

CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30TH SEPTEMBER 1888.

36th Issue.

PUBLISHED BY ORDER OF
The Inspector General of Customs.

RA
407.5
.05
M4
no.36
(1888)

LIBRARY

N.O.A.A.
U.S. Dept. of Commerce

SHANGHAI:

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED: SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE.

LONDON: P. S. KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S.W.

1890.

[Price 31.]

CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30TH SEPTEMBER 1888.

36th Issue.

PUBLISHED BY ORDER OF
The Inspector General of Customs.

SHANGHAI:

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED: SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE.

LONDON: P. S. KING & SON, CANADA BUILDING, KING STREET, WESTMINSTER, S.W.

1890.

[Price \$1.]

National Oceanic and Atmospheric Administration

Environmental Data Rescue Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages
Faded or light ink
Binding intrudes into the text

This document has been imaged through the NOAA Environmental Data Rescue Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

Lason, Inc.
Imaging Subcontractor
Beltsville, MD
December 20, 2000

INSPECTOR GENERAL'S CIRCULAR No. 19 OF 1870.

INSPECTORATE GENERAL OF CUSTOMS,
PEKING, 31st December 1870.

SIR,

1.—It has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China; and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at.....upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2.—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a.—The general health of.....during the period reported on; the death rate amongst foreigners; and, as far as possible, a classification of the causes of death.

b.—Diseases prevalent at.....

c.—General type of disease; peculiarities and complications encountered; special treatment demanded.

d.—Relation of disease to { Season.
Alteration in local conditions—such as drainage, etc.
Alteration in climatic conditions.

e.—Peculiar diseases; especially leprosy.

f.—Epidemics { Absence or presence.
Causes.
Course and treatment.
Fatality.

Other points, of a general or special kind, will naturally suggest themselves to medical men; what I have above called attention to will serve to fix the general scope of the undertaking. I have committed to Dr. ALEX. JAMESON, of Shanghai, the charge of arranging the Reports for publication, so that they may be made available in a convenient form.

3.—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated; and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr., and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons.

4—

* * * * *

I am, etc.,

Signed) ROBERT HART,
I. G.

THE COMMISSIONERS OF CUSTOMS,—*Newchwang, Ningpo,*
Tientsin, Foochow,
Chefoo, Tamsui,
Hankow, Takow,
Kiukiang, Amoy,
Chinkiang, Swatow, and
Shanghai, Canton.

1888.]

MEDICAL REPORTS, NO. 36.

v

SHANGHAI, 1st November 1890.

SIR,

IN accordance with the directions of your Despatch No. 6 A (Returns Series) of the 24th June 1871, I now forward to the Statistical Department of the Inspectorate General of Customs, the following documents:—

Report on the Health of Hoihow (Kiungchow) for the year ended 30th September 1888, pp. 1, 2.

Report on the Health of Chinkiang, pp. 3, 4;

Report on the Health of Shanghai, pp. 9-39; each of these referring to the half-year ended 30th September 1888.

Report on the Health of Newchwang for the eighteen months ended 30th September 1888, pp. 5, 8.

Clinical Studies of disease as observed in China, pp. 40-56.

I have the honour to be,

SIR,

Your obedient Servant,

R. ALEX. JAMIESON.

THE INSPECTOR GENERAL OF CUSTOMS,
PEKING.

The Contributors to this Volume are :—

J. H. LOWRY, L.R.C.P.Ed., L.R.C.S.Ed.	Hoihow (Kiungchow).
J. A. LYNCH, M.D., CH.M.	Chinkiang.
W. MORRISON, M.B., CH.M.	Newchwang.
R. A. JAMIESON, M.A., M.D., M.R.C.P.	Shanghai.

ERRATUM.

In vol. xxxv.

Dr. CHARLES BEGG'S Report on the Health of *Hankow* for the year ended 31st December 1887 was inadvertently placed under the heading of *Chefoo*, and was attributed to Dr. W. A. HENDERSON.

DR. J. H. LOWRY'S REPORT ON THE HEALTH OF
HOIHOW (KIUNGCHOW)

For the Year ended 30th September 1888.

DURING the year there were few cases of serious sickness, and until May of this year the general health of foreign residents was fairly good.

The winter was exceedingly mild, and the hot season set in early; most persons were wearing white clothes before the middle of March. This past summer has been very trying to everyone; both the days and nights have been hotter than during the two previous summers. Those who have not succumbed to sickness have not the climate to thank, but their own good constitutions.

Since May there has been a good deal of general sickness, chiefly malarial fevers, bowel complaints and congested livers. Nearly all the cases of fever have been of the remittent type, and some proved very obstinate. A case of dysentery from Pakhoi yielded to the usual treatment by diet and ipecacuanha. During May and June many natives were said to have died from bowel complaints, but I have no authentic information as to the number.

The Mission Hospital at Kiungchow has been closed since March last, owing to the absence of Dr. McCANDLISS, so I have been unable to obtain information from that institution as to the general health of the natives during the summer.

The neighbouring port of Pakhoi has been for some time without a doctor, and it has been necessary for me to make several trips over there, but there has been no sickness of a serious nature. There, too, a hot summer has been experienced.

Through the winter a severe epidemic of small-pox prevailed at Hongkong, but no cases were heard of at this port. I re-vaccinated all the Customs staff as a matter of precaution.

Craniotomy.—Late in the night of 24th November, I was asked if I would go and see a native woman who had given birth to the body of a child but not to the head. The woman I found, much exhausted, lying on the floor of a small hut, with the body of a dead child already expelled. The body I was told had been born 24 hours; every effort on the part of the Chinese midwives and friends had been made to bring down the head, without avail. I had the woman lifted on to the bed, and tried to apply BARNES' forceps, but the parts were so swelled I found it impossible. Accordingly, after administering stimulants and chloroform I perforated the head in the usual way. There was almost no hæmorrhage, and the placenta was extracted without difficulty. The uterus was carefully washed out with a weak solution of iodine in water. The woman was fed on strong beef-tea and soups, and stimulants were administered freely, but in spite of all our attention she died on the 27th, the shock having been too much for her constitution. This was not a case of hydrocephalus; had anyone seen it in time, there is no doubt that the head could have been brought down without difficulty. The attendance on this case was rather unfortunate for myself, for I subsequently suffered from a severe attack of blood-poisoning,

septic matter having gained access to my system through some neglected scratches on my right hand. To Dr. McCANDLISS, of Kiungchow, I am indebted for his skill and untiring attention to me during my long sickness.

Case of Paraphimosis.—A native lad, æt. 12, was sent to me by the Rev. Mr. GILMAN, of Kiungchow, suffering from paraphimosis. His friends who accompanied him were much distressed, as they feared the penis would recede inwards, and that he would die. An evaporating lotion was applied on lint to the penis, and subsequently the paraphimosis was reduced without much difficulty.

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Custom House, KIUNGCHOW, for the Year ended 30th September 1888. Latitude, $20^{\circ} 3' 13''$ N.; Longitude, $110^{\circ} 9' 3''$ E.

MONTH.	WIND.							BAROMETER.		THERMOMETER.		No. of Days Fog.	No. of Days Rain.	Rainfall.
	No. of Days N. to E.	No. of Days E. to S.	No. of Days S. to W.	No. of Days W. to N.	No. of Days Variable.	No. of Days Calm.	Average Hourly Force.	Highest.	Lowest.	Highest.	Lowest.			
1887.							Miles.	Inches.	Inches.	°	°	D. h.	D. h.	Inches.
October	26	1	...	...	4	...	3	30.22	29.87	84	70	...	1 0	5.3
November	29	...	...	...	1	...	4	30.30	30.00	79	62	2 0	2 0	0.8
December	28	2	...	...	1	...	4	30.40	30.04	74	58	3 0	3 0	1.1
1888.														
January	18	6	...	...	7	...	4	30.38	30.00	78	52	6 0	2 0	1.3
February	16	4	1	...	8	...	3	30.45	29.94	83	48	7 0	4 0	1.0
March	9	10	1	...	11	...	3	30.27	29.90	89	63	5 0	3 0	3.6
April	5	13	...	...	12	...	4	30.12	29.78	93	69	3 0	1 0	6.4
May	4	16	...	1	10	...	3	30.10	29.72	94	76	1 0	1 5	5.3
June	3	7	2	3	15	...	2	29.92	29.61	93	76	...	1 1	3.2
July	5	8	2	...	16	...	3	29.92	29.54	92	76	...	1 3	7.8
August	1	3	4	2	21	...	3	30.01	29.65	90	76	...	1 20	3.6
September	13	5	...	2	10	...	4	30.08	29.54	89	75	...	1 22	8.4

DR. J. A. LYNCH'S REPORT ON THE HEALTH OF CHINKIANG

For the Half-year ended 30th September 1888.

ABSTRACT OF METEOROLOGICAL OBSERVATIONS.

MONTH.	BAROMETER.		THERMOMETER.			RAINFALL.	
	Max.	Min.	Max.	Min.	Mean.	Quantity.	No. of Days.
1888.	<i>Inches.</i>	<i>Inches.</i>	°	°	°	<i>Inches.</i>	
April.....	30.65	29.65	74	42	58	4.93	7
May.....	30.17	29.63	93	48	70	0.69	5
June.....	29.81	29.62	94	61	78	2.02	6
July.....	29.80	29.60	98	66	82	4.45	6
August.....	29.80	29.55	96	75	85	0.36	2
September.....	30.40	29.70	94	63	78	1.01	4

The weather during the first three months was fine and mild, with moderate rainfall. Early in June, however, a drought of exceptional severity and duration set in, lasting till the middle of September. A great portion of the rice and other crops was ruined, and much destitution will be the result.

The general health of foreigners in the port has been fairly good. No deaths occurred. The diseases were of the usual type, malarial affections and diarrhœa predominating. Of intermittent fever, nine cases occurred, most of them yielding readily to quinine. One case, in a child of 3 years old, was very intractable, the attacks recurring again and again at intervals of a few weeks. A trip to Japan was advised, and resulted in marked improvement.

An unusually severe epidemic of cholera prevailed among the native population during the summer months. Several Chinese resident in the Settlement were attacked, but no foreigners. Cases of cholera or "summer diarrhœa" were, however, by no means infrequent among the latter, 13 occurring during the months of July, August and September.

The drainage of the port has for many years past been in a most unsatisfactory condition. The whole sewage of a densely populated and filthy Chinese suburb, some eight or nine square

miles in extent, is poured into the main drain of the Settlement, a small channel about three feet in diameter. Stagnant, putrefying organic matter accumulates in this channel, which no efforts can keep clean, and sewer gas is from time to time most unpleasantly *en évidence* in the atmosphere both of streets and dwelling-lots. Viewed in connexion with this state of affairs, the good health so long enjoyed by Chinkiang residents is not a little surprising. The matter is, however, at last being considered by the Municipal Council, and there is reason to expect that measures will shortly be taken for the removal of this dangerous nuisance.

After small-pox and cholera, the affections most prevalent among the Chinese are malaria, syphilis, and diseases of the skin and eyes. Severe conjunctivitis is common, and as the patient is usually seen in a late stage, after having been treated by a native practitioner, the cornea is often found in a sloughing condition. Sufferers from malaria are prone to take refuge in the opium pipe, and roundly assert that it gives them immediate relief.

A hospital for Chinese is much needed.

DR. W. MORRISON'S REPORT ON THE HEALTH OF NEWCHWANG

For the Eighteen Months ended 30th September 1888.

DURING the period under review the conditions of life have been favourable to health and to the commercial prosperity of the town and district. There is no record of cholera or other formidable epidemic either among the foreign residents or the native population.

A meteorological table, with special remarks regarding the year ended 31st March 1888, will be found at the close of this Report. The six months ended 30th September call for some additional remarks.

Periods of drought and flood have alternated. The dry period extended from the beginning of April to the 13th July, during which time we were only favoured with a few tantalising showers. During the latter part of that time processions, with drums, flags and branches, thronged the temples, and special days were by official decree devoted to the propitiation of the presiding deities. Dry heat and dust, with the retardation of vegetable growth, were among the discomforts, but their influence on the water supply was of greatest sanitary importance. Surface drainage into ponds, and wells two to three miles distant, are the ordinary sources of water supply. The ponds were all dried up, and water for drinking and other domestic purposes had to be brought in boats and carts from a distance, the river water being unserviceable owing to its saltness. This afforded the usual field for jobbery—not by any means peculiar to water purveyors,—and constant supervision was required to keep the quality up to the mark. A pipe or conduit connecting the town with the river above that point where the water ceases to be salt—a distance of some 20 miles—would be a priceless boon to this community.

During the second week in August the district was visited by a flood of unusual magnitude, resulting in the destruction of some of the foreign buildings, and threatening the very existence of the Settlement. On either bank of the river inland there was the usual tale of loss of crops, property and human life. The native authorities and merchants have bestirred themselves to lend a helping hand, and the foreign residents here, with the assistance of friends at a distance, have subscribed a large sum for relief. Two foreign deputations have already been sent with relief to the inundated district, and further assistance will be given during the winter.

To be compelled to seek refuge from a falling house at a critical period in their history was the experience of one family here, but fortunately without detriment to health.

Perhaps one of the most noteworthy phenomena connected with the floods is their effects upon our gardens. The garden here is much prized, not only as a source of food supply but also for the refreshing change it affords to the eye wearied with the monotony of the plain and the bleakness of the long winter. During the rains, if the water fails to get exit from the garden it soon becomes flooded, and if this water be allowed to lie upon the garden for half a day or more, it is followed by the destruction of the greater number of vegetables and certain

varieties of trees, shrubs and flowers. The peach, apricot, lilac, elderflower, dahlia, are destroyed, while the apple, pear, plum, acacia, pomegranate, are not affected. It has been suggested as a reason that the superincumbent water penetrates into that deep part of the soil from which cultivation has not removed the original saline ingredients, the water so becoming charged with salts that are inimical to the existence of many species of plants. Possibly the mechanical loosening of the roots may have something to do with it, the finely comminuted particles of which the mud consists being reduced to a pasty consistence.

There have been seven births—five males and two females, healthy and well-developed, with one exception,—

In which case the uvula was absent, and the soft palate imperfect. The mother of this child suffered from parametritis during the greater part of the period of pregnancy. There was some anxiety with reference to her confinement, but the labour was accomplished without any special difficulty.

There have been five deaths on shore and one on board one of the gunboats in harbour. These were as follows:—

Typhus	1
Fatty heart	2
Softening of brain	1
Diarrhœa	1
Dysenteric diarrhœa	1

Two cases of typhus have occurred.

One case was that of a previously healthy, muscular man, aged about 34. Death took place on the fourth day, the fever being of that virulent type which affords little scope for treatment.

The other case was that of a male, aged about 40. In May 1887 he was deputed to visit and convey relief to the district which had been inundated during the previous autumn (1886), poverty and distress being still found among the people. Trusting to energies recruited by a recent holiday in England, he exhausted himself by over-exertion and imperfect nourishment. He returned in a languid condition, and it became a case of typhus of well-marked severity. Temperature at no time caused anxiety, but there was threatening of cardiac failure from near the commencement. By an early and liberal exhibition of alcohol, this danger was averted. The crisis was reached on the thirteenth day, and so great at that time was the prostration that for some hours a teaspoonful of water could not be swallowed. This patient has, notwithstanding, made a good recovery.

This is the second case of fever contracted while visiting the distressed districts. The former one—though not mentioned in these Reports because treated at Moukden—resulted in the loss to this community of a much-esteemed missionary in the prime of life. There was also in his case a history of exposure to hardship which might have been avoided. Fever there, as elsewhere, follows in the wake of famine. Only the strong and vigorous should undertake such duties, and then fatigue should be avoided, and care taken to have a plentiful supply of strengthening food.

Much additional light would have been gained, in the two cases in which death is ascribed to fatty heart, had postmortem examinations been granted. Without this aid the condition of the cardiac muscular fibre, as to degenerative change, must be matter of speculation. In both cases there was a history of cardiac neurosis extending over years.

The first, a female, aged 38, had typhus fever four years before. As an after result she suffered from nervous attacks, which I described in these Reports at the time as a cardio-respiratory neurosis.

These attacks returned at varying intervals of time. During the intervals she was subject to dyspepsia, and had but indifferent health. Mental depression, due to successive bereavements and financial loss, latterly tended much to increase the frequency and severity of the attacks.

At 5 A.M. one day I was called to see her. I found her insensible. There were violent palpitation and quickened breathing. Through the constant use of stimulants—chiefly external cold and friction—for about an hour, the nerve disturbance subsided. Called at 1 P.M.; found her out of bed, dressed, and able to converse freely. At 4 P.M., was summoned again to witness a second attack. Death, due to failure of heart, took place a few minutes after my entrance.

Bromide of potassium in combination with digitalis I found of considerable service in the treatment of this case.

The other case was that of a male, aged 55, who had been a muscular man. He had suffered for years from occasional paroxysms of anginal pain. The heart was dilated, but no valvular lesion could be detected. There was strong suspicion of aneurism, although the direct symptoms were absent. The vessels were atheromatous. He was confined to bed for some months and to certain positions of the body. Death was not sudden. For a week before the event he sank gradually.

Death due to softening of brain :—

A. B., a female, aged 38, suffered from chronic dyspepsia. She had a fall from a pony while riding. As the result, she complained of some pain in the breast and head. There was no external evidence of any serious injury. Five weeks after, the following symptoms were developed (extracts from notes written at time) :—

13th August.—Was called in by patient's friends to see her. They stated that she was asleep, but the sleep appeared very profound. Examined her eyes and pulse, and talked loudly, but she did not wake.

15th August.—Find there is paralysis of the arm, on the side opposite from the side of the head on which she struck when she had a fall five weeks ago. There is paralysis also of both lower extremities, of the bladder, and of the rectum.

The only movement she has made the last three days is putting the right arm—the sound one—up to the right side of the head at long intervals. She is completely unconscious, and cannot swallow; a little milk goes down with great difficulty. There is no hope of recovery, since the attack has come on so long after the cause. The concussion has been succeeded by a slow-forming clot from hæmorrhage, or more probably by softening of the cerebral structure. Death took place two days after.

These notes show the nature of the case, and illustrate what has been before observed,—that from apparently trivial accidents such serious lesions may arise.

Among the surgical cases that have engaged my attention were the following:—An artillery accident, rendering necessary an amputation of right arm immediately above the wrist-joint. A gunshot accident, calling for amputation of middle finger and portions of fore-finger and thumb, right hand.

A more interesting case was that of a soldier who in a fight with some other soldiers, received a sword-cut, extending from a point corresponding to the inner aspect of the internal tibial tuberosity of the left leg, outwards and upwards for a distance of $4\frac{1}{2}$ inches, and laying open the knee-joint to the extent of $1\frac{1}{2}$ inches. He was in the hands of the native fraternity for three days, but not satisfied with their treatment, he was sent on to me. After cleansing, the limb was rested on a MACINTYRE splint, and the joint encased in ice. Suppuration, nevertheless, ensued, extending not up into thigh but down into the leg. An incision $1\frac{1}{2}$ inches under the inner termination of wound gave exit to a large quantity of pus. The leg was swollen and œdematous. Tinctura ferri perchloridi, painted on the limb and given internally, was helpful. There was much irritative fever during the suppurative process, and amputation was at one time contemplated; still, by the use of quinine and iron and careful nursing, he eventually recovered, and has regained perfect use of the limb.

I am indebted to Messrs. STEVENS and ARMOUR for assisting me with the following table:—

METEOROLOGICAL TABLE for the Eighteen Months ended 30 September 1888.

MONTH.	ANEROID BAROMETER.		NO. OF DAYS ON WHICH THE TEMPERATURE FELL BELOW (FAHR.)							NO. OF DAYS ON WHICH THE TEMPERATURE ROSE ABOVE (FAHR.)					No. of Days on which Rain fell.	Total Amount of Rainfall.	No. of Days on which Snow fell.	No. of Days on which there were Dust-storms.	No. of Days on which High Winds blew.	
	Highest.	Lowest.	-15	0	10°	20°	32°	50°	60°	70°	80°	85°	90°							
1887.																				
April.....	30.36	29.48	...	...	...	...	...	5	23	13	...	...	...	...	2	0.3	...	2	6
May.....	30.36	29.64	...	...	...	...	...	...	...	15	...	...	...	...	9	3.2	...	...	1
June.....	30.12	29.54	...	...	...	...	...	...	...	...	...	18	6	...	8	3.1	...	...	...
July.....	30.18	29.52	...	...	...	...	...	...	...	...	...	27	4	...	4	1.4	...	...	6
August.....	30.14	29.58	...	...	...	...	...	...	...	...	...	...	...	10	1	11	7.6	...	...
September...	30.34	29.82	19	...	4	1.8	7
October.....	30.56	29.70	...	...	...	...	2	...	19	3	...	...	...	...	3	1.3	...	...	2
November...	30.62	29.90	...	...	...	12	...	...	...	...	...	...	...	...	3	0.7	...	2	4
December...	30.72	30.00	1	2	10	18	...	...	...	...	...	...	...	...	...	...	1	1	1
1888.																				
January.....	30.82	30.02	1	2	7	24	...	...	...	...	...	...	...	...	...	...	1	3	4
February.....	30.70	30.34	1	4	14	...	...	...	...	...	...	...	...	...	...	...	5	...	1
March.....	30.62	29.94	...	...	1	10	23	...	...	...	...	...	...	...	...	...	4	4	8
April.....	30.80	29.75	...	...	...	...	...	12	18	...	...	...	...	...	...	...	1	2	...
May.....	30.32	29.40	...	...	...	...	...	1	14	14	2	...	...	2	0.4	...	2	2	
June.....	29.98	29.54	...	...	...	...	...	...	1	13	16	...	...	5	0.7	...	...	2	
July.....	29.99	29.68	...	...	...	...	...	...	...	26	3	2	6	9.3	...	1	4		
August.....	30.12	29.36	...	...	...	...	...	...	14	7	8	2	12	21.6	...	...	1		
September...	30.40	29.85	...	...	...	...	...	8	7	15	...	...	...	5	2.5	...	...	...

