

T H E S I S

on

The Intestinal Antiseptic Treatment

of

CEYLON SORE MOUTH

presented by

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to

The DEAN of the FACULTY of MEDICINE, and the SENATUS ACADEMICUS

of the

UNIVERSITY of EDINBURGH

for the

DEGREE of DOCTOR of MEDICINE.



March, 1894.

R. J. Drummond,  
East Holyrood,  
Talawakelle,  
Ceylon.

TO :

The DEAN of the FACULTY of MEDICINE and the  
SENATUS ACADEMICUS of the UNIVERSITY of  
EDINBURGH.

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Sir, and Gentlemen :

As a Candidate for the Degree of  
Doctor of Medicine of Edinburgh University, I beg to  
lay before you this thesis on the "Intestinal Anti-  
septic Treatment of Ceylon Sore Mouth."

Introduction.

As a medical practitioner in the Tea districts  
of Ceylon, I have found that Cases of Ceylon Sore Mouth  
show themselves from time to time among Europeans in  
the higher and cooler elevations, from 3,500 to 5,000  
feet above sea level.

Literature.

The medical literature dealing with this disease  
is scanty, and difficult to get at. I have searched in  
"Diseases of Tropical Climates", Surgeon General Mac-  
Lean, London, 1886, and found no record of it; also  
neither /

neither do Fagge's "System of Medicine" 2nd Edition '88, nor Parke's "Hygiene" 7th Edition '87, nor Quain's 'Dictionary of Medicine' '88, make any mention of it. But in a small popular treatise called, "Disease among Malabar Coolies and Europeans in Ceylon", Kandy, 1866, written by John Thwaites, M.D., there is a short paragraph, which says, "a prominent feature of low remittent fever is its almost invariable tendency to end in the well-known 'Sore Mouth' of Ceylon. It is not, however, until after a long continuance of the fever that this result takes place. As the determined continuance of the fever arises from either already formed or commencing disease of the liver or spleen, so the first symptoms of 'Sore Mouth' should be a peremptory warning not to delay seeking professional advice." This succinct paragraph represents the literature on the subject, as far as I can ascertain from the means at my disposal, to gain further information on the point.

#### Nature.

What then is the nature of Ceylon sore mouth? I have never been able to make a post-mortem examination of a case, owing chiefly to the class of patient among whom /

whom it occurs, and to the fact that most cases, when they can possibly afford to go home to England, do so at first opportunity. But in spite of this, I trust that in the clinical description of the cases which have come under my notice, sufficient indication will be forthcoming of the nature of the complaint.

#### Definition.

Ceylon sore mouth may be described as a low chronic inflammatory condition of the whole of the alimentary tract and its visceral appendages, the sites more usually affected with the sores being the mouth and throat, the large bowel and rectum. The ulcerations of the throat are herpetic in type, and those of the large intestine are simple, non-specific, and quite different from the characteristic lesions of dysentery, but resemble the acute croupous, and diphtheritic forms of enteritis. The disease is intimately associated with nostalgia in all its mental phases, and is, in consequence, a disease of mature adult and senile life, and is found in those who have resided for a long time in Ceylon, and who, if Europeans, find that they must again seek their native home, to regain health /

health and strength. It is a disease which is as common in women as in men, and other things being taken into account, it rarely attacks those who have led a healthy out-door life, but rather those of sedentary occupation.

### Definition

It is a clinical condition, which is invariably preceded by a long series of attacks of some gastrointestinal irritation, such as stomachic dyspepsia, congestion and inflammation of liver, in all its forms, duodenal dyspepsia, enlargement and inflammation of spleen, dysentery, typhoid, tropical diarrhoea, inflamed haemorrhoids and anal fissure, and other intestinal lesions, in each case, in conjunction with low fever.

### Cause.

It is caused by living in damp, moist atmospheres, in old bungalows (houses) where the wood is rotten or has dry-rot in it, and where the situation of the bungalow is unhealthy, from the proximity of swamps, or stagnant water. The fact, that many people have to live on bad or a poor quality of food, year in, year /

year out, no doubt causes the condition in those whose system has been undermined by previous sequence of gastro-intestinal illnesses. It is to be noted, that among Europeans in a tropical colony like Ceylon, by far the greatest proportion of diseases suffered from are, (1) those of the gastro-intestinal tract and its visceral appendages, and (2) those of the renal system.

#### Primary Stage.

When it is said that the condition of Ceylon sore mouth is preceded by many attacks of low remittent fever, it must be understood that this remittent fever is of a low, sub-acute type, quite different from the remittent fever that occurs in India, where it is very severe. The low remittent fever of Ceylon, here specified, is more a condition of negatives than anything else. It is a fever, which does not attack those who have been in the colony for only a short time, but it comes on after a European has been out for so long, that he begins to feel the want of a change and a holiday. If a European be living up country in the cool and non-malarial regions, he may not suffer from it at all, or not for years. If, on the other hand, /

hand, he live in the low country in the hot, damp, swampy land, around the edges of the large rivers, he may contract it more or less quickly, according to the unhealthiness or healthiness of his surroundings. An attack of this fever, then, is an indication to the European, that the climate is telling on him, and that he must take a change. He feels "seedy" and yet cannot leave his work perhaps, or he cannot afford to go away for a holiday, and so he goes on, hoping he will get better when the hot weather comes, after the monsoon rains cease. This low, remittent fever hangs about a patient for weeks and months, and when once thoroughly established, is very difficult to shake off. If you examine a patient who is suffering from it, you find that he has no appetite, no great thirst, no particular acceleration of the pulse, no tendency to sweat, though the skin is generally moist and the hands are clammy or wet; he sleeps fairly well, but fitfully, is restless, and awakes more fatigued than when he lay down; his general desire is to keep quiet, and to be left undisturbed. There is at the same time a constant wish for change in some shape or other, though he cannot define what he wants, and a longing for /

for something he cannot describe to you. He has a sense of languor in the limbs, that amounts to pain but there is no pain either on motion or pressure. He is, as he says, "regularly floored", he has no wish for exertion of any kind, bodily or mental and is depressed in spirits. The tongue is furred slightly at base, the mouth may feel dry, in early morning; the breath is not offensive, and the patient has no sign of dyspepsia, such as flatulence, or gastric pain, palpitation, or vomiting, except that now and then he may feel sick in the morning. Liver palpation reveals no pain, or tenderness, though at times he may feel an uneasiness there. The liver is not enlarged, and, on taking a deep breath there is no 'stitch' or pleuritic pain. The complexion may be sallow, but not anaemic, or jaundiced; the spleen often is tender, though in early stages no discernible enlargement can be detected, unless the patient has suffered previously from malaria. The bowels are often constipated and irregular, and this constipation alternates often with diarrhoea, which is preceded by a feeling of fulness in the abdomen, umbilical pain, and the stools when passed are somewhat offensive. It is also sometimes /



sometimes characteristic of this condition to have headache, malaise and neuralgic pains wherever there had previously existed any morbid condition calculated to weaken the affected organ. If the temperature be taken, the fever will be found to oscillate between  $99^{\circ}$  and  $100.5$ , rising at times to  $101$ , but very rarely. The difference in the intensity of the fever, is about  $.5^{\circ}$  at a time: this variation is inconstant, and has no periodicity about it; you cannot foretell when the temperature may rise or fall, the fever being really more continuous than remittent, and yet remittent in type. This low, remittent fever must be distinguished from the bilious remittent fever of Indian authors where you find high temperature at first, then continuous, periodic fever with temporary remissions, severe headache, vomiting, and perhaps delirium. Also in the low type, there is still less marked, the usual cold, hot, and sweating stages occurring in true malaria; in fact, they hardly can be detected at all. If a person suffering from this low remittent fever does not take a change of air to a cold climate, the fever may hang about him for weeks or months; if not taken in time, or when once thoroughly established in the constitution, it is liable to /

to recur even after a change.

This then is often the primary stage, or rather the predisposing condition which leads to a second or intermediate stage, characterized by disease of the abdominal viscera, and which ultimately may lead to the train of symptoms called "Ceylon Sore Mouth." The time necessary to pass from the first to this last stage, depends entirely on the environment of the patient, and on how he takes care of himself. Whether the patient ever gets 'Ceylon Sore Mouth' or not, depends on the severity of the symptoms during the intermediate stage. If change be taken to a healthier, higher altitude, this last or third stage may never come on at all.

