CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 31ST MARCH 1881.

21st Issue.

PUBLISHED BY ORDER OF

The Inspector General of Customs.

SHANGHAI:
STATISTICAL DEPARTMENT
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MDCCCLXXXI.

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National Oceanic and Atmospheric Administration

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INSPECTOR GENERAL'S CIRCULAR No. 19 OF 1870.

INSPECTORATE GENERAL OF CUSTOMS,
PEKING, 31*st 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, &c. / 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. JAMIESON, 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, &c.,

(signed) ROBERT HART,
I. G.

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

SHANGHAI, *1st August 1881.*

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:—

Observations on Filaria Sanguinis Hominis in South Formosa, pp. 1–25.
Trichina Spiralis in Chinese Pork, p. 26.
Notes on some Skin Diseases, pp. 27–36.
Report on the Health of Takow for the two years ended 31st March 1881, pp. 58–70.
Report on the Health of Newchwang, pp. 37–41;
Report on the Health of Chefoo, pp. 42, 43;
Report on the Health of Kiukiang, pp. 48, 49;
Report on the Health of Foochow, pp. 50–56;
Report on the Health of Chinkiang, pp. 98–100; each of these referring to the year ended 31st March 1881.
Report on the Health of Hankow, pp. 44–47;
Report on the Health of Amoy, p. 57;
Report on the Health of Canton, pp. 71, 72;
Report on the Health of Hoihow, pp. 73–77;
Report on the Health of Shanghai, pp. 78–97; each of these referring to the half-year ended 31st March 1881.

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 :—

W. W. MYERS, M.B., CH.M. ..... Takow.

P. MANSON, M.D., CH.M. ..... Amoy.

J. WATSON, M.D., L.R.C.S.E. ..... Newchwang.

J. G. BRERETON, L.K.&Q.C.P., L.R.C.S.I. ..... Chefoo.

C. EGG, M.B., CH.M. ..... Hankow.

J. JARDINE, M.D., CH.M. ..... Kiukiang.

T. RENNIE, M.D., CH.M. ..... Foochow.

F. CARROW, M.D. ..... Canton.

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R. A. JAMIESON, M.A., M.D., M.R.C.S. ..... Shanghai.

R. G. WHITE, L.S.A., M.R.C.S. ..... Chinkiang.

OBSERVATIONS ON FILARIA SANGUINIS HOMINIS IN SOUTH FORMOSA.

By W. WYKEHAM MYERS, M.B., Surgeon to "David Manson Memorial" Hospital.

ON taking charge of the native hospital at this port (Takow) in August 1879, I immediately began to carry out the request of my friend Dr. P. MANSON, that I should examine any cases of Filaria sanguinis hominis that might come under my notice, with a view of investigating and, if possible, confirming the discoveries and observations made by that gentleman.

My object, then, was as follows:—

1°. To observe the proportion of filaria-infected patients in relation to the whole number of admissions to the hospital, further noting the external manifestations present, *e.g.*, elephantiasis, lymph scrotum, etc.

2°. To note the periods of appearance and disappearance of the embryos from the blood of infected persons, with a view of corroborating or disproving Dr. P. MANSON's recent discoveries as to the periodicity displayed by the parasites in their appearance.

3°. To account, if possible, for the disappearance of the embryos at certain hours, discovering, if feasible, whether this was final as regarded the swarm, or whether they lay dormant and adherent during certain periods in the lungs or other organs of the body.

4°. To attempt by experiments on monkeys to produce conditions similar to those observed in filaria-infected men.

Such were the designs with which I entered on my investigation; but I was somewhat crippled at the outset by the difficulty I met with in getting an infected subject, and for this reason I found the efforts made with a view of attaining my aims considerably restricted.

I have repeatedly examined the blood of patients admitted on the general list, at various hours, both day and night, devoting particular attention to those suffering from malarial disease, but have as yet only succeeded in finding three filariated persons. One of these is the subject of the observations recorded below, and the other two declined to permit more than occasional examination. From these and other conditions noted and hereafter detailed, I am led to think that this state of blood infection is not common to nor favoured by residence in Formosa, and the following are my reasons for thinking so:—

1°. The number of patients and others I have fruitlessly examined at various hours in the day and night.

2°. The almost total absence of those diseases which Dr. P. MANSON has proved to be dependent on parasitic obstruction, such as elephantiasis and lymph scrotum.

Of the former I have seen but one case, and she informs me that she contracted it "years ago in Amoy," and has been to this hospital before for treatment; I therefore assume this is one of the cases recorded by my predecessor, the late Dr. DAVID MANSON.

The only statistics available from the native hospital date from April 1871 (Customs Reports and Hospital Records), and during that period I find upwards of 15,000 patients have been seen by Drs. DAVID MANSON, RENNIE, and MYERS. The cases have been very carefully classified under their proper heads, and from these records I observe that only two of elephantiasis have been noted, and none of lymph scrotum. (I do not include the case of elephantiasis mentioned above, for, as I have stated, I believe she represents one of the two mentioned by Dr. D. MANSON.) From this fact, coupled with the convincing observations and discoveries made by Dr. P. MANSON as to the etiology of these diseases, I am strongly inclined to think that Filaria sanguinis hominis does not exist in the blood of the natives of this place, otherwise it would seem probable that there would have been, during the nine years reported on, very many more of those manifestations which Dr. P. MANSON has shown to be the results of filarial infection.

On the mainland these diseases abound, whether one takes the earliest symptoms shown by the enlarged glands, the elephantised part, or lymph-secreting scrotum. It may be asked how is it that any cases of filaria-infected blood are to be found here, if the disease has no local origin, and to this I would reply that the sufferers come from Amoy or thereabouts, as undoubtedly was the case in the only three instances I have met with. As is known, there are a large proportion of the "natives," or residents here, who are, comparatively speaking, recent colonists, coming originally from Amoy and its surrounding districts. With characteristic adherence to the place and province of their own or their ancestors' nativity, the immigrants settling here do neither themselves nor in succeeding generations become entirely separated, in mind at least, from their original locality, and it is apparently the ambition of many to return, if only for a short stay, to the spot which family tradition styles their home; hence we find, as a fact, that most of the people hailing from the mainland make periodical visits there, and even many of those who have become by length of residence apparently more closely attached to Formosa would seem to some extent to keep up this rule.

The Pepohuans and Hakkas, on the other hand, who have more right to be looked on as regular and permanent natives of Formosa, and of whom a goodly proportion attend the hospital, ought, one would think, if filarial disease was common, to present some cases, but this does not appear to be so; nor can I hear that elephantiasis or lymph scrotum is met with either amongst these people, the uncivilised aborigines, or those whom, for distinction, I will call the immigrants. Again, with such numbers coming from the mainland, where filarial infection and its consequences are known to abound, it is not improbable that some afflicted persons come over with the rest—as happened in the instances I have given,—and if the circumstances were favourable for further propagation, by this time the prevalence of the disease would have been sufficient to admit of its existence being a matter of more certainty. The woman suffering from elephantiasis had, as she said, contracted the disease when young, and at Amoy, and though she and her children and grandchildren had long been settlers here, she and they made periodical visits to the mainland, where several of their relations still lived. She told me she was a member of a large village the residents of which were more or less connected, or, to speak more correctly, were of the same clan, and though they had been a great many years settled in Formosa, and some of them born here, still they continued to consider

themselves "Amoy men." She had no filariæ in her blood, though I looked for them several times, but two were discovered in the sanguinolent lymph drawn from an enlarged inguinal gland. There were no other cases of elephantiasis as far as she knew.

This is in effect a similar result to those accruing from the inquiries I have made or caused to be made in other parts of the country, and although I have heard of a case of elephantiasis scroti, I am told he also traces his disease to the period of his residence on the mainland. There is, however, another fact in reference to this man which may be thought to have a little bearing on the rarity of the disease, and that is, his case appears to be known far and wide, and is spoken of with wonder, which probably would not happen were the disease more common. On making inquiries of the patients as to the existence of elephantiasis, I have been in more than one instance told of this case, and this by persons belonging to districts very remote from that where the afflicted man lives.*

In this connexion it may be convenient if I introduce an account of my efforts to filariate monkeys, as I think the observations made on embryos after their withdrawal by mosquitos may tend to suggest a reason for the non-propagation of the disease in this island. I assume that all now take for granted the fact that the mosquito plays an essential part in completing the cycle of genesis, and that if this medium is absent or incapable, the further propagation of the parasite is suspended. It will be recollected that Dr. P. MANSON, in his search for the medium by which the canine blood filariæ attained their freedom, found that the mosquitos which nurtured the filariæ sanguinis hominis, when made to feed on an infected dog, *digested* the embryos they thus obtained, showing that if a mosquito was the intermediary host in the case of dogs, it must be a different species to that which acts as go-between in man. With these preliminary remarks (the bearing of which will be seen directly), I pass on to describe my experiments on monkeys.

The man from whom I obtained the embryos is a native of Amoy, at present employed as a boatman in Takow; of himself and his disease I will speak more fully further on, when I come to the observations made on him with reference to periodicity and other matters. The plan I followed was to make him sleep under a large gauze-covered cage ("mosquito house"), into which, each night, were put numbers of mosquitos freshly collected from all parts of the settlement, and to whose operations he cheerfully submitted himself, being apparently quite indifferent to both their numbers and their bites. Besides this, I had in the cage a breeding trough, also covered with mosquito netting, into which from time to time I put mosquito larvæ got from different places, even Taiwan-fu, the capital city, 30 miles north of this. As the mosquitos were matured, they flew up into their netting, from which I let them escape into the larger cage. I took care to carefully cover up the breeding trough, so that none of those which had fed could return and deposit their ova. For these latter I had a trough suspended in the

* I cannot help still thinking that further search must result in the discovery of the actual presence of more cases of elephantiasis, as one can hardly imagine but that amongst such numbers as are constantly coming and going to and from the mainland, some of the affected from so generally tainted a region would cross over, notwithstanding the prejudice entertained against travelling by Chinese who may be thought to be or are ailing to however slight an extent; but, of course, such instances can in no way affect the supposition as to the absence of disease traceable to local influences. Again, were the local influences favourable, these importations, so far from remaining inconspicuous, would, as centres of propagation, soon make their baneful presence markedly observable.

darkest part of the house, and filled with water as required. I then obtained five monkeys, four of which were young, lively, and apparently in good health, but the fifth, though highly intelligent, and trained by its previous owner to perform several tricks, was phthisical, and eventually died of pulmonary disease.

As soon as the water in the cage became sufficiently covered with ova, I gave it to the monkeys to drink; and here I may state a fact which I have not seen noticed elsewhere, and that is the strong antipathy these animals have to drinking water which appears impure or in which there are objects in motion. Besides the ova, there were always numerous mosquito larvæ darting about, these the monkeys would try to remove, but finding this impossible, would jump about screaming, and, attempting to upset the dish, utterly refuse to drink. Wishing to see whether, if impelled by thirst, they would get over this fastidiousness, I took care that they obtained no fluid but that contained in the bananas on which they fed; and in the case of one animal, a male, 10 days elapsed before any water was spontaneously drunk. Driven desperate by thirst, after making many attempts to brush away the ova and catch the larvæ, he suddenly dived in his head, took two or three deep draughts, and then sprang away screaming and chattering. With the others I had commenced daily drenching, as soon as I found their antipathy insuperable, and I eventually followed the same plan with the remaining monkey. We know there is a considerable amount of fluid in succulent fruits, but even with this, the interval that elapsed before the animal could bring himself to drink the water showed how strong must have been his instinctive objection to other than pure liquid.

For more than six weeks I continued to administer the water in which the mosquitos were daily depositing their eggs. After the first week I examined the blood of all the monkeys each day, both night and morning, but without result. In five weeks one of the subjects got fever, with cough, and died.

No signs of filariæ nor anything which could be attributed to them were found. About seven weeks from the commencement of the experiments another monkey died from pneumonia, and the postmortem was as barren of results as regards filariæ as the previous daily examinations had been.

About this time the man had to cease sleeping in my house, but I continued giving the water for a few days longer, until the mosquitos had disappeared from the cage and ova had ceased being deposited. The daily examination of the blood, however, still continued, but as fruitlessly as before, and this I continued to carry out up to the end of the fourth month, about which time another monkey (the educated one) died. Her body I put in spirits and sent to Dr. P. MANSON, who told me that he found nothing but extensive tubercular disease.

The surviving monkey is still (November 1880) well and lively, and there are no traces of filariæ in his blood.

I attach no importance to the death of the other four animals in as far as the object of these experiments is concerned, as they all died of pulmonary affections, a not uncommon occurrence with monkeys kept in captivity. I may mention here that pulmonary disease is very prevalent amongst captive monkeys in Formosa, but whether this condition is frequent amongst the animals when in a free state I am not as yet in a position to say. Every day during the time the man slept at my house I caught a certain number of gorged mosquitos,

which I kept alive in bottles and duly labelled. On examining those who had fed on the previous night I readily found several lively embryos, but at no later date could I find other than semi-digested remains, which at a subsequent stage, however, were not to be seen. I inspected great numbers of mosquitos each day, examining several specimens from the lot caught and confined at the same date and hour. Thus I feel justified in speaking with the necessary certainty as to the results of the observations I describe.

I have no doubt that in all the cases which came under my notice the mosquito was an inhospitable host, digesting where it should have nurtured. As I have said before, the mosquitos were collected promiscuously without reference to locality, and therefore I am inclined to think that if the species which entertains the man-infecting filaria were common, I should have got it; and if my suspicions are correct, then it will be readily intelligible why we have no cases of elephantiasis or lymph scrotum referred to this place, and also why the only filariated individuals I could get hold of were those hailing direct from Amoy. I purpose, if practicable, getting supplies of the desired mosquito ova from the mainland, and will then continue my experiments.*

In the meanwhile I intend trying the local mosquitos on dogs. I hear from foreigners that "worms in the heart" are a cause of canine mortality here, although I have not been able to be sure that the deceased dogs have not been imported from, or at any rate lived for some time on, the mainland.

Should it turn out that in Formosa (an island only separated by a channel 180 miles wide from the mainland, and in constant communication with Amoy) there is immunity from filarial disease, and that this is due to the absence of a fit intermediary host, then a curious addition will have been made to our knowledge of the geographical distribution of this disease and the conditions necessary for its general existence and propagation.

It may, perhaps, chance that an investigation extending beyond the limits offered by this hospital might result in detecting a few more filariated individuals, especially as such a proportion of them originally come from or often reside in districts where Dr. P. MANSON tells us 1 in 10.8 of the population have filariæ in their blood;† but anything further that can be discovered might, I am inclined to conjecture, possibly serve as exceptions, which would the more firmly establish the fact of Formosa being, from some cause or another, unfavourable at least to the reproduction of the imported disease. Of course, after only 18 months' personal experience I cannot speak with any authority, nor indeed should I have ventured an opinion did it not seem that the carefully recorded experiences of those much more able to speak on the subject than myself confirm the conclusion which my comparatively limited observations have a tendency to support.

Before passing from this portion of my paper, I should state that (speaking from memory) the only mosquitos I have seen here appear to be much larger and darker than those in which the (embryo) filaria sanguinis hominis is supported, and which, through the kindness of Dr. P. MANSON, I was frequently able to see when on a visit at Amoy. At this

* I am also at present engaged in closely examining all the different species I can find, with a view to future description and classification.

† *See* Customs *Medical Reports*, xiv, 1.

time I also enjoyed the great privilege of having many of Dr. P. MANSON's discoveries personally demonstrated to me by that gentleman. I mention this to show that I have not entered on this investigation without previous instruction as to the method of procedure from the one best qualified to impart it. The benefit this is only those who have been so favoured can fully realise.

And now to detail the results of my observations for the purpose of investigating subject No. 2, viz., "To note the periods of appearance and disappearance of the embryos from the blood of infected persons, with a view of corroborating or disproving Dr. P. MANSON's recent discoveries as to the periodicity displayed by the parasites in their appearance."

For this purpose I was able to persuade the boatman To AH to submit himself for experiment, and although this is the only case from which I was able to get consecutive observations, still, I was at various times able to make such investigations upon two others as led me to hope that I might be justified in applying the rule *ex uno disce omnes*, and thus (subject to future confirmation) reduce the requirements of the present experiments within practicable limits.

As may be supposed, it is no little trial of a man's resolution to submit to almost hourly pricking, to say nothing of the irksomeness of being always the subject of close observation; and, I imagine, had not To AH's association with foreigners made him understand that no harm would be done, I should have found him as refractory as the other two, whom I could with difficulty persuade to allow me to make occasional corroboratory examinations. Besides which, To AH, being in good health and doing his daily duty, seemed even more suitable than would be one of the patients, perhaps suffering from some affection that might influence the records. To AH was under more or less supervision for six or eight months, and although I only give one series of examinations, I do so because these were the most consecutive; but for all that, I from time to time was able to get him to let me tap him, thus making sure that the records I had got, and have here tabulated, were true of his condition generally. The history he gave of himself in October 1879 is as follows:—

He is 28 years old, and a native of Amoy, where he resided until he was 21. From the time he was about 14 or 16 he has suffered at various periods from "fever and ague." At about the age of 18 or 20 he first noticed swellings in his groin, which, however, have increased but little; in fact, he *thinks they show a tendency to lessen in size. He suffers during the hot season from sharp attacks of* "fever and ague;" otherwise he is in good health, well nourished, and generally fit for his work. He was not aware he had filariæ in his blood, and does not think much of the fact, although he watched the embryos under the microscope with much interest. He has visited Amoy twice since he first came to Formosa, but as his friends and relations have all died off, he thinks of permanently settling here. He does not suffer from any inconvenience whatever when pulling, even long distances, in the gig, nor does he find that he is unfit for considerable exertion of a pedestrian kind, and often accompanies his master shooting, carrying a tolerable weight all the time. Is quite willing to allow me to make the experiments explained to him, and *will* be glad if he can be cured *of his tendency to* "ague" *altogether, as* "then he would be quite well."

There is nothing abnormal to be seen about his scrotum or legs, and in every way he appears an athletic, well-developed man.*

* With reference to his attacks of so-called "fever and ague," I must state that these are probably seizures of the characteristic ("lymphatic") fever, and differ from the malarial disease, which they resemble, in the absence of marked periodicity, there being generally a long interval between the attacks.

As to the other two cases which came under notice, they were admitted, one suffering from ague, and the second from a callous ulcer of the leg. No enlarged glands could be detected, nor any other ailment which might be attributed to filarial infection.

The blood parasites were in both cases found in considerable numbers at night, and up to about 7.30 or 8 A.M.

The blood was drawn from one or other of the fingers by slightly congesting them with a tape, and then pricking the skin with a sharp needle. At least two slides were charged at each observation, the maximum "find" being recorded. My Chinese assistant (whose observations I invariably checked) had been trained by Dr. P. MANSON, and had, under his supervision and direction, aided in similar work at Amoy.

TABLE I.

DAILY RECORD of FILARIA EMBRYOS found in a DROP of BLOOD taken from TO AH, a BOATMAN; and of the TEMPERATURE under his TONGUE at the MOMENT of TAPPING, showing PERIODICITY in APPEARANCE of EMBRYOS.

DAYS.	4 A.M.		6 A.M.		8 A.M.		10 A.M.		12 NOON.		4 P.M.		6 P.M.		8 P.M.		10 P.M.		12 MIDNIGHT.	
	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.	No. of Embryos on Slide.	Temperature.
		°		°		°		°		°		°		°		°		°		°
1	24	...	0	...	46	...	0	99.2	1	99.4	0	99.4	0	100	48	99.4	28	100.2	35	100
2	23	99.3	32	99.1	3	99.4	...	...	1	99.1	0	100	0	100.1	29	100	...	...	114	98.4
3	39	99.1	49	98.4	...	...	...	...	...	...	..	...	8	100	25	99.4	38	99.1	41	99.2
4	49	99.1	43	98.4	7	99.2	0	98.3	0	99	0	99.4	1	100.1	35	99	94	100	45	99
5	41	98.4	32	99	6	99.1	0	99.3	0	99.1	0	99.3	0	100	20	99.3	42	99.2	34	99.1
6	45	99	41	99.1	2	99.3	0	100	0	99.2	0	99.4	0	100	20	99.2	40	99.4	38	98.2
7	36	98.4	59	99	0	99	0	99.2	0	99.4	0	99.2	0	99.4	46	99	42	99.4	28	99.1
8	40	99	29	98.4	0	99.1	0	99.4	0	100	0	100	0	100.2	7	99.4	38	100	260	98.5
9	81	98.4	28	98.3	0	99	0	100.1	1	100.1	0	100.1	4	100.1	10	99.2	...	...	...	...
10	22	98.3	14	99	0	99	0	100.1	0	99.2	0	99.4	1	99.4	8	99	36	99.4	27	98.9
11	38	98.5	12	99	0	98.9	0	99	0	99.3	0	99.4	0	99.6	6	98.9	22	99.4	35	99
12	33	98.4	15	99	0	99	0	98.9	0	99	0	99.1	0	99.8	3	98.6	40	99	120	99
13	41	98.5	10	98.8	0	99	0	99	0	98.9	0	99.2	0	99.7	12	98.5	29	99.1	62	99
14	21	98.3	9	99	0	99	0	99.1	0	98.6	0	99	0	99.6	5	99	80	99.3	170	99.4

It will be seen that the records amply bear out Dr. P. MANSON's statements. The embryos appeared regularly between 6 and 8 P.M., generally a little after 6. In the 14 observations made at 6 P.M. there were 10 blank searches, and 4 in which embryos were present. By 6.45 P.M. they had begun to appear regularly, although still in small numbers, and it was not until 7.15 P.M. that they had become numerous. By midnight they would seem to have attained their

maximum, and from that hour gradual decrease set in. In the morning they would also appear to retire between the hours of 6 and 8, which gives a period of 12 hours during which they disport themselves. As Dr. P. MANSON has already pointed out, this is just the time when their liberators are in active search for food, suggesting one of those remarkable but never-failing adjustments met with all through nature.

Only on 3 occasions out of the 14 have I been able to see any embryos in the interval from about 8.30 A.M. or 9 A.M. to 12 noon, though I have diligently searched for them, sometimes charging four or five slides. All these appearances were put in at the noon examination, and on no occasion was more than one embryo present.

The temperature was taken *before* drawing the blood, so as to obviate any risk of its being affected by the operation, if perchance this could be looked for.*

It will be noticed that at the hour when the embryos return the temperature rises slightly, more than perhaps can be attributed to ordinary evening elevation. As soon as they had appeared in marked number (8 P.M.), the temperature did not go, save on one occasion (2nd day) above 99°.4, and on 3 (11th, 12th, and 13th days) stood below 99°; at 10 P.M. it *again rose, however, as four times the thermometer registered 100°, and at no time fell below* 99°. At 12 midnight, when the embryos were in greatest number, the mercury appears to have fallen somewhat, as though it registered 100° once (1st day), it was 8 times at between 99° and 99°.5, twice showing 99°.1. Four times it fell to between 98°.4 and 99° (2nd, 6th, 8th, and 12th days). By 4 A.M. there is a considerable fall, 98°.2 to 98°.5 being recorded 8 times, with the embryos in ample numbers. At 6 A.M. there is a slight tendency to rise, and from 8 o'clock onwards this is well marked.

On the whole, therefore, it would appear from this case that the temperature bears no very marked relation to the number or activity of the embryos; still some influence seems shadowed forth. Of course, with observations taken from one case, and only occasionally compared with two others, these temperature results are at present of little or no scientific weight.