REMARKS.—The summer of 1887 was very fine, although much warmer than usual. The winter was not very severe in general, but the thermometer remained throughout very low. At Kirin (some 800 *li* north of this port) the thermometer registered as low as 38° below zero (Fahrenheit). Very little snow fell until February, and even then not in any quantity. The river was frozen over early (26th December), and did not break up completely until 21st March. In February the ice was about 28 inches in thickness (this opposite the Custom House). The barometrical pressure was much higher than last year. S.W. winds prevailed in June, July, August and September; N.E. winds prevailed in April, May, January and February; during the remaining months, about equal.

DR. ALEXANDER JAMIESON'S REPORT ON THE HEALTH OF SHANGHAI

For the Half-year ended 30th September 1888.

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken at the Observatory of the Jesuit Mission at Zikawei, for the Six Months ended 30th September 1888. Latitude, 31° 12' 30" N.; Longitude E. of Greenwich, 8h. 5m. 45s. *

DATE.	Barometer at 32° F.	THERMOMETER.		Amount of Vapour in the Air per Cubic Foot.	Diurnal Mean Hu- midity, 0-100.	Diurnal Mean Ozone, 0-21.	Velocity of Wind per Hour.	Mean Direction of Wind.	Total Evaporation during Month.	Total Rainfall during Month.	REMARKS.	
		Diurnal Mean Tempera- ture in Shade.	Extreme Tempera- ture in Shade.									
1888.	Inch.	° F.	° F.	Grains.			Miles.		Inch.	Inch.		
April ...	Max...	30.416	66.7 (27)	77.2 (27)	0.8864	89.0 (5)	17.0 (30)	12.2	N. 78°.1 E.	2.473	2.304	17 days of rain. Storms on the 22nd, 25th and 28th.
	Mean	29.947	56.5	...	0.8476	80.3	13.3					
	Min...	29.510	43.6 (2)	34.2 (3)	0.6366	63.8 (1)	9.5 (11)					
	Range	0.906	23.1	43.0	0.1498	25.2	7.5					
May	Max...	30.203 (3)	79.3 (31)	93.2 (30)	0.8252	89.5 (7 & 8)	17.7 (1)	12.2	S. 46° E.	3.970	2.197	Rain fell on the first 8 days of the month, and there were 6 days of rain subsequently.
	Mean	29.831	66.7	...	0.8016	74.8	11.5					
	Min...	29.471 (16)	51.3 (3)	39.9 (3)	0.3090	58.0 (25)	7.0 (30)					
	Range	0.732	28.0	53.3	0.5162	31.5	10.7					
June ...	Max...	29.889 (30)	82.9 (12)	96.4 (12)	1.0323	93.5 (24)	17.3 (7)	12.6	S. 70°.9 E.	3.324	3.371	12 days of rain distributed evenly through the month. There were no thunderstorms; lightning was once observed in the western sky.
	Mean	29.707	72.5	...	0.8761	79.4	12.1					
	Min...	29.432 (25)	66.0 (3)	55.9 (4)	0.3983	61.3 (4)	8.0 (13)					
	Range	0.457	16.9	40.5	0.6340	32.2	9.3					
July	Max...	29.896	86.1 (31)	98.6	1.0375	92.2 (1)	16.0 (1)	12.9	S. 42°.7 E.	3.832	3.730	Heavy rain during the first 5 days; 4 showery days subsequently. Thunderstorms on the 4th and 12th; lightning in the north-west on the 27th.
	Mean	29.682	81.9	...	0.9925	80.2	7.1					
	Min...	29.433	71.5 (3)	68.5	0.9851	73.6 (27)	3.0 (19)					
	Range	0.463	14.6	30.1	0.0524	18.6	13.0					
August	Max...	29.879	86.4 (20)	94.6	1.0191	87.9 (7)	13.0 (7)	17.2	S. 67°.6 E.	4.080	2.213	On the 7th a typhoon from the east passed a few miles south of Shanghai. Thunderstorms on the 22nd and 31st. Rain fell on 13 days.
	Mean	29.686	82.0	...	0.9934	80.1	6.1					
	Min...	29.122	78.7	73.0	0.8993	74.7 (18)	3.0 (27)					
	Range	0.757	7.7	21.6	0.1198	13.2	10.0					
Sept. ...	Max...	30.238	83.2 (4)	93.2 (4)	1.0877	86.5 (15)	10.7 (19 & 27)	11.4	S. 33°.2 E.	3.516	6.321	8 days of rain. Thunderstorms on the 4th and 19th.
	Mean	29.959	73.4	...	0.8256	75.0	7.9					
	Min...	29.680	66.5 (30)	58.8 (25)	0.4761	65.8 (14)	4.7 (1)					
	Range	0.558	16.7	34.4	0.6116	20.7	6.0					

* Position of British Consulate-General, Shanghai:—Latitude, 31° 14' 41" N.; longitude, 121° 28' 55" E. of Greenwich.

NOTE.—The figures in parentheses indicate the days on which the observations to which they are appended were made; under the headings "Diurnal Mean Temperature in Shade" and "Humidity" they indicate the days on which the mean readings were respectively highest and lowest. The monthly barometric means are deduced from four daily observations recorded in the local newspapers. The monthly thermometric means are deduced from the daily maximum and minimum, half the sum of which is taken as the mean for each day. The amount of watery vapour in the air is not observed directly. It has been assumed as an approximation that the amount is a maximum or minimum for a given period when the ratio of the tension of the ambient air to that of dry air reaches its maximum or minimum. The mean humidity is deduced from two daily observations made respectively at 4 A.M. and 4 P.M., the mean of the daily means being taken as the monthly mean. The mean direction of the wind is deduced from two daily observations made at 4 A.M. and 4 P.M. respectively.

For the abstract on the preceding page I am indebted to the Rev. Père CHEVALIER, S.J., Director of the Zikawei Observatory.

Up to August the summer was wet, and storms were of frequent occurrence in April, July, August and September. The weather was persistently hot from the beginning of July to the middle of September, the mercury reaching at least 90° on almost every day in August. At Zikawei the lowest temperature registered was 34°.2 on the 3rd April, and the highest 98°.6 on the 12th July. In the settlements the lowest temperature was 38° on the 3rd April, and the highest 98° on the 12th July.

The minimum and maximum temperatures respectively for April were 38° on the 3rd, and 78° on the 27th; for May, 47° on the 3rd, and 92° on the 29th; for June, 58° on the 3rd, and 95°.5 on the 1st; for July, 68°.5 on the 6th, and 98° on the 12th; for August, 74° on the 7th, and 95° on the 1st; for September, 60° on the 30th, and 95° on the 4th. Autumn, with cool nights, set in about the middle of September.

Judging by my own case-book, the diseases chiefly observed during the summer half year were (excluding cholera) dysentery (rare before July), simple and inflammatory diarrhoea, bronchial catarrh, hepatic congestion, neuralgia and muscular rheumatism, tonsillitis, conjunctivitis, boils, intermittent fever, remittent and typhoid fevers (the former rare); and among children, pertussis, which was epidemic up to the end of July, varicella and worms—mainly *Ascaris lumbricoides*, but I happened to meet with two cases in which the parasite was the (here) comparatively rare *Oxyuris vermicularis*. Of course, there was the usual full contingent of patients suffering from syphilis in all its stages, simple sores, gonorrhoea with its sequelæ, and alcoholism.

Eight cases of cholera were admitted to the General Hospital, out of whom six died, a mortality of 75 per cent. They were distributed as follows through August and September:—

August	1st.	Fireman (British)	Recovered.
„	12th.	Mate (British)	Died.
„	20th.	Man-of-war's man (British)	„
„	22nd.	Steward, French mail (Chinese)	„
„	22nd.	Man-of-war's man (British)	Recovered.
„	27th.	Fireman (Arab)	Died.
„	27th.	Sailor (Finn)	„
September	18th.	Policeman (British)	„

It will thus be seen that the disease did not in any way put on an epidemic character among foreigners. I shall revert to the question of cholera when considering the burial returns. The mortality among the natives living in the city, settlements, and suburbs was terrific. This I infer from the strings of funerals which were seen passing along one street—the North Szechuan Road, by the side of the General Hospital—nearly every day; from the number of coffins exposed in the fields bordering the public roads and elsewhere, and often infecting the air in their vicinity; from direct inquiry among the residents in a thickly populated quarter at the north end of the Szechuan and Kiangse Roads; from indirect inquiry among the native undertakers, and especially among those who knock together the ruder and cheaper class of coffins; and from personal inspection at the Ningpo and Canton guild-temples. The numbers thus obtained are vague in the extreme, but they suffice to establish the great extent

of native mortality. Formal statistics collected from Ti-pao are absolutely valueless. They are falsified either designedly or through idle carelessness.

During the period under review there was no contribution of importance to the European or Eastern literature of cholera.

BURIAL RETURN of FOREIGNERS for the Half-year ended 30th September 1888.*

CAUSE OF DEATH.	APRIL.	MAY.	JUNE.	JULY.	AUGUST.	SEPTEMBER.	TOTAL.
Scarlet fever.....	<i>f</i> 1	...	...	...	1
Enteric fever.....	1†	...	1
Remittent fever.....	...	1‡	...	...	1‡	...	2
Cholera.....	3† <i>f</i> 1‡	1	5
Bright's disease.....	1†	...	1
Dysentery.....	...	<i>f</i> 1	...	...	...	...	1
Phthisis.....	1	...	1
General tuberculosis.....	1†	...	...	1
Septicæmia.....	1	...	...	1
Meningitis.....	1†	...	...	...	<i>f</i> 1†	...	2
Cerebritis.....	1	1
Hydrocephalus.....	1‡	...	...	1
Convulsions.....	...	1‡	...	...	<i>f</i> 1‡	...	2
Myelitis.....	1	...	...	1
Alcoholism.....	1	2 1†	...	...	4
"Heart disease".....	...	<i>f</i> 1‡	...	...	...	...	1
"Cardiac hypertrophy".....	1	...	...	...	...	...	1
Aortic aneurysm.....	1	...	...	1
Chronic bronchitis.....	1‡	...	...	...	1
Capillary ".....	...	<i>f</i> 1‡	...	...	...	...	1
Pulmonary apoplexy.....	...	1†	...	...	...	...	1
Pertussis.....	<i>f</i> 1‡	...	...	...	1
Pneumonia.....	1†	<i>f</i> 1	...	...	2
Gastritis.....	1‡	...	...	...	...	...	1
Stricture of cardia.....	<i>f</i> 1‡	...	...	...	...	...	1
Infantile cholera.....	...	1‡	...	...	...	...	1
Peritonitis.....	1†	...	1†	...	2
Hepatic abscess.....	1 1† <i>f</i> 1	3
Asphyxia.....	1	...	...	...	...	...	1
Purpura.....	1‡	...	...	1
Senile decay.....	1‡	...	1
Drowned.....	...	1†	1†	1†	1†	...	4
TOTAL.....	5	8	7	11	13	5	49

* Not including deaths (if any) among the Catholic religious bodies and the Japanese; exclusive also of premature and still births.

† Non-resident.

‡ Asiatic or Eurasian.

‖ Infant.

f Female.

I have printed in italics those Causes of Death which more or less incorrectly are commonly referred to the action of the climate.

Analysing this table, we find that of the total of 49 deaths recorded 5 were due to accident (drowning, 4; asphyxia, 1). There remain 44 deaths attributable to disease (33 males and 11 females). There were 11 deaths among children, distributed as follows:—4 of European birth (3 males and 1 female), children of residents; 1 of European birth (female), the child of a visitor; and 6 non-Europeans (3 males and 3 females). The age of the two oldest children—1 Malay (remittent fever) and 1 European (cholera)—was 2 years; that of the youngest (European) was 7 days, the cause of death being convulsions. The foreign adult mortality from disease was therefore 33 (27 males and 6 females), or, excluding 5 adults of Asiatic birth, the European adult mortality was 28 (24 males and 4 females). Of these, 13 (all males) were non-residents. The mortality among resident European adults was therefore 15 (11 males and 4 females).

I.—CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS.

Scarlet fever	1 (female).	Alcoholism	3
Cholera	1	“Cardiac hypertrophy”	1
Phthisis	1	Aortic aneurysm	1
Septicæmia	1	Pneumonia	1 (female).
Cerebritis	1	Hepatic abscess	2 (1 female).
Myelitis	1	Dysentery	1 (female).

11 males and 4 females, against 18 males and 11 females for the last previous corresponding period.

II.—CAUSES of DEATH from DISEASE among the CHILDREN of RESIDENT EUROPEANS.

Cholera	1 (female).	Hydrocephalus	1
Infantile cholera	1	Convulsions	1

3 males and 1 female; the numbers for the summer six months of 1887 having been 3 males and 2 females.

III.—CAUSES of DEATH from DISEASE among NON-RESIDENT EUROPEAN ADULTS.

Enteric fever	1	Alcoholism	1
Cholera	3	Pulmonary apoplexy	1
Bright's disease	1	Pneumonia	1
General tuberculosis	1	Peritonitis	2
Meningitis	1	Hepatic abscess	1

13 males, against 21 males during the corresponding period of 1887.

IV.—CAUSE of DEATH from DISEASE in CHILD of NON-RESIDENT EUROPEAN.

Meningitis 1 (female).

1 female, as against 1 male and 1 female in the summer of 1887.

V.—CAUSES of DEATH from DISEASE among NON-EUROPEAN ADULT FOREIGNERS.

“Heart disease”	1 (female).	Purpura	1
Chronic bronchitis	1	Senile decay	1
Stricture of cardia	1 (female).		

3 males and 2 females, against 7 males and 3 females in the last corresponding period.

VI.—CAUSES of DEATH from DISEASE among NON-EUROPEAN FOREIGN CHILDREN.

Remittent fever	2	Pertussis	1 (female).
Convulsions	1 (female).	Gastritis	1
Capillary bronchitis	1 („).		

3 males and 3 females, against 1 male and 4 females during the previous corresponding period.

The summer was not nearly so disastrous as that of 1887, in which season there were 72 deaths attributable to disease. The diminished mortality is noticeable chiefly under the heads of small-pox, enteric and remittent fevers, cholera, phthisis and dysentery.

Four or five cases of scarlet fever occurred during the six months, with one death.

In the fatal case the patient had nursed one of her children through scarlet fever. The disease ran its usual course until the 6th day, when the fauces were covered with a diphtheroid membrane, which on removal did not leave a bleeding surface. Violent delirium was a prominent symptom, and there was almost absolute refusal of nourishment. Death occurred on the 11th day, from apnoea and exhaustion.

A case was admitted to the General Hospital in July from a crowded alley in the French Concession. Notice was given to the municipal officer of health, and precautions were successfully taken to prevent the spread of contagion.

The course of the disease appeared to be rapidly and favourably influenced by the administration of biniodide of mercury.* On admission the patient, a Eurasian boy of 16, had already been four days ill, the rash was dusky, throat symptoms very severe, swallowing almost impossible. Improvement set in immediately, and on the 8th day desquamation began. Dr. DUKES in the article cited below is emphatic as to the effect of the mercurial treatment in preventing desquamation. The result was not realised in this case, for the skin peeled freely for several days, and the process was not complete until the 25th day. Albumen was first found in the urine on the 7th day.

There was but one fatal case of enteric fever; but from this fact, however gratifying in itself, it must not be concluded that the number of cases of the disease fell below the average. Apart from the large number of patients treated in private, there were 40 admissions to the General Hospital during the year 1888, with a mortality of 5, or 12.5 per cent.

The fatal case was that of a boy in the Royal Navy, aged 17, who had been placed on the list with dysenteric symptoms on the 26th July, and treated with opium and astringents. On admission his symptoms were those of dysentery, and ipecacuanha was ordered. On the 9th day the stools were almost healthy. On the 11th day they were distinctly typhoidal, and so continued until death on the 18th day. Involuntary micturition persisted from the 11th day. Death was due to pneumonia of destructive type. The history of the lung complication is as follows. When the patient was admitted there was complete dulness of the lower posterior portion of both lungs limited above by a line joining the middle points of the posterior borders of the scapulæ. On the 7th day expectoration, which had up to that time been scanty, became more free, and consisted of yellow mucus. Next day there was a severe attack of dyspnoea. The patient lay by preference on the right side. On the 10th day, although both lungs had cleared nearly symmetrically for about an inch towards their bases, the respiration was 52. On the 12th day there was profound adynamia, and the left side of the chest was motionless. There was a violent access of dyspnoea on the evening of the 14th day, face pale, lips livid; patient showed rather by signs than by language that he was suffering from frequently recurring stabbing pains in the chest. On the morning of the 15th day respiration was 16, less superficial than before, but the pulse though only 102 was miserable. In the evening respiration had fallen to 14, and the pulse to 96, still of the same character. Next day respiration varied between 22 and 32, and was altogether abdominal. Coughed up some mucus with difficulty, not rusty, not stinking, but accompanied by a fluidrachm of blood. Comatose during following two days, cyanosed. Died in afternoon of the 18th day.

Autopsy, 16½ Hours after Death.—Rigor mortis well marked. Putrefaction commencing. Arms, hands and dependent portions of body livid; face livid, ecchymosed. Hypochondria green. Abdomen much distended, tympanitic. Much blood-stained froth bubbling from nose and mouth.

Only abnormal appearances are noted. Pericardium, normal as to its surfaces; it contained about 12 fluidrachms of pink serum. Right pleura, free from adhesions; left, densely adherent in patches to chest

* Recommended by Drs. ILLINGWORTH (*British Medical Journal*, 1886, i, 859) and CLEMENT DUKES (*ibid.*, 1887, ii, 67).

wall, forming loculi containing blood and bloody serum. The left lung was diminished in size, but throughout gorged with blood; it contained no air; its tissue broke down under moderate pressure into a blackish red pulp. No trace of commencing suppuration; no marbling. The lower lobe and lower half of the middle lobe of the right lung were in a similar condition, but less advanced. The upper lobe and upper half of the middle lobe contained much air, but were engorged to a slight extent.

Much bloody serum in peritoneal cavity. Intestines, deeply injected in parts on serous surface, bulged out of the abdomen. The peritoneal coat of the ileum for about 2 feet above the ileo-cæcal valve was injected. The mesentery was largely sown with enlarged and tense glands. At the junction of the ileum and cæcum the corresponding portion of the mesentery was replaced by a hard cord about 1 inch broad and $\frac{1}{2}$ inch thick, consisting of a mass of enlarged and hard glands embedded in densely infiltrated areolar tissue. Some of these glands were as large as hazel-nuts. On section they contained a pinkish-brown fluid and sloughs which shelled out of the capsule on pressure. The mucous surface of the lower 6 inches of the ileum was studded with ulcers which became close-set as the valve was approached. Several had destroyed the mucous and muscular coats and were beginning to invade the serous coat. The ileac surface of the valve was covered with ulcers surrounding sloughing glands. The small intestine contained a certain quantity of yellow, fluid fæces. The colonic surface of the valve and the mucous membrane of the cæcum and ascending colon were deeply injected but not ulcerated.

There was a second death from enteric fever in the General Hospital during the period under review in the case of a Japanese sailor, admitted on the 10th day of the disease. He died on the 34th day, but as no autopsy was permitted, I will merely note that—

Extreme nervous prostration with obstinate constipation marked the case from the first. Euenata were necessary daily, and the stools thus induced were very copious and of extraordinary fœtor. From the 21st day he passed urine unconsciously. From the 24th day large convulsive movements of the muscles were observed, succeeded by constant trembling. On the 30th day there was a tetanic condition of the muscles of the neck, back and limbs, which relaxed on the 33rd day.

There was a third fatal case which properly belongs to this period, but as death did not occur until the 3rd October, it does not appear in the table under consideration. Its history, with report of the anatomical appearances, is deferred to my next Report.

The patient was a British man-of-war's man, admitted on the 4th day of the disease. Death occurred on the 24th day. In this case also tetanic symptoms were observed.

I have notes of 13 cases admitted under my care, between May and September, to the General Hospital, and which terminated in recovery.

Of these, 11 were Europeans, one Eurasian and one Chinese. One was aged 18, one 19, two 20, three 23, three 25, two 27 and one 33.

CASE I.—*Symptoms previous to admission.*—Headache; vertigo; disturbed sleep; night delirium; fainting fits; right iliac tenderness; constipation alternating with blood-stained diarrhœa.

Condition on admission (6th day).—Dull; hacking cough; intense thirst; liver enlarged upwards to nipple; abdomen tense; marked iliac tenderness; no gurgling; sweating heavily; no spots.

Prominent Symptoms during course of Disease.—Epistaxis; constipation; yellow, fetid stools induced by enemata. Spots first found on 15th day. Temperature first fell to normal on 44th day, and did not rise above normal after the 48th day. Highest temperature 103°.6 on 8th and 40th days. No sequelæ.

CASE II. Female.—*Symptoms previous to admission.*—Rigors; sleeplessness; night delirium; constipation; right iliac tenderness; incontinence of urine.

Condition on admission (15th day).—Deaf; stupid; dorsal decubitus; tongue brown, dry, red tip and edges; dusky skin; no spots.

Prominent Symptoms during course of Disease.—General convulsions with loss of consciousness daily up to 19th day. These were not of epileptic character. Involuntary characteristic stools; sleeplessness; delirium; dicrotic pulse. On the 19th day, the last day of the convulsions, there is a note taken at night: "The slightest touch makes her jump as if she received an electric shock." Temperature fell to normal on the 24th day, and did not rise above normal after the 25th. Highest temperature $104^{\circ}.4$ on the 18th day. No sequelæ.