#### Second Stage.

The second stage towards this disease may be passed through in various ways; but in all cases before the 'Sore Mouth' condition shows itself, the liver, spleen and intestinal tract have, during a long period, shown signs of some functional or organic disease which may be actually present when the 'Sore Mouth' shows itself or have occurred in the past: e.g., (1) A patient may, during this intermediate stage, come up country /

country to the cooler altitudes, may take too much alcohol, may suffer from exposure to rain and damp, and may thus, develop slowly, attack after attack of hepatic congestion, hepatic dyspepsia, and probably one or two attacks of mild dysentery, and then pass into the third stage. (2) A patient may be unable to come up country, and being forced to stay in the feverish districts, may, though a temperate man, contract malarial fever, in one or other of its many forms, and, after a long series of attacks, develop liver and splenic enlargements, malarial cachexia, malarial anaemia, tropical diarrhoea and so pass into the third stage. (3) A patient may be exceedingly temperate, with regard to alcohol, but may be forced to live on very poor food, tough beef, no milk or butter, bad flour and bread, and bad dieting generally; he may have to live in a bungalow where, either owing to the situation, or to the materials of the building, dampness prevails; he may in consequence contract a chill, and develop dysentery or diarrhoea, which, after running more or less a sub-acute course, may lead also into the third stage. (4) A patient may, through exposure and bad food, begin /

begin by suffering from hepatic troubles, hepatic and duodenal dyspepsia or diarrhoea, and these having run a chronic course, he may develop enteric fever, pass through that, and develop Ceylon sore mouth as a sequela.

### Clinical Features.

One marked accompaniment of this disease is nostalgia, which is so strong in a patient, that if he is attacked by it, and wants to go home, he simply must go, or he dies in a short time, with strong melancholic tendencies present. After Ceylon sore mouth has been running its course for some time, in addition to the general ill-health induced, this nostalgia produces a mental peevishness and inaptitude for work. The patient becomes dull, apathetic, querulous and irritable. The incentive to work seems to have gone; the temper is uncertain, so that there is an alternating condition of complacent, listless apathy, and one of impulsive, spasmodic irritability, roused by trifles which previously would not have had that effect. There is a restless craving to escape from present surroundings, it may be to England or to Australia, or often the place wished for is not specified, but /

but the desire is simply expressed by the wish to 'get away'. The patient is sleepless, or sleeps at short intervals throughout the night, wakes in the morning, dull heavy and unrefreshed, and during the day sleeps in snatches, to make up for the want of the night's rest. He cannot read even the lightest literature - the effort of concentrating the mind on the subject-matter evidently being as tiring to the body as the effort to hold up the book or paper.

The patient becomes a regular barometer of the weather: he can tell by his own feelings whether the rain is coming or not, for whenever damp, misty weather comes on, the raw, sore feeling is present in the whole outline of the large bowel, and the melancholic symptoms become intensified. The hypochondriacal tendencies increase day by day, and the patient is a victim to headaches, neuralgias, and other neurasthenic pains, which flit and chase one another about, from one part of his body to another.

#### Aetiology.

As we look more minutely into the aetiology of this disease, we find that it occurs mainly in those /

those who have spent a long period of their lives in the Tropics. Most patients that I have seen, have lived at least 15 years in Ceylon, some of them longer than that, and seeing that the class of patients affected, are principally Europeans, who have come to the Island as adolescents, the age after which it may come on is from 35 onwards. Of course the disease may show itself before that age, if the patient's environment as to climate, feverishness of district, and indulgence in alcoholic excess, has been too trying for the individual organism. The disease occurs more commonly in women, in the proportion of 3 to 2, and this is due mainly I think, to the fact that, in a tropical country like Ceylon, all the re-productive functions, such as menstruation and child-bearing, tell more upon the general health, and tend to wear out the system, as a whole, more than in England; it is also partly due to the fact that women in Ceylon lead solitary, uneventful lives, and do not take enough exercise; hence the tendency among them to congestion and sluggish liver, with its accompanying dyspepsia and constipation.

#### Climatology.

The /

The peculiar climate and meteorological conditions of Ceylon must be considered too, as bearing on the question of the prevalence of Ceylon sore mouth. The rains falling on the island of Ceylon, come from the South-west and the North-east. These rains are periodic in their advent; they last for a certain time, and then pass away. They are known locally as the Monsoons; they originate as cyclones that sweep the Bay of Bengal and the Arabian Sea, on either side of the Indian Peninsula. Their greatest force is spent in the upper area of these bays near the base of the triangular Indian Continent, and as Ceylon is at the apex of this triangle, the cyclones have expended their energy by the time Ceylon is reached; hence the Monsoons are milder here than in India. The island of Ceylon may be compared to a sugar loaf hat, not with one apex or summit, but with two which are of unequal height. One summit is situated in the South-west part of the Island, and is called Adam's Peak. It is 7,300 feet high, and on its slopes towards the sea, and also inland, are situated some of the Tea Estates cultivated by Europeans. The other summit, Pedro, is 8,300 feet high; it is situated to the North-east of Adam's Peak, /

Peak, and between these two hills, lies a large plateau of country, at an elevation of from 4,000 to 5,000 feet above sea level. This plateau is about 300,000 acres in extent, and here also the European Planters live and cultivate tea in what is known as the Hill Country. The whole country of Ceylon may be divided into three main, climatic regions, depending on their position in regard to these two peaks and their surrounding ridges.

(1) The dry, low country region, lying to the North of Adam's Peak and Pedro, which occupies a little more than  $\frac{4}{5}$ ths of the Island and, lying as it does, to the North of the high hills, is sheltered from the South-west Monsoon, and hence gets no rain from May to August. But from October to January it is exposed to the North-east Monsoon. This region is not inhabited by Europeans except in the coast towns, and the elevation does not rise much above 1,000 feet. The 2nd and 3rd regions, which lie round the base and on the sides of Pedro and Adam's Peak, include a little less than  $\frac{1}{5}$ th of the Island area.

(2) The 2nd region runs from sea level up to an elevation of 3,000 feet, and may be called the moist, low /



low country region, as it is exposed to both Monsoons.

(3) The land from 3,000 up to 6,500 feet elevation including the plateau above mentioned, may be regarded as the 3rd main division, and may be called the moist, Hill Country. Now these two regions, the moist low, and the moist hill countries, may be regarded as the natural home of Ceylon sore mouth. In both of these, the rainfall varies from 75 to 216 inches annually, and only four months out of the year can be said to be dry. The South-west Monsoon strikes the Island at the South-west corner, crosses the low country, and rushes up the numerous valleys and gorges of Adam's Peak, till the whole of the country from the sea level to the hill plateau is flooded with torrents of rain. This rain continues in increasing severity from about the 24th April till the end of July, when it gradually fades into mist, and is replaced during August and September by beautifully clear and sunny weather. Now it is important to note, that the summit of Pedro is nearly 1,000 feet higher than that of Adam's Peak, so that, though you find that from April to July 31st the slopes of Adam's Peak and the plateau and the South-west sides of Pedro, are soaked with rain, yet the country /

country on the North-east of Pedro has been quite dry and sunny, because the summit and the ridges leading to it act as a barrier, and not only prevent the rain from crossing over, but often drive it back again, so that it falls into the plateau which lies like a relatively flat basin between the two hills. In the same way, the North-east Monsoon strike the island at the North-east corner, sweeps over the dry, low country and gives it the only rain it gets in the year, and climbing up the North face of Pedro, penetrates through the gaps and valleys in this range of hills, and makes its way also on to the tea plateau, and down towards Adam's Peak, and re-moistens as it were, the ground that had been covered by the South-west Monsoon. This North-east Monsoon begins in November, and goes on till the end of December. Then it gradually ceases, and the fine weather begins again and lasts till April. Of course, on the plateau and all to the South-west of Pedro, the North-east <sup>monsoon</sup> is comparatively slight, but still it does show itself, and this is a very important point, as on this account, the moist hill country and the moist low country show a large percentage of days in which rain falls, which means that /

that these regions are in a state of continual dampness. A few figures from the meteorological report will show this to be true. Thus :-

I In the Dry, Low Country.

Station.	Height above Sea Level.	Average Rain-fall Annually.	Rainy Days per Annum.
A.	9 ft.	49 in.	74.
B.	12 "	40 "	61.
C.	11 "	45 "	69.

II In the Moist, Low Country.

Station.	Height above Sea Level.	Average Rain-fall Annually.	Rainy Days per Annum.
D.	109 ft.	150 in.	208.
E.	2,400 "	208 "	205.
F.	1,500 "	210 "	201.