I have examined TO AH on several occasions during the time he was under my observation, and I have found that his temperature was, as a rule, somewhat higher than normal, and tended to vary considerably in the 24 hours; this, too, at times when he had had no attack *of "ague" for a considerable period, and said he felt quite well. I therefore merely offer these* temperature notes for what they are worth, trusting they may tempt some one more advan*tageously placed for seeing a number of filariated persons to take regular observations, and* prove or disprove what I can now only surmise as possible.

In as far as the observations on embryos and the periodicity of their advent or exit goes, this table may be more valuable, as it is an addition to observations taken by others, and in *another locality, further borne out as it is to some extent by what I have been able to learn* from the other cases, in as far as their complaisance would permit.

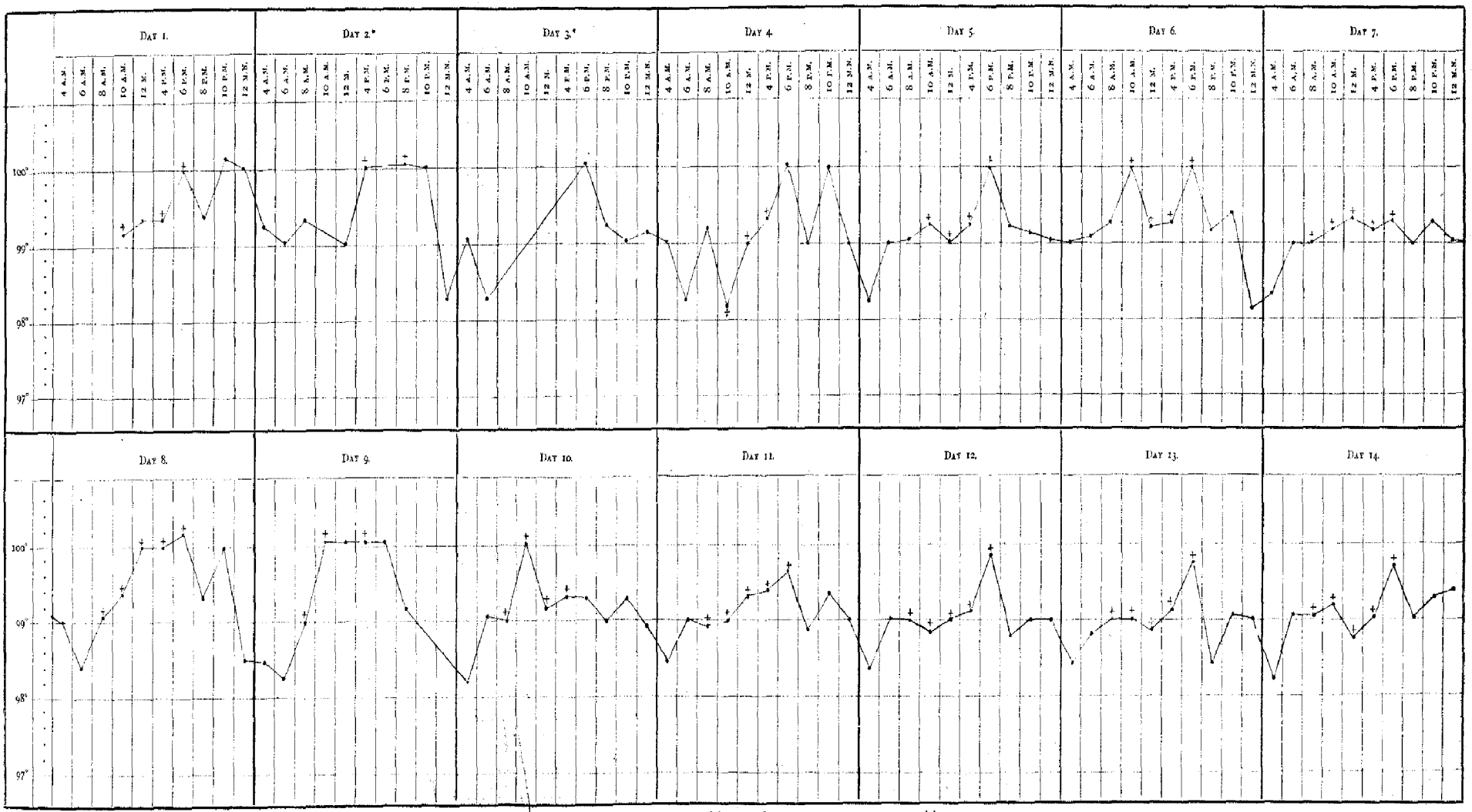
I next come to speak of the results of my observations on what at the beginning of this paper I put as the third object for investigation, viz., "To account, if possible, for the

* *See* Chart 1, opposite.

CHART 1.

Showing To Ah's Temperature (under Tongue) for a period of 14 Days consecutively.

(Hours at which Embryos were absent from Blood marked thus +.)



* No observations were taken at 10 A.M. on 2nd day, nor at 8 A.M., 10 A.M., 12 noon, nor 4 P.M. on 3rd day.

disappearance of the embryos at certain hours, discovering, if feasible, whether this was final as regarded the swarm, or whether they lay dormant and adherent during certain periods in the lungs or other organs of the body."

In order to do this I got To Ah once more to submit himself to examination for a series of seven days, commencing my examination at 6.15 A.M., and taking observations at least every quarter of an hour until the embryos had disappeared.

In the following tables I give the results, with a record of simultaneous temperature. From what Dr. P. Manson has written I gather that he is inclined to think the embryos do not periodically dissolve in the blood, but that they probably congregate in some organ (possibly the lungs), and there remain until the time arrives for their wanderings and withdrawal by mosquitos. In favour of this view he gives the results of postmortem examinations of dogs, and, finding a great congregation of embryos in the lungs, he suggests—if analogy is thought to have any bearing on the matter—that this supports the conjecture he has advanced.

I own that I am not as much influenced by this as Dr. Manson would seem to be, for (as affecting the value of the experiment) I am inclined to lay considerable weight on the fact that the embryos are never absent from the blood of infected dogs, but, on the contrary, are at all times circulating in considerable numbers. For this reason it appears to me that at a postmortem examination, where the blood is in a state of stagnation, and a drop is deliberately taken from any great hæmic collection, one would naturally expect to find the embryos thus secured in directly greater proportion to the mass of blood from which they are then drawn than in the case of those escaping from a minute puncture in the smallest vessels, with the current rapidly sweeping past the opening. Reasoning likewise from analogy, I should rather assume that were it possible to get a postmortem on a man suddenly killed during the night, when the embryos are in full vigour, we might expect to find the greatest concentration in a drop taken from the largest mass of blood. But I should hesitate before deducing the theory that where embryos are then found most numerous, there they rest at certain periods during the life of the host.

I am, however, unable to think that the two cases are sufficiently analogous, or even approximately so, as, unless we had a case where the embryos were during a certain time absent from the circulation, and in those hours found them concentrated in some large centre, we could not fairly look on the observation as in any way suggestive of the conduct of the embryos when in a condition the reverse of that solely presented by the subject under observation. Again, I am inclined to doubt whether the relatively few mosquitos which can get at either dogs or men during the limited time available for their operations could make any very appreciable diminution in the myriads of embryos which must be existent in the body; and unless the parent worm either breeds but once, or breeds only at excessively long intervals, it would seem that some more rapid mode of disposing of the offspring than that offered by the mosquito would be required, in order to avoid the choking up of the vessels by the blood-displacing embryos. Judging, however, from analogy as to the generative power of the parent worm or worms (for it must be remembered there may be many), one is justified in

assuming the produce to be frequent and enormous, more so than thousands of mosquitos, even if constantly at work, could manage to keep within bounds. Further, arguing on the same basis, may we not assume that nature has provided by this very excess for the security of propagation, which would be hazarded were there only a proportionate number of embryos to that of mosquitos available, herself providing means for the absorption of the residuum in time to make way for a fresh supply, which one of her equally imperative ordinances is sure to bring forth? Again, if those generated had to wait their turn in the lottery of selection, would this not seem to necessitate a condition of unusual and indefinitely limited arrest of development in the young, and of function in the parent? It is to be further noted that from both the poisons used by Dr. MANSON in destroying the dogs, lung engorgement is seen after death, and this would, I think, readily suggest why (the largest collection of blood remaining in these organs) the embryos should be in excess there, while, coupled with this, it is not improbable that, under the circumstances, there should be a strong local attraction for the embryos.

As may be supposed, I hesitate considerably in offering opposition to the views of so able and painstaking an observer as Dr. MANSON; and in this case, if his observations had been the subject of my dissent, I should have been far more diffident in venturing to join issue with him. Here, however, I merely query the conclusions he draws from certain data, as to my mind they do not seem quite to follow the premises; and though in suggesting the possibility of diurnal solution as the end of such of the embryos as do not come within mosquito range, I advance certain observations of my own, still, as far as I know, they extend in a different direction from that previously explored, and, of course, are in turn open to be verified or shown inconstant by the subsequent investigations of those who may take the trouble to check me.

So much for theory. I will now submit the only experiments I have been able to make in reference to the matter; and, knowing how inadequate they are, both in number and nature, I can only offer them as first steps in that research for which much ampler opportunities must be afforded.

If the embryo be constantly watched after withdrawal from the body, the primary symptoms of debility visible will be its tendency to stretch itself out. At first the oval which it forms when in a state of vigour and activity will be seen to become more and more perceptibly elongated. The almost indistinguishable movements will appear more isolated, and as weakness increases, these change into a semi-undulatory action, which at the last gradually ceases from the centre outwards, until the feeble motions of head or lash are all that remain to denote vitality. The lash becomes more distinct, and the integument puts on a somewhat shrivelled appearance. When death takes place, the embryo is seen to be extended often at full length, and generally so to a great extent. After practice it is easy to classify the embryos under the different stages from perfect vigour through extreme debility to death, and this experience may be readily gained by preserving the slides and watching the movements until life has ceased. In order to carry out the experiments I proceed to detail, it will be better to familiarise oneself with these appearances, and keep constantly refreshing the memory by comparing the embryos recently abstracted with those which by dint of keeping have been

reduced to various states of debility. At least, I found this method of procedure useful, and it appeared to me likely to secure most exactitude.

As will be seen from Tables 2 and 3, I commenced my observations at those hours in the morning and evening when I knew by experience the embryos would be retiring and reappearing, on each occasion examining the slide immediately on preparation, and frequently both between the intervals and afterwards (they were, of course, all labelled); and when I could persuade my subject to let me, which was not without difficulty, I tapped at periods other than and between those recorded, with a view of checking the latter.

TABLE 2.

MORNING RECORD of OBSERVATIONS on BLOOD taken from TO AH (GIGMAN), commencing at 6.15 A.M. and continued until the EMBRYOS had disappeared; and of TEMPERATURE of his MOUTH.

	6.15 A.M.		6.30 A.M.		6.45 A.M.		7 A.M.		7.15 A.M.		7.30 A.M.		7.45 A.M.		8 A.M.		8.15 A.M.		8.30 A.M.		8.45 A.M.		9 A.M.		9.15 A.M.		9.30 A.M.	
M.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.
		°		°		°		°		°		°		°		°		°		°		°		°		°		°
1	18	98.3	12	98.4	13	98.5	3	98.4	0	99.1	0	99	0	...	0	...	0	...	0	...	0	...	0	...	...	...	...	...
2	18	98.3	10	99.1	0	99.1	4	99.2	5	99.1	4	99.1	4	99.1	0	99.1	0	99.1	0	...	0	...	0	...	...	...	...	...
3	44	98.4	9	98.4	16	99	9	98.4	26	98.2	...	...	5	98.2	...	...	7	99.2	3	99.2	2	99.2	0	99	...	...	...	...
4	10	98.5	52	98.6	9	97.4	16	97	31	97	3	97	2	97	6	97.2	11	97.4	20	97.3	6	97.4	3	97.1	0	97.2	0	97.2
5	17	98.5	8	98.4	3	98	2	97.9	7	97	1	97.8	1	97.8	1	97.8	1	97.1	3	97.8	0	...	0	...	...	...	...	...
6	29	98.3	10	98.1	6	98.3	0	98	1	98	4	98	0	98	1	98.2	0	98.4	0	...	0	...	0	...	...	...	...	...
7	36	98.4	11	98.3	4	98.3	0	98	3	97.8	0	97.9	0	98	0	98	0	98.8	0	98.5	0	98.3	0	98.5	...	...	...	...

TABLE 3.

EVENING RECORD of OBSERVATIONS on BLOOD taken from TO AH (GIGMAN), commencing at 6.30 P.M. and continued until the EMBRYOS had reappeared in NUMBERS; and of TEMPERATURE of his MOUTH.

DAYS.	6.30 P.M.		6.45 P.M.		7 P.M.		7.15 P.M.		7.30 P.M.	
	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.	No. of Embryos.	Temperature.
		°		°		°		°		°
1	0	...	0	...	4	99.2	14	99.2	17	99.1
2	0	100	1	100.1	5	100	24	99.4	40	99.3
3	0	100	1	100	4	99.4	30	99.5	25	99
4	0	99.8	2	100.1	6	99.3	20	99.2	25	99
5	1	99.8	4	100.2	7	99.8	15	99.3	30	99.5
6	0	99.6	2	100	5	100.1	25	99.8	27	99.4

I believe, however, that examinations made every quarter of an hour, with the occasional checks I have indicated, are sufficient for the purpose, and therefore, to avoid confusion, I have contented myself with merely noting these.

The following are the notes I made, on each occasion specified, of the conditions of the embryos then seen. I would state that on two days I was fortunate enough to secure the presence and assistance of Dr. JOHN DUDLEY, R.N.; that days 1, 2, 3 and 4 were consecutive, but 5, 6 and 7 were taken with intervals between; that where morning and evening observations are recorded they were made on the same day; and that I have, whenever I could persuade the man to allow me, and his duties would permit, tried to verify my former experiments; but that the notes of those given are selected because they were the only ones I have so far been able to get continuously, and besides, the appearances were so very similar as to render further record unnecessary.

First Day, 6.15 A.M.: 18 *Embryos on Slide.*—1st to 5th normal; 6th to 10th languid, stretched out; 10th to 14th normal; 15th weak, stretched out, body bent in distinct folds; 16th very much stretched out, weak, only lower two-thirds of body appears to be moving; 18th normal.

6.30 A.M.: 12 *Embryos.*—1st to 4th normal; 5th stretched out, decidedly weak; 6th and 7th stretched out, somewhat languid, and pauses between contractions marked; 8th stretched out, languid; 9th to 11th normal; 12th very weak, scarcely moving, shrivelled appearance.

6.45 A.M.: 13 *Embryos.*—1st to 7th apparently normal; 8th stretched out, languid, folds in body well marked and retained during appreciable pause; 9th very weak, stretched round in circle, head only moving occasionally; 10th brisker but decidedly weak; 11th and 12th normal; 13th stretched out, lash distinct and moving vigorously, upper part of body much less vigorous.

7 A.M.: 3 *Embryos.*—1st very weak, stretched out, what little motion there is undulatory; 2nd more vigorous, but stretched out; 3rd normal.

Second Day, 7.15 A.M.: 5 *Embryos.*—1st and 2nd extended, body movements not as vigorous as usual, and more distinctly localised; 3rd, very slight motion at lower extremities, getting less and less under observation, body puckered and shrivelled; 4th, movement only in head, stretched-out body, shrivelled appearance; 5th, body stretched to full length, slightest movement of lash, which ceased under observation.

7.30 A.M.: 4 *Embryos.*—1st, semi-convulsive jerks of body, the bends taking place at each movement being distinctly separated by inactive portions of body and apparently deeply indented, as though the body was more impressible, retaining the mark until the next movement took place; half stretched out; 2nd apparently as vigorous and well as usual; 3rd, movements much more sluggish, folds very slowly straightened out at each jerk, elongating itself, movements apparently involving same bends and folds of body every time; 4th much more vigorous in action, but with marked tendency to elongation, and the pauses between motions well marked.

7.45 A.M.: 4 *Embryos.*—1st very feeble in its action generally; 2nd extended and markedly feeble, same signs of irregularity in action observed; 3rd lively, and apparently as usual; 4th very feeble, much stretched out, action spasmodic, with marked pauses.

Third Day, 6 A.M.: 29 *Embryos.*—Many lively and apparently well, some very languid, scarcely moving, stretched out, with head and tail touching so as to form a large circle, apparently just dying.

6.15 A.M.: 44 *Embryos.*—Numbers of them were as usual, but others very much debilitated, body stretched out, and movements decidedly languid.

6.30 A.M.: 9 *Embryos.*—1st languid, tendency to elongate and form circle by approximation of tail and head, folds and pauses marked, shrivelled; 2nd very similar in condition; 3rd still more feeble, folds in body very marked, giving an appearance as though body would break at each movement; 4th and 5th

stretched out and moving with extreme languor; 6th *quite dead.* (N.B.—This is the first time I have come across a dead embryo in a drop of blood freshly drawn. The slide had as usual been carefully washed and dried prior to use.)

6.45 A.M.: 16 *Embryos.*—1st very languid, stretched out; 2nd and 3rd quite stretched out, only very slight movement in head, both almost dead; 4th and 5th ditto, ditto, creased appearance very marked. The remainder were more or less debilitated and stretched out, with the exception of two, which were quite vigorous and apparently well.

7 A.M.: 9 *Embryos.*—1st lively and normal, though slightly inclined to stretch out; 2nd stretched out in semi-circular form, decidedly weak, movement more distinctly undulatory; 3rd languid, stretched out; 4th and 5th stretched out, somewhat weak in action; 6th very feeble, movement slow and intermittent, made apparently with great effort; 7th still less active, seemingly nearly dead; 8th and 9th normal.

7.15 A.M.: 26 *Embryos.*—1st to 4th nearly normal; 5th stretched out, much more languid; 6th stretched out, very languid; 7th stretched out, with undulatory movement; 8th, movements feeble, one extremity (oral) motionless, apparently paralysed, stretched out.

7.45 A.M.: 5 *Embryos.*—1st feeble, stretched out; 2nd ditto, very weak; 3rd normal; 4th slight motion, semi-paralysed appearance; 5th normal.

8.15 A.M.: 7 *Embryos.*—1st active, normal; 2nd feeble, stretched out, undulatory movement; 3rd feeble, stretched out; 4th stretched out, activity not however affected; 5th stretched out, rather feeble, and tendency to drag lower half of body; 6th curled up, scarcely moving; 7th normal.

8.30 A.M.: 3 *Embryos.*—1st normal; 2nd stretched out, movements feeble and intermittent, with distinct pauses; 3rd normal.

8.45 A.M.: 2 *Embryos.*—1st normal; 2nd more stretched, movements less vigorous.

Fourth Day, 6.15 A.M.: 10 *Embryos.*—1st very languid and stretched round in wide oval shape, movements spasmodic; 2nd very feeble, only moving after long pauses and only at either extremity, the central portion of body being motionless; 3rd barely moving, and then only with a weak undulatory motion, stretched out; 4th stretched out, only movement in head, very spasmodic and irregular; 5th normal; 6th much extended, slow, undulatory movement running spasmodically along the whole body, beginning at tail, pauses very marked; 7th quite extended, though movement is brisker and more regular than last; 8th and 9th stretched out, slow, feeble, convulsive movement of head and tail; 10th stretched out, very feeble.

6.30 A.M.: 52 *Embryos.*—1st stretched out, action much more languid than normal, with appreciable pauses; 2nd and 3rd nearly normal, stretched out; 4th curled up, very feeble; 5th same as 3rd; 7th to 9th stretched out, very weak; 10th to 12th feeble, with spasmodic action, exhibiting distinct pauses; 13th stretched out, brisker than last, but pauses very marked; 14th stretched out and very feeble; 15th and 16th extended, feebly moving from head downwards in slow wave-like manner, getting feebler under observation; 17th stretched out, motions spasmodic, with marked pauses; 18th stretched out, otherwise normal; 19th formed in wide ring, very feeble movement of tail detected at long intervals; 20th much brisker, stretched out; 21st and 22nd, nearly normal, stretched out; 23rd motions spasmodic, slow, feeble; 24th and 25th feeble, stretched out; 26th much extended, very feeble; 27th ditto, but more brisk; 28th normal; 29th to 31st, very feeble, motion spasmodic and slow; 32nd and 33rd very feeble, stretched out; 34th and 35th normal; 36th to 40th more languid than normal, stretched out; 40th to 45th normal; 46th and 47th stretched out, very weak; 48th to 50th stretched out, nearly normal; 51st stretched out very weak, motion spasmodic and slow, with long pauses; 52nd normal.

6.45 A.M.: 9 *Embryos.*—1st and 2nd quite dead; 3rd stretched out, very feeble; 4th to 9th nearly normal.

7 A.M.: 16 *Embryos.*—1st to 4th stretched out, nearly normal; 5th and 6th stretched out, very feeble; 7th normal; 8th to 11th stretched out, feeble; 12th to 15th stretched out, very feeble; 16th stretched out, movement barely discernible.

7.15 A.M.: 31 *Embryos.*—1st stretched out, otherwise nearly normal; 2nd stretched out, very feeble; 5th and 6th stretched out and feeble; 7th stretched out, very feeble, motion spasmodic and slow; 8th and 9th stretched out, feeble; 10th normal; 11th and 12th stretched out, but motions lively; 13th to 15th stretched out, motions slow and spasmodic, altogether very feeble; 16th normal; 17th very feeble, head only moving; 18th stretched out, lower one-third of body motionless, giving paralysed appearance, movements of other portion spasmodic and slow, stopping suddenly at the quiescent part; 19th stretched out full length, slow convulsive movements just discernible; 20th stretched out, feeble, with slight spasmodic motion; 21st stretched out, nearly normal; 22nd and 23rd normal; 24th stretched out, feeble; 25th stretched out, very feeble; 26th stretched out, feeble; 27th normal; 28th very feeble, formed in large ring; 29th normal; 30th stretched out, feeble; 31st stretched out, very feeble.

7.30 A.M.: 3 *Embryos.*—1st and 2nd stretched out, very feeble; 3rd nearly dead, stretched out, and *motion, when visible, confined to lash.*

7.45 A.M.: 2 *Embryos.*—Both very feeble, one much in same condition as No. 3 on last slide.

8 A.M.: 6 *Embryos.*—1st and 2nd very feeble, scarcely moving, well extended; 3rd to 6th very feeble, though less nearly moribund than first two seen.

8.15 A.M.: 11 *Embryos.*—1st to 4th normal; 5th to 11th all in different stages of debility, stretched out.

8.30 A.M.: 20 *Embryos.*—1st normal; 2nd stretched out, feeble; 3rd to 7th normal; others more or less feeble (except 18th and 19th, which were normal), stretched out.

8.45 A.M.: 6 *Embryos.*—1st and 2nd very feeble, barely moving, stretched out; 3rd to 6th stretched out, feeble movements, though brisker than 1st and 2nd, still materially affected.

9 A.M.: 3 *Embryos.*—1st and 2nd feeble, stretched out; 3rd nearly dead, movement only observed after long intervals.

Fifth Day, 7 A.M.: 2 *Embryos.*—1st stretched out, motions slow, spasmodic and irregular; 2nd very feeble, stretched out, folds or bends in body well marked and permanent, almost dead, movements only discernible at long intervals, body appears shrivelled.

7.15 A.M.: 7 *Embryos.*—1st stretched out, feeble, movements irregular, with distinct pauses; 2nd stretched out, semi-irregular, spasmodic motions; 3rd very feeble, stretched out; 4th stretched round in wide circle, only slightest visible movement, nearly dead; 5th stretched out, slow undulating movement *at long intervals, very feeble; 6th stretched out, very slight movement in head only; 7th appears quite* motionless and dead, but after long observation slight movement detected in lash.