CASE III.—*Symptoms previous to admission.*—Dysentery, for which he had been treated with ipecacuanha and opium.

Condition on admission (5th day).—Tongue moist, white; abdomen tympanitic, not sensitive anywhere; urgent thirst. Immediately on admission he passed 16 ounces of blood partly coagulated. Temperature $102^{\circ}.8$.

Prominent Symptoms during course of Disease.—Continual hæmorrhage for first two days. On the third day, after 30 grains of ipecacuanha which was retained, five very large extremely fetid stools, consisting of hard masses of fæces. After this, characteristic diarrhœa. Smart hæmorrhages on 10th, 11th and 18th days. Sleeplessness; bed-sore; no delirium. Temperature fell to normal on the 19th day, and did not rise above normal after the 23rd day. In three weeks lost 34 lb. in weight. No sequelæ.

CASE IV. Female.—*Symptoms previous to admission.*—Headache; pain in back and limbs; sleeplessness; stammering bladder; loss of appetite; nausea; foul tongue.

Condition on admission (3rd day).—Diarrhœa; tongue white, moist, thickly coated; abdomen tympanitic; right iliac tenderness; no gurgling; "pain everywhere;" intense frontal headache. Had been treated with quinine.

Prominent Symptoms during course of Disease.—Sleeplessness; delirium; vertical headache; pain in hepatic region; characteristic diarrhœa; spots. Temperature fell to normal on the 16th day, and remained normal. Highest temperature $104^{\circ}.4$ on the 9th day. No sequelæ.

CASE V.—*Symptoms previous to admission.*—Sleeplessness; general malaise; severe cough.

Condition on admission (14th day).—Restless; excitable; continual short dry cough; respiration superficial, harsh at left apex; expectoration scanty, bronchitic; right iliac tenderness; no gurgling; tongue transversely fissured; nausea; no spots.

Prominent Symptoms during course of Disease.—Characteristic diarrhœa, alternating with constipation; sleeplessness. Temperature first fell to normal on the 32nd day, and did not rise above it after the 35th day. Highest temperature $103^{\circ}.9$ on the day of admission. From the 32nd to the 38th day the morning temperature was subnormal ($96^{\circ}.6$ to $97^{\circ}.6$). No sequelæ.

CASE VI.—*Symptoms previous to admission.*—Headache; coated tongue; malaise; fever rising to 105° on the 5th day in spite of vigorous treatment with antifebrin.

Condition on admission (9th day).—Sleeplessness; severe occipital headache; intense thirst; diarrhœa consisting of bloody serum with yellow sediment; tongue brown with red tip and edges; no abdominal distension or tenderness; gurgling.

Prominent Symptoms during course of Disease.—Extremely offensive stools varying in consistency, frequently containing blood in small quantity. The highest temperature after admission was $103^{\circ}.2$ on the 11th day. Temperature fell to normal on the 15th day, and did not rise above it after the 22nd. Severe sciatic pain persisted for several days after convalescence was established.

CASE VII.—*Symptoms previous to admission.*—Illness began with rigor. Continued fever with cough; sweating; sleeplessness; deafness; wasting; urgent thirst; constipation.

Condition on admission (19th day).—Skin yellow, pungently hot; abdomen tympanitic, very sensitive everywhere; tongue brown. An enema brought away a large quantity of exceedingly fetid yellow feces. Chest resonant everywhere; respiration very feeble and superficial. Light percussion of pectorals induces strong contraction and causes localised lumps to form.

Prominent Symptoms during course of Disease.—Characteristic diarrhœa; nausea. Temperature fell steadily from moment of admission. Convalescence was established on the 26th day. No sequelæ.

CASE VIII (sent from another port without any history).—*Symptoms previous to admission.*—Patient states that three weeks before coming to Shanghai he was suddenly seized with diarrhœa, accompanied with fever, sleeplessness, horrible visions at night, loss of appetite, and rapid wasting. In the middle of the third week his stools began to contain blood.

Condition on admission.—Several rose-coloured spots on abdomen; gurgling in right iliac fossa; no marked tenderness; tongue brown, red tip and edges; temperature 99°.

Prominent Symptoms during course of Disease.—Characteristic stools, containing blood in small quantity; night delirium. Improvement began immediately after admission. Convalescence was established on the 26th day. Temperature never over 100°. No sequelæ.

CASE IX.—*Symptoms previous to admission.*—Malaise with severe epigastric pain and persistent fever; constipation, alternating with yellow diarrhœa; loss of appetite; wasting; sleeplessness.

Condition on admission (10th day).—Brought to hospital in condition of collapse, referred by him, after reaction, to the violence of an attack of abdominal pain; no hernia; temperature 102°.6; abdomen tympanitic, extremely sensitive; no spots.

Prominent Symptoms during course of Disease.—Characteristic diarrhœa speedily set in, alternating with stools perfectly black, often solid but generally liquid; dicrotic pulse; sleeplessness; persistent fever. Temperature varied widely, hardly exceeding 100° for several days at a time, then swinging between 102° and 105° for a week or more. Quiet delirium during periods of high temperature; occasional epistaxis; baked tongue; sciatic pain. The symptoms did not permanently abate until three months after admission. The patient became partly imbecile during the last fortnight of this period, and this condition persisted for a month after convalescence was fully established. For three weeks severe sciatic pain caused lameness, and a periosteal node formed on the chondral extremity of the fourth rib on the left side.

CASE X.—*Symptoms previous to admission.*—Rigor, followed by persistent fever, aggravated in evening; urgent thirst; sleeplessness; yellow diarrhœa; vertigo; frontal headache.

Condition on admission (13th day).—Profuse sweating; temperature 104°.8; abdomen covered with sudamina; no spots; tongue dry and brown; pupils dilated, sluggish; gurgling, but no marked tenderness; splenic dulness to 1 inch below left costal margin.

Prominent Symptoms during course of Disease.—Sleeplessness; headache, described as agonising; characteristic diarrhœa; tympanites; intercurrent pneumonia of both bases; intercostal neuralgia with herpes zoster on left side beneath breast. Temperature fell to normal on the 63rd day, and did not again rise. Highest temperature recorded 104°.8 on admission. No sequelæ.

CASE XI.—*Symptoms previous to admission.*—Rigors; sweating; constipation; continued fever; tympanites; gurgling in right iliac fossa.

Condition on admission (7th day).—Several rosy spots on lower thorax and abdomen; temperature 104°; respiration 48; lips blue; short, dry, frequent cough; delirium; subsultus; restlessness; marked sensitiveness in both iliac fossæ; hepatic region excessively sensitive to percussion; no increase of hepatic

dulness; spleen a finger's breadth below costal border; right lung dull at base; increased vocal resonance at both bases; no crepitation; heart sounds feeble, first sound muffled at base and apex; no murmur; urgent thirst; severe paroxysmal pain in calves.

Prominent Symptoms during course of Disease.—Sleeplessness; delirium; deafness; prostration; nausea; characteristic diarrhoea; baked tongue; dicrotic pulse, almost foetal in character; urine and stools passed unconsciously (13th day); tendency to bed-sores; paroxysmal cooling of surface. Highest temperature, 104° on day of admission. Temperature fell to normal on the 18th day without any improvement in other symptoms. For three weeks after convalescence was imbecile; illusions by day and night; inflammation of substance of right supinator longus, threatening suppuration; neuralgia of inner surface of left leg and knee; cutaneous anæsthesia of both feet.

CASE XII.—*Symptoms previous to admission.*—Diarrhoea, which became bloody, and then pure blood; severe abdominal pain.

Condition on admission (7th day).—Tympanites; abdomen everywhere hypersensitive; tongue white, heavily coated, moist; stools yellow fluid with large admixture of blood; intense thirst; temperature 102°.8.

Prominent Symptoms during course of Disease.—Profuse sweating; sleeplessness; delirium; involuntary evacuations (12th day); bilious vomiting; constant intestinal hæmorrhage; muscular tremor (10th day); hæmaturia. From 14th to 21st day stools characteristic, without blood. Then hæmorrhage recommenced. On 25th, 27th, 28th, 30th, 32nd, 37th, 55th and 56th days, severe hæmorrhages, the temperatures during this period being generally normal, occasionally subnormal, and on only one occasion (34th day) reaching 101°.4. The highest temperature was 103° on admission. No sequelæ.

CASE XIII.—*Symptoms previous to admission.*—Rigors; bilious vomiting; constipation; sleeplessness; dyspnoea on exertion; cough with frothy yellow sputum; morning temperature on 4th day 104°.

Condition on admission (7th day).—Abdomen tympanitic; hypersensitive everywhere; two rose spots close to umbilicus; respiration shallow, hurried (30), tubular over back of both lungs; tongue brown, loaded, rather dry.

Prominent Symptoms during course of Disease.—Bilious vomiting; characteristic diarrhoea; delirium; dicrotic pulse. Highest temperature 103°.8 on afternoon of admission. Temperature fell to normal on the 21st day and remained at that point. Numbness with lowered cutaneous sensibility of front of left thigh during convalescence.

The above abstracts, if not of much use for any other purpose, show at least how multi-form enteric fever is, how frequently one or other of the classical symptoms is absent and how useless for purposes of prognosis any single symptom must be considered. As the season advanced the tendency to severe hæmorrhages increased, so that, as will be established in my next Report, enteric fever as observed in 1888 in the General Hospital might fairly be described as being of a specially hæmorrhagic type. It is hardly necessary to say that, whatever the explanation of this may be, errors of diet had no share in producing the phenomenon.

I possess sphygmograms of the radial pulse from many cases of enteric fever observed this year. They are almost exact reproductions of those given by MAREY (*Physiologie médicale de la Circulation du Sang*, pp. 389, 391), and I therefore do not print them. A certain interest attaches itself to tracings from such a disease as enteric fever, wherein it may be assumed that the condition of the arterial wall at the place where the tracing is taken fairly represents the general condition of the vascular system.

Neglecting cases in which the attack was altogether fugitive, about a score of patients were treated in the General Hospital during the summer for malarious fevers. With one exception, in which the form was tertian, all the intermittents were quotidian. With regard to the remittent type, I confess to having more than once hesitated in making a diagnosis between remittent and enteric. Neither the history; nor the course of the temperature; nor the condition of the tongue; nor the nervous symptoms, including sleeplessness, delirium and stupor, if the case has been neglected; nor the frequent constipation; nor the splenic enlargement, will serve as a guide. As a general rule, however, I have found the maximum temperatures higher in cases which by their yielding to quinine proved themselves to be malarious than in enteric cases; the liver is more frequently enlarged and painful; bilious vomiting is more frequent; the stools frequently contain an excess of bile, and tympanites is uncommon.

The following reports deal with the cases of cholera seen by me this season :—

CASE I.—*Recovery*.—1st August 1888. J. C., male, aged 23; fireman on board an English steamer. Has not slept on shore since arrival of steamer. Was on leave yesterday, but did not drink anything (?). Was quite well up to 11 A.M. to-day, when he was suddenly seized with diarrhoea and vomiting. About 7 P.M. severe cramps in legs set in. Admitted to General Hospital at 8.30 P.M.; seen at 8.45 P.M. His trousers were found soaked with colourless fluid. He said he was conscious of having passed urine while on his way to hospital (?).

His clothes were saturated with perspiration. Respiration sighing. Pulse over 100, fairly good. Voice good. Eyes deeply sunken; face livid; tongue cold; extremities and tip of nose icy cold. Cramping pain in calves very severe. Cramps of fingers. Urgent thirst. Says he wants only to be let alone and sleep.

Ordered friction, heat to extremities, ice to suck, iced water ad libitum. 15 grains chloral hydrate every second hour.

2nd August.—During night vomited incessantly, but happened to retain a little milk which he had asked for. Had no stool until midnight; then one, very copious and characteristically "rice-water." Frequent colourless stools passed suddenly in bed subsequently. Was drowsy through night. Cramps diminishing in violence, but still persisting in fingers. Continues to pour with perspiration. Skin of trunk and extremities cold and livid, but face of better colour. Tongue still cold. Pulse 105, quite perceptible. Respirations 24, superficial. Stools unchanged. No anxiety, and restlessness is not marked.

Chloral continued. To every half-tumbler of iced water administered, 30 minims of aromatic sulphuric acid is added.

In the evening, vomiting less urgent. Stools less frequent, but of same character. Great restlessness. Urgent thirst. Cramps have ceased. Tongue and extremities less cold; tip of nose icy. Temperature in rectum (badly taken) 99°.8. Respiration 22, less superficial.

3rd August.—Slept a good deal during the night. Stools very slightly tinged with yellow. Chloral every 4 hours.

In evening, vomiting persists. Arms cold; legs warm. Three enormous stools, liquid, oily, nearly black.

4th August.—Passed a small quantity of urine (4th day) which boiled solid. Olive-green very copious diarrhoea. Tongue dry. Apathetic. Vomiting, but retains a good deal of milk.

5th August.—Diarrhoea of same character continues. Body warm; tongue moist and warm. Very restless. Vomiting green fluid. Some urine passed, but only with stools.

In evening, respiration 16, nearly normal in character.

6th August.—Diarrhoea, now typhoidal in appearance.

8th August.—Temperature under tongue, taken very carefully morning and evening, 96°.5.

Six stools during the day, containing faecal lumps.

9th August.—Stools frequent, copious, faecal. An enormous discharge of clear urine, amounting to 7½ pints, exclusive of what was passed at stool. It contained a trace of albumen, representing, however, a large total quantity.

11th August.—Diuresis continues. Convalescent.

The Chinese who waited on this patient was well until the 6th August. He had gone out in the forenoon, and may have eaten or drunk something during his absence from the hospital, but there is evidence against this. At 10.30 P.M., while lifting the patient from the stool, he experienced, he said, a sudden feeling of nausea and faintness. He was helped downstairs where he vomited his supper. Cramps in the legs and arms immediately set in, and continued with great violence all night. There was neither vomiting nor purging. A native practitioner drove needles into him in various places. Death occurred 8½ hours after seizure, violent cramps persisting to the last. The man's wife who had been with him through the entire time of his absence from the hospital in the morning did not fall ill. A relative who carried the corpse by boat in a shell to a native village 6 hours distant had an abortive attack—purging, vomiting and cramps—which ceased without treatment after a couple of hours.

CASE II.—*Death*.—12th August 1888. H. R., male, aged 38; mate of a ship. Landed on the 8th August. Was round the slums that night, and has been drinking a great deal, chiefly beer. Slept at Sailors' Home each night since.

After his death an enormous number of empty beer and gin bottles was found in his room, and his acquaintances report that for some months he has been continually drinking.

Painless diarrhoea began yesterday morning. Stools yellow (he says). Flux increased during the night. Passed urine last at 10 P.M. yesterday. Cramps in legs began at 5 A.M. to-day. Urgent thirst. Immediately vomits whatever he swallows.

Admitted at 8 A.M. Tongue moist and cold; breath cold; nose icy; extremities cold and purple. Eyes sunken. Skin of face livid; lips purple. Bathed in perspiration. Voice hoarse. Pulse 100, hardly perceptible. Temperature under tongue, taken with great care, 95°. Immediately passed a very copious stool consisting of perfectly clear fluid with a large quantity of white flocculent deposit.

Ordered hot bottles, sinapisms and friction, ice to suck, 15 grains chloral every second hour, sulphuric lemonade (60 minims of aromatic sulphuric acid to each ordinary tumbler of lemonade made with fresh lemons).

10.30 A.M.—One stool of same character. Cramps neither violent nor constant. The skin was reddened by the sinapisms. Pulse (?). Very blue all over, especially face. Retains the lemonade. He became almost totally deaf about 11 A.M.

4 P.M.—Three stools (two involuntary) of same character. Vomits whatever he swallows along with mucus. Paroxysmal attacks of cramps in muscles of abdomen and back as well as in extremities. Begs for a strap to fasten tightly round abdomen. Is extremely restless, won't allow himself to be covered, and is in great apprehension of death, asking anxiously whether there is any chance of saving him. Has short intervals of repose after each dose of chloral. Pulse has disappeared. Pupils widely dilated. His whole body is cold and bathed in perspiration. Skin of hands and feet wrinkled. Deeply livid. Respiration 54, superficial. Thirst urgent. Doesn't care for ice, but drinks sulphuric lemonade very freely, retaining a good deal of it.

He displays great strength—flung a Chinaman across the room (about 6 feet) for not understanding him.

10 P.M.—Less livid. One very large stool, of the same character as before. No vomiting. Heart sounds inaudible. There is commencing warmth of the calves.

13th August, 7 A.M.—Bladder region clear on percussion. Somnolent through last night. Five stools—the first three as before; the last two, dark blood in considerable quantity without any tendency to coagulate. Deafness persists. No cramps all night. Tongue, chin and nose icy; forehead and legs slightly warm; hands and feet cold, wet, livid, wrinkled. Respiration 36; oppression. Voice less hoarse. Pupils still dilated. No pulse. Chloral stopped.

5 P.M.—Pulseless, but one sound of heart can be heard beating 120. Surface less livid. Superficial temperature as before. Very restless. Hiccough. Hardly any vomiting. Two stools, blood as before.

9.30 P.M.—Unconscious; rolling continually from side to side. Body warm; extremities less livid; hands and feet less wrinkled. Respiration 52, much oppression.* Heart sound can be heard as before at apex. It is exactly synchronous with inspiration. Epigastrium and abdomen distended. No stool since last note. Vomited once, clear fluid with small, black, flocculent masses.

14th August, 7.30 A.M.—Deeply unconscious, lying with eyes half open, incessantly rolling from side to side. On attendant trying to give him some drink, he caught the spout of the vessel in his teeth and retained it with such force that it was only with great difficulty disengaged. General warmth returning (commencing decomposition?).

Died at noon. The body became perfectly rigid immediately after death. No muscular movements were observed.

Autopsy, 17 Hours after Death.—Rigor mortis passing off. No appearance of putrefaction. Some, but not much, lividity of back and dependent parts. Abdomen not distended. Skin wrinkled and macerated. There had been no hæmorrhage nor frothing from or at any of the natural openings.

Thick layer of fat in abdominal wall. The diaphragm was strongly arched into the thorax. Lungs somewhat retracted.

The visceral layer of the pericardium was injected; arborisation of vessels. The sac contained about one fluidounce of nearly colourless serum. The heart was large, the endocardium and valves normal. The right side was full of fluid blood, but not distended, the pulmonary artery was also full. The right auricle contained a firm nearly white clot lying over the tricuspid valve and extending into the superior vena cava. The left side of the heart was empty. The lungs were shrunken, but crepitant throughout. No pleural adhesions; no ecchymoses on pleuræ.

The intestines were slightly distended with gas. Liver pulled up by diaphragm, its lower border bounded by the lower edge of the eighth rib. No peritonitis. The great omentum was loaded with fat.

Liver perfectly natural on section in various directions. Gall bladder distended, and neighbouring viscera deeply stained. Spleen small, but normal on section. The stomach was normal as to both surfaces; it contained a small quantity of bile-stained mucus. The small intestine was throughout healthy; empty, except for gas. The wall may have been slightly thinner than normal, but if so the condition was not well marked. The mucous surface of the colon was covered with sanious mucus, mingled with fluid fæcal matter. On washing, it appeared healthy. The kidneys were large, easily decorticated; congested as regards medullary cones, but cortical substance apparently normal. The bladder was contracted, but easily unfolded. It contained about one fluidounce of thick lactescent fluid, boiling solid.

* When respiratory distress is present in cholera it seldom takes the form of dyspnoea. There is no deep, laboured, slow breathing as in a paroxysm of asthma. The oppression manifests itself by the superficial and irregular breathing of the respiratory type of angina pectoris.

The body contained comparatively little blood, but what was effused during the examination was perfectly liquid.

Nothing more unsatisfactory than this postmortem as regards positive results can be imagined.

CASE III.—*Death*.—20th August 1888. S. B., male, aged 23; able-seaman on board a British man-of-war. Was perfectly well up to noon yesterday, when he was suddenly seized with giddiness, numbness of lower extremities and spasmodic contraction of muscles of arms, forearms and fingers. He had taken three or four pills out of a box labelled "NORRON'S Camomile Pills" an hour before the onset of symptoms. The following is the ship's surgeon's report:—

At 9 P.M. patient was slightly collapsed. Legs slightly stiff, numb, cold. Pulse feeble; no elevation of temperature. Administered an emetic, which brought up partially digested food and a good deal of fluid. Hot bottles to stomach and extremities; ether draught. 11 P.M.: slight improvement; very thirsty. Brandy, 2 ounces. Passed one loose, faecal stool. This morning at 9 o'clock numbness not so marked. Pain in right axilla. Slight purple mottling of skin of thorax. Pulse feeble, though stronger than last night. Vomits after medicine. Keeps down iced milk and soda water.

Admitted to hospital at 1.30 P.M. Body cold, livid, moist. Eyes sunken. Forehead, tip of nose, chin, lips, tongue and breath cold. Voice hoarse, but by no means extinct. Has not passed urine since yesterday morning (about 32 hours). There is hardly any dyspnoea. No pulse at either wrist, and sounds of heart cannot be distinguished at the apex. Had one typically rice-water stool shortly after admission. Not restless.

Ordered dry mustard frictions, hot bottles, hot brandy and water.

5.30 P.M.—Vomited three times, the fluid swallowed, with minute blackish flocculi. Stools (4) rice-water with small brown clots. Voice retained. No cramps. Hands wrinkled. Feet slightly warm. Pulseless. Great restlessness; eyes continually rolling to the left and upwards.

15 grains chloral hydrate every 2 hours. Sulphuric lemonade.

10 P.M.—A ripple of pulse can be felt in the temporal arteries. Some slight warmth of forehead and legs. Very drowsy. Restless. No vomiting. 1 stool.