III. In the Moist, Hill Country.

Station.	Height above Sea Level.	Average Rain-fall Annually.	Rainy Days per Annum.
G.	3,315 ft.	216 in.	233.
H.	4,800 "	94 "	218.
I.	5,200 "	73 "	203.

Thus /

Thus in the dry low country the average rainfall for stations A. B. and C. is 45 inches annually, and the number of days on which rain fell is only 71 in the year. Now contrast this with the South-west side of Ceylon as seen in Tables 2, and 3. Here, the average rainfall, for stations D. to I. is 189 and 128 inches, and the average number of days on which rain fell, is 205 and 208 per annum respectively; or, taking the average figure for the moist country as 206, it will be seen that there are nearly three times as many rainy days on the South-west side, as there are on the North-east side of the country. Now, it is this continual wet weather of the two moist regions that tells so much against a patient who suffers from Ceylon sore mouth. It will be seen from what has been said, that if a patient who suffers from 'Sore Mouth' on the South-west side during the months from April to August be transferred to the North-east side of Pedro at that time, he will get into a completely different climate where the cold, wet atmosphere of the South-west gives place to the dry, sunny weather of the sheltered North-east slope.

The alternate periods of wet and of dry weather which /

which take the place of the seasons of temperate zones are thus much modified by the peculiar configuration of the country, and it is always possible to escape from any part of the country to one that is sheltered from cold and wet.

Ceylon sore mouth usually shows itself about the middle and towards the end of the Monsoon months; during the dry, inter-Monsoon periods, it is rarely seen.

In order further to study the aetiology of Ceylon sore mouth, we must look back upon the climatic conditions of Ceylon twenty to thirty years ago, and there we may find an explanation of the various causes that were at work in producing the condition among those who now suffer from it. It is to be noticed that those Europeans who are attacked by this disease, have, as a rule, been in Ceylon for at least 15 years, and very often much longer. They came to the Colony when the moist low and the moist hill, countries were in forest and 'unopened'. The Europeans began opening land, first in the moist low country, at an elevation up to 2,500 feet. The ground they worked in was virgin soil which had to be cleared of forest, tilled and planted with coffee or tea. The opening up of the ground, together /

together with the burning of immense tracts of forest, caused malaria to show itself, in the form of jungle fever, and low remittent fever, both of which were very prevalent during the Monsoon months. The pioneer planters, living in those primitive times, were often handicapped for want of capital to develop the newly-opened estate property, and so, instead of building good bungalows to live in, they often erected temporary shanties that were made of wood, picked haphazard out of the forest, without any regard to its suitability for building purposes, with the result that it sooner or later became rotten from dry rot. These primitive bungalows were also often placed on damp sites, near swamps or stagnant water, and often far away from pure, clean drinking water. The means of communication between the estates and the small towns where alone food could be obtained, were very faulty. In most cases a messenger could only be sent twice a week for provisions; the butcher meat, etc., had often to be carried for twenty or thirty miles, in a hot, tropical sun, so that very often the food arrived at the estates in a condition not fit to be eaten; yet as a rule it had to be eaten, as there was nothing else to be obtained in /

in its place. There were no cattle bred expressly for killing, and what animals were killed, had probably been working up to the day previous as draught oxen, so the beef was always poor in quality, tough and often tainted. There were hardly any sheep in the Colony then, and so mutton was very scarce; when it was asked for, generally a goat was killed, and the flesh of it was sent instead. The food too, was monotonous, and as milk, butter, and dairy products were scarce, the household had often to live on tinned goods of second-rate quality, exported "expressly for the Colonies."

The architecture of the bungalows, was as a rule, primitive and faulty; the bedrooms were nearly always dark and small and had little, or no ventilation; the livingrooms were draughty, and the driving Monsoon rain found its way into every corner of the bungalow, rendering the occupants liable to repeated chills. After the coffee failure, many estates became bankrupt and changed hands; the bungalows, bad before, fell into much worse condition; the rotting beams, and wood generally in the walls, were not removed, as expenses were cut down to the utmost limit, and all questions of bungalow repair or renewal, were deferred till the estate had cleared itself from debt. Thus, damp sites, decayed wood, /

wood, and bad, monotonous food, with questionable purity of water supply, each and all contributed to and, in the long run, produced, the general condition of Ceylon sore mouth. In almost all cases of this malady, one or more of the above defects can be detected in some form or other, in the past or present environment of the patient. The same description holds good for the hill moist country only in a much less degree, as the higher elevations were freer from malaria, but the other conditions of dampness of surroundings, faulty bungalow architecture and scarcity of good, nourishing foods were the same.

The detailed clinical aspects of Ceylon sore mouth, may be gathered from the following cases :-

#### CLINICAL CASES.

##### CASE I.

M.F., a lady who had been in Ceylon for 17 years, consulted me about herself.

##### Previous History.

She had come to the Colony in the old coffee days when the land was first opened, and when, in consequence, a certain amount of malaria was present in the air. She lived then, at an elevation of 3,000 feet above sea level, she had what she called "Low Country Fever," /



Fever", off and on, for about six years; during that time, being strong and new to the Colony, she rode about a good deal, was reckless about getting wet, often neglected to change into dry clothes, and thus suffered a good deal from exposure to the tropical sun and rains. In addition to this, the rough, monotonous and often bad food, in time, brought on dyspeptic troubles, and gradually the gastric catarrh spread to the duodenum and she began to have diarrhoea with flatulence after each meal. This catarrh spread in time to the liver, and that, in addition to repeated chills, brought on hepatitis and catarrhal inflammation of the bile ducts which ran a sub-acute course for a number of years with intermittent attacks of jaundice. She was then ordered home on account of her health to England, where she grew much better, came out to Ceylon again, and after two years' freedom from ill-health, began again to suffer in the same way, and also, had in the following three years, four attacks of dysentery, which reduced her strength very much. She recovered from this, but as she was next threatened with Ceylon sore mouth, she was sent home again to England; there she remained for eighteen months /

months, when she returned to Ceylon. Two years after this, she consulted me about herself.

### Symptoms.

At this time she complained of heartburn, morning sickness, and an irritability of the mouth and throat, which prevented her taking any hot or stimulating food or drink; irregularity of bowels, with diarrhoea immediately after food, and also hepatic and intestinal colic, with passing of clots of mucus and bile, and fragments of sloughs, clay-coloured and foul-smelling stools.

### PRESENT CONDITION.

#### Alimentary System.

On examination of the mouth, I found the tongue flabby, and marked at the edges with indents of the teeth; the surface was dry, the base and centre were covered with a brown-white fur. Breath was bad; teeth were in good order; the mouth, though moist, had not the appearance of healthy mucous salivary secretion, and gave an acid re-action to litmus paper; careful examination showed inside the mouth, small, oval, shallow ulcers, about the size of a pin's head, scattered all /

all over the mucous membrane, especially inside the lower lip, on the palate, and soft palate, uvula and pharynx, the lining of the cheek, and the edges of the tongue; none appear on the dorsum, neither are they found specially on the gums, close to the teeth. In the first stage of the sore, there is a feeling of roughness, slight tingling and heat; on inspection, it is found that a small area the size of a pea around a central point, has become red and inflamed, the arterioles and venules radiating to and from it, are enlarged; the central point becomes slightly raised, the tingling changes to pain, tension is increased and a small vesicle forms; this points and bursts, leaving a minute ulcer, with a shallow base, and a red edge, and now the eating of hot curries, condiments, salt and spices, produces pain and smarting. These spots heal up in a day or two, and others take their place. If the condition be not checked the ulceration of the mouth becomes worse; the ulcers grow larger, are superficial and painful, have circular, sharply punched out edges and shallow base, the edges not thickened or undermined, are followed by no glandular enlargement, and are quite different from /

from the sinuously edged, oval, raised mucous patches, with their pale blue moist surface.