7.30 A.M.: 1 *Embryo.*—Very feeble, only slightest movement in head.

7.45 A.M.: 1 *Embryo.*—Stretched out, very feeble, slight spasmodic movement.

8 A.M.: 1 *Embryo.*—Very feeble, irregular movement at intervals; stretched out.

8.15 A.M.: 1 *Embryo.*—Same as one on last slide.

8.30 A.M.: 3 *Embryos.*—1st stretched out, very feeble; 2nd stretched out, brisker than last, but still decidedly enfeebled; 3rd stretched out, very feeble, *movement irregular, spasmodic, folds or bends* well marked.

Sixth Day, 7 A.M.: *No Embryos.*

7.15 A.M.: 1 *Embryo.*—Quite dead, and shrivelled.

7.30 A.M.: 4 *Embryos.*—1st very feeble, stretched out; 2nd dead and shrivelled, lower one-third of body was very transparent, and with difficulty made out; 3rd stretched out, very feeble, body corrugated; 4th stretched out, very feeble, slight movement, chiefly confined to lash.

7.45 A.M.: *No Embryos.*

8 A.M.: 1 *Embryo.*—Almost dead, stretched out, with flattened appearance.

Seventh Day, 6.30 A.M.: 11 *Embryos.*—1st to 5th stretched out, very feeble; 6th apparently quite dead, extended in circular form; 7th and 8th normal; 9th to 11th stretched out, and all more or less feeble.

6.45 A.M.: 4 *Embryos.*—1st and 2nd stretched out, very feeble, scarcely moving, and what motion there is, confined to extremities.

7.15 A.M.: 3 *Embryos.*—1st normal; 2nd stretched out and much less vigorous, motion irregular and chiefly confined to lower extremity; 3rd coiled in two loops, very feeble, irregular movement, with marked pauses, evidently in last stage of debility.

The foregoing are the notes taken immediately on each slide being charged, and from the appearances therein described I think it is evident that some decided change takes place in the condition of the embryos just prior to their retirement from the circulation. The contrast with the vigorous, rapidly-moving organism seen at night was very marked. Then, the movements are almost too rapid to be distinguished; now, in the majority of cases, irregular and with distinct pauses. Then, the stretching out or extension of the body being but temporary, and apparently only with a view to alteration of position; now, is permanent, and obviously the result of weakness.

It may be suggested that these are only the premonitory signs of approaching and temporary lethargy, and that those embryos which seem to be defunct are not so in reality, but in a state wherein they remain until the mosquito calls them forth in renewed vigour for their nocturnal rambles. I am inclined to doubt that in this state any mere power of adhesion would enable them to resist the force of the blood current. In fact, if we do suppose them to congregate in any central part during the hours of their absence from the circulation, they would need to expend much energy in order to maintain their position. It would be necessary for them to work at full speed against the tide, just as the typhoon-pressed vessel is sometimes able to preserve her place only by "steaming to her anchors."

Again, I think if torpor were the state indicated by the appearances I have described, the departure of the embryos would be more simultaneous, instead of being comparatively so gradual as we find it.

Of course, in the present state of our information all must be more or less surmise; still I am prompted to think, from what I have seen, that creatures exhibiting such signs of physical debility just prior to their withdrawal from the blood are in reality approaching a condition which ends with their existence.

I have not thought it necessary to describe in detail each evening observation, for all the embryos seemed to be vigorous and healthy, exhibiting a marked contrast in condition to those extracted in the morning. As it is of great importance, in order to get reliable observations, that extreme precautions be taken to avoid injuring the embryos, it may not be out of place to allude to the consequences of carelessness in withdrawing the blood or applying the covering slide. The blood drawn should flow or spring freely from the puncture, without any extraneous aid save that afforded by the slightly constricting band previously applied to the finger. When squeezing or rubbing of the part, in order to force out more blood, was attempted, I found that the serum was separated in the drop before it became large enough for transfer to the slide, and that the embryos were invariably rendered languid in proportion to the distance to which they were removed from the corpuscles. On the slide, towards the edges, it will sometimes be found that a band of serum is formed almost free from corpuscles, or with these in diminished

number. Any embryos found here, or that may work themselves into these limits, are decidedly debilitated or become rapidly so on arrival therein. By watching the entrance of an embryo into the serous area, and contrasting its condition after deprivation of corpuscular contact with that previously observed, the effect will be more readily seen. For these and mechanical reasons, should the drop extracted be insufficiently copious to allow of the blood equally disseminating itself over the whole surface immediately covered by the upper glass, and pressure other than the weight of the covering glass be used to effect this, then the embryos will be weakened and the preparation rendered unsuitable for the purposes in view. Of course, where the mere presence of embryos is all that is desired to be proved, these precautions are unnecessary, although if it be desired to ascertain the numerical relation of embryos to as nearly certain a quantity of blood as can be estimated short of actual measurement, then I think it will be found best to so make the puncture that, as far as one can judge, the same amount of blood springs from the orifice each time. I make my puncture in the middle of the second joint of any of the fingers with a No. 5 sewing needle, and always feel the point against the bone. Done rapidly, this does not appear to cause either increased pain at the time nor irritation afterwards; and for the constriction of the finger I have found a divided india-rubber letter-band bound lightly round the first joint quite sufficient.

Knowing these risks, and with them fully before my mind, I observed the greatest care in preparing the slides which formed the subjects of my investigation into the relative condition of the embryos extracted in the morning and evening, and I can only say that if error has crept in, I have done what in me lies to avoid it; but at the same time, where so much depends on one's ability to appreciate and estimate signs almost entirely consisting of comparative degrees of motion, a single observer may easily be misled or mistaken. To obviate this risk as far as possible, I have sought the assistance of others, and thus far I have met with no difference of opinion.

The experiments first made 15 months ago were undertaken, as previously mentioned, in the presence and with the assistance of Dr. JOHN DUDLEY, R.N., then of H.B.M.S. *Mosquito*; by a coincidence, my last observations were made a few days ago with the assistance of Dr. MCKINLAY, R.N., of the same ship, while at the same time I was fortunate enough to secure the presence and assistance of Dr. PETER ANDERSON, of the English Presbyterian Mission. To these two latter gentlemen I briefly explained my suspicions, and asked them to examine the blood in the morning and evening. I explained and demonstrated at the same time the consequences of carelessness in preparing the slides, and left them to make their own observations. They authorise me to state that, as far as this case goes (and of course none of us can go farther), they agree with the statements I have made. I have also submitted this paper to them, and they continue their support to the descriptions I have given in it of the behaviour of embryos after nocturnal and morning extraction.

In order to secure greater accuracy, I had previously instituted another series of experiments, and although I was not here able to secure the control afforded by simultaneous observations made by other professional men, still I was during the first three days fortunate enough to obtain the presence and assistance of one whose powers of observation have been considerably quickened by his studies in the field of geology and kindred sciences. I am happy

to say that this gentleman also confirms my conclusions. I allude to the Rev. DAVID SMITH, of the English Presbyterian Mission, who became greatly interested in the subject, and through whose intervention I hope to obtain specimens of mosquitos from different parts of the country, as well as further information concerning the presence or absence of elephantiasis and allied diseases in the various districts he may visit in pursuit of his calling.

In order to test the longevity of the embryos after withdrawal from the body, we prepared slides, with all precautions, at 9.30 P.M. and from 7.45 A.M. With a view of preventing desiccation, the slides were carefully oiled for a space of about a quarter of an inch round their rims; blood was then drawn in the manner before described, the covering glass (of similar size and thickness to that on which the blood lay) was then carefully adjusted, and only those preparations were selected on which the blood and its corpuscles were, as nearly as we could judge, equally disseminated. In order to ensure greater opportunities for contrast, blood was extracted at 7.45 A.M. and 8 A.M., these being the morning hours which reference to Table 2 seemed to suggest as being the most suitable. Each embryo was carefully observed and its condition noted, and the following results were obtained. I have arranged the notes in parallel columns for facility of comparison.

MORNING SLIDES.

First Day:—1st Observation, 7.45 A.M.: 12 *Embryos.*

1*st* stretched out, spasmodic action, extremities more active than centre, very languid.

2*nd* stretched out, extremities active, generally languid.

3*rd* stretched out, almost dead, extremities slightly moving with slow undulatory motion.

4*th* stretched out, extremities very active, motion spasmodic.

5*th* stretched out, general movement, but less vigorous than normal, action spasmodic, with distinct pauses.

6*th* stretched out, very weak, action spasmodic.

7*th* more active, stretched out, pauses very marked.

8*th* very languid, two-thirds of body gyrating slowly round passive upper third, which is extended.

9*th* very nearly normal in action, slightly stretched out.

10*th* very languid, about two-thirds of body moving spasmodically, stretched out.

EVENING SLIDES.

1*st Day*, 9.30 P.M.: 31 *Embryos.*

Every one appeared to be vigorous and moving with great rapidity, presenting a "star-like appearance;" motion so rapid as to be quite undistinguishable; no stretching out or other sign of debility to be seen in any of the embryos coming under observation.

MORNING SLIDES.

11*th* stretched out, spasmodic, interrupted action, quite languid, remaining passive for some time.

12*th* stretched out, less languid than last, though evidently weak.

8 A.M.: 7 *Embryos.*

1*st* stretched out, very languid, one portion gyrating slowly round passive part.

2*nd* languid, gyrating, spasmodic action, stretched out.

3*rd* stretched out, very languid.

4*th* stretched out in long semi-oval, very feeble.

5*th* stretched out, spasmodic action, very languid, motion confined to extremities.

6*th* more active than last, stretched out.

7*th* stretched out, nearly normal action, though pauses are discernible.

2nd Observation; Preparation 12 hours old. 7.45 A.M. *Slide, only* 8 *Embryos now visible.*

1*st* quite dead.

2*nd* stretched out, languidly moving.

3*rd* much the same as last.

4*th* ditto, ditto.

5*th* more vigorous than others.

6*th* stretched out, but very vigorous.

7*th* stretched out, languid.

8*th* stretched out, much more feeble, what action there is, spasmodic.

8 A.M. *Slide, only* 5 *Embryos now visible.*

1*st* upper two-thirds of body curled, and slowly moving on lower one-third, very feeble.

2*nd* ditto, ditto.

3*rd* stretched out, weak undulatory motion.

4*th* stretched out, more vigorous.

5*th* stretched out, very weak.

Second Day:—3rd Observation at 9.30 P.M.; *Preparation* 36 *hours old.* 7.45 A.M. *Slide,* 8 *Embryos only visible.*

1*st and* 2*nd* dead.

3*rd* wriggling itself in knots, then passive for two or three seconds, convulsively freeing itself, pausing a like time, and then repeating the process.

EVENING SLIDES.

Second Day:—2nd Observation at 9.30 P.M.; *Preparation* 24 *hours old.* 9.30 P.M. *Slide,* 31 *Embryos visible.*

All more stretched out than on previous evening, and the movements less vigorous, especially about oral extremity.

Two embryos seemed less active than rest, but otherwise no very marked signs of debility.

MORNING SLIDES.

4th stretched out, more vigorous, spasmodic action, with long pauses.

5th stretched out, much attenuated, resting by head and tail, very feebly swaying rest of body.

6th head moving languidly to and fro, lower part of body convulsively starting occasionally, but no general movement, very feeble.

7th moving languidly, with undulatory motion along body, distinct pauses, stretched out to full length.

8th quite dead, attenuated, transparent, and shrivelled up.

8 A.M. *Slide, 36 hours old; 5 Embryos visible.*

1st and 2nd dead.

3rd very feeble motion in oral extremity, otherwise passive.

4th ditto, ditto.

5th very languid movement in both extremities.

Third Day:—4th Observation at 9.30 P.M.; *Preparation* 60 *hours old.* 7.45 A.M. *Slide,* 5 *Embryos visible.*

1st only upper third of body present, this very transparent and attenuated.

2nd lower one-third gyrating slowly and convulsively round rest of body, which is perfectly passive.

3rd similar appearance, though the active portion is more vigorous.

4th stretched out, very feeble undulatory motion visible at long intervals.

5th stretched out, slightly more vigorous.

No traces of others on slide.

Fourth Day:—5th Observation at 9.30 P.M.; *Preparation* 84 *hours old.* 7.45 A.M. *Slide,* 2 *Embryos visible.*

1st very nearly dead, motion very feeble.

2nd quite dead.

No others nor traces of others visible on slide.

8 A.M. *Slide, 2 Embryos visible.*

1st very feebly moving.

2nd only about two-thirds of body present, shrivelled up and attenuated.

No others nor traces of others to be seen.

EVENING SLIDES.

Third Day:—3rd Observation at 9.30 P.M.; *Preparation* 48 *hours old.* 9.30 P.M. *Slide,* 31 *Embryos present.*

All more or less stretched out, and motion more undulatory. Lash in one or two instances becoming visible. One very feeble, though movement was general as to the body.

Fourth Day:—4th Observation at 9.30 P.M.; *Preparation* 72 *hours old.* 9.30 P.M. *Slide,* 30 *Embryos visible.*

All more languid than last night, but still movements in most cases very lively.

Three embryos appeared specially weak, and central portion of body nearly passive, but the general uniformity of condition was very striking.

Morning Slides.

Fifth Day:—6th Observation at 9.30 P.M.; *Preparation* 108 *hours old.* 7.45 A.M. *Slide,* 1 *Embryo visible.*

After long watching the oral extremity is seen to move in a barely perceptible manner. No others nor traces of others to be seen.

Twelve hours afterwards both slides examined, and no traces of embryos could be observed on either. The examination of each slide took about 40 minutes, and it was closely inspected several times on each occasion.

Evening Slides.

Fifth Day:—5th Observation at 9.30 P.M.; *Preparation* 96 *hours old.* 9.30 P.M. *Slide,* 25 *Embryos visible.*

General languor marked, and motion more generally confined to extremities.

14th and 18th were very weak, and had to be watched for some time before motion other than in oral extremity could be detected.

Sixth Day:—6th Observation at 9.30 P.M.; *Preparation* 120 *hours old.* 9.30 P.M. *Slide,* 20 *Embryos visible.*

Twelve embryos much stretched out, undulatory motion running along body, pauses distinct.

13*th* to 16*th* much more vigorous.

17*th and* 18*th* quite dead, attenuated.

19*th* movement like the first embryo observed.

20*th* only two-thirds of body present, very transparent. No traces of others visible.

Seventh Day:—7th Observation at 9.30 P.M.; *Preparation* 144 *hours old.* 9.30 P.M. *Slide,* 12 *Embryos visible.*

1*st* to 8*th* movement decidedly feeble and spasmodic.

9*th* to 12*th* quite dead, transparent, two-thirds of another embryo was visible, it was much attenuated. No traces of others visible.

Eighth Day:—8th Observation at 9.30 P.M. *Preparation* 168 *hours old.* 9.30 P.M. *Slide,* 4 *Embryos visible.*

1*st* very feeble motion of both extremities, central part of body passive.

2*nd* quite dead.

3*rd* very languid movement in lower extremity, which had to be watched for some time before it was detected.

4*th* quite dead. There were traces of two or three others, or what appeared to be portions of others.

An examination made 12 hours afterwards failed to detect any living embryos, and only one dead one was seen, with traces of two others. The slide was examined for about 40 minutes each day.

It will thus be seen that, 12 hours after extraction, out of the 12 embryos originally contained on the 7.45 A.M. slide, 4 had disappeared, and there was 1 dead embryo in the field. With the 8 A.M. slide, after 12 hours, 2 had disappeared; 24 hours after this—that is, 36 hours after withdrawal,—2 dead embryos were visible, but there was no diminution in the number on the 7.45 A.M. slide.

In 60 hours only 5 embryos, or rather $4\frac{1}{3}$, were to be seen on the 7 45 A.M. slide, making a total loss in the time of $7\frac{2}{3}$. The 8 A.M. slide does not appear to have been examined at this time, for I have no note of it; but in 84 hours only 2 embryos were visible on the 7.45 A.M. slide, 1 of which was quite dead, making a loss in this time of 10.

On the 8 A.M. slide there were also only 2 embryos visible, or rather $1\frac{2}{3}$, and in 108 hours but 1 embryo *in articulo mortis* was to be seen on the 7.45 A.M. slide.

With the evening slide I found that up to 24 hours the numbers remained undiminished and the condition satisfactory, though certainly less vigour was displayed than on the first observation, and it was not until 72 hours after withdrawal that the first embryo disappeared, and very decided signs of debility were present. In 96 hours langour became very marked, but still only 6 embryos had disappeared; and in 120 hours 11 had vanished, and the dead and dying were met with for the first time on the field. In 144 hours but 12 remained, and again dead embryos were to be seen. At the eighth observation—that is, 168 hours after withdrawal,—only 4 embryos were to be detected on the slide, 2 of which were quite dead and the others nearly so. 12 hours afterwards all had disappeared. In a word, the embryos withdrawn in the morning and treated in an exactly similar manner to those withdrawn in the evening were all more or less weak when first extracted, and had all died or disappeared two or three hours after the termination of the fourth day; whereas those withdrawn in the evening had not all disappeared or died until an hour or two past the seventh day, besides being very much more vigorous at the outset, and preserving their vivacity for a considerably longer period. It may be asked why, if the embryos die every 24 hours in the host, do they live so much longer when liberated? In reply to this I would suggest that up to a certain time the act of withdrawal is a compliance with the natural requirements of the parasite, and that whereas it is not impossible that continuance in the circulation of the host beyond the time allotted to them may set up influences designedly calculated to bring about a rapid fatality, and thus clear the way for the new swarm, on the other hand, some time might be necessary before the inadequacies of the artificial state made themselves felt; and thus, in lieu of sudden and general destruction, we have the gradual decadence of strength and vigour exhibited by the embryos preserved on the slides.

As to the cause of disappearance, I do not feel sufficiently informed to venture more than a surmise. I took every precaution to avoid missing embryos in my various searches, and I think the condition of the portions of embryos seen lends weight to the supposition that solution may be the final process by which removal is effected; at least, it would appear from what I saw that this was the most reasonable and probable method of accounting for what is no doubt a very remarkable and puzzling phenomenon. It may be (and on this account I am most anxious to speak with the greatest diffidence and caution) that all I observed is peculiar

to the solitary case on which I was able to experiment, and it may be found that with different subjects different results are obtained; this time and future investigation alone can determine.

As some experiments I made by applying various matters to the blood, in order to observe the effect on the filariæ, may be of some interest apart from the immediate object for which they were undertaken, I will here describe them.

To the preparation I added a drop of water, and from this the most speedy effects were visible. The blood corpuscles were washed away from the embryos, and the latter, absorbing the fluid, became dilated and enfeebled, and rapidly died. The great effort of the embryo seems to be to get in contact with the red corpuscles, and as soon as it becomes affected, this anxiety is more marked.

To another preparation I added a few fine crystals of arsenious acid. The embryos immediately began to stretch out, both they and the corpuscles becoming very transparent. The embryos moved in a feeble, jerky manner, and in 38 minutes the first death was noted. It was astonishing, however, what a comparatively large quantity of the drug it took to bring about this result.

To a third slide I added salicylic acid, when again extension and enfeeblement began immediately, and gradually increased until eight hours afterwards, when the first dead embryo was seen.

To a fourth drop I applied santonine, and although the embryos immediately began to extend their bodies and show symptoms of debility, the effect of this medicine was very much less marked than that of either arsenic or salicylic acid.

Quinine (I used the bisulphate on account of its solubility) had a rapid effect in reducing the embryos to the last stages of weakness; indeed, apparently a more speedy one in this respect than the arsenic, but I was not able to be sure of the death of an embryo until five or six hours had elapsed. When To Ah was taking quinine (and so it was with the other two patients), I always noticed that the embryos were much less lively and healthy looking, and for this reason I was particular in seeing that he had taken none for some time before I made the observations set forth in Tables 2 and 3.

As the question is not, however, how to destroy the blood embryos, but rather how to get rid of their parental source, these therapeutical observations do not point to much that could not have been previously surmised, save that it seems likely that before an effective result could be obtained from the use of drugs, the blood would need to be so saturated that the remedies would probably act towards both host and parasite in a manner the impartiality of which would defeat the end desired.

It now seems tolerably certain that the *locale* of the mature worm is in the lymphatic system, and generally in the more superficial glands, so that the exact habits of the parasite, and the situations most frequently selected being first ascertained, it may be found that help lies more in the surgeon's knife than in the physician's medicaments; though, of course, with so indefinite a range, it is also highly probable that more than partial relief, in so far as the presence of embryos in the blood is concerned, cannot be very sanguinely anticipated.

With dogs, though worms are found in other parts of the vascular system, still the greater number abide in the heart, and undoubtedly from that position effect all their mischief. In man, the home of the parasite appears to be less desperately localised; and if it should happen that the favoured and most important lodging is one accessible from the surface, the human sufferer will not only have much of that despair alleviated, which observations on canine subjects might tend to justify, but may hope that those parasites which have taken up their abode in other and deeper situations may, like the extra-cardiac filariæ in the dog, continue their existence without imperilling or materially inconveniencing that on which their own depends.

Alas! in China, where postmortems are so strictly prohibited, much progress in solving the remedial problem cannot be hoped for; but, perchance, clues obtained here from the living may lead to satisfactory results in lands where the pathologist is looked on with less horror and detestation than he excites in this country. I hope very shortly to recommence my experiments on monkeys with the genuine filaria-nurturing mosquito, and should success crown my efforts to infect them, doubtless much useful and interesting information may be obtained. I also hope at no distant date to be able to submit descriptions and measurements of the mosquitos found in this island, with a view of aiding in determining the peculiarities, if any, of those species which are to be dreaded, as compared with those which, as far as the diseases under notice are concerned, need not be regarded with such pathological interest.

CHART 2.

TEMPERATURES in MORNING, while EMBRYOS were disappearing from TO AH'S BLOOD.

(Hours at which Embryos disappeared marked thus +.)