21st August, 6.30 A.M.—Very restless throughout night. Sweating, but not pouring. Swallowed about 50 ounces of sulphuric lemonade within last eight hours, representing about 5 fluidrachms of aromatic sulphuric acid. This must have been absorbed, for patient's breath smells strongly of the acid, and there is no epigastric distension or dulness. No urine; no vomiting or discharge from bowels. Breath is slightly warm; legs and feet not actually icy; body distinctly warm; nose, tongue, chin extremely cold; hands icy and more shrivelled than last night. Face less livid, but the tint changes from time to time, becoming more or less leaden. Eyes about two-thirds open, deeply sunk in sockets. Voice perhaps slightly less hoarse. At apex one sound of the heart, apparently the second, can be faintly distinguished. There is no peripheral pulse perceptible. Respiration 26, laboured. Chloral to be stopped except in case of restlessness.

8.30 A.M.—Respiration becoming more frequent.

Noon.—Half unconscious. Swallowing with difficulty. No discharges. Coughed up a little greenish mucus. Heart sound lost. Forehead, ears, legs, feet and breath slightly warm; body distinctly warm; nose, chin, upper extremities icy.

5 P.M.—Temperature of body still rising. Forehead hot; hands intensely cold, still more shrivelled; chin icy. Respiration 40, purely abdominal. Cries out hoarsely with a grimace every now and then, and face becomes momentarily livid. Is quiet, lies with eyes half open, seemingly unconscious. He can,

however, be roused to reply to a question, but what he says by way of answer has no relation to the question. Told to put out his tongue, he attempts to do so but fails. No evacuations.

9.45 P.M.—Respiration varying between 48 and 52. Perfectly unconscious. Forehead still hot and body very hot; extremities, nose and chin icy. No evacuations of any kind up to 11.10 P.M., when death occurred. There were no muscular movements after death.

Autopsy, 9½ Hours after Death.—Rigor mortis passing off. No putrefaction. Body not livid except on back. Shrivelling of hands passing off. Eyes open; pupils dilated. No special dryness of tissues. Muscles red, of natural appearance.

Diaphragm strongly curved into chest. Left lung retracted. Right lung held in contact with chest wall by old dense pleuritic adhesions. The pericardium contained a few drachms of pinkish-yellow serum. There were no ecchymoses on the parietal layer. On the visceral layer along the right border of the heart and carried on for a short distance towards the apex there were thickly agglomerated minute ecchymotic patches. The remainder of the visceral layer was covered with arborescent vessels. The right side of the heart and the pulmonary artery were full of fluid and lightly coagulated blood. There was no distension. The right ventricle contained in addition to recent coagula a dense fibrinous clot, perfectly white, about the size of a Brazil-nut, entangled in the columnæ papillares and chordæ tendineæ. This was limited to the ventricle, not extending into either the auricle or pulmonary artery. The great vessels were normal. The left side of the heart was empty. The blood throughout the body was fluid, not tarry.

There were no ecchymoses on either surface of the left pleura. The left lung was healthy but retracted, and posteriorly hypostatically congested. The right lung was throughout in an inflamed condition; congested at apex; red hepatisation passing into grey (exudation of purulent fluid on section) lower down; almost devoid of air.

The peritoneum was free from any trace of inflammation, and contained no fluid. The liver weighed 58 ounces; was normal on section, not dripping with blood. The spleen was small and soft, weighing 3 ounces. The stomach contained about 3 fluidounces of turbid yellow fluid. The pyloric third was normal. Over the cardiac two-thirds the mucous membrane was pulpy, scraping off readily with the back of the scalpel. It was the seat of numerous small and large extravasations, especially on the posterior surface. The œsophagus was normal. The serous surface of the small intestines was injected here and there, markedly so at the lower end of the ileum. The tube was distended with gas, but contained no fluid. The mucous surface was smeared with a thin yellow paste. The mucous membrane was pulpy, detaching itself spontaneously from the muscular layer. At the lower end of the ileum there was a considerable quantity of extravasated blood intimately mixed with the yellow paste. Here the entire surface for about 13 inches was dotted with ecchymoses, and there were large patches, corresponding with PEYER'S patches, in which the mucous membrane was reduced to a blood-soaked pulp. Above this region the internal surface of the intestine was denuded of epithelium and thinned so as to be translucent. The mesentery contained several discrete, hard, enlarged glands, and groups of smaller glands matted together. The serous and mucous surfaces of the colon were normal. The large bowel contained the same pasty yellow substance as was found in the small intestine, but there was no admixture of blood.

The kidneys were easily decorticated. Left, normal; cones slightly congested. The right, dripping with blood on section. Together they weighed 8½ ounces.

The bladder was empty, and very tightly contracted.

CASE IV.—*Death.*—22nd August 1888. N. B., female, aged 2; child of European parents. Patient had always been delicate, prone to diarrhœa. Up to last night she was as well as usual, and yesterday evening was at a children's party. She slept well until 2 A.M., when she woke, vomiting and purging. The motions were at first yellowish, but speedily became typical rice-water.

5 A.M.—Deep collapse. Pupils contracted. Pulseless. Neither cramps, vomiting nor purging. Body and extremities wet, livid, icy.

Friction, external heat, hot brandy and water ordered.

She swallowed when fluid was poured over the tongue. She soon became restless, and then suddenly was seized with a general convulsion which lasted a couple of minutes. This left her deeply unconscious, all reflexes abolished, eyes sunken, features pinched. Respiration became slow and (4 to 6) irregular. 2 grains bisulphate of quinine injected hypodermically. This seemed to cause inspiration to become more profound for a few minutes. Consciousness was never regained, and death occurred at 7 A.M.

There was no autopsy.

CASE V.—*Death*.—22nd August 1888. A. T., male, aged 38; Chinese steward on French mail. About 10 days ago had a violent attack of diarrhoea, from which he recovered under native treatment. Yesterday he was again seized with diarrhoea, going to the stool "some tens of times." Passed urine each time, and is positive that he passed some this morning. Admitted to hospital at 8 A.M.

On admission the surface of the body and the tongue were cool, not cold. Voice good. Pulse perceptible at wrist, beating about 100. Had had one large liquid bilious stool between admission and visit half an hour later.

$\frac{1}{4}$ grain morphia was given subcutaneously. Tea with aromatic sulphuric acid. External heat.

5 P.M.—No vomiting. Stools (10) large, liquid, bilious. Absolutely refuses any foreign internal treatment. Asks for some native decoction, which he is allowed to have. Surface now very cold; breath cold. Hands wrinkled. Lips livid. Oppression; respiration 14. Eyes sunken; lids retracted. Severe pain referred to cardiac region. Occasional but very slight cramps. The radial pulse is barely perceptible, but not to be counted. Bathed in perspiration.

Ordered sinapisms, and friction with camphorated spirit.

8 P.M.—Extreme restlessness. He drinks tea and occasionally swallows a few spoonfuls of rice water. No evacuations. Less oppression; respiration 20. Forehead hot; nose and chin cold; hands icy and shrivelled; feet and legs slightly warm, skin not wrinkled. The native medicine having been prepared, he began taking it at 9 P.M. Five stools during the night, brown and oily. No vomiting, and no urine passed.

23rd August, 6 A.M.—Eyes less sunken. Hands still extremely cold, and skin shrivelled; warmth returning to all other parts of the body. Radial pulse perceptible as a mere thread (96). Much less oppression. Perspiration less. Quiet.

5 P.M.—Quiet. Pouring with perspiration. One stool as before. No vomiting, and no urine passed. Refuses all medicine. Forehead, nose, chin and feet equally cool, not cold; lips cold; breath warm; face livid; body cold; hands icy and shrivelled. Respiration 13, very superficial. No oppression. Eyes firmly rolled upwards; pupils contracted, insensitive. Abdomen tympanitic. No radial pulse; one sound, with a rub, can be faintly heard at the heart's apex.

10.30 P.M.—Unconscious; all reflexes except conjunctival abolished. Right cornea muddy; pupils slightly contracted. Forehead hot; body cold; hands and feet icy and shrivelled. No evacuations. Died a few minutes later.

There was no autopsy.

CASE VI.—*Recovery*.—22nd August 1888. T. B., male, aged 23; officer's servant in English Navy. Bilious diarrhoea since yesterday, with severe colic. Has not been exposed to the sun and has not eaten fruit or vegetables (?).

Admitted at 7.30 P.M. to observation ward. His body is quite warm, but his tongue is cold. Pulse weak, 120. Much oppression; respiration shallow, 48. No cough. A hurried examination of the chest reveals nothing. Urgent thirst.

Was ordered $\frac{1}{4}$ grain morphia hypodermically.

Cramps came on during night. Sleepless, but anxious to sleep. Had eight stools before midnight, when morphia was repeated, and six stools between midnight and 6 A.M. on the 23rd, all copious, typically rice-water. Vomited five or six times, clear fluid, mostly water which he had drunk, with brown flocculent masses floating in it.

23rd August, 7 A.M.—In spite of these copious discharges there is not the least excavation of the eyes. Voice is hoarse, but fairly good. Pulse 90, weak. Respiration 36, superficial. The surface is everywhere moderately warm, but the tongue remains icy; breath warm. Skin of hands not wrinkled. No excessive sweating. Ordered 15 grains chloral, after which he slept for $1\frac{1}{2}$ hour.

Noon.—For first time since admission (29 hours) passed urine (8 ounces).

The urine was slightly opaque, deep yellow. S. G. 1.023; intensely acid. No change or deposit on boiling. Dense deposit with cold nitric acid, becoming inky black with excess. After prolonged boiling changed to a reddish fluid containing a large quantity of suspended dark-brown flocculi.

He was now very restless, and got a second dose of chloral, which quieted him, but did not induce sleep.

2 P.M.—Rice-water evacuations continue, and vomiting of colourless fluid with blackish-brown flocculi. Restless. Cramping pains in arms and legs.

5 P.M.—Tongue still icy cold, moist, brown.

10 P.M.—Tongue and hands cold; body and lower extremities warm. Very restless. Complaining of severe headache. Pulse thready, 114. Oppression. Urgent thirst. To have sulphuric lemonade which he has hitherto refused.

24th August.—Four very copious stools during the night, faintly brown, but otherwise typical. Vomited once at daylight some grass-green fluid with brownish-black flocculi. No cramps. Warmth returning to tongue and hands. Pulse 75, fairly good. Respiration 24; no oppression.

5 P.M.—Faintly brown serous evacuations continue. Eyes slightly sunken. Complains of severe pain in muscles of chest.

9.30 P.M.—No urine has been passed since noon yesterday.

25th August, 6 A.M.—Passed about 8 ounces of urine 42 hours after previous evacuation. Stools (2) liquid, very copious, brown, with faecal smell. Respiration 24; no oppression. Pulse 96, fairly good.

The urine was turbid from copious flocculent deposit. S. G. 1.017; neutral. Filtered with difficulty. Filtrate faintly cloudy on boiling; cleared by drop of nitric acid. Continuing to add nitric acid drop by drop, the fluid, while remaining clear, became light green, but on addition of acid in excess turned to a deep reddish-yellow.

The deposit consisted of strings of mucus with a vast number of crystals of uric acid, a few of triple phosphate and of urate of ammonia and some granular debris with a few pus (?) corpuscles and multitudes of flat epithelial scales.

Several fits of vomiting of grass-green fluid with strings of mucus during the day. Stools deep brown, oily liquid. Passed 6 ounces of urine. Tongue remains cooler than normal.

26th August.—Convalescent.

This patient had a sharp attack of dysentery between the 31st August and the 7th September, from which he recovered slowly, being finally discharged to duty on the 25th September.

CASE VII.—*Death*.—27th August 1888. J. L., male, aged 25; Russian Finn, sailor on board an American ship. Was on shore yesterday, ate some fruit, and got half drunk. Remained well, and was on duty up to 4 P.M. to-day, when he was seized with vomiting and purging, “profuse,” according to the officer who brought him. Symptoms of collapse speedily set in, with violent cramps in legs and arms, and he was sent to hospital.

Admitted at 8 P.M.; seen at 8.25 P.M. Eyes sunken. Face, lips, surface of body, hands and feet livid, the lividity deepening during each access of cramp. Skin of hands not wrinkled. Cramp in muscles of extremities, abdomen and back so violent as occasionally to carry him round the long axis of his body through a right angle. Fingers so firmly flexed into palms that it is only with great difficulty that the hand is unfolded, and the fingers themselves become almost black from venous congestion. Great restlessness. No dyspnoea, though respiration is 42 and extremely superficial. Urgent thirst. Body, arms and thighs cool and moist, not cold. They have been energetically rubbed since the moment of admission. Feet cold; nose, chin and tongue icy. Tongue moist. Pulse 90, a mere thread. Both sounds of the heart are faintly audible at the apex. Voice not lost, but very hoarse.

Treatment was limited to sinapisms, energetic friction, application of external heat, and draughts of sulphuric lemonade.

10.45 P.M.—One large stool, liquid, clear, very copious, faintly brown with dark flocculent deposit. Vomiting what he drinks, along with a little mucus. Hands shrivelled; nails black. The sinapisms have distinctly reddened the skin. Great restlessness and oppression. Respiration 54. Cramps less frequent and less violent; distinct fibrillary movements of muscles, especially of gastrocnemii. Pulse 120, irregular and thready. One cardiac sound, apparently the second, is faintly heard at apex of heart. Tongue, forehead and hands icy; nose, lips, chin and trunk cold; calves distinctly warm (local combustion?). Much sweating, especially of head.

28th August, 1 A.M.—Died almost suddenly. For an hour he suffered intensely from cramps, most violent in muscles of back, and from oppressed respiration. In the intervals of the cramps he sat up in bed, gasping and flinging himself from side to side. From 11 to 1, was constantly spitting, or rather trying to spit, bringing nothing away. Breath became warm. No evacuations. Consciousness preserved. In act of dying voided a large liquid colourless stool, and after death there was a considerable flow of serous fluid from the mouth.

Autopsy, 7 Hours after Death.—Body rigid. No putrefaction. Surface uniformly livid, very slightly increased on dependent parts. Surface of thorax cold; of abdomen distinctly warm. Eyes, deeply sunk in orbits, rolled upwards. Eyelids retracted. Thumbs and fingers strongly flexed into palms. Skin of hands and feet wrinkled. Colourless fluid in small quantity running from mouth only. There was a very thin layer of subcutaneous fat on thorax and abdomen. The muscles were pale and remarkably dry.

Diaphragm strongly arched upwards. Lungs retracted. Thoracic organs distinctly warm. The pericardium was crisp and dry like thin parchment; no ecchymosis on either surface; it contained no fluid. Heart of natural size, flaccid. Endocardium and valves healthy. The right auricle and ventricle contained some (but not much) black, fluid blood. There was no clot, fibrinous or otherwise. The pulmonary arteries were also free from clot, and contained a moderate quantity of blood. The left side of the heart was empty. The great vessels were healthy. The blood throughout the body was fluid, showing no tendency to loose coagulation on standing.

The left lung was but slightly retracted; crepitant everywhere; rather bloodless on section. Its pleura was healthy; no adhesions or ecchymoses. The right lung was crepitant but dark, and contained much blood. The pleura over the upper lobe was adherent.

The liver was dragged up by the diaphragm, and corresponded to the interval from the fifth rib to the seventh. The stomach bulged forward. The peritoneum was normal; its cavity dry. The great omentum was free from fat. The surface of the small intestines was here and there injected. The temperature of the abdominal cavity was high, but was not measured accurately.

The liver was full of blood, otherwise normal; it weighed 60 ounces. The gall bladder was distended with green, liquid bile; its internal surface was normal. The peritoneal surface of the duodenum was deeply bile-stained. The spleen was withered in appearance, very friable; weighed 3 ounces. The serous surface of the stomach was normal. The viscous was distended with gas; it contained about 12 ounces of brownish fluid and an immense quantity of unchanged beef and potatoes.

On inquiry it was ascertained that this had been the patient's dinner at 2 P.M. on the previous day. It is extremely curious that he should have retained it in spite of the severe vomiting which ushered in his attack, and the almost continuous vomiting up to 11 at night while in hospital.

The posterior surface of the stomach was deeply injected, but the mucous membrane was nowhere softened. The mesentery was everywhere thickly studded with enlarged and hard glands. The small intestine contained a moderate quantity of white fluid like very thin rice gruel. The mucous membrane had no tendency to detach itself. The wall was not thinned. At the lower end of the ileum for about 6 inches above the valve the solitary and agminate glands were swollen, standing out prominently. There was no sign of ulceration. The ileo-cæcal valve was healthy. Mucous membrane of colon healthy. The colon contained fluid similar to that found in the small intestine.

The kidneys were easily decorticated; the right was of normal appearance; the left was, as regards both cortical and medullary substance, full of blood. The bladder was empty, contracted, but not stonily hard.

CASE VIII.—*Death*.—27th August 1888. A. T., male, aged 38; Arab, fireman on board French mail. Patient was on shore during the evening of the 25th, and was known to have eaten some melon. He was well yesterday. This morning at 4 o'clock was seized with vomiting and purging, which continued with violence until 7.30, when he was seen by the medical officer, who sent him at once to hospital, the diagnosis, not uninfluenced by anticipation of quarantine in the near future, being "faiblesse extrême."

On admission at 8 A.M. the body was cold and wet, but not soaked in perspiration. Forehead, tip of nose and chin cold; tongue icy. Eyes not markedly sunken. Orthopnoea, extreme distress; respiration 42. No radial pulse; one sound audible at base of heart. Voice hoarse. Very restless. Severe cramps confined to calves.

Ordered friction, external heat, sulphuric lemonade, 15 grains of chloral—to be repeated in two hours if restlessness continued.

From the moment of admission there were no evacuations of any kind. The abdomen rapidly became tympanitic, and the patient suffered from extremely severe colicky pains, causing him, along with the cramps in the legs, to scream violently. Collapse became deeper and deeper, and death occurred at 3 P.M., apparently from apnoea, 11 hours after the onset of the attack.

There was no autopsy. An enormous quantity of colourless fluid was found to have poured from the mouth of the corpse when, 12 hours after death, it was removed. The quantity was so considerable that it had soaked the clothing and poured on to the dead-house floor, where it formed a pool covering a surface of 3 or 4 square feet.

I do not flatter myself that these tedious details of cases will prove of any great value to anybody. But any fact, no matter how apparently trivial, may by chance prove of importance when it bears on a disease regarding which, whatever we may know or fancy we know about its pathogeny, we have literally everything to learn in respect of treatment. For my own part

I am in doubt that it is always identically the same poison that produces the group of symptoms which we call cholera. It cannot be denied or concealed that the results of the treatment of cholera as it presents itself in Shanghai are deplorable. Some grim satisfaction may perhaps be derived from the circumstance that Case VII, reported above, in which the symptoms were of appalling severity, and ran with the utmost speed to a fatal termination, had no medicinal treatment whatsoever. It is at least certain that here no harm was done by the misdirected administration of drugs. Chloral in moderate doses was generally given in preference to morphia to diminish restlessness and relieve the agonising pain of cramps. It seemed to soothe, but I doubt that it is preferable to a single small injection of morphia, or that the idea that this latter may prove hurtful by diminishing evacuation has any foundation in fact. However humiliating the confession must be, the words are as true now as they were half a century ago, when Sir THOMAS WATSON wrote them:—

If the balance could be fairly struck and the exact truth ascertained, I question whether we should find that the aggregate mortality from cholera was any way disturbed by our craft. Excepting always the cases in which preliminary diarrhoea was checked, just as many, though not perhaps the very same individuals, would probably have survived had no medication whatever been practised.

The malicious inference is obvious enough—that if some patients were cured by treatment others were killed.

Turning now to Dysentery, it will be noticed that but one death, that of a European female, in May, is attributed to this disease.

The case was a chronic one of many months standing in a woman whose history and surroundings were as bad as could possibly be imagined.

From the minimal mortality, however, minimal frequency or severity of the disease must not be inferred. Many cases were treated in private, and those which came under observation at the General Hospital were not by any means of a mild type, as the following abstracts will show.

CASE I.—L. K., aged 59; Manila quartermaster. Admitted 18th September 1888. Vomiting large quantities of green fluid. Purging pure blood.

Ordered 30 grains of ipecacuanha, which arrested vomiting, but had no effect on the loss of blood. This continued with great violence until next morning, when patient was blanched. Ordered extract of hamamelis virginica in $\frac{1}{2}$ -ounce doses every second hour. Hæmorrhage was immediately controlled. By evening he had had three stools, small, horribly fetid, like coffee grounds. Next day there were five or six frankly dysenteric motions. 30 grains of ipecacuanha produced bilious passages, and convalescence seemed established when the patient on the 27th September ate the dinner of a patient on general diet who happened to have lost his appetite. Bleeding immediately recurred, but was again speedily checked by the administration of hamamelis.

In my next Report I shall narrate cases of severe hæmorrhage in the third week of enteric fever which yielded at once to hamamelis. This drug also acts admirably well in the pulmonary hæmorrhage of phthisis, that is, of course, where the hæmorrhage is parenchymatous and not due to aneurysmal rupture of denuded vessels in cavities. BRUNTON* reports of it:—

Internally, it is a very efficient hæmostatic in bleeding from the lungs and other internal organs. In some cases of hæmoptysis I have found it in the form of the non-official preparation of it called

* *A Text-Book of Pharmacology, Therapeutics and Materia Medica*, 2nd ed., p. 943.

hazeline more efficient than digitalis and ergot, although in other cases digitalis and ergot have answered better. It checks the flow in menorrhagia when given during the period, and it lessens pain in dysmenorrhœa. . . . It has been supposed by DUJARDIN-BEAUMETZ to owe its utility to an action on the muscular fibre of veins.

An extract of hamamelis is officinal in the revision of the *United States Pharmacopœia* of 1880.