Further, in this patient, there were old signs of jaundice pigmentation, the liver was tender on percussion, enlarged slightly round the epigastric and costal margin, with a distinct fullness near the ninth and tenth right costal cartilages. The patient complained of feeling here and over the liver a constant grinding, 'churning' pain, which shot up into the right shoulder and round the neck to the left arm. The whole of the abdomen was very tender, and on pressure there was a well marked tenderness and pain over the caecum, the ascending, hepatic, transverse, descending sigmoid and rectal parts of the large intestine. The whole of this gut felt 'doughy' and thickened, and, when the colic came on, the pain seemed to arise in the liver and gall bladder, pass down to the right groin, and then follow the course of the large gut, the peristaltic movements being plainly seen. About an hour after taking food, the patient used to pass foetid motions which contained large quantities of yellow, bile-stained mucous coagulations, light-coloured faeces in solid lumps and with faecal diarrhoea of alkaline reaction, and also shreds of mucous /

mucous membrane, varying in quantity from day to day. These shreds of mucous membrane had a foul smell, had a clean-cut edge, were often coloured brown or dark when old - were parchment yellow colour when new - and showed plainly the crypts and tubules of the large gut; they were detached in pieces the size of English penny stamps, varied in thickness from  $\frac{1}{16}$ th to  $\frac{1}{18}$ th of an inch and were never blood-stained in any way. There was no tenesmus or straining at stool, no discomfort of any kind in fact; there was no history of blood-passing, or the passage of pus, or any other sign of dysentery, except that, now and then, there passed a quantity of mucus like boiled sago, but this was small in quantity relatively speaking. On palpation, the spleen was tender but not sufficiently enlarged to be felt outside its anatomical limits. There was no fever to speak of. temp 99.2; pulse 84, regular and full. There were some inflamed internal piles, but they gave rise to no special pain.

#### Urinary System.

The urine was scanty, and high coloured, passed without much discomfort, and contained alkaline urates and /

and phosphates, but no albumen, blood or casts.

### Nervous System.

The patient suffered a good deal from frontal headache, and was subject to ocular and facial neuralgia, though the teeth were in good condition. She was not anaemic, and but for her condition as described, was in fairly good health. She had had no shivering fits, no attacks of vomiting, and though her hands were clammy and moist when the abdominal colic came on, she had not perspired profusely at any time.

### Environment.

It must be noted that the rainy season had been at its height for some weeks before she consulted me, and that she was living in a very rainy, damp, atmosphere, nearly 6,000 feet above sea level with the cold North-east Monsoon blowing hard at the time. I made enquiries as to the healthiness of the bedroom she occupied, and found that she slept on the cold rainy side of the house; and that the joists in and around her room were faulty; These were taken out, and found to be mouldy and rotten with damp.

### Treatment.

I /

I made her change her room to the sunny side of the house, told her to have fires constantly burning in the room, made her stay in bed; ordered her to put a blister the size of a tangerine orange over the right epigastric region, and gave her the following pill to take at night

R/. Euonymin.	1½ gr.
Pil. Hydrarg.	½ gr.
Pil. Colocynth. Co.	1½ grs.
Ext. Belladon.	½ gr.
Ext. Hyoscyam.	1 gr.

This to be followed by a small seidlitz powder with  $\frac{1}{2}$  a lemon in water, in the early morning.

This treatment was carried out for ten days, with the result that the tongue became clean, the appetite returned, the headaches disappeared, the tenderness over the liver and gall bladder became less marked and there now passed by the bowel, large quantities of bile, and bile-stained mucus; the faeces became brown-er and more natural in colour, and the intestinal sloughs though still present were not accompanied by so much diarrhoea as before. The hepatic colic subsided, but the large bowel was still tender and sensitive, and subject to the colic attacks.

I then put the patient on milk food entirely, ordering her milk and soda water, alternately with Benger's Peptonized Food and Mellin's Malt-Food. These she took at regular and frequent intervals throughout the day, together with a selection of fruits such as ripe oranges, preferably mandarin kind, a lemon drink in the early morning, and throughout the day a suitable quantity of "Edible Grenadillas" or small passion fruit, together with an occasional change of fruit in the form of fresh Bael Fruit.

#### Bael Fruit.

Belae Fructus, the ripe fruit of Aegle Marmelos. This fruit must be taken ripe, and stewed in water for about half-an-hour; then the thick rind is split open and the pulp inside is squeezed through muslin and eaten like apple jelly. Had I been able to get any grapes, I should have ordered her to take the juice thereof, the stones being carefully excluded. I interdicted all flesh meat, sweet puddings, and sugar, potatoes, and vegetables; no hot curries, no toast, or biscuits were allowed; in fact nothing except milk /



milk diet.

Naphthaline.

As a medicinal remedy, I ordered her the following powder:

R/	Bismuth subnit.	xv grs
	Naphthaline.	viii grs
	Sacchar: Lactis.	<del>ix</del> q.s.

Sig. The Powder, one to be taken in a wafer paper, every four hours, during the day.

After four or five days of this treatment, the sloughs though still there, lost their foul odour, the large bowel became less tender, and the 'boiled sago-like' discharge ceased; the stools became more natural in colour and consistency. It was noted particularly that after the first sloughs of mucous membrane showing the tubules came away, the subsequent sloughs were quite different in character; they were, when new, white or yellowish in colour, were much thicker, varying in size from  $\frac{1}{8}$  to  $\frac{1}{4}$  inch in thickness, opaque, and to the naked eye had no marks of tubules or crypts on them, but were apparently structureless, and appeared to consist of a gelatinous, lymphoid /

lymphoid exudation; their consistency was tough, and not friable; they were not transparent, and on scraping, though the surface, when fresh, was covered with mucus, yet no other characteristics were noticed, except their gelatinous toughness.

During the month that followed, the improvement that had set in became more marked; the sloughs ceased altogether; the tenderness and colic and 'doughy' feeling of the large bowel went quite away; the liver became much more active, and the stools were perfectly natural in every way. I ordered the patient to take an euonymin pill twice a week, merely to help the liver, and as a stomachic tonic gave her acidum nitrohydrochloric: tr. nuc. vomicae: succ. taraxaci.

She then grew much stronger in general health, and as the rainy season was nearly over and the days became sunny and bright she improved wonderfully. In order to complete the convalescence, I suggested a trip to Calcutta and North India, so as to have the benefit of the cool season there. She went to India and stayed there for three months, and came back, looking and feeling very well. She kept in good health, until the advent of the second Monsoon, when with /

with the South-west rains and cold weather, she again began to feel the excessive tenderness of the large bowel, accompanied by alternating diarrhoea and constipation, the diarrhoea consisting of small faecal lumps with mucus, very little pus, and no blood. The tenderness of the large bowel, was so marked, that if the patient took any saline purgatives, or ate solid food of any kind, the bowel felt as if it were being scraped; the sensation of rawness was particularly felt in the descending colon, sigmoid flexure and rectum. I again gave her the bismuth and naphthaline powders; this time, though the pain was soothed higher up, there were still signs of rectal inflammation, and as one day she told me she had great pain of a deep burning character in the anus during and after defaecation, and that the stool was streaked with blood, I made a rectal examination under chloroform and found an anal fissure, and on inserting a speculum, saw the fissural ulcer, as well as one a little higher up in the posterior wall of circular outline, with no induration of the edges; the base flat and smooth, exuding mucus, tinged with pus. I cut the fissure /

fissure, gave her an ointment of

R/. Ext : Opii  
 ā.ā. ii gr.  
 Ext : Belladon  
 Hydr : Subchlor iv gr.  
 Ung : Sambuci ʒss.

To be applied after each motion.

In a short time, the fissure healed up, and gave no more trouble, but from the symptoms she complained of, it was evident that the ulcerations higher up the bowel were still there. I ordered her to stay in bed, to go on the exclusive milk diet again, and asked her to use after each motion a rectal injection, with one of Ward Cousin's rectal injectors, composed of ammoniated Ichthyol 25 per cent, with hazeline; and on every alternate night to use an enema of olive oil and naphthaline 25 per cent. This seemed to do her good as the stools became more natural; the mucus ceased coming and the tenderness was so diminished that it merely amounted to a bruised sensation, liable to become intensified if the contents of the bowel irritated the parts in any way. After fourteen days or so, the liver began to get sluggish and irritable, owing to the want of exercise, consequent on the lying in bed /

Ichthyol  
 Injection.

naphthaline  
 and oil enema.

bed.

This is a complication which almost always occurs in a tropical country, especially in an old resident, unless exercise can be taken in the open air. So, for a day or two, I re-ordered the special liver treatment which relieved that oppressive symptom. Then gradually, day by day, the tenderness became less and less there was no flatulence, no diarrhoea; the naphthaline seemed to act locally on the sensitive raw patches, and the ichthyol and hazeline seemed to act as an astringent, and to tone up the bowel, and act as an antiseptic at the same time. Several times during the second attack, I strained the motions through muslin, and though I saw no distinct sloughs, still there was, now and then, a quantity of débris like broken down slough and mucus.