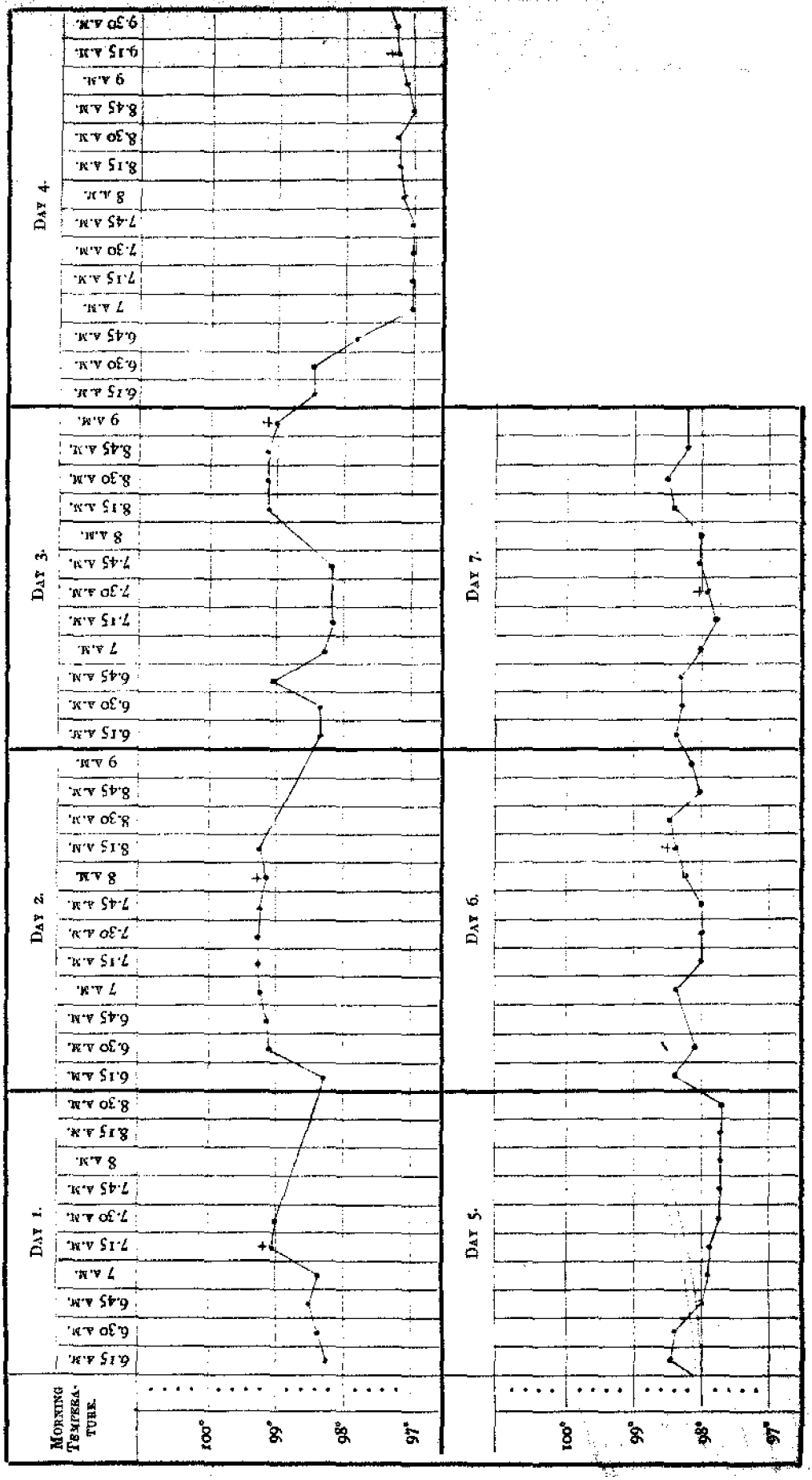
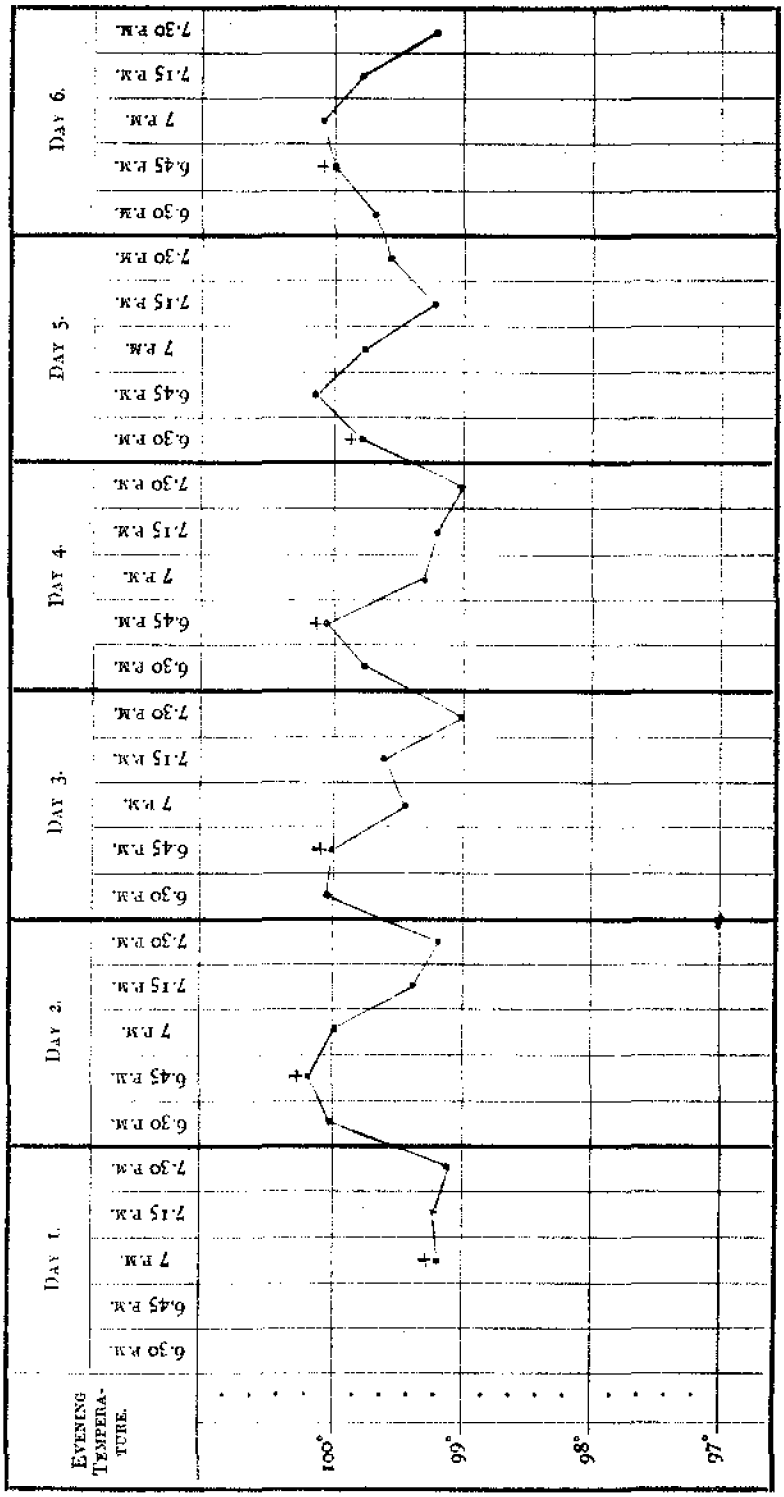


CHART 3.

TEMPERATURES in EVENING, while EMBRYOS were returning to TO AH'S BLOOD.

(Hours at which Embryos reappear marked thus +.)



TRICHINA SPIRALIS IN CHINESE PORK.

By PATRICK MANSON, M.D.

IN his last Report Dr. JAMIESON throws out a suggestion as to the nature of certain obscure cases he meets with among the Chinese. I recollect having seen the combination of fever, rheumatic pains in the muscles, and dropsy, but, until after reading his suggestion that the *Trichina spiralis* might be the cause of this peculiar combination of symptoms, did not seriously attempt an explanation—probably drew over it that cloak for ignorance we call "malaria," and gave quinine.

The scavenger habits of the native pig must expose it to trichinosis and many other parasitic affections, provided the parasites exist in the country. I thought, therefore, it might prove interesting and useful to make a systematic examination, with the view of ascertaining if the pigs' flesh exposed for sale in the native bazaar contained the trichina. A positive result would give us another reason, in addition to those supplied by the filthy habits and feeding of the animal, to proscribe native pork.

By procuring a certain number of specimens of pork daily for a considerable time, I managed to make a microscopic examination of a large number of carcases. The examinations were by no means exhaustive, and I have little doubt that some instances of minor degrees of trichinosis were overlooked. 73 specimens were examined with a negative result; the 74th, however, proved to be extensively trichinosed, enormous numbers of encysted trichinæ existing in every fragment of muscle. A second specimen of the disease was found in the 202nd carcase. The number examined was subsequently increased to 225, but no other example of the parasite was discovered.

These examinations are sufficient to establish the fact that *Trichina spiralis* is common enough in China, and that here, as elsewhere, the pig is liable to become its host. I have no doubt that the whole of the flesh of the animals in which I found the parasite was consumed as food, and I have little doubt that hundreds of pigs similarly diseased, not to mention rats and dogs, are eaten daily in every large Chinese town. Fortunately, pork as eaten by the native is always thoroughly cooked, and cooked in very small pieces; were it otherwise, we should long ere this have heard more of trichinosis in China. Cooked as the natives cook it there can be little danger, but a roast leg of pork cooked in foreign style would certainly be a most dangerous dish. Missionaries and others who travel much in the interior, away from the foreign bazaars, are, I have no doubt, often tempted to improve the meagre fare they have to live on by a dish of pork; but they should beware of the temptation, and if they will have pork, they ought to have it cooked in small pieces, thoroughly, and in native fashion.

NOTES ON SOME SKIN DISEASES.

By PATRICK MANSON, M.D.

OWING to the diathetic influences of syphilis and leprosy, and to the fostering power of ignorance, a high temperature, and abundant dirt, skin diseases of the kind dependent on these causes are well represented in our native hospital. As is the case in most large seaports, syphilis is extremely common in Amoy. There are no regulations in force tending to check its spread, so that the notorious immorality of nearly all classes has brought it into almost every family. Leprosy, likewise, has laid a firm hold on the people, and I see a great amount of it. Amoy being a large town, pauper lepers are attracted to it as a promising place for begging; but this by no means explains the vast amount of leprosy passing through the hospital every year. I have made inquiry personally in many of the villages in the neighbourhood, and find that nearly every hamlet of a few hundred inhabitants has its leper or lepers. Systematic inquiry on this point, as far as it has gone, gives an average of one leper to every 450, or thereabouts, of the population.* Next to syphilis and leprosy, as causes of skin disease,

* When the time comes for sanitary science to have a place in the government of China, this problem of leprosy will be among the first to demand attention. It is a most unfortunate circumstance that Western medical science is not in a position to guide or advise—at least with confidence—on this subject. The important question of its communicability is not yet settled, except in an official way by the Royal College of Physicians. This official settlement is in the negative. But unofficial opinion seems now to be gradually veering towards a settlement in the affirmative, and indeed, in the face of certain well-known facts in the history of the disease, it is difficult to understand how its communicability can be denied. I can only explain the denial by the absolute ignorance which prevails as to the steps of the process and the *vera causa* of the disease. In a recent number of the *Quarterly Journal of Microscopical Science*, HANSEN describes a bacterium he had found in leprosy, and two other Continental observers, EKLUND and NEISSER (*London Medical Record*, July 15, 1880), record somewhat similar observations. Three years ago, by cultivating the juices expressed from leper tubercles, I obtained in great profusion a bacterium resembling that figured in HANSEN's paper. We should be rash to conclude that this bacterium had anything to do with the causation of leprosy, and observers who hurry to similar conclusions should pause. The present is the age of bacteria, and as they are searched for everywhere and in nearly every disease, they are found everywhere and in every disease. Concomitance and consequence are easily mixed up. Such a degenerate and half-dead piece of flesh as is a leper tubercle is just the place wherein one would expect to find bacteria. Though one expects to find maggots in a dead body, yet we do not attribute the existence of the body or its death to the maggots; neither, when we find bacteria in the tubercles of a leper, should we, without other evidence than mere concomitance, attribute the tubercle and the leprosy to the bacterium. This bacillus lepræ, as it has been christened, may, and probably will, turn out a mare's nest, like so many of its predecessors; but studies of the kind ought not to be discouraged. An hypothesis, though only a crude one, is an excellent stimulant to work, and, in trying to establish it, the path leading to the truth may be struck.

It is to be regretted that so little has been done towards the study of leprosy in China. For such a purpose China undoubtedly presents the largest field in the world. Perhaps it has been the least worked. This neglect is in great measure attributable to the short time that has elapsed since foreigners have had the chance to study the diseases of the country, and the impossibility of obtaining postmortem examinations, but principally to the fact that leprosy is studied only in hospitals, rarely in its proper home, few medical men having the leisure or opportunity of following it there. Thus the subjective and objective symptoms of the disease have been abundantly described, and we have had "cases" *ad nauseam*, but genuine and vigorous efforts to study the disease in its home—such as those made by VANDYKE CARTER in India,—and to force from it there the history of its beginnings, and perhaps the secret of its cause, have been few indeed, and there seems little chance that any of us will have the requisite opportunity.

The action of the United States of America in this matter compares very favourably with the complete indifference of the Chinese Government, and the comparative indifference of the English Government. It has lately been brought

in the scale of frequency and importance, come the various skin parasites, animal and vegetable. With the exception of dracunculus and microsporon Audouini, I have found them all here, and very frequently two or more of them in the same individual. Once any of these lays hold of a native, it is likely to run its course uninterrupted by any treatment he may employ. As far as I know, the Chinese have no good parasiticides in general use.

Two skin diseases common in corresponding latitudes in some other parts of the world we miss. I have never recognised either framboesia or ainhum. Pellagra, another skin disease associated with conditions such as are common enough here, I have not seen, and it appears to be unknown. Bad rice and cereals of different kinds are consumed in abundance, but I do not think that maize enters largely into the dietary of any considerable proportion of the population.

As regards other skin diseases, I have not remarked any very striking peculiarity distinguishing them from the same diseases as seen in Europe. Eczema, psoriasis, acne, lupus, and so on, are stock diseases here, as at home. The hypertrophic skin diseases, such as keloid and elephantiasis, are unusually common, but the accepted descriptions apply to them here as elsewhere.

From time to time we meet interesting cases or rare combinations, and in the following notes I have brought together some cases of skin disease which appear to me to possess some points of interest, either as regards diagnosis or treatment.

In a country where elephantiasis Arabum and elephantiasis Græcorum are common, occasionally both diseases will occur in the same individual. There is nothing remarkable about that. But when it comes to be a question of extensive surgical interference for the removal of an elephantiasis scroti in the person of a leper, the feasibility and wisdom of such an undertaking give an unusual interest to the combination of diseases. Such a case occurred in my practice lately, and as the outturn of the operation may encourage others who hesitate to interfere in similar cases, I give the particulars.

Leprosy and Elephantiasis Scroti; Operation; Recovery (Plate I).—Sng Seen, male, æt. 31; farm servant; native of Lamoa; lately resident in Amoy.

His parents are both of them alive and in good health, as are also all his brothers and sisters. His grandfather's two younger brothers were lepers; one of them, still alive, has lost some of the fingers of his left hand, and has several leprous ulcers about him; the other died from leprous ulceration. Seen's wife has elephantiasis of her left leg; she is otherwise well; but the two sons she had are both dead.

In a neighbouring village, about a quarter of a mile from his home in Lamoa, are six lepers. With them, as well as with his leper relatives, the patient had frequent intercourse, working with them, eating with them, and often smoking their pipes.

to light that there are about 100 lepers in the United States. Immediately on the revelation of this fact the means of checking the spread of the disease became subject for discussion, and the thing is likely to become a Government matter. England has been familiar for centuries with the scourge, but, beyond calling for "reports" and establishing one or two leper asylums and other half measures, has done little. There are 100,000 lepers in British India. In China the number is certainly much in excess of this, and yet absolutely nothing is done either to alleviate the misery of the sufferers or to check the spread of the disease. The isolation and segregation of lepers as practised in China is a mere farce. Let us hope that the time is not far off when the Government of this country will recognise and do its duty towards its thousands of leper subjects.

Between his 14th and 19th years he had many attacks of scabies. When 21, had a fever he calls ague; he was laid up with it for about 20 days. The same sort of fever recurred the following year, accompanied by swelling of the right leg and scrotum and groin glands. He sent for a doctor, who cured the leg, but, in spite of treatment, the scrotum continued to enlarge steadily. At 25 the fever returned, and this time the left leg swelled as well as the scrotum. A similar attack occurred in his 27th year, and since then the swelling of the scrotum and left leg has made steady and rapid progress.

Symptoms of leprosy first showed themselves about the time of this last attack of fever, that is about four years ago. Then, spots, with itching periphery and anæsthetic centre, and about the size of a dollar, showed themselves on the left loin and shoulder. During his 28th year the thumb muscles of his left hand atrophied, and two years later the distal phalanges of the middle and index finger ulcerated, and later the little and ring fingers of the same hand became contracted. Leprous spots appeared on his cheeks and chin, and extensive surfaces on different parts of the body became anæsthetic.

Such, briefly, was his condition as regards his leprosy on admission to hospital. The disease was well marked and had made considerable progress. In addition to his sufferings from this cause, he dragged about with him a large elephantiasis of the scrotum, weighing many pounds, and reaching below his knees. His condition was a very wretched one, and the advanced state of his leprosy contra-indicated extensive surgical interference. But the discomfort arising from his tumour was such that he was eager to assume any risk to get rid of one at least of his miseries. As the neighbourhood of the neck of the tumour was not involved in any of the leprosy lesions, and his general health was not very bad, I assented to his request and removed the scrotum. After removal it weighed 31 pounds. From the faulty adjustment of the elastic ligature at the neck of the tumour, there was considerable and unnecessary hæmorrhage, but, notwithstanding this, he bore the operation well, and recovered without a bad symptom. He was walking about within a fortnight of the operation, and when he left hospital the wound was completely healed. Both testicles were free from hydrocele, and, along with the penis, were preserved, well covered by the flaps.

It has been asserted by some that the disease called "morphœa" is but a phase of leprosy. Now, if this were true, in countries where leprosy is abundant morphœa should also be common. This is so far from being the case that, though on the look-out for morphœa for many years, I have never seen a genuine example of this disease where I could be sure of the diagnosis. Pale, circular, waxy-looking patches, devoid of hair and sweat glands, with a vascular border and slightly depressed and anæsthetic centre, I have often seen, but always in connexion with other and unquestionable evidence of leprosy. The only case I have seen which I incline to call genuine morphœa is the following; but even in this instance there are several points wanting to confirm such a diagnosis, and the history points to syphilis rather than to leprosy as the cause.

Leucodermatous Patches with Vascular Periphery; possibly Syphilitic (Plate II).- TCHOON, female, æt. 32; married; husband a coolie, formerly a soldier; lives in Amoy.

She has been married 11 years, and during that time has had three miscarriages, and three children at term. All the children died in childhood; of the miscarriages, one occurred six years ago, the second sixteen months, and the last—at the third month—four months ago.

Her general health is good. She says she has never had any venereal disease; but this assertion I doubt, for when her first miscarriage occurred she was suffering from palmar psoriasis, and in the hospital register of last year there is "syphilis" entered against her name.

The present eruption began about six months ago on her back and face: that on her back she says is better (though from its position it is difficult to know how she can tell); that on her face is spreading.

The eruption on the back is confined to three or four spots, about the size of small *cash*, arranged roughly in line over the spine in the hollow of the lumbar region. They are of the same character as those presently to be described, though coarser and less typical in their appearance.

Two larger patches, one on either side of the middle line, occupy nearly the whole of the skin of the forehead. They are circular, pale patches, exactly like ordinary leucoderma, with the exception that their margins are red and slightly scurfy. The margin resembles very closely an ordinary ringworm, but contains no trichophyton. Like a ringworm, it itches at times. About the centre of both patches there are one or two irregular islands of normally pigmented skin. The whole of the diseased surface is normally sensitive, perspires naturally, and its hairs are still *in situ*. The ring is slightly but distinctly elevated; the included leucodermatous patch is neither elevated nor depressed. Besides these, there is a similar but smaller patch, circular, and the size of a half-dollar, on her right temple; two, the size of *cash*, symmetrically placed on the lower eyelids; and one or two smaller and irregular patches over right malar bone, left temple, and amongst the hair. In one or two places the vascular ring is incomplete, the leucoderma being continuous with the healthy skin.

She says the disease is gradually spreading; she is in good health, and I find no trace of any other active skin disease on the rest of her body.

Scleroderma is generally admitted to be allied to morphœa. On the supposition that morphœa is a form of leprosy, scleroderma should also be common here. I have seen but one case, however. The disease, though a very rare one, is so striking in its characters that it can hardly be overlooked. One can easily recognise it without any special experience in skin diseases.

The following are the particulars of the case I refer to:—

Scleroderma following Fever.—KHIS, male, æt. 34; farm servant; native of Autan, Tangoa.

With the exception of trifling attacks of fever in childhood, and slight dyspepsia when older, enjoyed fairly good health, and was always a good worker, and constantly employed in the rice fields or at other farm work. Fourteen months ago, however, he was laid up with a severe fever, which, towards its conclusion, became a tertian ague. Altogether he was off work for about two months, and when he did get about again he felt excessively debilitated. By degrees his strength improved, and a year before he came to hospital he resumed his work. For about 10 days he felt moderately well. His work was in the wet paddy fields, and was fatiguing. The first intimation he had of anything wrong was a difficulty in bending his knees when stooping to work. This stiffness increased, and, after about a month, he observed that his ankles swelled towards the end of the day's work, the swelling subsiding by morning. This swelling continued for a month or two, and then ceased to recur; but by degrees the stiffness in the legs increased, gradually disqualifying him for work, and making him the helpless cripple he is at present.

He is quite unable to walk. His legs cannot be flexed at the knee beyond a right angle, nor extended to within 45° of the straight—that is, the play of the foot is restricted to an arc of 45°. He does not complain so much about his arms, though they are similarly affected, especially the right arm, the play of the elbow-joint being restricted to an angle of about 90°. The left arm can be extended nearly straight, but the wrists and hand-joints on both sides are almost incapable of movement. This state of affairs has come on gradually *pari passu* with and as the consequence of the extension of the peculiar condition of the skin I will attempt to describe.

The only parts where the skin can be described as normal are the head, neck, upper part of thorax as far down as the nipples, the back as low as the lower angle of the scapulæ, the upper arms as far as the insertion of the deltoid, the groins, and genitals; on the inner surface of the upper arms and elbows it is almost natural. The line of demarcation between sclerosed and sound skin is not very well defined, but may be traced as a broad band of slightly paler skin, shading off on both sides into healthy and diseased tissue. It is not elevated, nor are there any enlarged vessels or vascular streaks. The diseased

skin has a dry, shining, dusky, coppery look. It is impossible to say whether it is thickened, as it cannot be pinched up in a fold, so tightly is it stretched over the subjacent tissues. It looks exactly like kid or fine leather that has been thoroughly soaked, and then, after being tightly lashed to the limbs, allowed to dry. It is finely polished over the knees and some of the other joints, and gives one the impression that, if the limb were flexed, the skin would crack (not tear) transversely; or if it were cut, that the cut edges would spring apart as if a tightly-fitting glove had been incised. The polished legs and arms feel like sticks, so hard and hidebound are they. The hands, wrists and elbows are so gripped by the skin that the movements of pronation and supination have to be made at the shoulder-joint.

Beyond what he endures from inability to move, he suffers but little. At times he has a little aching in the knees and legs, but this hardly amounts to pain. His general health is excellent, and he has had no fever for over a year.

He says that sensation in the affected parts is normal, but declares they do not perspire. These are points I should have liked to investigate for myself, but as he left hospital after the second or third day, I had no opportunity. I ascertained, however, that his urine was free from albumen, that his digestion was good, and that his blood was normal.

Occasionally I meet with cases of chronic thickening and induration of the skin and subcutaneous tissue in different parts of the body. If this is found in the leg or some part where elephantiasis is usually developed, I consider it a limited variety of this disease. But when it is found in the head, or upper part of the body, or in situations where elephantiasis is unusual, and especially if the thickening is symmetrical, some cause other than that of elephantiasis must be at work. The following is an example of this disease:—

Symmetrical Sclerema of Parotid Region.—PONG, male, æt. 17; Ankoe; a field worker.

Five or six years ago the integuments on the left side of the face began to swell and become indurated; two years later, those on the right side took on a similar action. He has had no pain, nor has there been any inflammation whatever. The left ear is rather deaf. He is quite well, and has always been so. None of the cervical glands are enlarged, nor, though rather thin, does he look sick.

Over a surface measuring about 3 inches by 2 covering the parotid glands and articulations of the jaw, the integuments are thickened, coarse and swollen. It is difficult to estimate the degree of thickening, but at the centre of the swelling on the left side, which is the one most affected, it may be about two-thirds of an inch. There is no abrupt line of demarcation between the affected and healthy skin, but the former gradually shades off into the latter. At the centre of the swelling the skin is adherent to the subjacent tissues. The anterior part of the external ear and the external auditory canal are involved on both sides, and the pinnæ in consequence are raised somewhat from the head. There is no discolouration, ulceration, pain or tenderness; only the very manifest swelling and slight coarseness of the surface mark the site of the disease. To the touch it feels like a soft form of elephantiasis.