CASE II.—M. F., male, aged 20; seaman on board an English man-of-war. Admitted on the 3rd day of violent dysentery following on a fortnight of diarrhœa. 160 grains of ipecacuanha were administered before any effect on the stools was noticeable. On the 6th day fœces appeared in the stools, and convalescence speedily followed. Although this patient never kept his dose of ipecacuanha down for less than five hours, and generally retained it altogether, the stools never assumed the brownish-yellow colour that the drug commonly produces.

CASE III.—W. A., male, aged 41; Negro fireman. Admitted on the 8th day of severe dysentery with great frequency, tormina and tenesmus. Passages contain no fœces; they consist of mucus, blood and pus.

Ordered castor oil and laudanum.

Next day the stools were copious, containing in addition to mucus and blood much serous fluid. He was put on 30-grain doses of ipecacuanha daily, which he retained without difficulty, but which up to the 14th day of the disease had no effect on the stools. From this out he was treated with castor oil and laudanum morning and evening until the 21st day, when all dysenteric symptoms had disappeared, and a bilious diarrhœa alone remained.

CASE IV.—O. W., male, aged 29; German fireman. Admitted on 9th day of dysentery. 20 to 30 passages daily, mucus and blood and horribly fetid brown liquid. Much tormina and tenesmus. Had been treated with astringents.

Ordered castor oil and laudanum.

This induced several putrid passages containing a miscellaneous collection of hard fœcal masses, lumbricoid worms and three pieces (each consisting of several segments) of *bothriocephalus latus*. Castor oil and opium were continued for three days until the acute symptoms of bowel irritation had disappeared, and then "several feet" (which I did not see) of tapeworm were expelled by a dose of male fern. A day or two later, after a few grains of santonine, three more lumbricoids were got rid of. There was no further bowel trouble.

The following case is reported merely to indicate the natural course of severe dysentery when left without treatment:—

CASE V.—*Death*.—B., Chinese female, aged 37. Came under observation on the 26th May 1888. Refused all foreign treatment, and after one trial of some native decoction determined to have no treatment at all. Stools very frequent, extremely fetid, preceded by severe tormina but no tenesmus.

27th May.—Incessant vomiting. Sleeplessness. Stools very frequent, now with tenesmus, contain pus as well as mucus and blood and a slight trace of fœces. Vomiting ceased.

28th May.—Sleeplessness persists. Continual vomiting and straining at stool. Less tormina. Stools hæmorrhagic. Tongue moist and clean.

29th May.—Stools pure blood. Sleeplessness yielding. Tongue dry. Pulse 140.

30th May.—Some fluid fœces in stools which otherwise consist of blood only. Tongue moist. Vomiting. Pulse 140, flickering.

31st May.—Very prostrate. Tongue still moist; lips dry. Stools very frequent and copious, passed unconsciously, brown fluid without any blood. Violent palpitation. Pulse 144.

1st June.—Hæmorrhage reappeared. Restlessness; delirium; fly-catching. Pulse 180. Trembling of extremities. Nails purple. Tympanites. *Tongue moist and natural.* Death.

Two fatal cases of Peritonitis are reported.

CASE I.—M. I., male, aged 20; seaman in French Navy. Admitted on the 29th May 1888, supposed to be the 19th day of his illness. Epistaxis occurred on the 16th and 17th May. Was stupid, sleepless and sub-delirious from the first.

Had been treated with aconite, digitalis, quinine, extract of cinchona, and carbolic acid by the mouth, and cold enemata of carbolic acid. No report was made as to state of bowels.

From 15th to 28th May the morning temperature varied between 100°.5 and 104°
 " " " evening " " " 101°.5 " 104°.4
 " 19th to 23rd " " " was at least 104°

On admission patient's face was flushed, dusky. Pupils widely dilated, insensitive. Lips dry, tremulous. Tongue natural. Very slightly deaf; no buzzing in ears. Respiration 36, extremely superficial. Coughing. Moist râles at both bases. Pulse 108, compressible. Temperature 102°.9. Skin pungent, dry. Abdomen tympanitic. Slight roseolar eruption on thorax. Little or no iliac tenderness. Heart normal. Liver slightly enlarged upwards. Splenic dulness 2 inches below costal margin. Says that for the last couple of nights he has slept fairly, dreaming, but not horribly.

In the evening he had had one small lumpy stool, olive-green. Was expectorating ropy mucosanguineous sputum. Urgent thirst. There was slight epistaxis during the night. Temperature 104°.

30th May.—Stools (two) brown, nearly hard, very fetid. Abdomen covered with sudamina. A few fresh roseolar spots on abdomen. Complains of intense pain of neuralgic character on both surfaces of both feet. Touching any point on his arms produces a smart muscular contraction as if a shock from a coil were administered. This is no greater when ZIEMSEN'S motor points are picked out. After six or eight trials the reaction almost ceases, fibrillary movements in all the muscles on both surfaces of the forearms taking its place. Respiration 20. Spitting up thick, blood-stained, aerated mucus. Temperature 102°.4.

In the evening, subsultus. He was lying on his side without any oppression of breathing. Temperature 104°.

31st May.—Apparent improvement after a quiet night. Respiration 24. Less expectoration, which is serous, hardly blood-stained. Temperature 102°.6. Less subsultus; lips not trembling. Pupils respond slightly to light. Frequent slight epistaxes during the day. After a small very constipated stool in the morning, an enema containing 1 ounce of castor oil was administered. During the afternoon and evening he passed six very copious, pulpy, yellow, horribly fetid stools, and after these he complained of severe pain along the course of the transverse colon, which was relieved by 15 minims of laudanum.

1st June.—Slept fairly all night, complaining occasionally of abdominal pain, and of a desire to defecate which he could not satisfy. At 9.30 A.M. he suddenly screamed out that he was dying. When calmed he described the pain that had seized him as "tearing," and situated in the upper part of the abdomen. The abdomen was tense, very sensitive. He was bathed in sweat. Extremities warm. Universal muscular twitching. Hippocratic face. Pulse 132, thready. Respiration 27. The tongue was almost normal.

I contemplated opening the abdomen, but abandoned the idea, concluding that the case was one of enteric fever terminating by perforation.

During the day the abdominal distension diminished. Sweating was profuse. The extremities remained warm. Breathing very rapid. A little purulent mucus expectorated with difficulty. Tongue now becoming dry.

In the late evening respiration was 50. Pulse barely countable at 200. Passing urine freely; no other evacuations. Asking for milk and champagne, and taking both readily. At 10 P.M. was lying asleep on his back with eyes completely closed. Extremities cool, not cold. No increased tympanites or sensitiveness to light percussion.

2nd June.—Shortly after midnight he began to vomit. At first he rejected all he had taken during the day (milk, etc.), mixed with an incredible quantity of bile—an ordinary toilet-basin full. At 4 A.M. began to vomit "coffee grounds" in considerable quantity. Up to 5 A.M. he insisted on rising incessantly to go to stool, evacuating nothing from the bowel, but passing urine freely. At 5 A.M. respiration 60. Pulseless. Extremities cold. Covered with sweat. Very deaf for last two hours. Fully conscious up to 6.30 A.M., when he died suddenly, suffocated by a flood of coffee-ground vomit which rushed from nose and mouth.

Autopsy, 12 Hours after Death.—Putrefaction commenced, though rigor mortis was still marked. Whole body livid, posterior surface of trunk, arms and legs deep claret colour. Bloody fluid pouring in considerable quantity from nose and mouth. No fat on surface of chest or abdomen.

Very little time was allowed for the examination, so that attention was solely directed to the abdomen.

The diaphragm was arched upwards, forcing the lungs to the back of the chest. The abdominal viscera were everywhere matted together and covered with flakes of lymph and pus. The small intestine was distended with gas, and was intensely injected on its peritoneal surface. The colon was shrunken. The pelvis contained a large quantity of purulent fluid without fæcal odour. The ileum was ligatured and cut across at its junction with the colon, and a canula was tied into the cardiac orifice of the stomach through which the stomach and small intestine were fully but not forcibly distended with water. There was no escape of fluid through any perforation. When the water was allowed to run off after about 10 minutes it was dark-brown in colour and contained some small fæcal masses. The mucous surface of the entire digestive tract was deeply congested, blood extravasated in numberless large patches into and beneath the membrane. Nowhere were there any ulcerated or elevated areas. The mesentery was studded with swollen and for the most part suppurating glands. Immediately below the stomach, in an incomplete pouch formed between it, the liver and the lower border of the pancreas, was a large collection of flaky pus, probably originating in caseated glands, whence the fluid in the pelvis appeared to have drained.

The liver weighed 71 ounces. Nowhere did its tissue appear normal. It was uniformly mottled, on section, with nearly white sago-grain patches on a brownish-yellow ground. An exact representation of the macroscopic appearance of the gland when cut anywhere may be found in CRUVEILHIER'S *Anatomie pathologique du corps humain*, vol. I, fascic. xii, planche i, fig. 2, under the head of "Foie granuleux (cyrhose)."

The spleen was double its natural size, yet nearly normal to touch and in appearance on section.

CASE II.—W. S. M., male, aged 28; seaman on board an English man-of-war. Admitted with the following history. At sea, at 5 P.M. on the 29th July, being apparently in perfect health, patient was suddenly seized with violent colic, for which he took 30 minims of chlorodyne, but without relief. Three hours later pain was still intense, of tearing and twisting character, round umbilicus, slightly relieved by heat and pressure. He had had two normal stools in the early part of the day. There was no history of strain. He was walking the deck quite well when the attack came on. He was ordered castor oil and laudanum and a small hypodermic injection of morphia.

30th July.—Temperature in morning $100^{\circ}.6$. Features pinched. Tongue furred. Restless and sleepless night. Vomiting a little thin fluid. Abdomen lax; some tenderness in right iliac region. Castor oil repeated, but immediately vomited. Pain in very acute paroxysms, extending down right thigh. Mouth very dry. Morphia repeated.

3 P.M.—Bathed in sweat. Dorsal decubitus, with right thigh flexed on abdomen. Abdomen hard and exceedingly sensitive, especially over cæcum. Occasional vomiting. Retention of urine. No hernia. Morphia repeated. Condition unchanged at night. Temperature 101° .

31st July, 7 A.M.—Keeps legs wide apart, but extended. Breathing altogether thoracic. Abdomen much distended, especially in left iliac region. Diffused tenderness. Apathetic though quite conscious. Vomiting. Hiccough. No tumour can be made out. 4 ounces of deeply-coloured urine drawn by catheter.

The abdomen became more tense as the day went on. Breath offensive. Little pain until 3 P.M., when it became severe. Urgent thirst. Bladder empty. No vomiting.

6 P.M.—Muttering. A little urine drawn off.

Meanwhile his ship had been hurried to Shanghai, and patient was admitted to the General Hospital at 8 P.M. His skin and clothing were saturated with perspiration. Surface cold. Quite conscious, apathetic. Breathing exclusively thoracic, panting. Legs extended. Abdomen tense. Nothing to be felt in the rectum; nothing at the ordinary seats of hernia. Pulse running, but wiry. Severe abdominal pain, rather relieved by gentle pressure.

The alternative lay between letting the man die, and giving him a chance for life by abdominal section. The state of things was explained to him, and without appearing to take much interest in the matter he decided in favour of operation. He took chloroform without difficulty, and I opened the abdomen in the linea alba by a 3-inch incision midway between the umbilicus and pubes. Deeply injected and tensely distended intestine presented in the incision, and its exit was with difficulty kept within reasonable limits. A considerable quantity of turbid fluid welled up by the side of the exploring hand. This had no fæcal odour. The cavity was systematically explored, first the cæcal region, then the inguinal and femoral rings, and the obturator and sciatic foramina. No explanation being discovered, the intestine itself was carefully examined. It was all deeply injected, port wine colour in parts, and mostly covered with flakes of recent lymph. In front, a little below the lower angle of the wound, a collapsed portion of bowel was felt and drawn up. Immediately above it, but not compressing it, was a band apparently merely of lymph which stretched across it from one border to the other. As a matter of precaution this band was incised. The portion of bowel below it immediately filled with gas, but this result was evidently due to the manipulation having straightened a kink due to soft adhesions. There was no diminution in the distension of the intestines after the severance of the band, and further examination brought no obstruction to light.

Whatever the cause of the peritonitis might have been, it was obvious that the muscular coat of the small intestine was completely paralysed. After cleansing the surface of the intestine with soft sponges, a loop was fished up immediately above the remains of the band just described, and an artificial anus formed at the lower angle of the wound. There was but a moderate escape of gas after incision of the bowel, sufficient, however, to facilitate the return of the intestine still prolapsed through the wound in the abdominal wall. The edges of this latter were brought together by deep stitches including the peritoneum, and superficial stitches including skin and areolar tissue. The patient was removed to a hot bed. His pulse was then fair at 120, soft and regular. The surface of the body was dry and reasonably warm.

1st August, 6.45 A.M.—Remained semi-unconscious all night, taking nothing. Death occurred at 8 A.M.

The temperature in the axilla was $107^{\circ}.5$ half an hour after death, and remained at that for another half hour before beginning to fall.

Autopsy, 1 Hour after Death.—There was no mark of injury on the body, except the operation wound. No lividity of the surface. Rigor mortis had not set in. No putrefaction. Great and general distension of the abdomen, which was everywhere resonant. There was no discharge from any of the natural openings. On opening the thorax the lungs were seen to be retracted. Pericardium and heart sunk slightly backwards.

The pericardium was normal, containing a very minute quantity of serous fluid. Heart strongly contracted; all the cavities empty; muscle, valves and endocardium normal. The great vessels were full of dark fluid blood, which coagulated firmly and quickly on escaping. The lungs were collapsed and airless. Structurally normal.

The parietal peritoneum, including that covering the under surface of the diaphragm, was deeply and uniformly injected; here and there, but chiefly in the right hypochondrium, covered with lymph. The diaphragm was strongly arched into the thorax. When the intestines were removed all the fossæ in the abdomen—retro-hepatic, splenic, retro-cæcal,—as well as the true pelvis, were found full of purulent fluid containing no trace of fæces and exhaling no fæcal odour. There was no abscess in the pericæcal region. This when sponged out presented a perfectly normal appearance as regards the neighbouring areolar tissue and pelvic muscles. All the abdominal organs were very hot to the touch.

The liver extended $2\frac{1}{2}$ inches below the costal border in the mammary line. Hepatic tissue healthy, somewhat fuller of blood than normal. The spleen was normal. The stomach was distended with gas; its peritoneal surface hardly, if at all, shared in the surrounding inflammation.

The small and large intestines were tightly distended with gas, and the peritoneal surface deeply injected, and in several places coated with lymph in large flakes. No volvulus, intussusception or band. No obstructing mass. The artificial anus had been made 6 inches from the ileo-cæcal valve. The cæcum contained a small quantity of normal fæces. Mucous membrane healthy. Appendix free, hardly perceptibly swollen, but deeply injected on peritoneal surface. It was empty; its mucous membrane gangrenous at the distal end, the gangrene penetrating its coats by a pinhole 1 inch below its attachment. Between this point and the bowel the mucous membrane appeared to be normal. No cause for the gangrene could be discovered.

18 inches from the anus there was a collapsed portion of descending colon, 5 inches long. On section it exhibited concentric narrowing, passing suddenly into bowel of normal calibre above and below. The condition was not congenital, for the mucous membrane was thrown into closely-set longitudinal wavy folds. The submucous tissue was not infiltrated, nor was there any trace of ulceration or other past acute lesion.

Three deaths from Hepatic Abscess are reported, all having occurred in September. With regard to two of them, one male and one female, I have no information. The following are the particulars of the third case:—

W. H., male, aged 29; Customs Tidewaiter at Ningpo. Had always led a steady life, and had never been ill except for an attack of diphtheria in 1874. Has never had any form of malarial fever or dysentery. The report of his present illness was as follows. On the 24th August he had a fugitive attack of diarrhœa. On the 26th he was slightly feverish, but went out rowing. On the 28th he complained of headache, loss of appetite and constant bitter taste in his mouth. There was no shivering. Temperature $100^{\circ}.2$. Up to 3rd September pulse and temperature were normal. His only complaints were of nausea and bitter taste. On the 3rd a round worm was expelled, and pain in the hepatic region was first noted. No rise of temperature or other symptom of fever. The liver region was found to be painful on percussion, hepatic dulness extending to 2 inches below the ribs. Pain increased by lying on left side. Vomited a great quantity of green stuff. Constipated. Temperature in evening $99^{\circ}.5$.

Admitted to the General Hospital the 11th September, bringing the above history. Stated that he had had no stool for three days, and had been sleepless for previous eight days, except when under the influence of a sedative. He is extremely thirsty. There never has been any pain in either shoulder. Neither food nor medicine excites nausea, but he frequently brings up clear frothy fluid. Tongue normal. Face much flushed. Temperature 103° . He is exhausted by his voyage and the inevitable knocking about.

There is no obliteration or widening of the intercostal spaces in the upper part of the hepatic region, but there is very marked fulness in the right hypochondium. 3 inches below the horizontal nipple line the semi-circumference of the trunk is alike on both sides. Over the swollen area it is $15\frac{3}{4}$ inches on the right side, as against $14\frac{1}{4}$ inches on the left. Taking the horizontal plane through the nipples for reference, the liver dulness in the nipple line begins $1\frac{1}{2}$ inch below it and ends $8\frac{1}{2}$ inches below it. In the mid-axillary line the dulness begins 2 inches below it and ends $9\frac{3}{4}$ inches below it. The upper limit of dulness follows a slightly curved line convex upwards, and is not altered in position by the deepest inspiration possible. In the middle line anteriorly dulness begins at the xiphoid appendix, and extends downwards for 5 inches. At the level of the xiphoid appendix it extends $2\frac{1}{2}$ inches to the left. There is very marked tenderness on palpation and percussion. No sense of fluctuation; on the contrary, there is great resistance from spasm of the abdominal muscles. There is a patch the size of a dollar of complete silence at the base of the right lung close to the spine. Round it the respiration is tubular. Elsewhere respiration is normal. There is no cough or dyspnoea. As regards the heart, there is a systolic apical bruit not conducted to the axilla, and a systolic basal bruit heard most distinctly at the right border of the sternum. There is no enlargement of the spleen; no icterus; no oedema. Patient says that he has wasted considerably within the last few weeks. The urine is in normal quantity; clear, reddish-yellow; acid; S. G., 1,020. Faint purple line at contact with layer of cold nitric acid in test tube; no albumen; no sugar.

The need for immediate operation was explained; patient consented to its being performed on the 14th, as he thought it necessary to make some preliminary arrangements by correspondence with Ningpo. This postponement, moreover, did not appear inadvisable as it gave time for much needed repose.

12th September.—Diarrhoea and vomiting during night. Delirious. Tongue dry. Temperature in morning 101° ; in evening 103° .

13th September.—Diarrhoea and vomiting continue. The stools liquid, yellow, containing neither blood nor pus; the vomit colourless fluid, frothy.

With a view to operation to-morrow, that he might be as short a time as possible under chloroform, explored for pus with aspirator. A spot was found 2 inches to the right of the middle line of the abdomen and 5 inches below the nipple horizontal, the slightest pressure upon which induced vomiting. The finest needle of the aspirator introduced here to a depth of $2\frac{1}{2}$ inches drew off only blood. At a point 3 inches from the middle line and $6\frac{1}{4}$ inches below the nipple horizontal, pus was found at a depth obliquely outwards of $2\frac{1}{2}$ inches, but too thick to pass freely through the needle. The punctures were covered with a thick layer of iodoform, and protected by a large pad of salicylic wool and a binder. There was slight collapse. Pulse 120, very small and weak. Immediate desire to go to stool, which, however, he was able to resist. He remained without pain until 7 P.M., when he received a $\frac{1}{4}$ -grain hypodermic injection of morphia.

14th September.—Slept well until early morning, when he became restless, and after an hour suddenly collapsed. At 5 A.M. he was fully conscious, but was voiceless; icy cold; bathed in sweat; pulseless; and had passed urine unconsciously. Respiration panting, 66. All the usual means were adopted, heat, friction, hot brandy and water, ether injections, etc. At 10 A.M. there appeared to be some slight reaction, with, however, speedy relapse. Death occurred at 1.30 P.M. The temperature in the axilla immediately after death was 102° .

Autopsy, 2½ Hours after Death.—Average temperature of air since death 77° . The surface of the body was hot to the hand. Rigor mortis well marked. Putrefaction not begun. Lividity beginning round

the neck and on posterior surface of trunk and extremities. No marks or scars, except the two punctures of yesterday's exploration. The body was well nourished. A considerable layer of fat on abdominal wall. The muscles bled readily on section. Skin of hands wrinkled, as after cholera. No escape of fluid from any of the natural openings. Blood effused during autopsy perfectly black, and showed no tendency to coagulate. The diaphragm was arched high into the thorax. The pericardium was so strongly adherent to the chest wall that its anterior surface was torn in the act of lifting the sternum and costal cartilages from below. It contained a small quantity of pink serum. The right side of the heart was empty, very firmly contracted. The segment of the tricuspid valve corresponding to the ventricular septum was dotted with recent lymph which bound it down to the septum. The left side of the heart was also empty; mitral valve normal. The posterior and left segments of the aortic valves calcified; anterior segment cartilaginous. Notwithstanding this the edges fitted together. The coronary vessels were normal. The aorta from immediately above the sigmoid valves was healthy. The pulmonary vessels were perfectly normal. There were dense pleural adhesions on the left side; none on the right. The right lung was retracted to the back of the thorax, but contained much blood. The left lung was very deeply congested in its upper lobe, soft, tearing readily during efforts to remove it. It, however, contained air throughout, and there was no deposit in either lung.