In this case convalescence for a time, gradually set in, and the patient came to enjoy fair health, but with the constant danger of the ulceration coming back again, on the least provocation, such as dampness of the atmosphere or any indiscretion in diet.

#### CASE II.

Another interesting case was that of M. P. a lady /

lady, who had been in the Colony for 15 years.

### Previous History.

She had suffered from low country fever for 2 or 3 years, and got such a bad attack of Ceylon sore mouth, that she was sent home for it. She remained at home for two years, and then returned to the Island much benefited by her trip to Europe. She consulted me first for a rather acute attack of dysentery; I found she was passing mucus and blood and serous, watery fluid, with fragments of foetid, sloughy, mucous membrane, with from 12 to 15 motions in the 24 hours. I gave her 60 grain doses of magnesia sulphate every hour, till six doses were taken. Under this treatment the frequency of the motions was diminished the blood and mucous discharge was arrested, the stools became faeculent and bilious again and lost their foetid odour. For confirmation of this new treatment see Brit. Med. Jour. page 818. 7/10/93.

On the third day, she had only five stools, and I then put her on ipecac.  $\mathfrak{z}$ ss in wafer paper, to be repeated 10 hours after, and told her to take an enema of boracic acid 3 per cent solution to  $1\frac{1}{2}$  pints of /

of hot water, every five hours. After five days the tenderness and tenesmus were quite gone; the stools were nearly natural again, and contained faeces of natural colour and consistency, but there was still a quantity of mucus passed irregularly, with diarrhoea, alternating with slight costiveness. This went on for about a month, during which time the temperature varied from 98.6 to 99.8 - from day to day.

#### SYMPTOMS.

##### Alimentary System.

She had no appetite, and began to complain of frontal headache, abdominal flatulence, and tenderness over the right iliac and hypogastric regions. Liver was a little tender: there was no jaundice, but signs of hepatic dyspepsia, and then the herpetic sores began to appear in her mouth, round and inside the lower lip, and especially round the lateral edges of the tongue - where they formed a chain of ulcers from tip to back on each side. Hot and condimented foods gave her great inconvenience; she also had an acid buccal secretion.

#### Treatment.

I /

I touched up the ulcers on the left side of the tongue with lunar caustic, and put her on potass chlorat. cocaine et borax. trochisci, one to be taken frequently throughout the day. The caustic caused some inflammation and irritation on that side of the tongue, and did not, I think, accelerate the healing process.

Diet.

The diet here consisted of Mellin's Malted Food, together with milk and lime water. The patient objected to Benger's Peptonized Food on account of the taste, so I substituted the other, and ordered her to take as well, one or two slices of the ripe papaw fruit that grows here in abundance. It is the same species as papaya carica, from which papain is obtained. The tenderness of the large bowel still persisted, and she also passed, three days after the sores appeared in the mouth, some sloughs, which were preceded by a sharp attack of colic, that passed in a wave from the caecum to the rectum: there was no tenesmus, no blood with them, simply the sloughs, and a quantity of mucus. The sloughs had not a bad smell and were bile-stained.



I made a rectal examination in this case, but could detect nothing within touch or sight inside the bowel, except one or two internal piles. I then put her on:

Salicylate of Bismuth.

R/

Bismuth subnit.	xv gr.
Bismuth salicylate.	x gr.
Sod. bicarb.	vi gr.

One powder in wafer paper every five hours.

After 3 days of this treatment she said that one or two sloughs had come away, that the tenderness had decreased in severity, and that the flatulence and general abdominal discomfort had disappeared. After ten days the headaches had gone, the dyspepsia was improved, and the stools, though still liquid at times, were solid, free from smell, and natural in colour; the temperature was normal, and after a trip to Colombo and three weeks of its fresh sea breezes she returned quite well again.

Differential Diagnosis.

From the foregoing description of these two cases, can we gain any further insight into the nature of Ceylon sore mouth, by comparing it with other allied diseases /

diseases which are better known and more wide-spread throughout the world? It will be seen that Ceylon sore mouth is caused by bad, monotonous feeding, in a damp tropical climate.

(1) Scurvy.

It is apparent, that it is not like scurvy, which may be caused by the same conditions - Both in scurvy and in Ceylon sore mouth, you may get the sallow, dull leaden complexion, as you would expect, in the latter, seeing it is associated with low remittent fever. - In scurvy, you get spongy, bleeding, blue-red gums, white, shining conjunctivae, loose teeth, clean tongue, ecchymoses and brawny indurations on upper and lower limbs - great bodily prostration, purpura, and oedema of legs; constipated bowels, foul breath, good appetite, dry skin, and urine depositing chlorides and a distinct history of living in the past on foods wanting in potash and lime salts, and vegetable acids, symptoms which are not found in Ceylon sore mouth. In scurvy, there may be no dyspepsia, no fever, no hepatic or splenic complications, no abdominal tenderness, no diarrhoea, no passing of mucus, or of sloughs, no history of past gastro-intestinal irritation of a chronic /

chronic kind, no ulceration or tenderness of the large bowel, no simple ulceration of the mouth, and no great quantity of urates in the urine - and these in the affirmative are characteristics of Ceylon sore mouth.

(2) Struma.

Is Ceylon sore mouth, allied to, or specially seen in strumous people? I think not. In any of the cases I have seen, there was no distinct history of struma, or any indication that special stress had been laid on the individual, on account of the strumous diathesis.

(3) Syphilis.

Is Ceylon sore mouth, allied to syphilis? I, myself, do not think that there is any connection between them - You may see the two lesions side by side in the same patient, but in Ceylon sore mouth, the ulcerations begin in a different way, have a circular instead of a sinuous outline, have no induration at the base of the sore, have no thickened edges, and no blue-slate-coloured, snail-tracked surface, and there are no other specific manifestations of syphilis in the body generally while the Ceylon sore mouth condition is /

is actually present. Also the Ceylon sore mouth can be beneficially treated by drugs which exercise no 'specific' influence.

(4) Enteritis.

With reference to the enteritis that accompanies and forms part of Ceylon sore mouth - I have always noticed that in Ceylon sore mouth the first slough that becomes detached has a dry, parchment, yellow look and the crypts and follicles can be distinctly seen on it; after that the sloughs become more amorphous, and seem to consist of fibrin and mucus. I have never seen a complete 'cast', or cylinder, of any part or segment of the bowel, as is mentioned in Quain's Dictionary of Medicine, 1888, pages.758-9, but I think the condition is closely allied to the follicular form of chronic enteritis. Neither have I seen the sloughs cast off in the form of dried, hard, white masses like nutmegs, as mentioned in Fagge, page 405; though I have often seen the sloughs as Fagge says, "shading off into a clear, colourless jelly." These casts or cylinders may possibly be found in the Ceylon sore mouth, and the explanation of their presence would /

would be a subject for future observation and verification. In Quain's Dictionary of Medicine, page 759, the writer on the subject of chronic enteritis says: "Chronic Enteritis is not unfrequently caused by residence in the Tropics." This "tropical chronic enteritis" evidently refers to the condition we call Ceylon sore mouth, but in the article referred to, the enteric signs are alone noted, while the other symptoms are passed over in silence.

(5) Indian Sprue, or Psilosis.

This 'Sore Mouth' disease seems to be the Ceylon analogue of the sprue or psilosis of India. I cannot speak from personal experience of this Indian sprue, as I have never seen a case of it, nor can I get any information about it in Fagge's Medicine, or Quain's Dictionary of Medicine, or any of the books I possess here on tropical diseases. I notice in the British Med. Jour. of October 14th, 1893, on page 850, that a Dr Cuthbert Bowen of Barbadoes, makes the following remarks re a "new disease in the West Indies." He said, that during his four years' stay in Barbadoes he had noticed a peculiar inflammatory condition of the buccal mucous membrane and alimentary canal occurring /

occurring coincidentally with "a sharply defined pigmentation (symmetrically) on the dorsal aspects of the hands and feet. The alimentary disturbances strongly resembled Indian sprue (psilosis,) but sprue had not this pigmentation. Details of cases were given, showing the futility of treatment. The results of the post-mortem examination as far as microscopical appearances went, showed the lesion to be in the large intestine. Rectal and intestinal medication was indicated and used with good result temporarily. Syphilis and leprosy often accompanied the condition, but were shown conclusively not to be the etiological factors. The dermatological manifestations were fully described, the points of affinity and disagreement with pellagra, etc., being pointed out". In none of the cases of Ceylon sore mouth, that I have seen here, were there any signs of this pigmentation of the hands and feet, and in this respect it resembles Indian sprue, rather than this Barbadoes variety. It is to be noted, however, that in the latter disease there were alimentary disturbances, that treatment was futile, and that the large intestine was a seat of a characteristic lesion, as in Indian psilosis, also rectal and intestinal medication /

medication was indicated and produced good results temporarily. The quotation given above, gives no details beyond what is here stated, and to judge the question of identity between the three diseases, one would have to see the full report of the paper written by Dr Bowen. But, the quotation given suggests as far as it goes, that there is an analogy between them. It is to be noted, further, that the quotation does not say whether the patients were Europeans or Blacks, and as far as my experience goes in Ceylon, the disease of 'Sore Mouth' is most prevalent among Europeans, I think this also is the case in India, from what I have heard of sprue there.