Once I met with a somewhat similar case of limited and symmetrical hypertrophy of the integuments, but in this instance it was associated with the formation of numerous keloid growths on the skin of the chest, and also very marked exophthalmos. As all of these conditions developed simultaneously, or nearly so, there is reason to think they were all dependent on the same cause, whatever that may have been. The combination, at all events, is an interesting one, and is my reason for giving the following details:—

Limited Sclerema of both Legs; Keloid Growths on Chest; Exophthalmos.—KIA, male, æt. 35; native of Bachang, Tangoa; a farm servant.

Both parents are dead, father at 81, mother at 50. Has four brothers and one sister, all of them alive and well. He himself until lately enjoyed good health.

Two years ago he emigrated to Tækoon, Annam, where for eight months he worked as a rice-pounder; subsequently he was employed as a flour merchant, and latterly as a cook; but his present illness unfitted *him for further work, and about two months ago he returned to China.*

Eighteen months ago a pustular eruption appeared on his chest. Some of the swellings burst and disappeared; others, again, did not proceed to suppuration, but remained hard and elevated, as they are at present. About the same time the affection of his legs commenced, without pain or any sign of inflammation, spreading gradually—the right first, and, about a month later, the left. His eyes have troubled him for about a year; they frequently inflame; sometimes they are worse, sometimes better.

He says he has never had syphilis.

The exophthalmos is very marked, yet he says vision is good. The left conjunctiva is inflamed, and the cornea is inclined to be cloudy. The right conjunctiva is also slightly inflamed, but beyond this slight degree of inflammation and the very marked protrusion of both eyes, they seem healthy. There is no throbbing of the carotids, enlargement of the thyroid gland, marked palpitation, or any of the other symptoms usually associated with Graves' disease, except perhaps the quickening of the pulse, which, when I examined him, beat 100 in the minute. There is an abundant crop of ordinary pityriasis versicolor on different parts of his body, and on the front of his chest about 20 small tubercles, varying in size from a No. 2 shot to swan shot. They are hard, red, and look like small keloids.

On the anterior aspect of the lower third of both legs is an irregular patch of thickened indurated tissue, irregular in outline, measuring about 4 inches by 2 inches. The patches are nearly symmetrical in *shape as well as in position, and feel as if they were about* $\frac{1}{2}$ *inch to* $\frac{2}{3}$ *of an inch in thickness. The effusion* appears to involve the subcutaneous tissue as well as the skin. The colour is slightly darker than the rest of the skin. Sensibility is normal, the hairs are still *in situ*, and the sudoriparous follicles act with those of the rest of the skin. From the slight depression and gaping of the hair follicles, the epidermis has a coarse, rough appearance. Altogether these two patches look like a cross between a large leprosy tubercle and a limited incipient elephantiasis. There is no enlargement of the groin glands, nor, beyond debility, any other disease.

Some years ago I met with a case of hypertrophic skin disease for which I have difficulty in finding a name. Inasmuch as there was hypertrophy of all the integuments, it bore some resemblance to the cases I have just described as sclerema, or to elephantiasis. But when carefully examined, the morbid tissues were felt to be softer than would justify the application to it of the term sclerema, and when subsequently cut into were found to be much too vascular for ordinary elephantiasis. From the latter affection the absence of intermitting lymphatic fever and inflammation tend, in addition, to separate it. I use the term dermatolysis to express the fact that the skin hung in loose folds. I regret that my notes of this case have been mislaid, but its main features I recollect very well.

The man was about 35 years of age, enjoyed good health, and got his living by hawking trifles about the country. He came to hospital to see if I could do anything to improve his appearance. He was so abominably ugly that the village boys used to hoot at him, and pelt him, and otherwise persecute him with their usual ingenious cruelty. The mass of superfluous integument on his face had been many years growing; an idea of its dimensions and general appearance can best be got from Plate III.* Partly to support it, and partly to hide the hideous deformity, the poor man had acquired wonderful dexterity in adjusting his headcloth, and otherwise in concealing his face; but when the support was removed, the whole of the integuments of the left side fell down in massive folds, reaching nearly to his shoulder. The disease occupied all the left side of the face to the middle line, extended upwards on to the hairy scalp,

* As this was taken after the operation, it does not show the full extent of the original disease, as about one-half of the tumour at its lower part was removed.

and backwards to the external ear, which it partly involved. A great fold covered completely the left eye; this organ, however, was quite sound. The nostril and mouth were dragged down enormously. The surface of the hypertrophied integuments was rather coarse, and had one or two warty protuberances on it. If a fold was pinched up between the fingers, the coarseness of the skin could easily be made out, and at the same time it was clear that the subcutaneous tissues were also involved in the general hypertrophy. Hair and hair follicles were coarse, but otherwise normal. In the hope of improving his appearance somewhat, I removed a considerable part of the redundant mass, but, on account of profuse bleeding from a large number of vessels, had to limit the extent of the incisions. He recovered from the operation very slowly, rather improved in appearance and more comfortable, but some years afterwards when I again saw him he was about as ugly as ever.

An artificial form of dermatolysis is very common here on the occiputs of old women. It is produced partly by the dragging of the heavy coiffure, and partly by the way in which the hair is lashed into the framework of this wonderful mystery. The whole scalp is thereby forcibly pulled backwards, and after a time, in many women, is so stretched that a redundant mass of wrinkled integuments accumulates in folds at the back of the head. I have often seen this dermatolysis so considerable that the whole repulsive-looking mass could be grasped in the hand and raised completely away from the cranium. When such a woman becomes bald she uses this piece of redundant integument as a foundation on which to glue or otherwise attach her false hair, thereby in the course of a very few years, still further increasing the deformity.

I refrain from attaching a name to the disease illustrated by the following case. From a superficial examination of the little tumours behind the ears, one would be apt to diagnose molluscum contagiosum, but a careful examination revealed the absence of several of the characteristic features of that disease; for example, the central depression and orifice, the tendency to become sessile when of any size, the expressible contents.* Those on the hands were very hard and apparently fibrous and solid, but those behind the ears gave the impression that, besides the dense fibrous capsule, there was a minute cavity in the centre containing a small quantity of serous fluid; this, and the fact that the disease succeeded the suppression of profuse and habitual sweating, lead me to regard it as an affection of the sudoriparous glands.

Symmetrical Development of Minute Tumours after Suppression of Profuse Sweating.—Im, female, æt. 35; a widow; lives at Tchengnahoe.

She came to hospital to be treated for dyspepsia and general debility; her tongue was coated with a yellow fur; she was constantly eructating gas; had very little appetite, and was evidently very ill.

Observing the peculiar skin disease on her hands and scalp which I will presently describe, I took some trouble to get at her antecedents; but she appeared to be so depressed, and was so reticent, that it was very difficult to get her to speak about her history. However, I ascertained that her husband died abroad about 10 years ago, and left her, with two children, to the care of a relative. She was very much attached to her children and guardian; and when three years ago they all died, one after another, she grieved excessively, lost her appetite completely, and gradually fell into the state of semi-dementia she is in at present. She says she has a tumour under the left false ribs, possibly an enlarged spleen, but declines to allow an examination. She cannot say when this began, but gives no history of fever. She states that about the time of her children's death she spat blood on two occasions, but only in very small quantity; has no cough now. She also states that since that time till within three or four months ago, her scalp

* According to my experience, molluscum contagiosum is not a common disease in this part of China. I have seen a few cases of it, however, both in foreigners and natives.

perspired very profusely, wetting her hair and pillow. This excessive secretion gradually diminished, and at the same time the tubercles on hands and head began to appear.

The eruption is confined to the hands, wrists, back of the ears, and neighbouring scalp.

Left hand: the tubercles are grouped on the back of the hand, especially over the metacarpo-phalangeal joints of the thumb, fore and middle fingers, and at the joints of the fingers, also at the wrist over the end of the ulna. The smaller tubercles are hemispherical, the larger somewhat flattened, varying in size from a No. 2 shot to bosses half an inch in diameter. They are hard, movable, and are evidently situated in the corium. The surface is smooth, and has the same colour in some instances as the rest of the skin, while in others it is slightly polished and has somewhat of a pale pink, waxy look. One tubercle, larger than the others, is distinctly cupped at the centre, and in its neighbourhood are several others, smaller, and with this condition less strongly marked; these are over the end of the ulna. There are no tubercles on the palm of the hand, nor on the inner surface of the arm; but if the finger is run over the skin, especially of the lower and dorsal part of the fore-arm and the back of the hand, irregular thickening, as if from effusion into the corium, can be felt; the eye can hardly detect it, however, the effusion is so small, and is unaccompanied by any discolouration.

Right hand and wrist: similarly affected, though in a less degree.

None of these tubercles are deficient in sensation, though their appearance is somewhat suggestive of leprosy.

Behind both ears, but not implicating the pinnæ, over the mastoid processes, and extending both upwards and backwards for 3 or 4 inches, more sparsely towards the circumference than on the mastoid region, are many small pearly-looking tubercles, in size ranging from No. 1 to B.B. shot, each nearly a perfect hemisphere, and springing abruptly from sound skin. Some are rather brown and discoloured, but the majority are perfectly clean and smooth, looking as if they were pearls that had been cut in two and glued to the skin. They are very firm to the touch and are normally sensitive. In the scalp one can see they have no connexion with the hair follicles; they are between the hairs, and no speck or depression can be found at the centre suggestive of an orifice or duct. A needle thrust into a tubercle meets with considerable resistance at first, but after it has penetrated a short distance, a feeling is conveyed to the finger as if the point had entered looser tissue or a small cavity filled with fluid; and, indeed, in some instances in which I had pricked the tubercle, a minute droplet of clear fluid appeared at the puncture on the withdrawal of the needle. They are not at all vascular; they bleed but little when pricked or when snipped off with a scissors. None of them are sessile or umbilicated.

The skin at the back of the neck is very dark and coarse, and feels thickened, and here and there are a few badly-defined tubercles. Towards the lower part of the area, and where the skin is coarse and tends to lie in folds, the tubercles are for the most part arranged roughly in lines on the ridges following the normal flexures of the skin.

At the tip of tongue, and exactly in the middle line, is a smooth tubercle of the same shape and size as those behind the ears; it is pink on the surface, one or two flattened atrophied papillæ shining through the epithelium.

She says there are no tubercles on her body or legs, but declines to allow me to look for myself.

I removed one or two of the post-auricular tumours and placed them under the microscope, but beyond ascertaining that they were principally made up of an interlacement of fibrous tissue, I could make out nothing of importance.

The liability of cicatricial tissue to assume a keloid character in the dark-skinned races is well known. The Chinese in this respect probably occupy a position intermediate between the black negro and the fair European. I have therefore frequent opportunities of seeing this disease, and some time ago met a case illustrating a feature not referred to by the usual authorities.

Cases like that represented in Plate IV are common, and I see from Dr. DUDGEON'S *Peking Hospital Report for 1879* that he is familiar with them likewise. The lobules of the ears when pierced for ear-rings, owing probably to the subsequent constant irritation they are subjected to when healing, frequently become the seat of keloid growths; and I am often called on to remove such. In this particular woman the tumours were large—bigger than walnuts,—and from their symmetry produced rather a singular appearance.

Plate V is the photograph of a farm labourer, with two large symmetrically-arranged keloids on the hairy scalp, about 1½ inch behind the pinnæ. He states that they began to grow after the healing of a pustular eruption, which, starting in the occipital region, spread laterally in the direction of the ears. The small ulcers healed perfectly, but from the scars of two of them the growths arose. Each tumour was about 1½ inch in diameter and ¾ inch in thickness. They sprang abruptly from the sound tissues, and had all the usual characters of keloid, with the exception that they wanted the claw-like processes usually found running from the circumference of such tumours.

A tendency to symmetrical arrangement such as we see in these cases I have not found attributed to this disease. It might be said that the symmetrical disposition was artificially produced in the first instance, but such cannot be adduced to explain this peculiarity in the second; for though the pustular eruption—the exciting cause—occupied a considerable area of the scalp, yet it was only at two points symmetrically placed behind the ears that the cicatricial tissue took on this peculiar hypertrophy.

It would appear, therefore, that the skin on each half of the body has local peculiarities, which peculiarities are symmetrically disposed; and that when the appropriate exciting cause is symmetrically applied, symmetrical disease results, though when applied on other parts it may be innocuous. It is customary to regard symmetrical arrangement of skin disease as evidence of blood taint or constitutional affection, but one frequently sees in the case of epiphytic skin lesion, especially in pityriasis versicolor and in the disease I described some years ago under the name of tinea imbricata, an almost perfect symmetry of distribution. In these cases there can certainly be no question of constitutional disease; the explanation is that in such cases and in certain instances of keloid, the elements capable of supporting a fungus or taking on a keloid character are not universally distributed throughout the entire surface of the body, but irregularly as regards each side and symmetrically as regards opposite sides.

I lately saw an excellent example of that rare form of pityriasis versicolor known as pityriasis nigra. From the frequency with which the Chinese and foreigners in China are attacked with chloasma, one would think pityriasis nigra should not be a very rare occurrence, but I recollect seeing only one other case.

The man the subject of this note was a silversmith in Amoy, 24 years of age, and in the enjoyment of excellent general health. His skin disease had been in existence for about five years. It persisted throughout the year, the only difference the cold weather made on it was an increase of the scurfiness. The dark colour was unaffected by changes in the temperature or moistness of the atmosphere. When I saw him, the skin of the chest, neck, abdomen, back, arms and fore-arms was all more or less involved, and in degree in the order in which I have enumerated the parts. The legs and face were not affected. On the chest and neck the patches were very large and ran into each other, elsewhere the disease was in small

circles varying in size from a pin's head to a *cash*. The colour of these patches varied from a dark brown almost to black, the colour being most intense towards and at the circumference. An ordinary chloasma would in this man have been paler than the healthy skin. I removed with a knife the epidermis from one of the smaller and darker patches, and, after moistening it with a little liquor potassæ, placed it under the microscope. When the epidermis was removed, the subjacent skin was seen to be of the usual natural colour, and it was evident, therefore, that the pigment matter was quite superficial, and not a deposit in the rete Malpighii. The result of the microscopical examination was to show enormous development of the ordinary microsporon furfur, the spores aggregated in grape-like bunches scattered over the intricate much-segmented mycelium in the usual and characteristic patterns; but instead of the grape-like bunches of spores being a light fawn colour, they were very dark, and might be likened to bunches of dark-coloured grapes. The pigment appeared to be deposited in the wall of the double-outlined spores, more in the spores at the outside of the bunch than in those at the centre, and in certain bunches, where it was in great abundance, the little spores had a withered, shrivelled look, a sort of pigmentary degeneration. Surrounding many of the bunches, minute particles of pigment could be seen free of the fungus elements. In many places there were larger and coarser masses of dark brown matter, suggesting by their granular appearance that they were the withered remains of spore clusters. As a rule, the mycelium was plump and healthy looking, but occasionally two or three segments were to be seen more or less pigmented—some, indeed, being quite shrunken and black looking, like pieces of charcoal.

It is evident, therefore, that pityriasis nigra is the result of a disease, if I may so term it, of the ordinary microsporon furfur, and that it does not owe its characteristic appearance to any exaggeration of the natural pigment of the rete Malpighii, but to pigmentary degeneration of the fungus in the epidermis.

A.—Dr. JAMES WATSON's Report on the Health of Newchwang for the Year ended 31st March 1881.

THE climate during the twelve months under review was somewhat drier, the spring was less boisterous, the autumn's advent earlier, and the winter was introduced by a more sudden and a severer degree of cold, than in some recent years. As a consequence of the little rainfall in summer, we had a good many days in which disagreeable duststorms occurred, but there was no appreciable increase of sickness during that season, which we sometimes have in such circumstances.

With the exception of one or two cases of severe diarrhœa in young children, the summer was as healthy to Chinese and foreigners alike as it was cool and pleasant.

The winter weather was not specially remarkable, except that two severe snowstorms occurred, with violent north-east winds. It was almost impossible to endure their violence, so fierce and blinding were the wind and snow. There had been no snowstorms in this district approaching them in force during the preceding 15 years. The meteorological table which I append to this Report gives with sufficient detail all that is necessary to furnish as to the climatic conditions which have obtained during the year.

While to foreigners and Chinese the summer was a salubrious season, the winter months were notably unhealthy so far as the former were concerned. There was the ordinary amount of sickness among the Chinese, but nothing more, while almost every foreign resident suffered, and in some cases severely. If there had been relatively as much sickness among the Chinese as there was among foreigners, I should have been tempted to assign as the cause the small rainfall during the summer and autumn. But this theory is not tenable, as the Chinese are crowded together, and depend upon rain as a means of clearing out their drains and carrying off their filth, while the European community live in large compounds and in comfortable houses far apart from each other, have no drains, and have all noxious matters removed from their vicinity at short intervals. Our circumstances as compared with the Chinese in a sanitary point of view are extremely good, and yet our little settlement had a much higher per-centage of sickness than the native town during the winter. This is exactly the opposite of what in the past has been our experience in summer or winter. During the cholera epidemic hundreds of Chinese died, while no foreign resident suffered from the disease. In the same way small-pox and other fevers have in the past been common among the Chinese, and unknown among the European community. This winter the tables were turned, and, from some cause which I cannot discover, we have had an epidemic of quinsy, and a considerable number of cases of measles, besides individual cases of scarlet fever and typhus. I shall in a sentence or two refer to each of these diseases.

Quinsy, although not generally a dangerous disease, is sufficiently disagreeable. In my experience of it last year it attacked nearly every foreign adult. In most instances the inflammation of the tonsils proceeded to suppuration, and in one case assumed malignant features. The majority of these patients had more than one attack. The largest number and severest cases occurred in the first half of the winter. After a considerable fall of snow the affection became less frequent and milder in character. As to treatment, I found the inhalation of steam, and gargles of hot water with laudanum, relieve the pain; and the application of the solid nitrate of silver and astringent gargles rapidly cured the ulceration.

Measles occurred in six European families, and there were in all 13 cases. Two or three of them were severe as regards the amount of fever and pulmonary congestion, while one was complicated by rheumatism in the wrists and ankles; but all made a perfect recovery. Of these 13 cases, two were adults, the others children between 1 month and 8 years of age.

Scarlet fever is not common in the north of China, but I have on former occasions reported one or two cases of it.

Last winter two children (sisters), aged respectively 2 and 4 years, had very sharp attacks. In each case the characteristic rash appeared within 24 hours of a somewhat severe vomiting fit, which in both instances was the first hint that there was anything wrong. In the elder of the two the fever ran high and there was considerable delirium at night. The throat was severely inflamed, as were also the cervical glands. Throughout the course of the disease the urine was regularly tested, and, with the exception of one or two days, there was merely a trace of albumen in it; on those two or three days, however, the amount of albumen was large. In the younger patient the fever was not so high, and there was no delirium; but about the eighth day of the sickness nervous symptoms manifested themselves in the shape of sudden and frequent twitches and starts while asleep, and great irritability when awake. These symptoms were explained by the discovery of an abscess in the inner ear, where the fever poison seems in this case to have spent its power. Throughout the course of the fever the urine was never collected, and I was not able to test it. Desquamation was very considerable, and many of the scales were as large as florin pieces. The weakness in both was marked, but the younger soonest gained her normal strength. Four months after convalescence the cervical glands in the case of the elder sister remained distinctly enlarged, although a nourishing diet, cod liver oil, and the syrup of iodide of iron had been prescribed and persevered in. The primary treatment was simple. A mild saline mixture was exhibited, a warm bath was taken every night, and the whole body rubbed over with beef fat.

The nurse while tending on these two children suffered from a severe attack of quinsy, and required to be confined to bed for several days. Not only were the tonsils acutely inflamed, but the ulcers which formed took on an unhealthy action, and eventually a malignant character. At first I suspected the case to be one of scarlet fever, although there was no eruption and I was assured the woman had twice in England suffered from scarlatina. Eventually, however, I convinced myself that the case was a severe one of quinsy. There was no desquamation, the urine was nearly normal, and although the weakness induced by the suffering and inability to eat for some days was considerable, the ultimate recovery was good, and more rapid than if it had been a case of scarlatina.

Typhus.—There was but one case of this fever during the year, and, as in the past, it occurred in the French Roman Catholic Mission.

The patient, the sister superior, had a distinct rigor, and was at once put to bed, while I was sent for. I found her complaining of severe headache, and pains in the back and limbs. The characteristic weakness of typhus was early manifested. On the third day she fainted three times, and throughout the course

of the fever it was necessary to support her by the free use of wine and other stimulants. The eruption appeared on the evening of the fourth day. There was never a very high temperature observed, the pulse ranged between 115 and 130, and there was much mental confusion, but no delirium. The only points of interest about this case were the exaggerated weakness of the patient, and the many weeks that elapsed before she regained her usual health.

I have seen a good many cases of typhus and have carefully observed and noted its symptoms, but I have never seen alarming weakness so early induced in this affection as in the members of the French mission. It is difficult to suggest a sufficient reason for this. Both priests and sisters have a simple but sufficient diet, with a moderate allowance of wine, and they all seem satisfied with their work and mode of life. The monotony of their life is a serious depressing factor, and when this is added to the grave elements of the disease, it may be enough to account for the condition of absolute and almost immediate prostration which declares itself when they suffer from typhus. The sister whose case I have referred to, after a prolonged period of weakness, is now in perfect health.

Frostbite.—In the beginning of winter a good many cases of frostbite occur in the crews of Siamese vessels. I do not think I have ever observed a Chinese or European sailor so affected. But the Siamese often suffer from frostbite before the temperature is at the freezing point, so sensitive are they to even moderate cold; and if Siamese vessels did not leave our port before the severe winter overtakes us, there is no doubt frostbite would be a frequent and serious affection of their crews.

A Siamese vessel, the *Kimyongtye*, left Newchwang on 27th October, and, encountering a strong south-west gale, sprang a leak. The captain attempted to reach the coast of Corea, intending to beach his vessel, but a calm occurred, and it sank some four miles from the coast, in about 36° north latitude. The crew, consisting of a Danish master, 10 Swatow Chinamen, and 16 Siamese, managed to reach the shore in a boat and a water tank. The chief officer and a sailor were drowned. The Coreans treated the shipwrecked crew kindly and supplied them with food, and they were conducted on the backs of oxen, or carts drawn by oxen, to Chinese territory, and there handed over to the authorities of this province on the 30th December. On the 1st January they continued their journey, travelling from 3 o'clock in the morning until sundown, and in seven days reached Moukden, where they remained a week, during which time they were well treated, each person receiving $5 and a sheep-skin coat. On the 17th January they left Moukden, and on the following day they encountered what they described as a "fearful snowstorm," the first they had experienced in their travels. On the 20th one of the Siamese died from exhaustion; two days later the shipwrecked crew arrived in our settlement, and I was asked to see them. I found that the captain and several of the Siamese crew were slightly affected by frostbite, and that one of the latter, so long ago as the 8th January, had complained that he was unable to move, in consequence of both his feet having lost their vitality. In addition to the sailors, there were two Siamese women, and a child two years old, who arrived here without having suffered any evil consequences from their exposure. The 10 Chinamen were also quite well.