The temperature of the abdominal cavity was 108°. On incising the peritoneum there was a large escape of brownish fluid free from faecal smell, followed by a copious flow of thick, flaky pus mingled with strings of coagulated lymph. There was no general peritonitis. The liver extended 2 inches to the left of the middle line, and 2½ inches below the costal border in the vertical nipple line. Its upper border corresponded to the lower edge of the fourth rib. The aspirator punctures, which were marked by slight ecchymoses in the substance of the muscles, could not be recognised on the liver surface. The transverse colon was displaced downwards, so that its upper (mesenteric) border lay just below the umbilicus. The omentum, matted with lymph and pus, was not adherent to the small intestine. The stomach occupied an oblique position from without inwards and from above downwards. The liver was much swollen. On the surface of the left lobe was a prominence which when incised proved to be an abscess (1) containing about 1½ ounce of pus. On lifting the liver, rupture of an abscess (2) was seen to have taken place through the square lobule immediately to the right of the pons hepatis. An abscess (3) full of greenish-yellow, very thick pus occupied the left lobe a little to the right of abscess (1) and quite independent of it. The right half of the right lobe formed one abscess cavity (4) which had opened into the general peritoneal cavity by a ragged opening at the level of the tenth rib. On the diaphragmatic surface of the right lobe there was an abscess (5) containing about 6 fluidounces of pus, and at the lower inner portion of the right lobe on the anterior surface there was a minute collection (6) of pus. The aspirator needle had penetrated abscess (4). In the immediate neighbourhood of each abscess the liver tissue seemed normal to the naked eye. The liver weighed 72 ounces after being emptied of pus. The vena cava, strongly adherent to its fossa, was healthy and contained no pus. The gall bladder was moderately full of green bile. The spleen was small, not particularly friable. The stomach was tightly distended with gas. It contained about 10 fluidounces of black fluid in which some minute milk-curd were floating.

This fluid had a curious aromatic odour which pervaded the entire of the interior of the body and especially the kidneys.

The surface of the small intestine was injected in several places and spattered with pus and coagulated lymph. The tube was moderately distended.

The caecum was completely invested with peritoneum, forming an apparent meso-caecum. Whether this investment was continuous with the general mesentery or not was difficult to determine, but from the limitation of the abscess found between its layers, it was probably independent. On lifting the caecum an abscess containing at least 6 fluidounces of putrid pus was found between the layers of

the investing peritoneum. It had no visible connexion with the bowel nor with the appendix. The latter was perfectly healthy, of unusual tenuity, with a fatty expansion at its free end, and had an independent mesentery for about its lower half. The retro-cæcal abscess appeared to have arisen from breaking down of the glands behind the cæcum, three of which external to the abscess were found in a state of cheesy degeneration, while a few others were represented by an indefinite magma. On the internal surface of the cæcum $1\frac{1}{2}$ inch below the valve, and on the valve itself, were two deep, sloughing, transverse ulcers, corresponding to which there was slight injection of the peritoneal surface, but no real inflammation, still less perforation. The mucous membrane of the small and large intestines, exclusive of the cæcum, was normal. There were no scars, atrophy or puckering to indicate any previous inflammatory affection.

The kidneys were normal.

To this case, in which the history is complete, may fitly be appended the report of another patient who presented himself for diagnosis only.

F. M., male, aged 28; clown in a circus. Seen during the night of the 10th August 1888, when he was suffering from the premonitory symptoms of rupture of the abscess as described below. At this time the liver dulness reached a point 1 inch beneath the nipple, but immediately above the lower border of the costal cartilages, midway between the vertical nipple line and the anterior median line of the body, there was an area about the size of the palm of the hand highly tympanitic. Percussion here was felt painfully at a point a little anterior to the anterior axillary line and 1 inch above the lower costal border; and reciprocally. The entire hepatic region was tender to pressure. A couple of hours later he passed an enormous stool of pus, mucus and blood, smelling horribly, and next day, as will be seen, the air-containing cavity was no longer perceptible. At the visit previous to the rupture the temperature was $99^{\circ}.8$. Pulse 86. There was no nausea. He was bathed in sweat, but so was everybody. Pain was obviously intense, but there was no symptom of collapse.

Next day he came into hospital for examination, and gave the following history. Father living, aged 90; mother living, aged 86. He has been 12 years in the circus business, having entered it at the age of 16. Great physical exertion is required. When he was 15 the wheel of a heavy dray passed over his abdomen, and ever since he has lumbar pain in wet weather, which he attributes to this. He never had syphilis. He is a heavy drinker, but cannot get drunk. He was quite well up to the beginning of 1887. In April 1887, in Macassar, had a choleraic attack, which he refers to excess in drinking iced beer. He was off duty for two days only, but ever since he feels the effect of any unusually hot weather far more severely than he did before. In the summer of 1887 he began to have dysentery, and for this past year he has rarely had a thoroughly normal stool. In October 1887, while in Batavia, he had much ill-defined uneasiness in the hepatic region, and was told that his liver was somewhat enlarged. In Acheen, in the latter part of November, he began to have constant pain in the hepatic region, right shoulder joint and down the right arm not quite to the elbow. His stools meanwhile were small, dysenteric and very frequent (8 to 20 in 24 hours). He was at this time sensible of much fulness and tenderness of the entire right side. He appears to have had some sort of fit in Acheen, for he was found unconscious on the floor of his room one morning. He was carried to hospital, where he was told that his liver was enlarged, and he was treated with blisters and ice bags. All symptoms disappeared after a week, and he left for Penang, where, after a few days' work, he had to lie by again, and was told that a sluggish liver was the cause of his dysentery. Extremely severe colic was now a prominent symptom. Christmas 1887 was spent at Penang. One night, close to Christmas, he began to experience a "curious tearing-like feeling" deep in the abdomen, corresponding on the surface to the lower edge of the ribs in the right nipple line. After this had lasted about 24 hours, he coughed up a quantity of "sticky mucus in long strings along with blood," and at the same time discharged a "horribly offensive, very copious, loose stool of matter, blood and egg-like stuff." Subsequent stools were of the usual dysenteric character. He felt much better after this experience, and returned to work. Within a week hepatic pain and sense of weight returned, and he

was, on and off, laid up with fever and more violent dysentery until he reached Bangkok, in March 1888. About the beginning of February he had, however, a fortnight or three weeks of comparative freedom from liver symptoms. At Bangkok his mouth, gums and pharynx ulcerated, and during this period he had also a respite. He does not remember whether he was taking any medicine at this time. Soon the ulceration healed, and then the same hepatic pain recurred in the same place as before. This time he vomited a quantity of green mucus free from blood, and discharged an enormous stool of mucus, pus and blood similar to the previous one. After this there was great improvement for a week or 10 days. Then "remittent fever" set in, and he was sent on to Hongkong in advance of his company. He reached Hongkong in the beginning of May 1888, and remained there until the end of July under treatment for dysentery, without any result except that his appetite improved. At the end of July he left with the company for Macao, and here he was subjected to very violent physical exertion, causing great hepatic pain. No special symptoms, however, developed themselves until he landed at Shanghai on the 9th August. On the 10th there was recurrence of the "tearing pain" in the same place as before, and general superficial tenderness. During the following night he passed (as related above), without coughing or vomiting, an enormous evacuation from the bowel in all respects similar to those before described. A couple of hours later he passed an almost normal stool.

His urine never froths on being passed. He has never suffered from cough. His appetite is generally fairly good. His dysentery is not in the least affected by diet or medical treatment. He has lost 21 lb. in weight during the past year, having fallen from 169 lb. to 148 lb. He has always been able to lie equally well on both sides.

Such was his history. At the moment of admission, four or five hours after the evacuation of the abscess, his temperature was 98°.5; pulse 88; tongue clean; no pain anywhere, either spontaneous or provoked by palpation, percussion, deep inspiration or expiration. He was a well-built, muscular man, with firm flesh and healthy colour, covered with prickly heat. Conjunctivæ not yellow. Tongue moist and clean. No ulceration about the mouth, except a small healing excoriation on the lower lip. At the level of the nipples, at the level of the tenth rib, and midway between these, the right and left semi-circumferences of the trunk were alike, namely, 16½ inches, 16 inches and 14 inches respectively. Percussion normal all over left side, and as far as nipple level on the right side. Both backs clear. On the right side in the nipple line, hepatic dulness began 1 inch below the nipple and reached to 1 inch above the costal border. In the mid-axillary line it began at the same upper level and reached the costal border. There was no bulging, but there was a marked difference between the two sides in the amount of motion of the ribs during inspiration. Anteriorly, dulness extended to the edge of the left costal arch, and to about 1 inch below the tip of the xiphoid appendix. The heart sounds were normal. On the right side there were no pulmonary sounds below a horizontal line 1 inch below the nipple.

Patient left hospital the same day and returned to his circus work. He promised to return for operation as soon as the cavity should show signs of filling again, but he left Shanghai shortly after, and has not since been heard of.

The case just narrated is remarkable in many ways; most remarkable, however, for the slight effect so serious a liver lesion as must have existed produced on the man's general health and ability to sustain violent exertion.

The death from asphyxia was accidental.

K., male, aged 24; marine engineer. Found dead in his bunk on board a steamer. The cabin was very small, and the window and door had been closed. The air smelt strongly of kerosene combustion. The body, the walls and articles of furniture were covered with a layer of soot. A large kerosene lamp on the table had burned out; its chimney was choked with soot, and the wick was seen to have been turned up to the extent of an inch.

The body was still warm, but rigor mortis had set in. Both nostrils were blocked up with soot. The dependent parts of the body and a portion of the upper surface were of reddish-purple tint.

There are other causes of death enumerated in the Burial Return, notably alcoholism and chronic diarrhœa, which are worthy of special illustration, but these can conveniently be dealt with in a subsequent Report.

It will have been observed that there is no visible connecting link between the cases of cholera which occurred during the past season. There is nothing to lead to incrimination of the various sources of milk supply or of the water supply. The latter, I may mention parenthetically, always appears excellent. Roughly tested, as I frequently test it, with potassium permanganate, it always proves singularly free from organic contamination. How long this satisfactory condition will continue is another matter, and one that presses for consideration. For extensive factories and large villages are rapidly spreading down the Yangtsepoo Road, and already reach considerably below the Water Works point of intake. It is impossible that there should not be much fouling of the water from the vicinity of Chinese habitations, and the contaminated water will necessarily be the first to enter the intake pipe as the tide rises. Although it would not appear that much evil resulted from uncontrolled milk supply, the danger of the spread of infectious disease through it is always present. This is a matter well worthy of the attention of the Municipal Councils, to which the right of licensing milk dealers' establishments just as taverns are licensed, of prosecuting unlicensed vendors, and of exercising a supervision over the establishments, would readily be accorded. As it is we are very much in the dark regarding the fabrication of much of the milk sold in the settlements, and householders are extremely careless about taking the only precaution that lies ready to their hand, namely, that of seeing that the milk they buy is boiled before it is consumed. The American milk-boiler is an admirable utensil, which ought to be in every foreign kitchen. Some Chinese dairymen supply excellent milk, but whether milk is obtained from Chinese dairies or foreign, much of the manipulation must unavoidably be left to native coolies. A single vessel imperfectly dried after having been washed in impure water would be sufficient under certain circumstances to originate a dangerous and perhaps fatal epidemic. How little we really know about our milk and meat supply was forcibly brought before the public nearly three years ago by Mr. H. E. HALL. In a letter under date of 25th January 1886, addressed to the *North China Daily News*, I find the following suggestive paragraphs. The recommendation as to occasional analysis is a good one, but without a licensing regulation containing penal clauses it would have but little effect.

How many cows are there in the 22 dairies [nominally inspected] giving milk, and also in the foreign dairies, that, multiplied by the average yield of the cows, will give the number of bottles, and how many bottles of milk are sold daily I think it will be found on analysing the milk, that the pump is not accountable for the extra quantity sold; but where does it come from, and who sells it? It would puzzle me did I not know the secrets of the milk trade. . . . As far as native dairies are concerned, anyone with a knowledge of cows can find in them as good milch cattle as can be found in any foreign dairy in the place, and many are as well cared for as if they were owned by foreigners. Many of the Chinese give a great deal of attention to their animals. . . . If milk from the native dairies has a poor name, let those who buy it not forget that a cheap price is paid, and often a squeeze to servants besides. In these cases the dairyman can say, as to the quality, as the ironmaster said to the buyer of his iron as to there being slag in it: "Slag in the iron? O! yes; but there was slag in the price too!" . . . Milch cows are

reported on according to their outward appearance and the cow-keepers' word. But what about all their surroundings—cleanliness of stalls, water-supply, and the quality of their feed, all of which have a bearing on the milk produced?

Why not have a system of analysis? There are several chemists here who are able and willing to do it. Put all on a fair footing, foreigners and Chinese alike; let the police buy milk from the carts carrying it round or from the coolies' baskets; take the milk at any time they may fancy, and send it, certified only by a number, for analysis, and let the analysis when received be published with the proper name attached.

And as regards the meat supply:—

Almost as a rule, before cattle disease is known in Shanghai it has made its appearance all over the country. The cattle-dealers buy cattle to sell them again and make a profit; they do not buy them to keep as store cattle. If there is disease in Shanghai anyone can be almost sure that there is disease where the cattle come from, and the risk to the dealer is less in bringing them to Shanghai than in keeping them in the country. If they come to Shanghai, and one of them shows any symptoms of being out of sorts, cattle people do not wait to see how it will go. On the contrary, they kill it and bleed it well, and the carcass when dressed and hung up will show all right, unless the beast has been too far gone. And if it was only in the first stage of sickness, I will defy market inspectors, health officer and all Shanghai to tell if anything has been wrong with the beast. . . . As for the statement of diseased animals being killed or used up in the grease-shops, it is all nonsense.

As for inspection of beef, mutton and pork, that the community can easily and might long ago have rectified. Let them establish a public slaughter-house, with cattle-lairs annexed, and let all cattle intended to be killed for foreign consumption be kept in the lairs for 24 or 36 hours before being slaughtered. If inspection is to exist, the sensible way is before killing and not after.

The want of a public abattoir is one that cannot very much longer be left unsupplied. The filth in many of the private slaughter-houses which I have from time to time visited would be incredible to anyone who had not made a personal inspection, even the most superficial.

No doubt nuisances in the streets have abated, and scavenging is done more effectually than it was a couple of years ago. Still, however, during the hottest hours of the day there is a vast amount of garbage of the most offensive and presumably dangerous kind encumbering the side streets and alleys. It must be admitted that no system of mere scavenging can prevent this unless sweepers are everywhere employed from daylight to dark. This would manifestly be impracticable; but what might be done would be the institution of a system of small fines levied directly by the police, without the inefficient intervention of the Mixed Court, upon all native renters who allow filth to lie in front of their houses after a certain hour. Special power would have to be obtained before such a plan could be inaugurated, but the need for some measure of the kind is urgent. And *à propos* of scavenging I would again draw attention to the truly disgraceful manner in which the scavenging carts are filled. These carts are so constructed that each shovelful or basketful of garbage must be flung several feet into the air before reaching its destination in the cart. Bad enough in wet weather, this stupid and inconvenient procedure is a rich and obvious source of danger in dry weather, when flinging filth into the air implies filling the air for a considerable distance round with dust impregnated with putrid and no doubt often infective fluids. Each cart, too, is piled to so extravagant a height that before it finishes its round its contents fall over the sides, while the surface is blown away in clouds of dust if a breeze happens to be blowing.

I have on more than one occasion drawn attention to the abominable condition of many native houses situated in the main streets of the foreign settlements. But it would appear that even in establishments under foreign supervision the condition is in no wise better. The following graphic description of the American Sailors' Home, in the Woosung Road, laid before the Municipal Council by the Health Officer two years ago, would, apart from the question of overcrowding, still apply, as I know by personal experience, to many foreign-rented houses in the settlements.

The proprietor informed me that he has at present 27 lodgers. He showed me on the upper story 23 or 24 bunks, some of them for two men. In one room, about 15 feet by 12 by 10, there were 15 bunks. In the back premises on the ground floor, and practically under one roof, are accommodation for cooking, water storage, the general water-closet, sleeping space for servants, besides accommodation for a couple of pigs. One can step from the kitchen into the water-closet over kitchen refuse lying at the mouth of a drain, within 2 feet of which is stored all the water used in the house and kitchen. Wet floors, wet ground, soil soaked with kitchen refuse and pig litter, filth accumulated on every hand, all in a confined space heated by the sun and a large kitchen stove, afford conditions which must at least be regarded as furnishing abundant opportunity for the multiplication and spread of disease, and constituting a grave source of danger to the remaining overcrowded inmates and the neighbourhood.

Seven cases of cholera were sent to hospital from this den during the summer of 1886.

CLINICAL STUDIES OF DISEASE AS OBSERVED IN CHINA.

CHAPTER III.

THE ERUPTIVE FEVERS.

A.—SMALL-POX.

SMALL-POX is of remarkably infrequent occurrence among foreign residents at the open ports in China, a fact no doubt due to the sedulous care wherewith vaccination and revaccination are recommended and practised. Foreigners who acquire the disease are for the most part sailors, most of whom, as soon as they get leave on shore, betake themselves to the native quarters where they are exposed to the contagion of small-pox in common with those of many other diseases. Opportunity for acquiring the malady is nowhere lacking; for the Chinese carefully maintain small-pox in activity everywhere by the practice of inoculation, while its spread among the unprotected is assured by the freedom with which patients are allowed to mingle with the general community long before the skin is clear of scabs. I have myself seen a small boy covered with scabs engaged in hanging out foreign clothes on one of the drying-grounds in the settlement; and in every crowd that assembles within the native city during the winter at least one individual will be found in this dangerous condition. The domestic servants of foreigners have no hesitation about visiting their friends who are suffering from small-pox; and the amah who has been granted an afternoon's leave of absence, and returns to busy herself about a nursery of foreign infants, has as likely as not spent a portion of her time of freedom in nursing a native child attacked by the disease. The intimate contact of male servants with their foreign employers while, for instance, serving at table, must often bring contagion very close to us. Our almost complete immunity cannot therefore be reasonably explained otherwise than by the protection acquired through frequent revaccination. It should be remarked that at no port in China has the immunity enjoyed by foreign residents been absolute.

Small-pox being endemic all over China, very seldom becomes epidemic. In either case, its varieties and its course in individual instances offer nothing different from the phenomena observed in other parts of the world. A description of the disease does not therefore fall within the scope of these Studies. The following brief abstracts are, however, worth reproducing.

1.—H., male, aged 39; marine engineer. Vaccinated in infancy, again in 1859, and by myself in 1873. All these vaccinations were successful, and had left distinct cicatrices. In 1866 he contracted small-pox in Singapore, and "nearly died of it." Notwithstanding all this he again acquired the disease in 1875, and died on the 12th day in consequence of implication of the larynx. It was curious to observe that a copious eruption of lichen tropicus, which had existed previous to the eruption of small-pox, remained unaffected by the graver disease. A large pustule which formed just within the orifice of the urethra rendered micturition, either spontaneous or by catheter, extremely difficult.

This strange susceptibility may be further illustrated.

2.—Out of a family of seven children, four had had small-pox (two of them after vaccination), one had been vaccinated, but had not had small-pox, and two were unvaccinated. In December 1882, one of these latter contracted small-pox in so mild a form that I was doubtful whether it might not be varicella. Four or five days later, however, the other sickened, and passed through a trivial but unmistakable attack. At the same time an elder sister, vaccinated in infancy, and whom I had already three years before attended through a moderately severe attack of small-pox, showed symptoms, and eventually became very gravely ill. Meanwhile a brother, vaccinated, took the contagion in apparently a mild form, giving no ground for anxiety until the end of the second week, when he suddenly threatened collapse. Wine freely administered brought him through this danger, and recovery was then uninterrupted.

Thus all the seven children have had small-pox. One has had it twice, and two have had it once after successful vaccination.

Only once in my experience has acute mania been other than a symptom of evil omen.

3.—O., male, aged 30; clerk. Showed initial symptoms of small-pox on the 28th January 1883. The disease ran a mild course so far as fever was concerned, the highest temperature registered up to the 14th day having been 102°. There was an abundant eruption on the fauces, which rendered deglutition difficult, but milk and broths were taken in sufficient quantity, and strength was well maintained. On the face the pustules were maturing fairly, but on the trunk, and especially on the legs, they presented a withered appearance, which naturally made me apprehensive. On the morning of the 15th day the temperature was found to have fallen suddenly to 98°. The patient was loquacious, and specially emphatic in his protests that there was nothing the matter with him. At noon he was acutely maniacal, requiring three men to hold him down. This condition lasted until the following morning, when quiet was restored. He was then perfectly rational, but much exhausted. Convalescence set in immediately, the temperature never again rising above normal.

There is seldom much difficulty in diagnosing small-pox. Mistakes, however, are likely enough to occur when the initial symptoms are anomalous.

4.—S., male; mate of a steamer. 8th February 1878. Up to the 6th February he had been well. On that day he felt ill during the forenoon, and in the afternoon had a short shivering fit, during which he went to bed. Sweating, with considerable relief, followed, and he took some quinine. Next day (7th) he felt quite well, but had little appetite. On the third day (8th) the phenomena of the day but one before were repeated. His ship was preparing to go to sea, and it was supposed that he had ague. The question was whether he should be allowed to accompany his ship. At my visit (4 P.M.) he was perspiring freely. Temperature 100°. No lumbar pain, or pain anywhere else, but there was a general feeling of malaise. Clearly, if he were suffering from intermittent fever, as he himself believed and as I was inclined to believe, the wisest thing he could do was to go to sea. However, he looked as if there might be something more wrong with him than a mere passing attack of ague, and I kept him back. On the morning of the next day (72 hours from the first feeling of illness) his temperature was 105°. Suspecting an eruptive fever, I carefully examined his entire surface, but found nothing; but in the evening a crop of papules appeared on the forehead, and the disease followed a somewhat severe course, with high fever and violent delirium, terminating, however, favourably.

