right axilla without any convulsions following. My suspicions were naturally aroused by this anomalous form of neuroses, and I consequently suspected that there was "malingering". I then purposely said aloud to some of her friends standing about, that it was very curious, that touching her left side only should give rise to her fits. I again touched her right side without any result—then I made a dive for the left axilla stopping my hand short of touching her however. She was caught this time, for although I had not actually touched her, she went off into a prolonged seizure. But no amount of moral suasion could bring her round to consciousness. I then placed two drops of croton oil well back on her tongue. About quarter of an hour she jumped up very suddenly and made for the door of the hut, and disappeared into the...
the veldt where she spent the greater part of two hours - the croton oil operating freely. After that she came back to the hut, had a good nights sleep and woke up bright and cheerful in the morning. I saw her again about a month after never had any more fits. I tested her conjunctival (ocular) and then found anaesthesia to be the normal state with her. The rest of her nervous system carefully gone over shewed nothing abnormal, thus -

Sensory Functions.

1. Subjective Sensations.
   Pain, neuralgic, girdle, lightening cephalgic absent.
   Paraesthesia, sensations of heat or cold, numbness, formication, pruritus absent.
   Vertigo none.
   Visceral sensations nothing abnormal.

2. Objective Sensibility.
   General sensations, tested by touching pinching or pricking the skin produced nothing unusual.
   Tactile sensibility - Sense of pressure and temperature normal.
   Sense of locality normal.

3. Muscular Sense not in any way deficient.

4. Sight - No optic hyperaesthesia nor hyperalgesia nor anaesthesia.
   Eye-ball No paralysis, no spasm of ocular nerves.
   Pupil Normal accomodation as to distance and light.
   No myyosis, no dilatation.
   Ophthalmoscopic examination normal.
5. **Hearing.**

No deafness, no hyperaesthesia, no tinnitus, no vertigo.

6. **Taste normal**

7. **Smell** no anosmia.

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**Motor Functions.**

A. **Visceral**, viz:- deglutition, defecation, micturition, sexual functions and respiratory all normal as far as could be ascertained.

B. **Voluntary Muscles.**

(1) Voluntary movements, no paralysis, no spasm.

(2) Reflex Movements.

- Superficial reflexes - plantar, gluteal, abdominal, epigastric & scapular not exaggerated nor abolished.
- Deep reflexes. Knee jerk present, but not increased, ankle clonus none.

(3) Coordination. No Vertigo, no Ataxia.

Vaso-motor and nutritive functions local congestions, pallor, oedema, inflammations, sloughing, wasting, perspiration all absent.

Muscles, bones, joints, skin and glands all in good condition as far as could be ascertained.

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**Cerebral and Mental Functions.**

No hallucinations, illusions, delusions, torpor or coma.

Attention, memory and speech not in any way deficient. Sleep no somnolence, insomnia or somnambulism.
4.

Cranum and Spine.

Cranum normal.

Spine - Inspection - palpation, percussion and hot sponge test indicate nothing abnormal.

Locomotory System.

Bones - no nodes.

Joints, no enlargements nor interference with mobility.

Muscles. - No rigidity, flaccidity, spasms, general or fibrillar twitchings, paralysis, hypertrophy or atrophy.
Healthy white man, foreman on a farm - aet 32 years. Family history good. His own health up to date he presented himself at my consulting room was everything that could be desired. He had noticed since that childhood that touching any part of his ocular conjunctival produced no inconvenience and the same could be said about small foreign bodies which produced no pain. In fact he was in the habit of removing these before the mirror with the tip of his finger without the usual reflex being produced. Sight was good. Pupils dilating and contracting to distance and light. The whole nervous system was gone over carefully, but no additional functional abnormalities were detected. His condition apparently was congenital but not hereditary as far as could be ascertained. The former case, i.e. the coloured girl, I could not ascertain whether congenital or hereditary, as she could tell me very little about her childhood.
CONCURRENCE OF INFECTIOUS DISEASES.

PERTUSSES & MEASLES.

Male, age 6 years.

Pertusses well marked and unmistakeable had been running the usual course without complications for three weeks. The whoop was very well marked by that time and frequently ended in a fit of vomiting. Then febrile symptoms became more prominent, corhyza more marked and on the fifth day well-marked measles spots were noticeable behind the ears and a few Koplik spots inside the cheeks. In a few days more the eruption became very widespread and there was no mistaking the disease. The Pertussis was very much aggravated for a fortnight. Measles then subsided and pertussis persisting for some time, but finally yielding to a change of air.
CONCURRENCE OF INFECTIOUS DISEASES.

Pertussis, Measles and Enteric Fever.

Female aged 7 years.

Pertussis well marked, with whoop, vomiting and nose-bleeding. During second week of Pertussis the temperature shewed a regular remittance forenoon fall and afternoon rise without coming down to normal in the morning, running a typical typhoid curve. An epidemic of Typhoid was prevalent at the time, and two cases were being treated as typhoid in the same house. This regular rise and fall of temperature continued for a week and then corhyza supervened and to my surprise measles spots appeared, which disappeared in a fortnight. The measles and Typhoid for a time seemed to suppress the cough of Pertussis; but on the subsidence of Typhoid and especially during convalescence the well marked whoop again appeared, finally disappearing on a change to the seaside.