The man whose two feet were so seriously injured was the only one who suffered severely from the hardships they had all passed through. He was in a very depressed state. Both feet were apparently quite dead; but as I have seen some cases recover when vitality seemed entirely lost, I attempted by repeated friction with snow, persevered in for some days, to restore sensation to the parts, but without avail. Twelve days after I first saw him, a distinct line, separating the living from the dead tissues, appeared. It was, however, necessary to wait, not only for the living parts to regain their normal vitality,

but that the general health of the poor fellow might be improved, before amputation could be thought of. Under the influence of good food, his general health slowly and slightly amended, when I determined to remove both feet by amputation at the lower third of the leg. I performed the operation on the 7th March, and although my patient was in anything but good condition, both stumps did well. In each a considerable portion of the flaps united by the first intention.

Dislocation of the Shoulder; Reduction after Three Months.—The dislocation in question, which was downwards, is sufficiently frequent, and in the present instance was caused, as it generally is, by a fall on the hands. My only reason for mentioning it here is that one seldom reads or hears of cases where reduction is effected so long after the accident as in this case.

The patient was a fine, strong Chinaman from Moukden, who came to me after having visited several native doctors, who had failed to reduce the dislocation. My belief is that he cannot have consulted them until a long time after the accident, as many Chinese doctors in this neighbourhood are skilful in the treatment of such accidents. I have on one or two occasions been sent for to see natives who have had falls and dislocations, but before my arrival on the scene, the mischief had been discovered and rectified. In the present instance it was necessary to put the patient very deeply under the influence of chloroform; but with my foot in his axilla, and the assistance of a Chinaman to pull with me, while another exerted counter-extension, I was fortunate enough to reduce the dislocation. For a couple of days afterwards there was some pain in the neighbourhood of the joint, but when I saw him, about a week subsequently, his joint was not only free from pain, but it was nearly as useful as before the accident.

During the year such accidents as sprained ankle, partial rupture of muscle, fractured ribs, lacerated hands—the latter requiring minor operations,—etc., have occurred in my practice on shore or in the shipping in the harbour; but as none of them were of special interest, I merely name them to indicate the character of the routine work at this port.

One death occurred during the year. The deceased was a member of the Customs out-door staff. He came here from one of the river ports suffering from a number of ailments; the liver was diseased, and an abscess in it opened into the bowel; the lungs were condensed, and the large bronchi secreted large quantities of purulent matter, but there were no pulmonary cavities; the tissues generally were atrophied; and the heart was weak, and anæmic murmurs in its neighbourhood were often very distinct. He died on the 1st March from general wasting or phthisis.

There were two European children born during the year.

Mr. T. J. BALLARD, Harbour Master, has kindly assisted me in drawing up the meteorological table which I append to this Report.

METEOROLOGICAL TABLE for the Year ended 31st March 1881.

YEAR AND MONTH.	Highest Reading of Barometer (Aneroid) for the Month.	Lowest Reading of Barometer (Aneroid) for the Month.	No. of Days Temperature fell below Zero.	No. of Days Temperature fell below 10°.	No. of Days Temperature fell below 20°.	No. of Days Temperature fell below 32°.	No. of Days Temperature fell below 42°.	No. of Days Temperature was above 65°.	No. of Days Temperature was above 70°.	No. of Days Temperature was above 75°.	No. of Days Temperature was above 80°.	No. of Days Temperature was above 85°.	No. of Days Rain fell for upwards of 2 Hours in the 24.	No. of Days Snow fell for upwards of 2 Hours in the 24.	No. of Days no Rain or Snow fell.	No. of Days Thunderstorms occurred.	No. of Local Dustetorms.	No. of Days High Winds prevailed for a longer Period than 2 Hours in the 24.
1880.																		
April.....	30.50	29.67	...	...	...	4	21	...	...	...	...	...	3	...	25	...	...	1
May.....	30.19	29.61	...	...	...	...	2	22	12	2	...	...	2	...	27	...	5	2
June	30.25	29.74	...	...	...	...	2	30	30	23	5	..	1	...	27	...	6	...
July.....	30.09	29.57	...	...	...	...	...	31	30	30	20	...	9	...	23	1	...	...
August	30.14	29.45	...	...	...	...	...	29	31	27	20	4	3	...	27	...	1	...
September..	30.49	29.92	...	...	...	...	...	22	18	11	4	...	5	...	23	...	...	...
October	30.74	29.74	...	...	...	8	17	6	2	...	...	...	1	...	27	1	4	2
November ...	30.80	29.66	...	...	6	25	30	...	...	...	...	...	2	...	27	...	...	2
December ...	30.80	30.20	...	15	31	30	31	...	...	...	...	...	...	...	27	...	...	...
1881.																		
January.....	30.68	29.92	9	24	30	31	31	...	...	...	...	...	...	1	27	...	1	1
February.....	30.75	30.01	4	20	28	28	28	...	...	...	...	...	...	2	18	...	1	2
March	30.94	30.04	3	7	13	21	28	...	...	...	...	...	...	3	25	...	...	1

REMARKS.—The highest temperature registered was 91°, on the 4th August. The lowest temperature registered was -9°, on 18th January. Two severe gales occurred. One, on 24th October, commenced at 4.30 P.M.; force 10 up to 9 P.M., and 8 up to 9 A.M. on the 25th instant; commenced as N.W., and changed to N.E. The other gale occurred on November 24th; it commenced at 8.30 P.M.; force up to midnight, 10; from midnight up to 3 P.M. on the 25th instant, force 9; the gale was from the N.E.

The river was still crowded with floating ice on the 31st March, and the one or two vessels in harbour were exposed to considerable danger from the large masses that passed up and down with the tide.

B.—Dr. J. G. Brereton's Report on the Health of Chefoo for the Year ended 31st March 1881.

ABSTRACT of METEOROLOGICAL OBSERVATIONS.

YEAR AND MONTH.	THERMOMETER.			No. of Days over 90°.	No. of Days Snow.	No. of Days Rain.
	Average.	*Maximum.*	*Minimum.*			
1880.	°	°	°			
April	57	85	29	...	...	12
May	68	94	42	1	...	7
June	72	89	54	...	...	5
July	77	94	60	3	...	6
August	80	99	62	3	...	5
September	72	93	50	1	...	7
October	57	85	30	...	...	1
November	44	66	22	...	2	4
December	30	47	13	...	7	...
1881.						
January	30	47	12	...	9	...
February	32	52	12	...	6	3
March	41	74	18	...	5	...

For the above table I am indebted to Mr. JENNINGS, Harbour Master. I regret to say it is necessarily very imperfect, owing to the absence of proper meteorological instruments, and gives a very inadequate idea of climatic changes at this port. It will, however, be seen that during the summer of 1880 we had rather a high thermometer, but the heat was moderated considerably by refreshing sea breezes, so that we had even a cooler season than usual. The invigorating effect of this place was well exemplified in a few cases (visitors) during the summer; patients worn out through malarious diseases soon recovering their strength, and able to return to their homes in improved health after a sojourn here of two or three weeks. A shorter residence than this can scarcely be expected to produce permanent beneficial results, and the cases which are most benefited are those of protracted convalescence after any acute disease, or where malarial affections have induced considerable prostration without much organic change in spleen or liver.

The past winter, although prolonged, was not accompanied with the same degree of frost as during previous winters. Storms were, however, more frequent.

Throughout the year the health of the foreign community and natives in the surrounding districts was remarkably good. Serious affections among foreigners were comparatively rare, and none traceable to climatic influence.

Two cases only of lithæmia were met with; these were in individuals who indulged too freely in meat. Both quickly yielded to a change of diet.

Two peculiar cases occurred during the winter, in children, aged respectively 5 and 8.

During the day there would be no operation from the bowels, but when asleep for a couple of hours at night, they would be awakened by colicky pain in stomach, accompanied by an urgent desire to relieve the bowels. So urgent was the call, time was not afforded for them to be taken up, and the bowels were discharged in the bed as they lay; this took place three or four times during the night. During the daytime they would be perfectly well, in good spirits, with good appetite, no pain or tenderness in abdomen, and, as before remarked, no call upon the bowels. There was no evidence of worms. Dieting, no food for some hours before bedtime, and medicines completely failed to arrest it. The affection continued for about six weeks, then got better. The medicinal treatment pursued was occasional purgatives, sedatives, tonics and astringents, but all without any appreciable effect.

I have to record five confinements and four deaths during the 12 months.

Of the confinements, four were natural, and progressed satisfactorily; one was a case of twins.

In this instance the uterus was so distended as to be unable to make any expulsive efforts. Examination revealed a breech presentation, maternal parts were quite relaxed and prepared for delivery; but fearing there might be twins, and to avoid complicating the case, refrained from giving ergot, and effected delivery by turning. In both children the breech presented, male and female, one placenta. This case did not present an untoward symptom.

The cause of death in the four instances alluded to was—

1, exhaustion.
2, cerebral meningitis.
1, acquired phthisis.

In both cases of meningitis the disease was ushered in by diarrhœa, the stools being green and slimy, and accompanied by considerable straining. Textbooks on the subject of meningitis generally state that constipation is the usual condition in this disease, but my experience does not quite coincide with this. I have far more frequently found relaxation of the bowels, generally slimy in character, to accompany this affection than constipation. Both these cases occurred in weakly children, aged about 9 or 10 months, the time when dentition would be in an active condition; but whether the dentition was the starting point of both relaxation of the bowels and brain affection, or the former was the precursor of the latter, is uncertain. Mercury was given in both instances, but without benefit.

The cases of death comprise two residents and two visitors.

C.—Dr. C. BEGG's Report on the Health of Hankow for the Half-year ended 31st March 1881.

I AM indebted to Mr. Harbour Master LOVATT for the use of the meteorological tables, and from them I have drawn up the following abstract. The observations have been taken at 9 A.M. and 3 P.M.

YEAR AND MONTH.	WINDS. Direction. No. of Days Calm.	N.	S.	E.	W.	N.E.	N.W.	S.E.	S.W.	Character. Light.	Fresh Breeze.	Strong.	BAROMETER. 9 A.M. Highest.	Lowest.	3 P.M. Highest.	Lowest.	THERMOMETER. Maximum. 9 A.M. Highest.	Lowest.	Mean.	3 P.M. Highest.	Lowest.	Mean.	Min. Lowest Reading during Month.	HYGROMETER. Mean for Month. Wet. 9 A.M.	3 P.M.	Dry. 9 A.M.	3 P.M.
1880.													*Inch.*	*Inch.*	*Inch.*	*Inch.*	°	°	°	°	°	°	°	°	°	°	°
October ...	1	5	4	13	1	5	...	2	...	28	1	1	30.50	30.25	30.45	30.25	77	63	74	81	68	77	58	63	65	77	75
November	1	8	3	12	2	2	1	1	...	19	8	2	30.70	30.35	30.65	30.30	68	35	59	75	37	60	31	49	52	54	60
December	...	9	...	15	...	2	3	2	...	23	7	1	30.80	30.40	30.85	30.40	52	25	39	58	30	44	21	34	44	39	43
1881.																											
January...	...	1	4	17	...	5	1	1	2	26	5	...	30.60	30.25	30.60	30.00	50	34	42	60	40	50	29	40	46	41	55
February	...	7	7	11	...	3	...	...	...	22	5	1	30.60	30.00	30.55	29.95	61	36	43	69	37	52	33	41	44	43	47
March	...	9	5	11	4	1	1	...	...	26	3	2	30.65	30.25	30.60	30.20	63	29	44	70	30	49	24	42	44	43	48

The health of the foreign community in Hankow, in spite of the unhealthy situation of the concession, will compare favourably with that of any port in China.

I do not know at whose door to lay the blame, but certainly neither sanitary nor commercial authorities could have been consulted in the selection of the best site for the concession. The site chosen is a flat just below the Chinese towns and the entrance of the Han River into the Yangtze. Along the Bund, for the greater part of the year, the water—discoloured and saturated with impurities derived from the thousands who live either on it or on its banks just above—is either stagnant or flows in the opposite direction to the main stream, and yet this forms the only source of supply for the community, who fondly trust to alum for precipitation and protection. The ground had formerly been used as a burying ground, or at least part of it (one old resident tells me of removing 40 coffins from as many square superficial feet), and the yearly floods claimed it for their own.

The site that might have been chosen is a hill with a rocky base, extending to the edge of the river, above the Chinese cities and the Han, free from danger of floods, and, as far as possible, from malaria.

Once chosen, steps have been and still are being taken to raise the whole concession above the usual flood level. To raise it, however, with the important exception in some cases of the ground *underneath* the houses, converting it thus into a very good fever-trap. But not content with thus obtaining a perfect surface drainage, they introduced that which is dangerous at its best and deadly at its worst, namely, a system of drainage. A system made up of drains without a fall, or, what comes to the same thing, 3 feet of a fall divided over the system; drains whose outlet for many months of each year is far below the level of the surrounding water; drains made of porous bricks, specially adapted to adhere to anything which otherwise might have passed them; drains without ventilation, except for the communications with houses and streets, and these communications innocent of all attempts at trapping; in short, drains without surface, fall, ventilation, or traps, things generally held to be essential to any drainage system. To-day they are held to be safe, because the communications with the majority of the houses are blocked with *débris;* and attempts have been made in an impossible way to trap street openings and to prevent animal matter from obtaining entrance into the "system," attempts which are and must be failures, and which, could they succeed, would only convert the system into one *intended* to carry off surface water, which could be done better and safer from the surface of a raised settlement.

Such a state of things justifies me in saying that the site has been a sanitary mistake; while the rebuilding of falling godowns and the distorted and cracked walls of all the houses, the yearly damage to shipping from the "chowchow" water, caused by the entrance of the Han, are a convincing, though late, proof that the ships would be safer in the main current, above the disturbing influence, and the houses more lasting built on a rocky foundation.

Remittent and intermittent fever have been common during the past season, but only two cases of any severity; dysentery and dysenteric diarrhœa, a few cases, with one death; two sporadic cases of cholera, one fatal in a few hours; a good many cases of simple diarrhœa amongst children; and about 15 cases, in Chinese patients, of fever, which, in all symptoms except those of rash and motions, ran the typical course of typhoid—two fatally. Such, and the usual run of cases common to any people and country, has been my practice during the past 12 months.

On the 1st May 1880 I opened a small hospital for Chinese, built for me by the Roman Catholic Mission. One male ward, with room for 10 or 12 beds, and one female ward of same size, a waiting-room, with a small consulting-room, and a room used both as a dispensary and an operating-room, complete the building at present. My plan is to keep the in-door department, as a rule, for surgical cases and acute medical ones; all else are treated as out-door cases. Every day shows me more and more clearly how difficult it is to treat medical cases among Chinamen even in a hospital. Their homes, mode of life, diet, dirt, ignorance and prejudice are all arrayed against us. I have been forced to give up giving more than one day's medicine at a time, simply because I find that only the most intelligent Chinamen can be trusted to confine themselves to the amount prescribed. If a little does me good, more will do me more good, is their logic—a logic which has led in some cases to merely amusing, but in others to alarming, results. I am training three boys, and one of the Italian sisters devotes herself to the work, and our rule is that, if possible, the patient attends daily or gives proof

that he can be trusted. Of course, this is a great trouble, and tends to reduce the out-patient attendance list; but I hold that it is better in the long run to show a few that we do possess medicines which will do what we say we can do for them than to risk the reputation of "foreign" medicine by placing it in their power to experiment in the important matter of doseage. On the same principle I always tell an incurable that I cannot help him, or another that I can only relieve him.

During the 11 months I have had 2,834 out-door patients, of whom I should say 50 per cent. only came once, and then were lost sight of; the relation between male and female patients being 20 per cent. of the latter to 80 per cent. of the former. The kinds of disease to which they are most subject bring out one fact very strongly, namely, that if we could correct their dirt and their diet, we would be able to reduce the number of cases of disease by at least 70 or 80 per cent.; their dirt causing parasitic skin diseases, syphilis, ophthalmia, etc., to run riot among them; their diet distending their stomachs twice a day with large quantities of rice, etc., leading to permanent dilatation, with thinning of walls, hence hæmatemesis and disorder of secretion, causing the various forms of dyspepsia, with their long train of secondary evils; this state of things not only causing, but also complicating, all other diseases.

In-door cases number 158. Among a large number of operations successfully performed were one amputation at the shoulder-joint, one of the thigh, two of the leg, and one at the ankle-joint; excision of one-half of lower jaw; stretching of sciatic nerve; and removal of several tumours from various regions.

The ulcers taken in were all hopeless cases, unless treated in hospital or had features of special interest. Many were only admitted in the belief that they would prove cases of amputation. Skin-grafting proved very successful in many cases, and once, while excising a large portion of eyelid in a severe case of entropion, the idea occurred to me to try the excised portion on a healthy ulcer I then had in the ward. The result surprised and delighted me. The piece of skin, 1 inch long by ½ inch broad, took, the cuticle merely coming off like a white film, the raised patch remaining red and healthy, sending out young epithelium in all directions, and completing the cure.

Mixed Fibro-cystic and Scirrhus Tumour of Parotid Region.—The photograph on the opposite page will show the stage at which a Chinaman applies for relief where there is an idea on the part of the patient that a knife will be required. The tumour had been growing for eight years. At first it was painless, latterly he had had intense pain day and night. He insisted on the operation, though the risk was impressed on him. The mass consisted of two portions: the larger, round, slightly movable on the deeper structures, at parts having a semi-fluctuating feeling, skin tense, pale, and non-adherent; round this mass at its upper, lower, and posterior parts was what felt and proved to be a dense infiltration of the tissues, with skin red and adherent. *The operation lasted an hour and a half, and the patient lost a good deal of blood.* I had the advantage of the able assistance of Dr. DUDLEY, H.B.M.S. *Mosquito*. One long incision made from in front of the ear down on to the clavicle, and another at right angles, gave me plenty of room to remove the larger mass. The other part of the tumour gave the most trouble. It was attached to the transverse processes of the upper cervical vertebræ, and, infiltrating all the tissues, passed deeply into attachments at the base of the skull. It was impossible to cut wide, or to make sure of removing the whole of the disease. With care it was freed from its attachments, and the mass and all the diseased parts dissected out. The large wound was washed out with a strong solution of chloride of zinc. The operation gave

FRONT VIEW.

BACK VIEW.

entire relief from pain, and the wound healed without one bad symptom, except the sloughing of a part of one of the flaps. At the end of a month he left the hospital for his home, returning to show himself at the end of another month, and then there was evidence that the disease had not been completely eradicated; however, he returned to the country, and since then I have lost sight of him.

We had two deaths, one from ascites, one after tracheotomy.

During last summer I removed a fatty tumour the size of a child's head from the back of the wife of one of the mandarins here. The tumour had begun to ulcerate its way out before she would consent to operation. I operated at her own house, and had a large native audience.

An old hospital boy trained by my partner, Dr. REID, has started in practice. Ten mandarins have given him *Tls.* 100 each per annum to support a hospital for poor Chinese in the heart of the city. He has adapted three Chinese houses, and thus made a beginning. A small charge (14 *cash*) is made when the patient comes for the first time, and other small charges are made for medicines. I obtain his drugs for him from home. He has asked me to promise to do his operations for him; but during my recent holiday he removed with success a fatty tumour weighing $2\frac{1}{2}$ pounds from the shoulder of a mandarin's servant.

There is one form of disease seen here with which I have not met in England. I have called it in the hospital books a tubercular syphilide, for want of a better name. It seems to be a low form of inflammation in the cellular tissue, giving rise to subcutaneous "cold" abscesses of small size, but multiple. Its natural course is to discharge by one or more openings, and then to cicatrise, leaving a sensitive cicatrix. Sometimes the matter burrows for long distances under the skin, and often involves a large tract. The result of the contraction of these cicatrices is often great deformity, and often immobility of joints, when, as is often the case, the disease is in their vicinity. The contents of some, especially when situated near the anus, are of more consistency, and even in some cases cheesy in character.

In all cases I cannot obtain a history of syphilis, but all yield to iodide of potash and painting with iodine, and free incisions, dressing with strong carbolic oil. The most common situations are anus, shoulder, knee, on the thorax and neck. The patients are generally young adults, and, as a rule, are in robust health otherwise.

D.—Dr. J. JARDINE'S Report on the Health of Kiukiang for the Year ended 31st March 1881.

DURING the period under review the health of this community has been fairly good. In the early part of last summer there was little sickness, and the weather was exceedingly temperate throughout the whole season. In the autumn, however, sickness in the form of malarial fevers was very common, a large proportion of the community suffering from remittent or intermittent fever of an unusually severe and obstinate type. Some cases, even of the intermittent form, quinine in doses of grs. xx to grs. xxx only alleviated somewhat, but failed to cure. It was specially remarked that those suffered most severely who were in the habit of bathing in the evenings in the lakes after the water began to subside over the flooded districts, and the special obstinacy of some of the cases to treatment was probably due to this cause. In spite of changes of air and other appropriate treatment, the fever persisted in several cases till the winter months, and one patient has only recovered from an increased evening temperature recently.

During the winter months catarrhs have been frequent, and one case of acute pneumonia of over 14 days' duration made an excellent recovery.

A larger number than usual of missionaries resident in the interior came here during the year for medical assistance, suffering from fever or dysentery, and they reported that sickness was unusually prevalent among the natives in the districts to which they belonged, as was likewise the case in Kiukiang and its neighbourhood. It has been often remarked that unusually mild summers here have been accompanied or followed by an increase in sickness, and the experience of last summer and autumn, so far as this port is concerned, seems to confirm this statement.

During last spring and summer the Catholic Mission of Kiukiang, assisted by natives and foreigners, founded a small hospital here, which was opened for the reception of patients in the beginning of July last. On the 31st December it was found that 1,420 natives had applied for and received medical aid.

Here, too, malarial fevers far exceeded in numbers any other disease, besides which a large number were treated for their sequelæ—chronic hypertrophy of the spleen, anæmia, and dropsy.

Cutaneous diseases, which ranked next in numbers, are due in no small measure to the filthy habits and indigent circumstances of the people, conjoined with their utter neglect of all sanitary measures.

Eye diseases, so common in every part of this Empire, here formed no exception to this rule, and ranked next in point of numbers; and it was in this department that probably the most gratifying results were obtained. Many applied for relief, suffering from entropion, cataract, and granular lids, who were either in total darkness or nearly so. In a large majority of cases

they have regained excellent sight, and all have been so improved as to be able to pursue their usual occupations.

Dysentery, acute and chronic, was very prevalent during the autumn. Acute dysentery had generally become subacute or chronic before the patients applied at the hospital, so that the chronic form had generally to be dealt with. As everyone knows, these are the difficult cases to influence speedily by drugs, and with the Chinese a change of air or sea voyage is beside the question. In these cases I was induced to try koroniko, from the *Veronica parviflora*, which is largely used in New Zealand as a remedy in dysentery and diarrhœa, and some of the results exceeded my most sanguine expectations. Many who received the drug did not return to report themselves; but I have notes of three cases of chronic dysentery, varying in duration from six weeks to four years, and voiding from 20 to 30 motions containing blood and mucus daily. Fifteen doses of tincture of koroniko reduced them to one-half, other 15 doses reduced them to three or four daily, and a third like quantity effected a complete cure. Judging from the few cases I have been able to follow, I augur a brilliant future for this remedy in the chronic forms of the disease.

Among the 1,420 patients, only three cases of leprosy were met with, none of which belonged to or were resident in Kiukiang; and as the natives here are a fish-eating population, the hypothesis that fish (putrid) plays any important part in the production of leprosy must, I think, be untenable.

Among the surgical cases, 86 operations were performed during the six months; and a number of opium-smokers were admitted and cured of their pernicious habit. One case of opium-poisoning made a successful recovery; the patient was a lad of 12 years, and took the opium by mistake.

In fine, no deaths have occurred among patients admitted into the hospital; and it is gratifying to learn that the institution has been so much appreciated by the natives that they have already contributed so generously as to liquidate the sum of *Tls.* 1,100 required to build the premises.