The eruption was in this case postponed for at least 80 hours after the first manifestation of fever. Moreover, if from noon on the 9th February the orthodox 48 hours are counted backwards, we come to noon of the 7th, when the primary fever ought to have been beginning, but when in fact the patient was feeling quite well, having, he thought, driven out by quinine the ague fit of the previous day.

This patient had been revaccinated without result three years previously on board an English man-of-war.

B.—VARICELLA.

Varicella does not, so far as my experience goes, differ in any respect in China from the disease as observed in Europe. Epidemics are frequent among foreign children at the ports. I mention it chiefly for the purpose of citing a case of *Varicella prurigo** observed by Dr. UNDERWOOD, at Kiukiang†. The affection is of great rarity. Personally I have notes of but three cases, two of which proved fatal, and the third passed from under observation.

A strong healthy child of fair complexion, fed partly by his mother and partly with cow's milk, had good health up to January 1882, he then being four months old, and teething not begun. In that month, after slight fever lasting one day, an eruption of rosy papules, in all perhaps 60 or 80, and accompanied by itching, was noticed on his head, back, abdomen, legs and feet, the soles of the feet being especially affected. On the breast and arms there was no eruption. Next day many of the papules had become vesicles, filled some with a clear and others with a slightly turbid fluid, and a number of fresh papules had come out. The diagnosis was varicella, and knowing that people had access to the child who came from houses where there were cases of variola at the time, he was vaccinated at once. On the 3rd and 4th days some of the vesicles had dried up, others were now umbilicated pustules, and others that had been broken were covered with a scab, and fresh papules were still appearing and maturing in the same way. Some of the pustules enlarged, leaving small scab-covered ulcers, which healed in from 8 to 10 days from the beginning of the eruption. The vaccination ran its course without apparently being affected by the varicella. Except a little annoyance caused by the slight itching and soreness of the pustules, the child was quite well and took food as usual. Fresh papules continued to come in diminishing numbers till the end of March, when the eruption disappeared. In May the eruption returned, and was more troublesome on the soles, toes and legs than before, and the vesicles were larger. With it there was a little itching, but not marked. After a month in the hills the eruption quite disappeared, having lasted six weeks, and the patient's appearance was more healthy. In October, the child being feverish with teething, the eruption returned in the same situations as before. This time the itching was greater, though not a special feature, and the feet were swollen where the papules appeared. At the time this case came under observation no patients with varicella came to the hospital, but small-pox was prevalent in the city.

C.—SCARLET FEVER.

So far as these Studies are concerned, Scarlet Fever may be dismissed in a few lines. There is nothing to distinguish the various forms observed in China from those seen in other countries. The disease is certainly rare among foreigners, and for many years after the ports were opened to trade, and medical practitioners established themselves at them, either it was altogether absent or it failed to be diagnosed. The earlier published notices of its appearance are extremely vague.

A case of "suppressed scarlet fever in which the eruption did not appear before the 9th day, but then came out all over the body, with symptoms of cerebral effusion and unconsciousness for 60 hours, ending in recovery," was mentioned, without any detailed description, in a Shanghai Report for 1870.‡ In 1873 a fatal case of "scarlatina maligna" in a child one year old was announced from Chefoo.§ In October 1873 the first Shanghai case which was carefully observed and reported occurred.|| This had been imported from Chefoo during the incubation period. In 1875 the disease was again observed in Chefoo,¶ and in 1876, 1880 and 1884 in Newchwang.**

* HUTCHINSON, *Lectures on Clinical Surgery*, vol. i, 15, where many cases are reported.

† *Customs Medical Reports*, xxiv, 13.

‡ *Ibid*, i, 131.

§ *Ibid*, vii, 19.

|| *Ibid*, vii, 41.

¶ *Ibid*, xii, 43.

** *Ibid*, xii, 28, 29; xxi, 38; xxxi, 2.

In 1871 Dr. MANSON reported that, up to that time, typhus, typhoid, scarlet fever and measles were all unknown in Amoy.*

In Shanghai, in March 1882, a Portuguese (European) lady died of pneumonia secondary to scarlet fever, which latter declared itself exactly a week after a natural labour. A doubt was expressed as to whether the disease might not have been a form of puerperal fever, but this question was set at rest by the fact that six children in the house took scarlet fever. While these children were ill, but without any communication that could be traced between the families, two young girls, sisters, were attacked.

In both it ran a severe course, but convalescence was fully established, when one of the girls was found dead in bed, whither she had returned after some slight exertion in her room. A postmortem held next day revealed old and extensive heart mischief, which, being more pronounced on the right side than on the left, may have been congenital. In this case the tricuspid valve was more seriously engaged than the pulmonary, which, according to HARANGER (*Étude sur l'Endocardite congénitale*, p. 10), is exceptional. There was no history of articular rheumatism. Death was due to sudden failure of the heart's action, the right auricle, ventricle and pulmonary artery being gorged with fluid blood, and both branches of the latter containing in addition a quantity of loose coagulum. The second sister, an excessively delicate girl, died 10 days later of acute miliary tuberculosis. These were the only fatal cases, and in each death was due to complications.†

In 1885 there was an outbreak among foreigners at Amoy; and in 1887 and 1888 several cases occurred in Shanghai. In one fatal case in the latter year the patient, a lady, had nursed one of her children through scarlet fever. The disease ran its usual course until the 6th day, when the fauces were covered with a diphtheroid membrane, which on removal did not leave a bleeding surface. Violent delirium was a prominent symptom, and there was almost absolute refusal of nourishment. Death occurred on the 11th day from apnoea and exhaustion. Another case, in a Eurasian admitted to the General Hospital from a crowded alley in the native quarters of the French Settlement, appeared to be rapidly and favourably influenced by the administration of biniiodide of mercury. On admission the patient had already been several days ill, the rash was dusky; throat symptoms very severe, swallowing almost impossible. Improvement set in immediately, and on the 8th day desquamation began. Dr. DUKES‡ is emphatic as to the effect of mercurial treatment in preventing desquamation. The result was not realised in this case, for the skin peeled freely for several days, and the process was not complete until the 25th day. Albumen was first found in the urine on the 7th day. Although all the circumstances were in this instance in the highest degree favourable to the spread of contagion, very active measures taken by the French municipal authorities were successful in averting the danger, and the case remained singular in the quarter where it occurred.

From all this it appears that while scarlatina has been observed at many of the ports frequented by foreigners, it has nowhere assumed a position of great importance in the nosological tables; but further, that in Shanghai at all events it is steadily gaining in frequency.

D.—MEASLES.

Under the name "Measles" are included at least two forms of disease which are found everywhere in China, and which closely resemble corresponding affections observed in Europe. Of these, the graver form presents differences from its European congener sufficiently marked to constitute it a distinct species.

For several years past the Customs *Medical Reports* have contained accounts of epidemics at the ports, chiefly among children, and of isolated cases. The descriptions given correspond in all essential respects with the result of observations in Shanghai extending over a long period. The disease, therefore, as it presents itself in different parts of China is one and the same.

* *Customs Medical Reports*, ii, 11.

† *Ibid*, xxiv, 41.

‡ *British Medical Journal*, 1887, ii, 67.

Whenever an epidemic has occurred in Shanghai I have invariably learned, either from information received beforehand or as the result of inquiries subsequently made, that a disease of similar character was prevalent among native children in the settlement.* It is therefore probable that each outburst is due to infection imported into foreign houses by native servants. When once it has entered a foreign family its spread is inevitable, for Chinese measles is as contagious as the ordinary European variety during the catarrhal stage before eruption. At the beginning of the catarrhal stage, when it is supposed that a child is suffering from an ordinary cold, no precautions are taken to isolate it from other children in places of public resort or to exclude it from juvenile parties. The following instance, without proving anything, as the incubation period must be considered doubtful, may be accepted as an illustration of the dangers thus incurred.

Two children, brother and sister, were invited to a large garden party during the last week of March. The girl went, but the boy was kept at home, as he had "a cold." Two days later the eruption of measles appeared on him. Four days after the party one of the children who had been among the guests sickened, a day later three more, and so on, so that within 13 days 17 of the children who had been at the juvenile gathering were either ill or recovering. These were all under my care, and there may have been other cases of which I did not hear. Some of these children spread the infection still wider. The little girl herself sickened 13 days after her brother, and passed through a severe attack, followed by eye troubles of some gravity (superficial ulcers of both corneæ), although she had had Chinese measles of average severity 12 months before.

Chinese measles cannot be classed among the strictly infantile diseases. It attacks adults with impartiality, but is not necessarily more severe in adults than in children. The form of measles which prevails in Japan appears to be identical with that found in China. The following table compiled from information furnished by the members of the "Society for the Advancement of Medical Science in Japan," respecting an epidemic which occurred in Tokio in 1885, † is therefore of almost as much value for my purpose as if it related to a port in China:—

Total number of cases reported	2,726	
Number of cases between 1 and 10 years of age	1,557	= 57.11 %
" " " 10 " 20 " " " " " " " " " " "	907	} = 41.82 "
" " " 20 " 30 " " " " " " " " " " "	233	
" " " 30 " 40 " " " " " " " " " " "	15	} = 1.07 "
" " " 40 " 50 " " " " " " " " " " "	11	
" " " 50 " 60 " " " " " " " " " " "	1	
" " " 60 " 70 " " " " " " " " " " "	2	

Dr. RIALAN, of the French Navy, has published ‡ an account of a little epidemic of Chinese measles which occurred on board the *Villars*, when stationed at Shanghai in 1884. Eight adults between the ages of 18 and 43 were attacked. Of these, two recollected having had European measles in childhood. In no instance did the course of the disease differ in any important particular from that described below, drawn chiefly from observations taken among children.

* It is stated in the Japanese report cited further on that "measles was described in China as long ago as 1,000 B.C."

† Transactions of the Sei-i-kwai, Supplement No. 10, October 1885.

‡ *Archives de Médecine navale*. Décembre 1885, p. 429.

Related in point of time to each Shanghai epidemic there has been a prevalence of whooping-cough. In many cases I have found measles immediately follow on whooping-cough, and in others immediately precede it. A history of subsequent separate infection is often clear, and doubtless might always be made out. At all events, it may be asserted that here, as in Europe, either disease predisposes to the other. The Chinese form of measles does not protect against measles when a child returns to Europe, nor does English measles protect against it, nor, finally, does it protect against a second attack of the same form.*

To cite but one instance out of a multitude:—

B. T., male, aged 3, in 1881 had a severe attack of measles. In 1884, being then in London, passed through the disease. Returning to China in 1885, shared in a family epidemic.

Whatever relation Chinese measles bears to the European form, a like relation appears to be borne to whooping-cough in Europe by the Chinese variety. I have notes of several cases in which children after passing through whooping-cough here have acquired the disease in a perfectly unmodified form after returning to Europe.

I have but four observations sufficiently precise to aid in determining the period of incubation.

In one, a child, after having been exposed during the greater part of the afternoon of the 31st March to the contagion of measles in the catarrhal stage, was through accidental causes isolated. A day or two afterwards the cough, to be presently mentioned, was observed. On the 9th April he had headache, fever and injected conjunctivæ, and on the 13th April the rash appeared.

This (neglecting the occurrence of possibly prodromal cough) would give an incubation period of 10 days, and in three other instances the period could with certainty be fixed at from 8 to 10 days. Further observations on this point are essential.

It often happens that the first symptom observed is a dry, hacking cough, which persists for some days before the patient complains of feeling ill. At the end of a variable time he is found to be irritable and feverish, probably has bilious, very offensive diarrhoea, perhaps amounting to severe purging (occasionally constipation, and still more rarely dysenteric stools), loses appetite, complains of headache, and vomits once or twice in the day. This latter is sometimes a later symptom, often immediately preceding the eruption. The vomiting may be independent of cough, or caused only by the cough.† Hæmatemesis occurred in one of my

* CHEADLE (*Transactions of the International Medical Congress, Seventh Session* [1881], iv, 4) gives an account of two epidemics of measles which occurred in one London district in 1878 and 1879. Out of 30 cases in the second epidemic, of which he had obtained trustworthy histories, 22 had certainly had measles previously, most of them during the first epidemic 11 months before. Notwithstanding this extraordinary exception, the law as commonly formulated for European measles of course still holds good—that one attack affords almost certain protection against a second.

† The rule is laid down somewhat too peremptorily, that vomiting caused by cough is absolutely diagnostic of either whooping-cough or pulmonary tuberculosis. Thus, Professor PETER (*Clinique médicale*, 2me éd., ii, 524) says:—"Un phthisique est pris d'un irrésistible besoin de tousser, mais en même temps qu'il toussé il rejette ses aliments. Dans une autre maladie encore, on vomit en toussant et par le fait de la toux, dans la coqueluche. En dehors de ces deux maladies, jamais la toux ne produit de vomissement; de sorte que le cas échéant, on n'a plus qu'à faire le diagnostic entre elles deux." In the case to which I refer the patient was not phthisical, nor had he whooping-cough. Here, perhaps, the undoubted relation between measles and whooping-cough may be invoked.

cases, a healthy, well-nourished little girl, aged 6. The conjunctivæ are injected; coryza more or less severe is present; there are often distressing fits of sneezing or yawning; the skin is hot, especially at night (100° to $102^{\circ}.5$); the tongue is occasionally dry; and the child may be wildly delirious or only talk in his sleep, and wake several times in fright from a series of troubled dozes. Night delirium occurs commonly in adult cases. In this initial stage the fever is sometimes intermittent, being completely latent, for instance, on the 2nd and 4th days, the rash appearing with fever on the 5th day. Severe pain in the crural muscles is not uncommon. Convulsions may occur one, two or three days before the eruption appears. Smart epistaxis may be repeated several times. This I have observed in adults, and in a boy of 13 (seen in consultation), where this and delay of the eruption to the 8th day had given rise to the suspicion of typhoid. In young women the catamenia are liable to appear a week or 10 days too soon. As the fever persists the eyes become more injected, there is severe conjunctivitis with considerable lachrymation and photophobia, but the comparative slightness of the nasal catarrh is generally remarkable. The nostrils, however, may be obstructed with dried mucus. From the 2nd to the 4th day of the fever much complaint is made of the throat, and on examination it is found that the soft palate, pillars and back of the pharynx are highly injected and more or less coated with mucus, causing much distress and continual hawking. Simultaneously with or a little before the appearance of the skin eruption minute brilliant vesicles dot the palate and pillars. When the throat is severely inflamed, the tongue, which in average cases is moist and coated with a white or brown fur, bears a close resemblance to that of scarlet fever. In several cases I have found a tenacious muco-fibrinous deposit on the tonsils, which was brushed away with difficulty, leaving, however, an unbroken though highly congested surface exposed on its removal. The cough during these early days increases in severity, and is always paroxysmal. Auscultation reveals pretty equally disseminated bronchial râles, but it has rarely happened to me to observe any severe pulmonary complication in children. The sputa are usually tenacious and frothy, but may be muco-purulent. In some adult cases (and probably also in children who cannot accurately describe what they experience) there are early deafness and the sensation of singing in the ears.

On any day from the 2nd to the 8th from the first symptoms of fever or catarrh the rash may appear. Its order of eruption is very variable, but I have several times observed a faint efflorescence on the skin at the external and inferior border of the orbits or on the neck, which may or may not persist, announcing the approach of the eruption, which may then openly declare itself first on the forehead or cheeks (with nearly equal frequency); on the neck, followed by the forehead and face, and then by the trunk, arms and legs; or on the body, followed or not by the face. Thus the face sometimes escapes altogether. Occasionally it is seen first on the wrists, and frequently it appears simultaneously on the wrists and face. I have notes of a series of cases in a family of three children where all three presented the same general symptoms, and two were covered with rash, but at no time, though carefully looked for, could an eruption be discovered on the third.* The rash is generally thick and somewhat purple in colour on the legs and back, rosy-brown on the face and arms. It is dis-

* This was a European child. I do not count several failures to discover an eruption in children of Macao parentage.

seminated or in patches, the latter usually on the face with unaffected areas between the patches.

In one case I have seen the eruption appear on the face and trunk thickly and on the arms and legs sparsely within the space of two hours on the 7th day of fever. In another the face, trunk and limbs were covered in one night. Cases of very rapid eruption are, I think, prone to end speedily and favourably. The prodromal fever may have been, and usually is, as long as in other cases.

I have never observed a fall of temperature on the appearance of the eruption. On the contrary, when, as sometimes happens, the rash disappears partially or entirely on the 2nd or 3rd day, its reappearance is generally (not always) heralded by a marked rise of temperature ($1^{\circ}.5$ to 3°). I have seen it disappear for 36 hours from the face while its evolution was going on regularly over the body, then reappear and persist on the face until the 9th day, when it finally vanished, the body and extremities having then been clear for nearly two days.

When the eruption is general, but badly developed or livid, pulmonary complications and stupor may be anticipated. Lung trouble usually takes the form of bronchitis or of patches of broncho-pneumonia.

In one case (an adult) the rash which had come out thickly on the face disappeared the same evening. During the night severe bronchitis declared itself, and continued for a week, with profuse mucopurulent expectoration, the course of the bronchitis being apparently unaffected by the reappearance of the eruption, which occurred on the day but one after it had suddenly faded.

There is seldom any regularity in the shape of the patches of eruption, though now and then crescents are to be recognised on the forehead. A mottling or sometimes flea-bitten appearance of the skin is observed in the regions above enumerated, and next day the spots are recognisable as minute papules, which very rarely (in my experience) reach the size sometimes attained by the papules of European measles. It may happen, as in the cases before referred to, that no rash is discoverable, or that no more is found than a mottling of the skin of the face; but the fever (slight or severe), the conjunctivitis, the puffiness of the features, the throat congestion, and especially the appearance of vesicles on the soft palate and pillars, leave no doubt as to the diagnosis. Occasionally sudamina are found on or among the papules, and in this case there is always fine, dust-like desquamation; but independently of sudamina desquamation of this kind or in flakes is usually if not invariably to be noted. Itching or tingling is from the first often intense, preventing sleep. It is best treated by sponging with hot water sharpened with aromatic vinegar.

The rash begins to fade, not always in the order of its eruption, on any day from the 3rd to the 7th dating from its first appearance. It may vanish completely in the course of a few hours, and conjunctivitis often disappears as suddenly as the eruption. Fever usually ceases between the 7th and 9th day of the catarrh, and whether the rash has or has not completely faded. Before disappearing the fever occasionally assumes a frankly remittent type, with maximum temperature usually about 6 P.M. The rash finally disappears between the 4th and 10th day from its first appearance, but seldom later than the 7th day.

The highest temperature I noted was 105°. This was at 8 P.M. on the 1st day of the eruption, in an adult male mulatto, fever having lasted for six days. The next highest was 104°.5, at 11 P.M., in a little girl, on the 3rd day of the fever, and immediately after the disappearance of a rash which had covered the trunk and arms during the day. Usually the temperature ranges between 99°.5 and 103°. A rise of from 1° to 2° may be anticipated at night, and especially in cases where the throat is severely attacked.

The youngest child that came under my care was aged 24 days.

In this case the eruption appeared on the 5th day, on the forehead. Next day it came out on the arms, trunk and legs, but began to fade from the face, and in a few hours had completely disappeared. There was not much cough, but fever was severe and the rash abundant.

Apart from complications, the longest duration observed was 27 days. The case was not grave. Probable incubation, eight days; invasion, seven days; eruption, nine days; desquamation, three days.

Among sequelæ there is seldom anything of very serious import to be noted. This immunity is no doubt largely due to the good conditions under which most foreign children in China are placed. Peripheral neuritis, evidenced by intense tenderness of the skin of the feet and vague "rheumatic" pains in all the limbs, and accompanied by local œdema, has been observed. I have never seen any form of consecutive paralysis, examples of which are, moreover, of great rarity after European measles.* There is a tendency to bowel derangement for some weeks after the last symptoms of the disease have passed by, and cough is likely to become inveterate if the weather happens to be damp during convalescence. For both of these conditions cod-liver oil in small repeated doses appears to give the best results. Fugitive swelling of the superficial cervical glands is not uncommon, but it is usually of a trivial character.

In one of the cases referred to above, where there was a semi-fibrinous deposit on the tonsils, the cervical glands became swollen and tender 10 days after the eruption had cleared away from the general surface.

I had once to operate in a case where, after convalescence had apparently been fully established for a week, the neck swelled enormously on the left side, and an extensive collection of pus was found behind and internal to the great vessels, between them and the œsophagus.

In an adult, pleurisy of the left side declared itself towards the close of the second week from the date of invasion. Effusion, if present at all, was very slight, and the condition cleared away in a few days under cupping and the administration of salicylate of sodium.

In a case already mentioned, superficial ulcers on the corneæ demanded a prolonged constitutional and local treatment before recovery was complete.

I have been unable to get any trustworthy account of the natural history of the disease among natives, but one can hardly suppose that Chinese children are exempt from the serious troubles which frequently follow measles among ill-nourished children in Europe.

I can cite but one instance of well-marked relapse.

* Instances of acute ascending paralysis are given by LANDOUZY, *Des Paralysies dans les Maladies aiguës*, p. 190, with references to other forms, especially paraplegia. For a fatal case of paraplegia in an adult, see *Archives de Médecine et de Pharmacie militaires*, Novembre 1886, p. 386.

Here, after complete convalescence, 25 days after desquamation had begun, the tonsils inflamed and suppurated, there was much lachrymation, and the rash reappeared as extremely minute, closely-set papules all over the body, except on the forehead, forming distinct whorls on the chest, and itching severely. The highest temperature observed was 102°.3, at noon on the 4th day after the reappearance of fever.