Having considered the differential diagnosis of Ceylon sore mouth, we may now pass on to other cases, where more particularly the treatment adopted will be considered rather than the clinical symptoms.

### CASE III.

Under this heading comes an interesting case, that of a lady, S. D.; who also had been in Ceylon for more than 16 years.

### Previous History.

When /

*Fujon &  
Meredith  
Griswold  
Sprue*

When about 45 years of age, she caught typhoid fever, from drinking foul water. I attended her, throughout the course of the typhoid. From the beginning of the illness I put her on 'Salol'  $2\frac{1}{2}$  gr. in a pill, one every second hour, night and day. The fever ran a typical course, and the temperature fell to normal for the first time, on the 28th day. Throughout the fever she had suffered from constipation, which necessitated an occasional enema. Under the salol treatment, I think the stools were kept sweet; she had no signs of haemorrhage, or any other lethal complication.

#### Present Condition.

After the 28th day, however, the convalescence was very slow, and there was great prostration and muscular weakness.

#### Alimentary System.

The tongue, though it had recovered from the typhoid condition, was still dry, and white at the base, the liver was slightly congested and sluggish, and there was an enlargement and tenderness of the spleen. There was a marked tenderness near the caecum and /



and in the supra pubic region; the urine was scanty, and loaded with urates, the patient was losing flesh slightly, and could not sleep at night; stimulants were given freely at this stage, a varied and careful diet of beef-tea, Benger's Beef Jelly, chicken soups and milk foods. There were, however, four relapses after the fever proper; the first was after the patient had eaten some solid beef, and some stoned fruits. The relapses were all characterised by the fever being continued and remittent in type; the temperature would rise at first to about 103, and then gradually decrease in the morning, then rise, and again decrease, the morning remission, as it were, dragging down the evening temperature. The temperature would barely touch normal for a day or so, and then go up again. All the time there was abdominal tenderness, diarrhoea, no great frequency of motions; at times great frontal headache, and perspiration coming on at an early part of the night.

#### Symptoms.

During the third relapse, the Ceylon sore mouth showed itself; the ulcers came out inside the cheek, the lower lip, and along the left side of the tongue; the /

the motions became much more liquid, and contained debris of mucous membranes, and mucus.

Treatment.

Salodent  
Terebene  
Capsules

I ordered the patient to gargle her mouth with 'salodent' (B. and W. and C.) three or four times a day, and put her on terebene capsules, each containing 5 min., 5 or 6 of which she was to take through out the day. This relapse lasted for 10 days, before a normal temperature was registered. The terebene seemed to allay the flatulence, though the abdominal tenderness was still as great as before. I increased the dose of the turpentine<sup>bene</sup> to 10 capsules in the day, and found that the temperature remained at a lower level than before; the abdominal colic then began to improve and the abdomen lost its puffed out, distended appearance; the stools became a natural colour, and there were no shreds of mucous membrane to be detected. The turpentine, however, began to cause strangury, so the dose was decreased to half. The fourth relapse only lasted for five days, and the highest temperature recorded was only 101.4, and then the temperature gradually decreased to normal and /

and remained there. It is to be noted that, in Ceylon, very often typhoid cases have a very long convalescent stage, where the fever runs, perhaps, a continued, or a remittent, or sometimes an intermittent course, for three to four weeks after the 28th day of the original typhoid. I think the typhoid here, in that respect, resembles Malta Fever, of which an account was given recently in the Brit. Med. Jour. July 8th 1893. After the fourth relapse, the patient gradually recovered strength as all the signs of local ulceration passed away. I gradually decreased the quantity of terebene given, till she was thoroughly convalescent.

#### CASE IV.

Another interesting case I attended was that of a man, B. G., who had been in Ceylon for thirteen years.

#### Previous History.

He had lived in the Fever Zone for 5 years when he first came to the country, and afterwards had come up to a higher elevation. He had been a malt and spirit drinker for a number of years, and had had congestion of liver several times before I saw him; the /

the last attack was about three years ago.

#### Present Condition.

When he consulted me he had been drinking rather heavily for about a month; he had had several chills and had neglected himself.

#### Alimentary System.

On examination I found that the liver dulness was downwardly and upwardly increased, abdomen tympanitic, and very tender, especially in epigastric and left hypo-gastric regions; tongue foul, and thickly coated, with a chain of ulcers, round the margin of tongue, and on the lower surface of the lingual mucous membrane near the frenum, and stretching back to the inner edge of the gums. He had diarrhoea and constipation, with white putty-coloured stools, foul in smell, and slight tenesmus. Temperature was 101.2 at night, and 100.4 in morning. Sweating was profuse at night, and throughout the day his hands, face and body, were in a continual clammy condition. There was no history of sloughs passing, but he promised to look for them, after I had directed his attention to the matter.

#### Treatment. Plummer's Pill.

I put him on pil. hydrarg. subchlor. co. with a dessert spoonful of castor oil in the early morning, applied a blister over the liver, stopped all liquor, and put him on milk and soup diet. After six days, the liver was reduced in size and was acting more efficiently. The appetite returned, and the patient, though weak, felt much better. The ulcers on the tongue still persisted, however, and so I ordered him to suck throughout the day, 6 or 8 salol tabloids, (B. and W. and Co) and also put him on:

R/

Hydrarg. subchlor.	v grs.
Bismuth. carbonat.	xv grs.
Sod. bicarbonat.	viii grs.

A powder to be taken every fifth hour.

The abdominal meteorism, and tenderness were still present, and the colic seemed to come on as soon as any food was taken of a solid or semi-solid nature. He reported that though he saw no parchment sloughs, still, there came away with the diarrhoea after the colic, some fibrinous sloughs embedded in clear mucus; the motions were about six a day in number. After having taken the calomel powders, he said that the flatulence had decreased, but that the colic seemed at times /

times more severe, as if the bowels were contracting more strongly, but the raw, sore feeling inside was much better. The salol, I found, acted beneficially on the ulcers locally, but was apt to set up a deep, dull pain in the gastric region, and as the patient took 8 of these tabloids a day, he swallowed 40 grains of salol in that time. He said the pain in the stomach came on at night, towards evening, and never occurred in the morning. The calomel seemed to act beneficially on the liver, inducing a free flow of bile; the motions were losing their foul smell, and were more natural in consistency. After he had taken the calomel for eight days, I reduced it by half, and told him to take not more than three or four salol tabloids during the day. Seven days later the sloughs were very rarely seen, and when observed, were noticed to be quite sweet, much smaller in size, and not covered with so much mucus. I examined the urine at the beginning of the case and found indican present. This by-product, however, disappeared after he had taken the calomel powders. The reduced dose of calomel did not seem to gripe him as before; the stools had no foul odour and were naturally coloured /

coloured, the diarrhoea was not nearly so persistent, and the abdominal tenderness and pain, though still there, were not increased unless the patient got wet, or made some error in diet. After a month the condition generally was much improved, the tongue was flabby and slightly furred but the ulcers had healed up; the appetite was much better; the liver was acting well, but the tenderness over the descending colon and sigmoid flexure was still present, so I ordered him to paint over the colon a small blister, the size of a florin, with liq. epispasticus, each night making the new blister a little lower down towards the groin. This seemed to relieve the dull, burning pain he complained of, very effectually, but every third or fourth day, he would have a sharp attack of diarrhoea, with one or two sloughs and mucus in the stools; I ordered him to go on with the calomel powders, stopped the salol lozenges, and also got him to take a wineglassful of fresh drawn 'toddy', thrice a day. This 'toddy' is a liquid obtained by incising the spadix of the flower of the palmyra cocoanut and other palms. It must be taken fresh, and then has a sweet refreshing taste. When left exposed to the air it rapidly becomes fermented, and when properly prepared, forms 'arrack',