E.—Dr. T. RENNIE's Report on the Health of Foochow for the Year ended 31st March 1881.

PREVIOUS to reporting on the health of Foochow during the past year, and in order to avoid repetition in subsequent Reports, it seems desirable to give some idea of the physical characters of the surrounding country and of the hygienic conditions under which its residents live.

The foreign settlement, distant 25 miles from the mouth of the river at Sharp Peak, is planted on a piece of hilly ground on the right bank of the north branch of the Min. About 7 miles above the settlement, the river, as it emerges from lofty mountainous banks, divides into two branches. The two streams, after pursuing separate courses for 15 miles —the northern, and larger, flowing past the settlement, and the southern being in its course largely augmented by the waters of the tributary branch of Yungfu—unite a little above Pagoda Anchorage. The island of Nantai, thus formed, on the northern side of which the settlement stands, is about 15 miles long, and varies in breadth from 2 to 6 miles. It occupies the centre and forms the greater portion of a large circular tract of low-lying cultivated land, enclosed on all sides by mountain ranges, varying from 1,000 to 3,000 feet in height. Scattered over this plain, sometimes called the "Valley of the Min," and occupying one-seventh of its extent, are several hills and ridges which run parallel with the course of the river. The remaining portion consists of low-lying, richly manured, alluvial land, with clay subsoil. Raised only 6 or 7 feet above the level of the river at high water, intersected by numerous tidal canals and creeks, and by means of artificial irrigation, the soil is during the greater part of the year submerged. On the river the tide extends quite to the top of the island of Nantai. During the rainy season the Min usually overflows its banks, and the view presented from any of the surrounding heights—*e.g.*, Kushan—is that of a large lake, from which ridges and hills rise like so many islands. During eight months of the year the plain, richly manured with nightsoil, is almost entirely devoted to the cultivation of two crops of rice. On some parts, during the cold months a crop of barley, wheat, or beans is raised; while the remainder, in a more or less swampy condition, is allowed to rest.

The hills, formed of granitic rock and decayed granite, are occupied, especially in the vicinity of the city and suburbs, by the tombs of natives. There are few spots on which scrub, coarse grass, and *Pinus Sinensis* do not grow; and around the bases of the hills, vegetable gardens and varieties of fruit trees—notably, peach, orange, lychee, plum, olives, etc.—abound.

The hill on which the foreign settlement stands, whose highest point is about 100 feet above the level of the plain, is skirted on one side by the river; elsewhere, save on its western aspect, where a neck of slightly rising ground connects it with a range of hills some 3 miles in extent, the hill is bounded by rice fields.

Three miles to the north of the foreign settlement, which is situated about the centre of the plain, on the north side of the river, the city of Foochow, the capital of the province of Fukien, stands, in latitude 26° 5′ N., and longitude 119° 20′ E. The city, with a population of 500,000, encircled by six miles of substantial wall, is built on the plain round three small

hills. Running from the south gate of the city towards the south for 4 miles is a densely populated line of suburb, broken only by the stone bridge which, abreast of the settlement, connects the north bank of the Min with the island of Nantai. Around the settlement this suburb expands into quite a small Chinese town, so that the hongs and houses of foreign residents are either surrounded by the abodes of living natives or by the shallow graves of their dead. On the river, a little above the settlement, several thousands of a boat population find an anchorage.

The city, like most other Chinese cities, is remarkably dirty. Its suburbs, excepting the expanded portion in the neighbourhood of the foreign settlement, which, from its raised and sloping position, gets well washed during heavy rains, are equally dirty. The streets are narrow and filthy. Down the centre of the narrow granite-paved streets, just under the flagstones, runs a narrow-drain, into which all sewage, save nightsoil, falls. Nightsoil from the city and suburbs is scrupulously collected, and carried at all hours of the day in open buckets into the surrounding country, where, until required for use in the fields, it is stored in chunam tanks.

The climate is moist and enervating; rainfall and thunderstorms are scattered over the year, but are more abundant in spring and early summer, when, almost annually, the Min overflows its banks, flooding the rice fields and a good deal of the ground on which houses are built.

During the summer months southerly breezes, following the course of the Min, reach us from the sea, but, owing to our mountainous surroundings, there is a great absence of windstorms, which would prove so serviceable in diluting and carrying off the abounding noxious effluvia from rice fields, drains and graves.

The really hot months of the year are June, July, August and September. Then the thermometer in the shade, seldom rising above 96° or falling below 70°, averages 83°.5. The coldest months, December, January and February, have a mean temperature of 53°. The thermometer seldom falls below 40°. Frosts and ice are of rare occurrence and slight in character. In some years snow has been seen on the summits of the surrounding mountains.

Sudden and marked changes of temperature occur at all seasons, but are more numerous in spring than autumn, and more frequent in those periods than during the rest of the year. Every year in mid-winter there are some hot days when the thermometer in the shade rises to 80°.

The natives have not the healthy appearance of those living in the mountains or of those living on the sea coast. Their temperament is more irritable, and, though industrious, they have not the push or enterprise of their brethren in the southern part of the province.

In the city and suburbs most of the natives find employment in various trades and manufactures, while peasants occupy the villages on the plain and some parts of the suburbs.

The staple articles of native diet are rice, sweet potatoes, salt fish and pickled cabbage Wheat flour (used in making pastry), pork, goat and beef are the luxuries of the rich.

Water is obtained from wells and from the river, but from either source is of doubtful purity. As elsewhere in China, natives seldom drink water that has not been cooked, and none ought to be used unless previously filtered, boiled, and re-filtered. Salad washed in unfiltered water may be the cause of the frequent occurrence of lumbrici among Europeans.

Having around us so abundantly all the acknowledged conditions necessary to the development of the bacillus malariæ, or whatever the germ of paroxysmal fevers may be, we

need not be surprised at malarious diseases, as remittent fever, ague in all its forms, anæmia and dyspepsia being very prevalent among the natives. Vaccination among so conservative a people as the Chinese having made but slow progress, annually, during winter, small-pox visits almost all those who have not been protected by inoculation or by a previous attack of the disease. Besides these, among general diseases we have chicken-pox, measles, mumps, whooping-cough, erysipelas, rheumatism, cancer, leprosy. Syphilis is rife in all degrees of virulence. Asiatic cholera has not been seen since the epidemic of 1877, when it visited most other ports of China and Japan. I believe typhoid and typhus fevers are endemic. Of local diseases, skin and eye diseases, catarrhs, bronchitis, phthisis, pneumonia, diarrhœa, dysentery and lumbrici are the most common.

For foreign residents, living in houses in every way suited to the climate, having abundance of every variety of good and cheap food, and having every facility for obtaining moderate exercise, the climate need not be considered unhealthy. Among Europeans, as among natives, malarial affections are the most common, then come rheumatism, diarrhœa, dysentery, bronchial catarrhs, dyspepsia and lumbrici. Living in greater proximity to Chinese than members of most other foreign communities in China, there is a greater risk of any infectious epidemic prevailing among natives extending to foreign residents. Nervous affections, etc., so common among ladies, though to a great extent dependent on a somewhat enervating climate, are in a great measure preventible. Males who observe moderation in all things, avoiding violent exercise as much as intemperance in eating and drinking, seem to enjoy excellent health. All that relates to men applies in a limited degree to women, and I do not think that temperate exercise could do otherwise than raise the standard of health of women, as well as preserve the health of men, and so aid in warding off climatic disease. Nutritious food, with insufficient exercise in the open air, leads to the accumulation of effete matter in the system, lowers the standard of health, and hence the frequency of nervous and other affections among ladies. Those of the male residents who lead inactive lives suffer from nervous ailments, and are much more affected by climatic influences than those who choose the middle course. The busy season of the year falling in the hot months, by enforcing active and regular habits, doubtless renders climatic disease among male residents less frequent. The benefit derived from active habits may be well illustrated by comparing the active, healthy, robust native women from the country, frequently seen in the settlement, with the indolent, withered-looking women of the city and suburbs.

During summer, when the country is clothed in vegetation, beautiful views may be had in all directions from the settlement. For those suffering from enervation and the cramped conditions of settlement life, there are at all seasons excellent retreats. On the prominent headlands, where the Min joins the sea at Sharp Peak, those depressed by summer heats may enjoy refreshing sea breezes and cool nights. The favourite resort of some who wish to avoid the hot months of summer is the large Buddhist monastery half-way up Kushan, a mountain 3,000 feet in height, which rises from the left bank of the north branch of the Min, 6 miles below the settlement. During the cooler months there is every facility for excursions up the main river and its branches. There mountain scenery, almost unrivalled in beauty and grandeur, abounds. Bamboo, many varieties of coniferæ, ferns, and all sorts of flowering shrubs and plants

adorn the slopes, and dispersed over the mountains are varieties of game sufficiently abundant to render a sportsman's rambles doubly enjoyable.

Lately the community has been very fortunate in acquiring a piece of land for a recreation ground, and it is hoped that all residents, both male and female, will avail themselves of the salutary advantages derivable from such an acquisition.

The following thermometric observations, taken with NEGRETTI & ZAMBRA'S best instruments, suspended from the wall of the verandah of a house facing the south, about 50 feet above the level of the river and 20 feet from the ground, give some idea of the temperature in the settlement during the past eight months:—

YEAR AND MONTH.	Mean of Day Maximum.	Mean of Night Minimum.	Mean of Maxima and Minima.	Mean Range during the 24 Hours.	Greatest Range during 24 Hours.
1880.					
August	83°.34	78°.8	83°.57	9°.5	11°
September	85.9	78.89	82.39	7.1	10
October	73.6	70	71.8	3.6	14
November	71.1	57.7	64.4	13.4	30
December	56.1	47.1	51.6	9	23
1881.					
January	59.4	47.2	53.3	12.2	20
February	60.5	52	56.25	8.05	16
March	57.40	49.16	53.28	8.24	16
MEAN of Eight Months...	69.04	60.10	64.57	8.88	17.50

The greatest range during the year was 53°.

The summer season was throughout unusually wet. In June, in the settlement, over 12 inches of rain fell; and at the beginning and middle of the same month two strong freshets caused by heavy rains up country, occasioned great anxiety to the natives as to the safety of their houses and crops. Though not so high as the floods of 1876 and 1877, they were quite sufficient to flood the rice fields and other low-lying ground. Slight rain fell on five days in October; in November no rain fell; and in December the rainfall was but trifling. January had several hot, damp days; and in February and March the rainfall was considerable.

Among foreign residents during the past 12 months there were 10 births. No deaths occurred, but, owing to the prevalence of climatic and other affections, the year cannot be considered a healthy one. Malarial fevers, for the most part of the intermittent type, were common in all seasons, and affected 35 per cent. of the residents. In all parts of the settlement, among houses situated on the highest points as among houses built on sites little above the plain, fevers were equally scattered. Coryza and bronchial affections ranked next in frequency. Rheumatism and neuralgia were frequent during the wet months of spring and summer. Cases of diarrhœa and dysentery were more frequent than usual. Foul vapours inhaled from paddy fields, drains, etc., may have acted as predisposing causes; but exposure of the body, especially of the abdomen, during sleep, while perspiring, seemed the principal cause. Among 150 residents under supervision, there were nine cases of dysentery; all proved most amenable to the ordinary treatment by ipecacuanha. Summer diarrhœa among children, without doubt caused, as in adults, by chills either by night or by day, was found most tractable to treatment, and, beyond

slight prolapsus ani in one case, presented no abnormal features. There were several cases of inflammation of the external auditory canal, sometimes associated with onychia maligna, or with obstinate ulcers on other parts of the body.

As usual, there were numerous cases of lumbrici among children and adults.

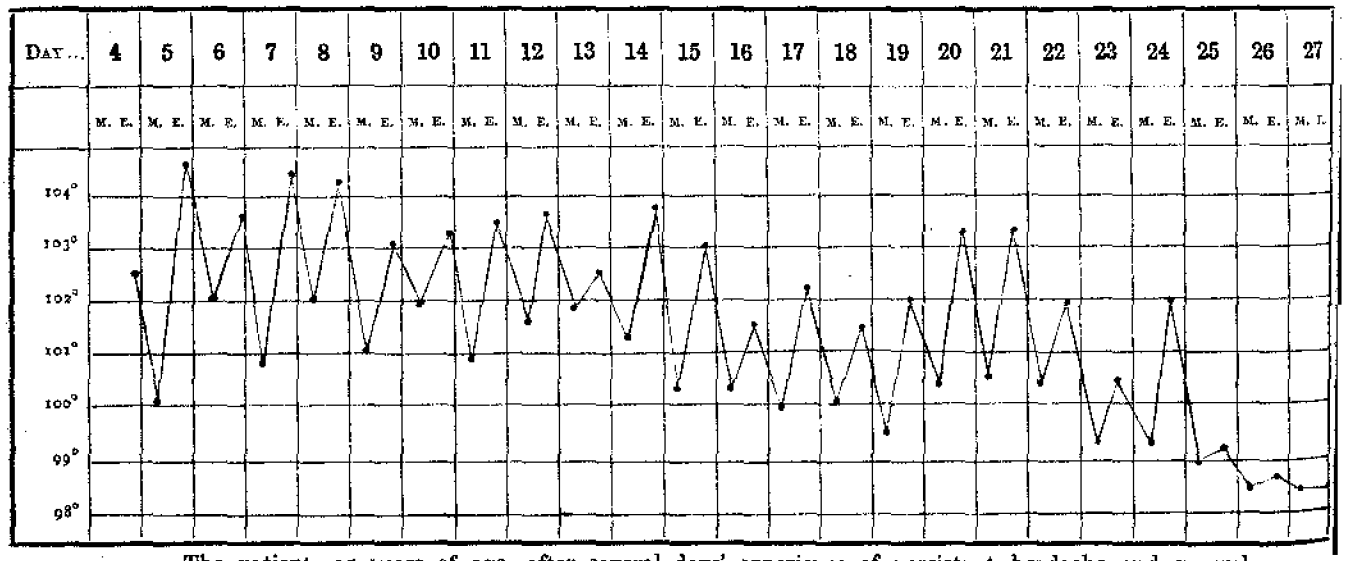
In May last, while an epidemic of parotitis existed among Chinese, four Europeans had mild attacks of the malady.

Of continued fevers, there were three cases of typhoid or enteric fever, two cases of modified small-pox, and four cases of a continued fever of the remittent type over which quinine had no influence whatever.

The small-pox cases were extremely mild, and the infection was traceable to an amah who had visited her relatives while they were suffering from the disease. With small-pox annually in the neighbourhood, it seems difficult to avoid infection. All ought to be well protected by vaccination and re-vaccination, and it might be as well, especially in families, to refuse leave to servants during January, February, March, April and May, when small-pox, measles and parotitis are so common among natives.

One case of typhoid fever, in an adult, occurred in October, and the other two cases, in children, in February.

The following diagram shows the morning and evening temperature, taken in the axilla, of the first patient:—



The patient, 25 years of age, after several days' experience of persistent headache and general malaise, was compelled by sickness to go to bed, and, on the presumption of the disease being of malarious origin, quinine in large doses was administered. The physiological effects of quinine were produced, but having failed to influence the course of the fever, the drug was abandoned. Towards the end of the first week, diarrhœa, with evacuations having all the characters of the typhoid stool, commenced, and, though always easily controlled, continued throughout. Slight epistaxis occurred at intervals. Rose-coloured spots were seen on the abdomen during the second week of illness. There was slight abdominal tenderness, but no marked gurgling on pressure or special tenderness in right iliac region. Prostration of strength was marked from the first. The tongue was covered with a brownish fur, but never became dry or fissured.

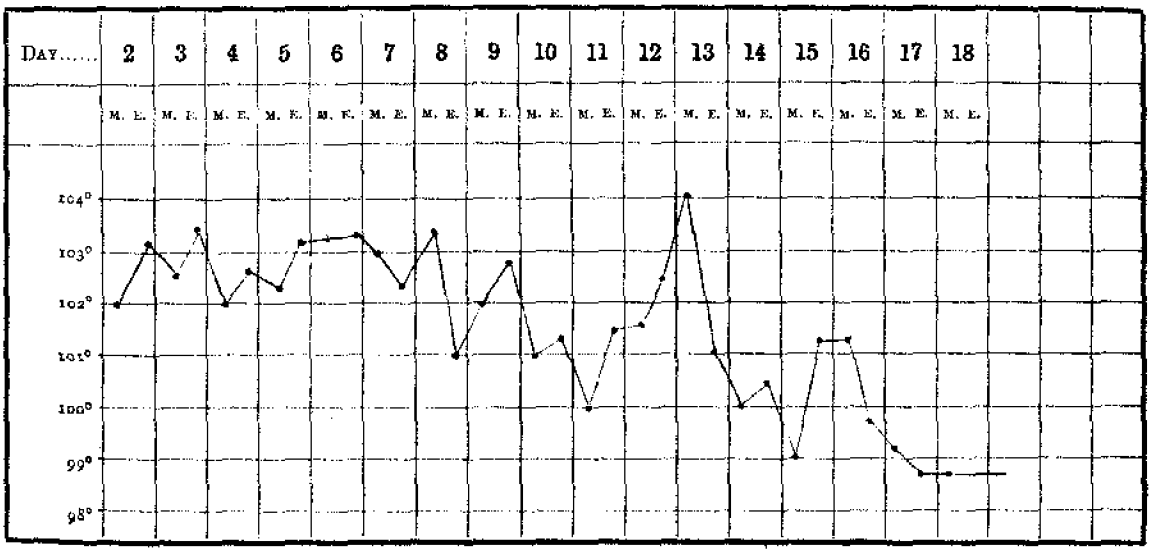
The spleen was distinctly enlarged. After the suspicion of enteric fever as the cause of the illness, beyond small doses of Dover's powder to control the diarrhœa, no medicines were given.

In the case of the children, who were brothers and lived together, the contagion seems to have originated from the emanations of over 30 excreta tanks, occupying a piece of waste ground a few yards from the house gate, where the children spent a great part of their time in watching passers-by. The tanks, with mouths level with the ground, about 10 feet deep and from 3 to 8 feet in diameter, are, as has elsewhere been mentioned, used for storing nightsoil until required in the adjacent rice fields. The tanks are never covered, and at times emit appalling stenches. Having failed to discover any other source, it seems most probable that the children inhaled the contagion from the tanks, into which the dejections of some native suffering from enteric fever may have, along with other excreta, been cast. A case of typhoid fever in a native has not come under my notice, but fever cases of any kind seldom come to hospital for treatment. Frequently patients suffering from debility, having the listless, exhausted appearance of those convalescing from enteric fever, and having a previous history of two months' fever with diarrhœa, visit the hospital.

The only traceable source of contagion in the case of the adult is the well from which the water supply of the patient's house was obtained. The well, distant from the house about a quarter of a mile, is on a lower level than many of the Chinese vegetable gardens surrounding it. The nightsoil tanks from which the gardens are supplied with manure are only distant a few yards from the well, and filtration from the gardens or their tanks into the well must constantly occur. The house stands by itself, high on the hill, and is supplied with earth-closets, whose contents, along with other refuse, are carried off twice a day. There are no drains or channels of any kind to carry off slops. A standing order exists as to boiling water previous to filtering, but, unless under personal supervision, the orders are habitually disobeyed.

Just a year before, in the same house, a typical case of typhoid fever occurred.

The following diagram shows the temperature, taken in the axilla, of one of the four cases of remittent continued fever over which quinine in large doses had no effect :—



The four cases occurred during the winter months. In all, the fever commenced suddenly, with rigors and intense headache, and in 17 days ended somewhat abruptly. Only in one case was there slight delirium. *Enlarged liver and spleen, diarrhœa, or any kind of rash were, in all, absent.* At first a laxative was given, followed by a 30-grain dose of quinine for three mornings, but as quinine proved of no avail, all medicines were laid aside in favour of careful feeding and nursing.

The only epidemics present among Chinese during the year were parotitis, small-pox, measles and malarious fever, which, in a more severe form than usual, was epidemic in September, October and November, when rainfall was slight, and when the rice fields were drying up.

Eighteen months ago, through the liberality of the foreign community, assisted by Chinese, a native hospital for the treatment of in and out patients was opened. 388 males and 31 females were treated in the wards, and 1,848 males with 201 females received relief as out-door patients. Several operations were performed, including two excisions of the breast for cancer, and the removal of many benign and malignant tumours. Six cases of elephantiasis of the scrotum were operated on, the tumours weighing respectively 3, 5, 8, 16, 23 and 30 pounds. Under the prepuce of one patient, who had suffered from phimosis for seven years, were found 315 phosphatic calculi, weighing 6 drachms.

With a view to determine the frequency of occurrence of the "filaria sanguinis hominis" among hospital patients, the blood of in-patients was examined under the microscope at 9 o'clock every evening over a period of five months (August–December 1880). 182 patients were examined, and embryos found in the blood of 25.

The diseases from which the 25 patients suffered were as follows:—

Ulcer of leg	3	Hæmorrhoids	1
Dyspepsia	4	Carcinoma	1
Syphilis	3	Necrosis of tibia	1
Anæmia	4	Chronic rheumatism	2
Lymph scrotum	2	Curvature of spine	1
Conjunctivitis	2	Lumbrici	1

Of the 25 cases, 6 had slightly enlarged glands in the femoral region; 2, as stated above, suffered from lymph scrotum; among the others there was no history of chyluria or other affection associated with the presence of filariæ in the blood.

Among the 182 cases examined were 3 cases of old-standing elephantiasis of leg, and 4 cases of elephantiasis of scrotum, in which repeated examinations of the blood failed to detect embryo filariæ. Of the 25 cases in which embryos were found, 14 resided in Hokchhia, 6 resided in Henghoa (towns near the coast between Foochow and Amoy), and 5 resided in Foochow.

F.—Dr. P. Manson's Report on the Health of Amoy for the Half-year ended 31st March 1881.

During the six months there have been three deaths in the foreign community:—

1. An infant	Infantile paralysis.
2. Male adult from Tamsui . . .	Chronic dysentery and diarrhœa.
3. Male adult	Sprue, and paralysis from brain disease.

There was nothing of special interest from a medical point of view about any of these cases.

The general health has been excellent. The spring small-pox epidemic has not been particularly virulent or widespread among the natives, and only one foreigner has been attacked.

I saw several cases of extensive pneumonia following measles in Chinese during February and March. Though measles is at present epidemic in the native town, foreign children have hitherto escaped.

G.—Dr. W. W. Myers's Report on the Health of Takow for the Two Years ended 31st March 1881.

During the period under review the health of the community has been very good. Indeed, the diseases peculiar to this place, as far as foreigners are concerned, appear to be few.

The climate is good, and, considering the geographical position, the drawbacks consequent on heat by no means so great as one would expect. The fresh sea breezes, which have full access to the settlement, must be credited with a great deal, as we find that in Taiwan-fu, the capital city, distant about 30 miles to the north, and more shut in, a similar condition of salubrity can scarcely be said to exist.

Here the settlement is divided into two by the intervening lagoon, the seaward and south boundary of which is formed by a long, low sandspit. Some of the houses built on this do not enjoy the immunity from malarial diseases which is possessed by those erected on the other side, and this may be accounted for by the proximity of dense vegetation, and, above all, by the fact that almost the whole spit is one enormous graveyard, in which bodies are interred with but scant regard to ordinary hygienic requirements. On the whole, however, residents in Takow have little to complain of (in evidence of which may be noticed the excellent health enjoyed by children while living here), and attacks of ague, save in the case of those who chance to take up their abodes in the two most southern dwellings on the spit, are but of comparatively rare occurrence. The greatest inconvenience to be borne by residents is the want of good food. With the exception of fowl, fish and intermittent supplies of very inferior beef, the commissariat is poor in the extreme, and this no doubt renders life here less enjoyable than it would otherwise be. Again, the comparative isolation from the rest of the world is a factor in producing discontent; but this is of somewhat recent origin, as in the old days, when schooners used to run frequently to and from Amoy, communication was more frequent and regular than at present, with the fortnightly steamer coming to Anping, distant 21 miles, and often detained by weather for periods longer than those nominally appointed.