It may be noted that measles in the host disagrees with lumbricoid worms that happen at the time to be guests. In many of my cases, as the attack of measles was passing off several dead round worms were expelled.

In September and October 1871* an ephemeral exanthem made its appearance, and affected large numbers of natives and foreigners, adults and children. It had previously been unknown among foreigners, but the Chinese professed to recognise it as *Fêng-sha*,† or “wind measles.” Occasionally, but not frequently since then, this disease has presented itself, always in epidemic form, and always among the Chinese before foreigners are attacked. It is difficult to determine the period of incubation, but it would seem to be at any rate not less than four days. The period of invasion is marked by headache, slight vertigo, pains in the back and limbs, nausea and general malaise, but seldom by any very notable fever. Exceptionally the temperature runs up as high as 103°. There is but little catarrh, perhaps more or less conjunctivitis, always cough, generally constipation with furred tongue. These symptoms last for two days, and on the 3rd day the eruption appears all over the body, and is frequently attended with intense tingling. It consists of small, flat papules resembling measles, but more rosy and lacking configuration in the patches. On the 3rd day it begins to fade, and continues to disappear until the 5th day, when a very fine dust-like desquamation sets in. Faucial congestion is but slightly marked, but on the back of the pharynx, and extending up the posterior nares, flabby granulations in large, flat, reddish patches are almost invariably to be seen.

This was the description which I gave of the disease in 1871, and observation of subsequent epidemics has not given me anything to add to it. In the 1871 epidemic, however, it was noted that on the 3rd day more or less swelling of the palms and soles frequently occurred, but there was no affection of the small joints, and no marked exacerbation following a period of remission.

Convalescence is generally complete in a day or two after the disappearance of the eruption, but is sometimes prolonged by bronchitis.

Contemporaneously with the first epidemic among foreigners in Shanghai, an affection of very similar if not identical nature broke out at St. Helier's. Dr. DUNLOP, of that place, thus described it:—‡

Early in the spring (1871) a great many patients, children and adults, applied to me on account of an eruption which had suddenly appeared on the face, trunk and extremities. They had no other symptoms of any kind [see, however, below], and said that they felt perfectly well. This eruption varied in colour, being in some cases of a darker and in others of a lighter red. I also observed that in many places, especially on the face and extremities, three or four of the puncta had coalesced, forming an irregularly-shaped patch.

* *Customs Medical Reports*, ii, 41.

† It has since been described in the *China Medical Missionary Journal*, by Dr. D. J. REID, under the name of “*Rubella sinensis*.”

‡ *Lancet*, 1871, ii, 464.

In some of the Jersey cases, Dr. DUNLOP admits that there were sore throat, derangement of digestion, injection of the conjunctivæ, lachrymation, coryza and slight cough, fever also being well developed, but as a rule there was no marked constitutional disturbance. No special treatment was required, and this likewise is the case in China.

This disease, whatever its European congener may be, is specifically different from both European and Chinese measles, so far as that difference can be inferred from the fact that neither disease confers immunity from either of the others.

Although, as described on preceding pages, measles in China is on the whole a benign disease, it may assume a formidable and even fatal character, as in the following case where it was complicated by pregnancy.

A young woman at the end of the 5th month of her first pregnancy became feverish on the 20th December 1882, which she attributed to a cold caught, as she thought, a day or two previous. She sought advice on the 23rd, when she complained of constipation and of recurrent severe pain in the lumbar region, which, however, left her spontaneously for a couple of hours at a time. Late at night on the 25th she miscarried of a dead fœtus, and her skin was then, as well as could be made out in a very bad light, covered with a faint efflorescence. Early next morning purplish patches were distributed over the face and entire body. There was severe lachrymation; much lumbar pain; and a temperature of 102°. At 3 P.M. the eruption had retroceded, but the temperature had risen to 103°. The throat was now painful, but restlessness prevented a good view being obtained. Milk was taken freely. Delirium set in during the night. The following note was made on the morning of the 27th: "The rash, which closely resembles that of measles, except in colour, is on the limbs confined to the joints and their neighbourhood. Here it is in large, purplish patches, with minute vesicles scattered over them. The chest, abdomen and back are closely covered with patches similar to those near the joints. There is nothing on the forehead, but the nose, cheeks and chin are covered with a reddish efflorescence, less purple than the patches on the trunk and limbs. Pain relieved. No uterine symptoms." In the evening the lochia, in spite of frequent injections, were offensive. The patches of eruption were everywhere becoming confluent and more livid. Tongue brown and dry. Cough and viscid expectoration. Congestion of bases of lungs. On the 28th and 29th the lochia were natural. Restlessness and delirium (which occasionally became violent) were now marked symptoms. Headache severe in the intervals of delirium. Petechiæ on forearms, legs and back; eruption gradually becoming less distinct. Breathing superficial over anterior surface of chest, inaudible at apices and over back. During entire illness nourishment and wine were taken frequently, though in small quantities; but the total amount swallowed was considerable. There was no diarrhœa. Urine was scanty, but contained no blood or albumen. Patient died in the afternoon of the 29th.

The symptoms in this case might be attributed to almost any eruptive fever of a pernicious character, but they were no doubt due to measles, as several children living in the same house had had measles just before; two were ill with it during the patient's illness, and one more developed it the day after her death. In none of these cases among children were the symptoms specially severe.

E.—DENGUE.

In 1872 Dengue appeared for (so far as was known) the first time in China at Amoy among the natives. Business was interrupted or seriously interfered with, for within six weeks "it was a rare thing to meet a native [or foreigner] who had not suffered."* The epidemic

* Dr. MANSON, *Customs Medical Reports*, iv, 12.

spread along the coast and reached Shanghai and subsequently Chefoo without, however, anywhere becoming so widespread as in Amoy. It was supposed that the starting point had been Singapore or some Indian port. Since 1872 there has been no epidemic, but isolated cases have frequently been observed; and I suspect that I, and perhaps others, have not seldom fallen into confusion between catarrhal fever of influenza character and dengue. To both are common two or three days of initial fever with vertigo, intense headache and backache, sweating and occasional epistaxis, a period of remission, and a second or perhaps third period of fever. Where catarrhal symptoms predominate, one is apt to diagnose influenza; where there is much injection of the skin or a diffused eruption or severe pains in the joints of the hands and feet, dengue suggests itself. Desquamation has been described, but I have not observed it except in rare instances, where the eruption has consisted of extremely minute, discrete, but thickly-set vesicopapules. Dr. MANSON (*loc. cit.*) sets the incubation period at, in some cases, not more than 24 hours.

The initial fever may reach 105° or 106° on the 1st or 2nd day.

Among the sequelæ of the Amoy epidemic Dr. MANSON* enumerates: persistent but paroxysmal rheumatic-like pains in the limbs, lasting for months, worst in the morning; causalgia; gradual impairment of sight; "debility; dyspepsia; rheumatism; paralysis of certain groups of muscles; and perhaps insanity." This serious experience is, no doubt, altogether exceptional.

F.—TYPHUS FEVER.

It is open to anyone who has sufficient grounds in observation to justify him in forming a judgment to cast doubt on the existence of Typhus Fever in China. In 1884 I noted—†

A form of fever which might easily be taken for typhus in its last stage was of frequent occurrence among the Chinese from July onwards. Several cases were brought to hospital after having been given up by native doctors. I saw a considerable number in private, where the patients were directly or indirectly connected with foreigners; but in all but one (which recovered), death was imminent when I was called. This fever may be typhus. There is a petechial eruption identical with or closely simulating the typhus rash as seen in advanced cases. But the absence of a complete history in any instance prevents me from arriving at a decisive opinion; while, considering the crowded, filthy and ill-ventilated condition of the houses in which all the sufferers referred to were found, one would expect that if it were typhus the disease would rapidly become epidemic. Nothing of the kind, however, occurs. I have never been able to trace the spread of this fever by contagion, although in many instances the room in which the patient was lying was occupied by several other persons. It therefore seems probable that such cases as I have seen were instances of neglected remittent fever.

The same doubt weighs upon all writers who deal with tropical diseases. NIELLY, citing THOREL, asserts that—‡

[Le typhus pétéchiâl] est endémique . . . dans les forêts de l'Indo-Chine, pendant la saison des pluies, les indigènes de Siam, du Laos, du Cambodge et de l'Annam le nomment "fièvre des bois" et le redoutent beaucoup.

* Customs *Medical Reports*, v, 7.

† *Ibid*, xxvii, 31; xxviii, 7.

‡ *Éléments de Pathologie exotique*, p. 115.

The phrases in italic are sufficient to suggest the suspicion that this "typhus" is in truth of malarious origin.

Indian authorities are explicit. MURCHISON* refers to the difficulty of distinguishing with certainty between typhus and certain forms of tropical remittent which—

Occasionally present symptoms having a close resemblance to those of typhus, such as a small, soft pulse; dry, brown, retracted tongue; dorsal decubitus and great prostration; low muttering delirium; tremors and subsultus; contracted pupils; and even petechiæ. . . . Quinine, which is often a specific in malarious fevers, has no effect in shortening an attack of typhus.

It has often been laid down that without the eruption a certain diagnosis of typhus is impossible. But this test is fallacious, as likewise is that supposed to be supplied by the action of quinine. Upon this latter CHEEVERS pertinently remarks— †

When a patient is brought absolutely and irrecoverably death-stricken by a malarial fever, quinine can no more avail to put the fever out than all the fire-engines in London can save a tallow factory which has been burning for an hour.

Referring to the question whether typhus does or does not occur, CHEEVERS says— ‡

I do not believe that true typhus occurs in any part of Bengal Proper. . . . Questionings have from time to time arisen as to whether the Burdwan fever, which most observers regarded as a paludal remittent of great severity, was not typhus. . . . The most striking point is that in 11 out of 12 [suspected] cases, there was a "mulberry rash;" but petechiæ are seen in several Indian fevers. There was no evidence of contagion. . . . I hold with Drs. MOREHEAD and MURCHISON, that proof is wanting of the existence of genuine typhus in any part of India. . . . If we put aside the exanthem—which, if this fever occurred in dark-skinned natives, might not be apparent,—there are few things in disease which more closely resemble each other than an advanced case of Indian paludal remittent without bowel complication, and a case of genuine typhus. Assuredly I know no mode of examination by which I could distinguish one from the other. §

Finally, MOREHEAD, speaking of "adynamic remittent of suspected infectious character," is of opinion that— ||

Though with our present greater attention to cleanliness and ventilation remittent fever is not infectious, it does not follow that it may not become so from overcrowding and neglect.

This is to overturn the only barrier that appears to separate neglected malarial fever from typhus, and is, I think, somewhat overstrained. MURCHISON, in fact, believed that MOREHEAD's infectious adynamic fever was the plague.

It is clear that the term typhus has been loosely used everywhere in the East to designate any form of fever or any disease presenting profound typhoid symptoms. There is, it is true, no sufficient *a priori* reason why typhus should not be endemic in any one given region as well as in any other, and merely require drought or floods, with their inevitable accompaniments of bad crops, famine, overcrowding and filth, to call it into activity. "The history of typhus is the history of human misery and neglect," but it is not the only fruit of misery; and doubtless typhus, typhoid, remittent and relapsing fevers have all from time to time been described as

* *A Treatise on the Continued Fevers of Great Britain*, 2nd ed., p. 229.

† *A Commentary on the Diseases of India*, p. 83.

‡ *Ibid*, pp. 81, 83.

§ "Typhus," however, now appears without any qualification in the Indian official sickness and mortality returns.

|| *Clinical Researches on Disease in India*, p. 155.

typhus by observers who have seen these various diseases only in the latest stages, or who in their student days had had no opportunity of studying true typhus in one of its natural homes.

On the other hand, inasmuch as we have reason to believe that typhus and plague can originate *de novo* under deplorable hygienic conditions, there is nothing incredible in the supposition that in tropical and sub-tropical climates a typhous poison may from time to time be manufactured, but for some unknown reason fail to be elaborated to the point of reproducing itself. Even in the middle of the European settlements at the ports the Chinese create for themselves conditions the most favourable imaginable to the origination and spread of disease. Thus, one December afternoon a few years ago,—

I was called by a Cantonese girl to see a woman and child supposed to be dying in a native house in one of the main streets of the foreign settlement at Shanghai. The room into which I was introduced was about 11 feet high, 11 feet long and 9 feet wide. It was lighted and ventilated only by the door, which led into a narrow passage. In it was a stove which threw out an overpowering heat, a kerosene lamp, a four-post bedstead and a native bed on trestles. In the larger bed was a little boy dying of diphtheria, and a woman engaged in tending him. A second woman slept in the bed at night, as I was informed. The child died about an hour after I left. On the trestle bed was a young woman dying of typhoid fever, and it was evident enough that she had no control over her evacuations. She died during the following night. Her bed was shared by a friend who it was said looked after her, but who did not happen to be present during my visit. When I entered the room an old woman was engaged exorcising the two patients, and I was told that her business was to go from house to house when sickness was present, and drive devils away. There appeared to be a constant stream of visitors, at least five women having come into the room during the few minutes of my stay.

The wonder, therefore, is not that anomalous fevers of typhus type should occasionally present themselves among foreign residents at the ports. It is that, considering the many points of contact between natives and foreigners, epidemics are not of frequent occurrence.

Whatever its correct designation may be, it is certain that Chinese frequently and foreigners occasionally are attacked by a disease characterised by typhous odour; flushed and dusky features; bewildered expression; injected conjunctivæ; contracted pupils; dry brown-crusted tongue; sordes on lips and teeth; livid eruption on skin (sometimes absent); hurried, or slow, irregular breathing; dorsal decubitus; small, rapid pulse; high temperature; deafness; thirst (sometimes absent); headache and backache; constipation; dark, scanty urine; sleeplessness; stupor; delirium; muscular weakness and inco-ordination; subsultus; involuntary evacuations, or retention of urine; cough, with scanty, frothy or mucilaginous, sometimes blood-stained, expectoration. The invasion is frequently marked by a series of rigors. This enumeration of symptoms, taken from notes of cases, would form a tolerably complete picture of typhus fever but for the lack of any evidence of contagion. This element is, however, as will be seen further on, not always absent; and when present there would seem to be no reasonable doubt that the disease under observation is true typhus.

I have notes of but one autopsy—a case proving fatal on the 17th day, in a male European, aged about 40,—and this need not be reproduced, inasmuch as there were no special lesions observed. There was early, intense, fugitive rigidity; the muscles were remarkably soft and friable; the blood was everywhere fluid; and all the viscera were dripping.

From every part of China for the last 15 or 20 years accounts have been received of the occasional prevalence of a fever associated with misery, overcrowding, filth and insanitary conditions in general. Dr. WONG* describes a "spotted fever" observed in Canton, though spots are seldom visible, and he concludes that—

These are mostly severe remittents taking the continued or typhus form. . . . It would seem as if some of the cases are really typhus. A native physician of long practice here told me that in some cases there is a crisis on the 7th day, after which the patient may get well without medicine.

From Amoy, Dr. MANSON † has reported cases "in some respects resembling mild typhus, but wanting many of the features of that disease, certainly not typhoid and certainly not malarial." He describes the symptoms as—

Beginning with rigor, fever, pain in the side, followed in four or five days by prostration, muscular pains, tenderness of epigastrium, furred tongue, severe headache and a red exanthem covering the entire body in small spots not elevated, and disappearing on pressure. Crisis by sweating about the 13th day; disappearance of eruption, and defervescence about the end of the 3rd week.

In Shanghai, this fever as I have described it proves, I am informed, fatal in the majority of cases occurring among natives, and though luckily rare among foreigners is, when it does attack them, extremely formidable. During the half-year from April to September 1871, four fatal cases occurred, and five deaths were attributed to it in the corresponding six months of 1872. No case, or at least no fatal case, was then observed until February and March 1878, in each of which months one death was recorded. Next, in February and March 1881 three patients succumbed. All three were non-resident, and the first case, that of a sailor on board H.B.M.S. *Pegasus*, was imported from Chinkiang, or rather from the bank of the river opposite Chinkiang, where a typhous fever had been prevalent for some months, and close to which the *Pegasus* was for a time moored. Whether contagion from this first case accounts for the other seizures, I am unable to say. In 1883 and 1884 a few cases were diagnosed, and four deaths were returned in August 1884. All occurred among non-residents, probably sailors. One case in a Macao Portuguese, in December 1885, and one in a non-resident, in May 1887, complete the short list of fatal cases during 18 years. The small number of deaths is of itself sufficient to indicate the infrequency of the disease among foreigners, and it is significant that nearly all the deaths have occurred among sailors. Liberated for a few hours from ship life, and obliged to seek pleasure where it can be found most cheaply, these poor fellows prowl about the lowest slums, and occasionally penetrate into the native common lodging-houses where at night beggars, vagrants and thieves are packed into sunken and unventilated rooms in steaming masses sufficient to give origin to any form of disease dependent on filth and overcrowding.

From Chinkiang typhus fever was first reported among foreigners in 1881. A fatal case occurred on board H.B.M.S. *Pegasus*, which was anchored to leeward of a small native town where there had been a considerable mortality from famine fever. One member of the Chinkiang foreign community likewise was attacked, but recovered.

* Customs *Medical Reports*, iv, 70.

† *Ibid*, xx, 7.

Typhus fever, or a fever whose "prominent symptoms are similar to those of typhus, but with less regularity in their course," was reported to have been imported into Chefoo from Japan in 1875.*

It is very contagious, often affecting a whole crew in the course of a few weeks. The rash is of mulberry hue and appears early. There is often diarrhœa at the critical period. There is hæmorrhage (from the bowel) and ulceration, with perforation in some cases. There is a deviation from the typical typhus in the duration of the disease, defervescence not taking place at such regular periods. Hiccough sets in early, and is often severe. Certain nervous symptoms persist it may be for weeks after convalescence. It is not uncommon to have facial or lingual paralysis even after slight attacks, and with a very slow tendency to disappear. Out of about 50 cases I cannot recall more than two deaths. A postmortem in one of these showed intense congestion of the cerebral membranes; the spleen was soft; there was extensive peritonitis, which proceeded from perforation of the bowel.

These were clearly cases of typhoid fever in which the colour of the rash led the observer astray. Later on, however, in 1878 and 1882, epidemics of a disease occurred among the natives, which was characterised by sleeplessness, violent delirium, tremors, floccitatio, typhus rash, etc., and two or three foreigners were attacked.

An epidemic of like character was reported from Tientsin in 1878, in the course of which 18 resident foreigners fell ill, of whom five died. The disease was characterised by sudden onset, rigor, nausea, hot skin, typhous odour, muscular prostration and a faint, irregular, dusky rash, which appeared between the 4th and 8th days.

A fatal case of typhus was announced from Peking in 1871, but here again the observer was probably mistaken in his diagnosis, for he explicitly states—†

It was distinctly traceable to the opening and cleansing of a drain in the [British] Legation which the deceased undertook to superintend.

On the only other occasion in which typhus was reported from Peking—‡

At one of the mission stations it broke out, attacking five individuals, of whom two died, one with head and the other with chest complications. The disease had been [or was supposed to have been] carried by a country convert. . . . Although there were a good many foreigners going in and out about the compound, none were attacked.

Finally, at Newchwang a contagious fever with all the characteristics of typhus has been constantly observed since 1876. Nearly all the cases occurred among the Catholic missionaries, who are exposed to many of the privations and unhygienic conditions under which the natives live. Here the symptoms recorded are sufficient to remove any doubt as to the diagnosis:—

Severe fever; mulberry rash; wild delirium; excessive nervous prostration; subsultus; carphology; cardiac failure; early muscular weakness and tremor. Where recovery took place, false angina linked to gastric disturbance, anæsthesia, amblyopia, and mental weakness are noted among the sequelæ.

In 1882 there was one case (fatal) in the foreign mercantile community, and in 1883 a second, which ended in recovery.

* Customs *Medical Reports*, xi, 3.

† *Ibid*, iii, 7.

‡ *Ibid*, ix, 40.

It is obvious, therefore, that all along the extensive coast line of China, where foreign settlements are dotted, a fever occasionally prevails epidemically among the natives which in its main characteristics is indistinguishable from typhus; that most of the conditions necessary to an outbreak are constantly present among the natives; that it is contagious, but not virulently so; that it is identical with or closely simulated by neglected malarial fever of adynamic type; and that foreigners who do not actually look for it in its haunts are tolerably certain to escape it.

Typhoid Fever, which no doubt strictly should be included in the group of Eruptive Fevers, can more conveniently be considered in a separate chapter.

II.—SPECIAL SERIES.

No. 1.—NATIVE OPIUM	Published 1864.
„ 2.—MEDICAL REPORTS : 36th Issue (First Issue, 1871)	„ 1890.
„ 3.—SILK	„ 1881.
„ 4.—OPIUM	„ 1881.
„ 5.—NOTICES TO MARINERS : Eighth Issue (First Issue, 1883) ..	„ 1890.
„ 6.—CHINESE MUSIC	„ 1884.
„ 7.—INSTRUCTIONS FOR MAKING METEOROLOGICAL OBSERVATIONS, AND THE LAW OF STORMS IN THE EASTERN SEAS ..	„ 1887.
„ 8.—MEDICINES, ETC., EXPORTED FROM HANKOW AND THE OTHER YANGTZE PORTS, WITH TARIFF OF APPROXIMATE VALUES ..	„ 1888.
„ 9.—NATIVE OPIUM, 1887	„ 1888.
„ 10.—OPIUM: CRUDE AND PREPARED	„ 1888.
„ 11.—TEA, 1888	„ 1889.
„ 12.—SILK : STATISTICS, 1879-88	„ 1889.
„ 13.—OPIUM : HISTORICAL NOTE ; OR THE POPPY IN CHINA ..	„ 1889.
„ 14.—OPIUM TRADE : MARCH QUARTER, 1889	„ 1889.