the /

"Toddy"

the intoxicating drink of the country. This toddy is one of the remedies used locally for Ceylon sore mouth and when persevered in I have found it a very effectual remedy. It is hard to get it fresh up country, as, by the time it arrives from the palm-growing area it has become fermented, and so is useless for the purpose. However, in this case, it seemed to do good, and after the seventh week the sloughs ceased to come, the soreness of the large bowel was less intense, and the diarrhoea did not come on more than twice a week, and was preceded by only a twinge of pain, though after the diarrhoea there was a dull aching pain in the left groin. As this pain and diarrhoea persisted for some time after this, I stopped the calomel powders, and ordered the patient to take a decoction of Ispaghul seeds, a remedy that has great repute here, for checking chronic diarrhoea. The Ispaghul, or Plantago Ispaghula seed, is of Indian origin, grows freely in the Hindi and Punjab districts, also in South India and Ceylon. The seeds are oval, gray, and about  $\frac{1}{8}$  inch in length; they yield to water an abundance of tasteless mucilage, hence their value. The seeds are eaten raw with half a teaspoonful of sugar. The dose is about /

Ispaghul seeds  
and  
Aphthaline



about  $2\frac{1}{2}$  teaspoonfuls: after taking them, the patient must drink half a tumbler of water. Inside the stomach the seeds absorb the water just drunk, then burst, and give out a large quantity of mucilage, which coats over the inner surface of the bowel and so protects it from injury from hard faeces, etc., and helps to heal up the raw surfaces. I ordered the patient to take with the seeds, as an antiseptic, viii grs of naphthaline, which would be carried along with the mucilage, and deposited on the bowel, in situ. After a few days the effect of this treatment was seen to be beneficial; the diarrhoea passed off, and with the help of a few blisters again applied over the left groin, the dull aching pain ceased, and the patient became convalescent. After a week's holiday in Colombo, he returned to the estate restored to health.

CASE V. Treatment, Carbolic Acid. (Keratin Carbolic Acid Pills)

In another series of cases I tried carbolic acid as an internal antiseptic. While thinking over the best form of exhibiting this drug, I saw the paper by Dr Charteris, on carbolic acid in typhoid fever, in British /

British Medical Journal, 31 December 1892. I verified the statement he makes, that carbolic acid given in mixtures with syrup, or tinctures, is apt to cause nausea and sickness. It did so in the case of one of my patients to whom I gave the drug as a mixture, while I was waiting for the  $2\frac{1}{2}$  grain keratin coated pills to come out from England - where I got them made according to Dr Charteris' recommended formula. The keratin coated pills arrived in due time, (I found that they required to be kept in an air tight bottle, as they would have spoilt very quickly in this climate) I ordered these pills,  $2\frac{1}{2}$  grains, to be taken thrice a day. In this case, which was at the stage where the sloughs given off were white and gelatinous, the motions were frequent and loose, and had a foul smell; there was some straining when at stool, but no history of haemorrhage. The patient had repeated attacks of colic, and the stomach and liver were out of order; the appetite was poor, and the patient was in a very low condition. The pills caused no vomiting or nausea, and after the sixth day, the abdominal colic became much less severe, and the attacks less frequent; the motions became sweet, and more natural in colour and consistency /

consistency; the sloughs passed were smaller in size than before, and the tenesmus went away altogether. On the eighteenth day the patient was asked to take only two pills a day, and gradually, after a month of this treatment, the sloughs ceased to come, the abdominal doughiness and tenderness disappeared. More solid food could be taken without causing the rasping sore feeling within the abdomen. I noticed, however, that the local sores on the mouth and tongue took longer to heal up under the carbolic acid treatment, probably because they were not attacked in situ.

Carbolic Acid Lozenges. I also tried carbolic acid in the

form of lozenges  $\frac{1}{2}$  gr. to each, but found that the excipient in the lozenge was objectionable. It often became soft, and lost its freshness, and seeing that some twenty to twenty-five had to be taken in a day, they became nauseating. This nausea might probably have been caused by the pure carbolic acid acting on the gastric mucous membrane.

Carbolic Acid in Milk.

I also procured some of Graesser's pure carbolic acid, melting point  $40^{\circ}$  C; and prescribed it in liquid form, making the patient drop in from three to five minims into each  $\frac{1}{2}$  pint of milk that was to be taken /

*Graesser.*

taken every four hours throughout the day.

#### Sulphocarbolate of Soda.

I also tried the sulphocarbolate of soda, in x grain doses after food, especially in those cases where flatulence and indigestion were markedly present; I did not find that method of administration of much value, as far as the 'sore mouth' symptoms were concerned, though in three cases it reduced the flatulence a good deal.

It is to be specially noted that the carbolic acid treatment did not seem to have much influence over the lesions of the mouth or stomach, but that the greatest beneficial effect was seen in its action on the small and large intestines. This brings us then to the consideration of the following facts, with reference to the probable therapeutic value of intestinal antiseptics in the treatment of Ceylon sore mouth.

#### Criticism of Treatment.

With reference to the therapeutic action of the various drugs that I used in treating this disease, I would point out, that it is probable that the various secretions /

secretions of the alimentary tract of those affected by it are abnormal in chemical reaction, as in point of fact litmus paper gave an acid reaction to the saliva, and an alkaline reaction to the faecal discharges. If this be so, is it not very probable that gastric and pancreatic juices may also be abnormal in reaction, especially as gastric dyspepsia is often present, and duodenal dyspepsia invariably so, along with hepatic complications?

Now the pancreatic juice, it is well known, in health, acts on proteids, and decomposing them, forms a small quantity of phenol,  $C_6 H_6 O$ , which then becomes part of the contents of the intestinal tract. It is evident from the clinical history of Ceylon sore mouth, that the disease causes the greatest stress on the alimentary tract from the duodenum downwards to the anus. The lesions that cause the most serious complications are all situated below the pancreas and liver. If then, the pancreas be not acting efficiently, it is possible that phenol ceases to be formed, and hence the ulcers, if present, would tend to get larger, and the sloughs would be liable to putrefaction. Does it not seem reasonable then to give phenol by the /

the mouth, to replace the antiseptic that nature has hitherto been supplying to the lower bowel, and so aim at internal intestinal asepsis if possible. Secondly, with reference to salol as a remedy, we know that salol is split up by the pancreas into salicylic acid and carbolic acid, in the duodenum; but in exhibiting salol by the mouth, the objection is, that before it can reach the duodenum to be split up, it has to pass through the stomach, where in most cases I have seen, it is very apt to set up gastric pain and intense discomfort. This is most apparent when it is given as a powder and in doses of ten grains or more. This unpleasant effect, however, is not so liable to occur if the salol be given in the form of pills, made up by Schieffelin of New York, (whose pills are the only ones I know of that stand the tropical climate of Ceylon.) The salol thus prepared is made up in 5 grain pills; from 3 to 5 of these can be given throughout the day, and I can state from experience, that they do not cause gastric pain and discomfort, probably because the coating put on the pills resists the action of the gastric juice, and so allows the salol to pass on unaltered into the duodenum. I cannot /

cannot say what the chemical nature of this coating is, as it is a trade secret, but I should think if it be not keratin, it is a substance like it in quality. At any rate, keratin is the most suitable vehicle we can use, as it of all others best conveys the antiseptic past the stomach into the small intestine. It is evident too, that if, as is supposed above, the pancreas be acting defectively, then carbolic acid pure, is more valuable than salol, because the latter drug requires the aid of the pancreas before it can give out its proportion of carbolic acid, as it splits up into its two new products. As regards naphthaline there is no doubt, that clinically it is one of the most valuable intestinal antiseptics we have in treating this disease. As far as we know it only acts as a local disinfectant, and is scarcely, if at all, chemically broken up, as nearly all of it can be collected again in the faeces. Naphthaline is a hydrocarbon of the coal tar series, and as we know that phenol can be obtained from the acid products of the distillation of coal, there may be some chemical affinity between the two bodies. Another great point of importance is the fact that naphthaline can be given /

given in medium doses for a long time, without any apparent danger from toxic phenomena. It is, therefore, a safe antiseptic to use, and further it does not cause any internal pain or discomfort during its exhibition. It is a very useful remedy to use in an enema, when the rectum and sigmoid flexure are the seat of the enteric ulcers. Bismuth salicylate is apt to cause constipation if the drug be given for too long a period - otherwise it is a valuable remedy.

Terebene too, is very useful, especially when flatulence and abdominal pain are marked accompanying symptoms. Its use would be more indicated, however, in a case where bleeding had occurred, as might happen in a patient developing Ceylon sore mouth after an attack of dysentery. Calomel is one of the most useful intestinal antiseptics we have, and it at the same time acts on the liver, which, in nine out of ten of these cases, requires stimulation.

In the old days the treatment of Ceylon sore mouth resolved itself into giving alkaline or acid stomachic tonics; restricting the diet to milk and puddings and giving the patient plenty of lime juice and /



and other fresh acid fruits. If there was then no sign of improvement the patient was sent home to England, and, in most cases death sooner or later occurred. From the fact that the intestinal sloughs became putrid, and that the fever increased in severity, it might be inferred that a pyaemic condition had become established, and was running a sub-acute course, till the patient's strength gave out, and death ensued from exhaustion. Now, it has to be specially noted that if intestinal antiseptics are given in this disease, the sloughs and faecal discharges instead of becoming or remaining foul and putrid soon change their character and become sweet and natural, and this is the first sign of improvement in the patient's condition. If these faecal discharges can be kept sweet, then the raw ulcerated areas get the best chance given them to heal, and even though a permanent cure of the condition may not be hoped for, still the danger of pyaemia is warded off, and the patient's life is prolonged sufficiently to allow him to reach England before he dies.

These intestinal antiseptics must be exhibited,  
(1) in such a way as to reach the principal site of  
the /

the disease by the easiest and quickest route, i.e., either by the mouth, or rectum, as the case may be.

(2) They must be given in small, yet continuous, doses sufficient to keep the alimentary tract pure and aseptic. (3) They must be given in a suitable vehicle, as mucilage, bismuth, keratin, or milk, so that the mucous membrane of the gut is bathed and more or less always coated with the antiseptic. (4) The dose of the antiseptic must not produce toxic symptoms, or give rise to secondary pain or other discomforts in other parts of the body. (5) There is no doubt that, during the exhibition of the intestinal antiseptics, the saliva becomes gradually alkaline, the gastric and duodenal dyspepsia improves, and the faecal discharges become acid, according to the natural state of things. I have not experimented with Dr Illingworth's biniodide of mercury treatment, in Ceylon sore mouth, but I should think it would be worthy of a trial. The biniodide would have to be given in very small doses, in a fluid or powder form, as the remedy would have to be exhibited for a long time. I should think  $\frac{1}{32}$  gr. would be strong enough to begin with. If the rectum and sigmoid flexure were the seat of the ulcers /

ulcers, the 'Iodic-Hydrarg': of Burroughs & Wellcome, could be used as an enema - as a local application, of a strength of from 1-2500 to 1-3500 as required.

### Diet.

As regards diet, in the treatment of Ceylon sore mouth, the first thing to insist on is an exclusive diet, consisting of milk either alone, or better still, with soda water, in the proportion soda 1, milk 4. The plan of making aerated milk, with a gasogene is an excellent one, and if the chemical salts for the gasogene can be obtained fresh, this forms a very refreshing beverage, and can be often taken by a patient with relish, when the plain milk would cause nausea and disgust. The various milk preparations, such as Benger's Food, Neave's Food, Mellin's Food can be used, in fact all the modern peptonized and pancreatized foods are excellent in this disease, and as the patient grows tired of one kind, another must be tried, for the sake of variety. The malted foods - such as Mellin's - with their adjuncts, Essence of Malt, Bynin, etc., are very useful, as the sugars in these are easily assimilated, and do not upset /

upset the hepatic functions, which, as it is, are not too vigorously healthy. Besides the milk diet, I think concentrated beef essences are useful, and also beef, chicken and mutton soups if carefully made, but at the same time, they should not be given too often as 'broths' often cause flatulence, and thus bring on the abdominal colic, and feeling of raw soreness in the bowel which is so characteristic of the condition. The best of these beef essences is, I think, Benger's Peptonized Beef Jelly, as it can be taken as a jelly, or made into soup, and, being peptonized, is easily absorbed.

During convalescence solid food may be taken in the form of fresh fish, minced very finely; and also the white breast of a chicken minced, with a savory is allowable. As a rule, the following things must be interdicted - malt liquors, clarets and wines, all kinds of greasy soups, beef and mutton, unless very fresh, very finely minced, and tender; all the many varieties of dishes made from meat warmed up a second time; pastry, and especially toast, biscuits and new bread: no stones or seeds of fruits should be swallowed, on account of the mechanical irritation they /

they cause in passing through the bowel. Hot curries, chutney, and other sauces are to be avoided, also potatoes and all green vegetables, which are apt to cause flatulence. One very important thing in the treatment is to see that the patient takes plenty of fresh fruit, of an acid, or sub-acid type. The juice of limes, lemons, oranges, should be taken in the early morning with soda water. Passion fruit and grenadillas should be eaten throughout the day, and after food, a slice of a papaya, or papoi fruit, eaten with a little salt supplies fresh pepsin to the gastric mucous membrane and so helps digestion. The 'toddy' drawn from the palm trees is one of the most useful remedies that exists in Ceylon, but it must be taken when fresh, before fermentation has begun in it, otherwise it causes symptoms of drunkenness, and is worse than useless. When the toddy cannot be obtained, a patient is often directed to drink the 'water' inside the cocoanut, and also to chew the white spongy mesocarp of the cocoanut, for the sake of the 'milk' that it contains, care being taken not to swallow the mesocarp, but only the milk so extracted in the process of chewing. Grapes too, are excellent in this disease./

disease, but the stones and skin must be carefully removed before eating the grape. Owing to the sub-acute or rather chronic course that Ceylon sore mouth runs, it is often very difficult to get a patient to continue to follow out the dietetic treatment for any length of time, because as soon as convalescence is at all established, forbidden foods, etc., are often apt to be indulged in, and the disease thereby set up anew.

#### Prognosis.

With reference to prognosis in this disease, there is no doubt that once it has established itself, it is very difficult to shake off again, and it requires constant care on the part of both the physician and the patient to prevent the disease becoming chronic, for there is no doubt that after repeated attacks the patient becomes weaker and less able to stand them; as the attacks become more frequent they last longer; and leave the patient so weak that convalescence becomes protracted, till the patient is almost a chronic invalid. There is no doubt that by suitable dieting and by giving intestinal antiseptics, the danger of pyaemia may be averted for a long time, but the patient /

patient should if possible leave Ceylon, if the disease has once become established, for the damp heat tells on him, more and more, and as each rainy season comes round the attacks become more severe, and last longer, and repeat themselves till exhaustion and death ensue. If a patient be removed in time, to a dry, cold climate, there is no reason why, the other organs being healthy, a good recovery should not be made; but I think that a return to Ceylon, even after an apparently good recovery, would almost certainly induce a return of the illness, sooner or later, especially if the liver spleen and stomach were at all diseased, either functionally or organically. At the same time, there is no doubt that Ceylon sore mouth, among Europeans in Ceylon is becoming less frequent than it has been in the past. Now-a-days, the Tea Industry is in such a flourishing condition that most estate owners are setting their houses in order, and where bad sites had been chosen in the past, are building new bungalows under better sanitary conditions, and with more attention to health and comfort than before. Europeans are now trying to make a home in Ceylon for themselves, where they can live with really as /

as much comfort as in England. The Colony has been opened up thoroughly within recent years, by railways and cart roads; these new facilities for locomotion tend to improve and cheapen the food supplies, and render it less difficult than before to escape from the wet to the drier parts of the island, if necessary; so, it is to be hoped that Ceylon sore mouth will be less prevalent in the future than it has been in the past, or is at present, among the older European residents in the Colony. The climate of a tropical island like Ceylon is for ever fighting against the constitution of the European - as he can never thoroughly be acclimatized to live under a tropical sun - this environment being a constant factor in the equation, must gain the supremacy in the long run, and so it behoves us all, if our lives are to be at all healthy and happy, in this tropical island to study carefully the question of personal hygiene, and healthy surroundings. Where the purity of water supply and the erection of well-built sanitary bungalows, become of so great importance to us, to neglect to obtain these before everything else, is criminal, and wrong both to ourselves and to those who follow after us in life's course.



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