Mortality.—It is a fact worth recording that in the cemetery in use since the port was opened there is not one grave the tenant of which has succumbed to disease directly or indirectly ascribable to climatic causes. For the two years under review, the following is the death return:—

1. Cardiac Disease	Male;	1879;	resident.
2. Aneurism	„	„	„
3. *Cardiac Disease*	„	„	„
4. Phthisis	„	1880;	„
5. Bright's Disease	„	„	„
6. Typho-malarial Fever	„	„	non-resident.
7. *Myelitis*	„	„	„
8. Drowned	„	„	„
9. Phthisis	„	„	„

Case No. 1 was an old resident. No. 2 was also a man who had been in the island some time, and who up to the moment of his death had apparently enjoyed the most robust health; at no time had any symptom of the lesion from which he suffered manifested itself. No. 3 had been only three months here when he died; he happened to have been seen by me nine years previously in the north of China, when I warned him of the grave condition of his heart. No. 4 was an old-standing case; he had but recently returned from England, where the disease had first manifested itself. No. 5 had resided about two years in Anping. No. 6 was in the person of a sailor who arrived moribund in a vessel from Japan. No. 7 was also a sailor from a vessel visiting the port. No. 8 was a sailor drowned on the bar; and No. 9 was the steward of an American ship who had for long suffered from consumption.

It will thus be seen that, large as this list is, none of the diseases were fairly attributable to residence in the place.

Climate in Relation to Disease.—Under this head I must notice the very favourable effect residence in South Formosa would appear to exert on tuberculosis. It would seem as though arrest of disease may often be brought about; and in every case I have noticed that the painful concomitants and consequences are considerably and favourably modified. Case No. 4 had the strongest possible hereditary and general tendency to consumption; but during his previous residence here, extending over several years, had enjoyed vigorous health, and it was not until he arrived in England, and had been subjected to the influence of its fitful climate, that the germs so long dormant burst forth with a vigour which soon brought about the result recorded. I have had other cases which I feel sure were materially benefited by their stay in Takow.

Hospital Accommodation.—There has been for many years located in Takow a hospital for natives. This, started at first by Dr. MAXWELL of the English Presbyterian Mission, was in turn handed over to Dr. P. MANSON, the first community physician. He was succeeded by the late Dr. DAVID MANSON, after whom came Dr. THOMAS RENNIE (now of Foochow), and on his leaving the charge devolved on me.

Soon after its institution the hospital was supported in part by the contributions of the foreign firms and those of the other residents, and at present is entirely kept up by these and native subscribers. In 1878, when Dr. DAVID MANSON'S untimely death took place, his numerous friends here, in Amoy and elsewhere (native and foreign) determined to erect a memorial of one who had, even during his comparatively short career, made himself beloved and esteemed by all who knew him. After much consideration it was determined to erect a new building for the purpose of carrying on the good work which Dr. D. MANSON had taken so prominent a part in furthering, and at the same time secure a memorial which would be of the most permanent and suitable kind. The money was speedily forthcoming, and early this year the "David Manson Memorial" Hospital was first opened for the reception of patients, foreign and Chinese. His Excellency HU Taotai was to have presided at the opening ceremony, but the unexpected arrival of the Futai at Taiwan-fu caused him to hurry back before carrying out his intention. In lieu of this, however, he set forth proclamations declaring the object of the institution and his sympathy with it, which notices he caused to be posted throughout the country, at the same time giving substantial proof of his interest by putting his name down as an annual subscriber for *Tls* 100. His example was followed by the Chêntai, to the same

amount, and several other officials and natives have become annual donors of sums varying from $10 to $25.

The hospital consists of two buildings. The lower two-storied house accommodates about 12 foreign patients upstairs, and below is the dispensary, operating-room, waiting-hall and dispenser's quarters. The upper building consists of two large wards for native patients, while in rear of this are two rooms for private Chinese patients or for women, besides which is accommodation for cookery, washing, etc. The whole contains room for about 30 beds, although doubtless on an emergency arising, more could be made up. The hospital is situated at the base of Saracen's Head, facing the lagoon or inner harbour, and is on perhaps one of the most salubrious sites in the whole settlement. I must not omit to mention that this ground was presented by the Chinese Government.

There are two classes of wards for foreigners, those in the first class paying $3 per diem, while the charge for the second and general ward is only $2. This includes attendance, board and medicines, and it is hoped that from these wards some little aid towards the general support may be obtained. I need scarcely say that to the natives everything is gratuitously given.

It is undoubted that an institution of this kind must do a great deal of good apart from its mere medical bearing, and I fancy that there are but few places where the *entente* between foreigners and Chinese is more declared than in Formosa. Even the uncivilised aborigines are not above seeking aid, and only the other day we had quite a crowd of these "savages," who had obtained passports for the purpose of testing the powers of Western medical skill. During the past 10 years upwards of 20,000 patients have been treated. I do not give a detailed nosological list, as this would not differ in any material points from those already published in previous Reports, where the class and general type of diseases seen have been fully set forth. During the past two years more than 3,900 patients have been seen and treated, with a comparatively small death rate, notwithstanding the strong tendency of the impecunious natives to foist their moribund friends on us, in order to avoid the funeral expenses.

Opium-smoking.—I am aware that in trenching on this subject I enter very debatable ground, and I am not unmindful of the strong opinions held on both sides of the question; but I can at least say that I have neglected no opportunity during the past 10 years of closely investigating the matter, while circumstances have more than once been particularly favourable for making the necessary observations.

Looking back at many of the various arguments produced on either side, it has often struck me that their force has in several instances been modified by the uncontrolled enthusiasm of the disputants. Thus, those who argue from the "no injury" point of view are very apt to run into the extreme of asserting "positive benefit," while those, again, who urge that the use of opium is noxious to health and prosperity too frequently ascribe to it a universality of destructiveness which cannot be borne out, save in cases where intemperance in the use of the drug is as marked as is the violence of language adopted by its critics.

I think I may fairly claim to rank among those who speak from an entirely disinterested point of view, and therefore for the purpose of this Report I put for a moment aside the moral aspect of the question, and, confining myself simply to the professional bearing of the subject,

narrate as shortly as possible the observations I have made, and leave in great part to others the task of drawing what conclusions they think proper from the data I shall attempt to lay before them.

In Formosa the use of opium is indulged in by a great proportion of those of the inhabitants who are either themselves immigrants or the descendants of colonists originally coming from the mainland. In the south part of Chêhkiang, where I was before coming here, the opium pipe is also in very general requisition. It would seem to me that both here and generally over China the smokers may be divided into two classes: 1°, a minority, who, being either officials or well-to-do persons, can afford to give vent to their passion, and indulge to an extent which would in many cases quite justify the worst that has been said as to the effects and consequences of the vice; and 2°, the majority, consisting of persons who are obliged to work hard for a living, and among whom moderation is the rule. I am bound to say, however, that even among the former the use of the drug is usually for a considerable time tempered with more or less moderation, and that many years of unimpaired usefulness are thus enjoyed ere that condition is attained which so justly calls for commiseration.

Here as elsewhere the grand prompter to excess is the co-existence of that idleness which in many parts of the world is often thought to be the privilege of wealth. Hence, as far as my inquiries go, we do not meet the extreme effects of over-indulgence so frequently among officials, or at any rate so early a manifestation of its most baneful effects, as among those who, independent of exertion, give themselves up entirely to that indolence which is prone to seek among the vices generally for relief from otherwise unbearable ennui. On the other hand, it is not quite fair always to attribute to opium-smoking those fearful concomitant vices which are often depicted as its consequences. That they are frequently coincidences, or that they sometimes precede and at others follow, indulgence in opium I am aware, but still, though excessive smoking may hasten the effects of a general moral depravity, I am inclined to think it is much more often rather a sequence than the cause.

Taking one from this class as a type of opium-smoking carried to its dire end, we shall find that probably he began smoking from 10 to 20 or 30 years previously. When young, and before becoming entirely enslaved, he smoked from 1 to 2 mace weight per diem. The increase in quantity was probably gradual during the first 10 years, until at the end of that time it reached, say, 3 to 4 mace in the day. During this period he did not feel much the worse for his habit. He smokes thrice daily, once in the forenoon, again after the mid-day meal, and finally in the evening. This latter extends more or less far into the night, in proportion to the degree of his infatuation.

Presume him to be an official, or a man who, though well off, is still engaged in some business occupation, and so long as the requirements of his business necessitate diurnal briskness, he may not exceed the maximum I have stated; but should either the advance of his prospects render further excess possible, or an inability or disinclination to resist the allurements of the drug prompt him, the progress is rapid, until he reaches a daily consumption of from 7 mace even up to 1 tael. With this advance begin those outward manifestations of decaying mind and enfeebled body which have been so often depicted. The pipe is seldom out of his mouth; his hours of mental lucidity become fewer and fewer; he scarcely ever

obtains natural sleep; he wakes dull and heavy, to be briefly flashed into temporary consciousness by the first whiff of his pipe, quickly relapsing into semi-stupor. His bowels are constipated for periods sometimes of 10 days; his appetite is almost gone, his digestion of the weakest; he becomes sexually impotent, and so on, until at last, intensely anæmic, extreme debility is further aggravated by the characteristic diarrhœa, and he finally passes away unregretted from the world in which for so long he can scarcely be said to have mixed.

Opium-smokers will tell you that there is a point (varying with different men, and regulated by the general energy of their lives) up to which they can go with impunity. One very intelligent old gentleman, who said he had smoked for 30 years, and at that time seemed to be, as he said he was, tolerably healthy, told me that he never exceeded a certain quantity, in fact, that this was the maximum he allowed himself on festive occasions; but that there was a lower rate, which was quite sufficient to give him all the satisfaction he required, and this was his ordinary allowance. He had varied but little, he said, for the last 15 years, and felt no irresistible temptation to do so. He was 50 years of age, and was engaged in active mental occupation as a large merchant. He thoroughly enjoyed his pipe, and admitted he could not do without it. He suffered from constipation to a greater extent than non-smokers do (the Chinese generally are much subject to this), but he was not aware that it affected him. He ate well, and after his evening pipes had sound and refreshing sleep, rising about 11 o'clock each day. He was not by any means impotent either as to desire or efficacy, and pointed to a son aged 4 years as a proof of this. He said that, as far as he knew, many others were like him, and that although, of course, there were several who made no effort to control the amount of opium used, still he did not think until the evening of life came it was by any means the rule for opium-smokers to abstain from doing so. He instanced officials who, he said, often adjusted their indulgence by the leisure available, *i.e.*, the rank or appointment they held. Of course there were many cases of persons who rushed deeply into the bonds of opium; "with them there was no thought of what amount could be borne, but rather, it would seem, what quantity could be consumed in the time vouchsafed."

Not taking all my friend said as being literally exact, still I found it a very good standard for comparing my own observations, and I have been struck by the amount of truth there was in the statement. That point of there being the safe and satisfying maximum to which every man might with comparative impunity indulge seems curious, but I have been repeatedly assured of it by many most confirmed opium-smokers. Several that have admittedly gone far beyond it, and were exhibiting all the consequences of their imprudence, have told me the same, and in their own cases have named the date from which they reckoned their downfall. I have also made a point on many occasions of closely questioning and examining those who have avowedly kept within the alleged limits of immunity, and I have seen no reason to question their assertions. I may here mention an interesting fact, and that is that in the case of the poorer classes, to be hereafter spoken of, under pressure due to reduction of means, a comparatively small amount of opium suffices to overcome or satisfactorily modify the craving and other unpleasantness which, as far as I could discover, invariably follows a sudden cessation of the accustomed indulgence. The highest amount smoked in a single day with *alleged* safety was 5, while the lowest rate quoted was 3 mace; but it must be remembered that Chinese of this

class would scarcely notice anything that did not interfere with, say, 6 or 8 hours' attention to duties, shorten life, or set up some marked manifestation of illness, and thus, probably, if we contrasted the condition they call perfect with that we should describe as belonging to the typically healthy, we should find several shortcomings. Again, it must be remembered in quoting these quantities that the manner of smoking has to be taken into account; the affluent rapidly refilling the bowl, and not nearly exhausting the charge, which often affords considerable enjoyment to humbler votaries, who re-smoke it.

To turn to the other class (and this includes a vast proportion of the general public), one will be really surprised to find how comparatively few there are who indulge to disastrous excess. Case after case will be met of men, even in the lowest ranks of life, who have smoked regularly for from 10 up to 20 or even 30 years, and who, as far as we can discover, show little or no signs of mental or physical degeneration. Taking the average amount of opium consumed by these, I found it to be from 1 to 2 mace per diem. Here in Southern Formosa there is a class of men, including the coolies, chair-bearers and couriers, who daily do an amount of physical work that is remarkable in its extent. These have for years been in the habit of taking a certain quantity of opium during the day, seldom or never varying it; and they assert that by so doing they at least attain a greater degree of comfort in carrying on their labours, and, with but very rare exceptions, I must admit that I have failed to obtain evidence which would justify me in attributing any marked harm to their habit.

Of course, among every class of men there are those to whom moderation is impossible, and who, in the gratification of their desires, will drag themselves and those dependent on them to the lowest misery. This we find one of the greatest evils connected with alcoholic intemperance; but I must say that my experience both here and in other parts of China would go to support the statement that the use of opium through the medium of a pipe does not, at least up to a certain point, so irresistibly and inherently tend to provoke excess as undoubtedly is very often the case with the stimulants commonly indulged in by foreigners. Were the seductive powers of opium so great and cumulatively overwhelming as has sometimes been asserted, I cannot but think that among the class of which I am now speaking, dependent as most of them are for a livelihood on their exertions, we should have a very much greater number of instances of its disastrous effects on purse and person; but I do most conscientiously state that although I have met with instances in which the effects were most marked and deplorable, still, when considered in numerical relation to the numbers who smoke opium, I have been struck with their paucity, and my preconceived prejudices with reference to the universally baneful effects of the drug have been severely shaken.

If I were asked the question as to whether I believed the use of opium necessary or even harmless, I should be inclined to reply that both queries required specific and relative answers. We know in medicine that under certain conditions the exhibition of opium is not only gratefully but beneficially borne, and that this is in direct relation to the cause which called for the administration, *e.g.* pain. Without going deeply into the rationale of the process, the physiologist could perhaps imagine a condition, such as might be induced by arduous physical or mental toil, where the moderate use of opium might be even beneficial, or where at least by imparting comfort its injurious effects (if any) might be neutralised. We know well that the

population of China—I am now alluding to that portion which, while forming the vast majority, would be those who could least afford to indulge in a practice materially affecting either their health or their fortunes—I say we know that these are, as a rule, industrious and laborious to a degree. Whether they could get along just as well—nay, perhaps better—if for opium was substituted some less suspicious restorative—*e.g.*, better and more nourishing food—is a suggestion that would undoubtedly admit of interesting consideration, but as I am at present only dealing with the state of affairs as we find them, I need not dwell further on the question of possibilities.

Again, whether in view of the enormously preponderating amount of opium cultivated in China, Indian drug should ruffle the sensitiveness of our national conscience to the extent some would seem to think proper, or whether the obstacles (if any) to international *entente* are so much supported by the import of opium, *per se*, as by the various unpleasant incidents of a past, when other articles of import had little or no chance of acting as irritants, I take it does not concern me at present.

As contrasted with the drunkard, the opium sot decidedly has the advantage—that is, as far as his bearing to his fellow-beings goes; for whereas one, under the influence of liquor, is noisy, quarrelsome and often dangerous, the druggard (if I may for convenience coin a word) *is at least quiet and orderly. That abuse of alcohol is a marked factor in the production of* crime of the most heinous nature all will admit, while, as far as I can learn, opium comparatively seldom leads to crime, and even then this rarely, if ever, attains to higher dignity than petty theft.

Dr. TANNER, in his standard work on Practice of Medicine, suggests, in the case of confirmed dipsomaniacs, the substitution of opium-eating for wine-bibbing as the lesser of the two evils. Opium-eating, however, seems to me to stand on a very different footing from smoking. It would appear that when taken by the stomach incessant and cumulative craving *is much sooner set up; that rapid increase of dose is absolutely necessary;* and that the drug soon obtains the mastery, concentrating, both in time and vigour, its most disastrous effects. Except at advanced stages of the opium-smoker's career, one does not hear of sufferings and other manifestations such as have been so graphically depicted by DE QUINCEY; but at a very early period the opium-eater begins to complain and show marked symptoms of the sad effects of his vice. I have had some opportunity of contrasting the two effects, and I feel justified in asserting that smoking as compared with eating opium is as different as the excesses of the *bon vivant* are from chronic, hopeless dipsomania. The smoker may after a comparatively long period reap the painful fruits of his indiscretion; with the eater the consequences begin almost directly.

We must also consider the difference between the two modes of introduction into the system, the one process by which but a small proportion of the drug consumed can obtain access, and the other by which not an atom of the poison can escape, added to which are the local derangements set up in the alimentary canal by repeated calls for an exercise of its functions on that which by mere contact proves injuriously obstructive to the natural processes exerted for its assimilation.

This brings me to the subject of remedies for the cure of opium-smoking, and the question as to whether it is advisable, to however slight an extent, to substitute for the inhalation of the drug its administration in solid form.

Medical men in China have, as far as I know, as a rule, followed the plan of giving opium or morphia combined with some strong tonic such as quinine or strychnine, gradually and rapidly decreasing the amount of opium and increasing the dose of tonic, adding iron or some similar medicine, until the patient has lost the desire and been strengthened by the remedies administered. The late Dr. OSGOOD of Foochow was, I am told, the first to commence the cure of opium-smoking by immediate and total deprivation of the drug, substituting for it chloral hydrate, which, with tonics, he gave in the form of pill. Dr. DUDGEON of Peking, from his recent strong denunciations of the use of opium in the system of cure, I assume also disapproves of the old method, and I observe that Dr. LYALL of Swatow treats all his cases without opium. I myself have hitherto followed the beaten track, and provided, of course, the patient is watched and the opium rapidly diminished, good results have followed the treatment. I have, however, been led to fear that the number of smokers really desirous of being cured is very small, and too often application to the foreign physician is merely to tide over some temporary inability to procure the drug, to which they return as soon as circumstances prove favourable.

One of the greatest obstacles to the permanent cure of opium-smoking in individuals, as I am convinced it will prove the great bar to all efforts at putting down the general use of opium in China, is the despotism of the tyrant Fashion. To present the pipe, to join in its participation, has become the almost universal sign of courtesy and hospitality. No business can be completed nor acquaintanceship inaugurated without its aid, and in fact it would be a tremendous strain on the not unlimited moral courage of the native were he to refuse to present or join in the fashionable civility. In some few instances a show of privacy is kept up, but I have reason to think that even this semblance of deference to those theoretical moral platitudes Chinese know so well how to write and utter is fast passing away; and I am bound to admit that although I have in my time had a considerable number of applicants for treatment, and many have undoubtedly been "cured," I cannot recall a single instance where I was sure relapse after a longer or shorter time did not take place, and it was ever the same excuse:—"I can't help it; my friends all smoke, and if I do not they will leave me, and I shall lose my business" or "face," as the case might be.

I think all medical men agree that unless patients are under immediate observation, little can be done; and if the remedy used contains opium, and this be dispensed to all and sundry, facilities are offered for setting up the greater evil of opium-eating. As a fact, this has actually happened in Formosa. Several years ago, at the missionary hospital at Taiwan-fu, the cure of opium-smoking used to be effected by pills in the first instance containing opium combined with strong tonics. Of course the patients obtaining the pills were kept under the supervision of the doctor and had their doses of opium rapidly diminished until total deprivation was arrived at; in a word, they were treated in the usual and rational way. Observing, however, that opium administered by the mouth proved for the time as effectual as smoking, and naturally ignorant of the more speedy disaster liable to follow its habitual

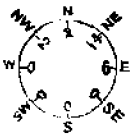
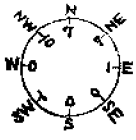
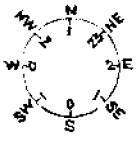
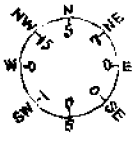
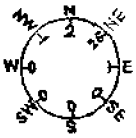
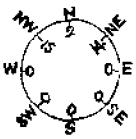
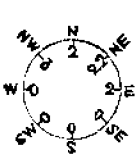
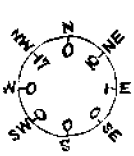
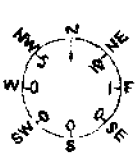
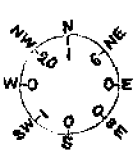
use in this form, having also its great cheapness to support it, some of the old employés of the hospital have by means of their agents instituted an enormous sale of so-called "great foreign opium pills." In some cases these pills are made from crude opium purchased in the native shops, but in the majority of instances are manufactured with the pulvis opii of the Pharmacopœia or with muriate of morphia. The opium pills contain from ¾ to 1 grain, made up with some aromatic mess obtained in the Chinese medicine shops, and the morphia pills from ¼ to ½ grain of the alkaloid, prepared in a similar way. The first are sold at about ⅔ of a cent and the others at 1 cent each. They are dispensed indiscriminately by natives all over the country, though the chief depôt is at Taiwan-fu. I need hardly say that this is done entirely without the cognizance, still less approval, of those whose name is audaciously appropriated. The result is that opium-eating is now becoming very common in the south of Formosa; and although it does not by any means supersede the use of the pipe, still, whenever from pecuniary or other causes this would not be convenient or available, resort is had to the pill. One grain of morphia or 2 grains of opium swallowed is found to be equivalent to 1 mace of the preparation smoked; 1 mace = about 58 grains.

To give an idea of the consumption of morphia, I may state that one man in Taiwan-fu alone imports upwards of 100 ounces of morphia per annum, which he uses in the manufacture of these pills.

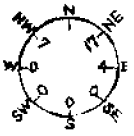
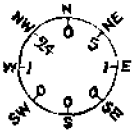
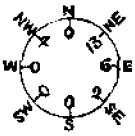
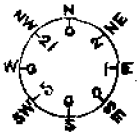
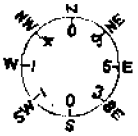
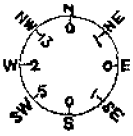
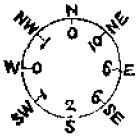
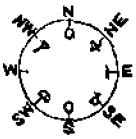
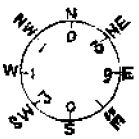
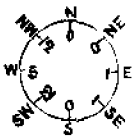
Applicants at either the Taiwan-fu or Takow Hospital are now treated without either opium or its alkaloid; but, in my experience at least, as soon as the patients discover the absence of their favourite drug, the anxiety for cure vanishes, as does also the *soi-disant* penitent.

Meteorological.—I am indebted to the harbour master for the meteorological readings from which I have compiled the appended abstract. As will be seen, they only extend over the 18 months immediately preceding the 31st March 1881.

ABSTRACT of METEOROLOGICAL OBSERVATIONS taken by the Customs, Takow, for the Eighteen Months ended 31st March 1881. Latitude, 22° 36′ 14″ North; Longitude, 120° 16′ 0″ East.

DATE.	BAROMETER.		THERMOMETER.				SELF-REGISTERING THERMOMETER.		RAIN IN 24 HOURS.	WIND.		CLOUDS.		No. of Days in each Month on which no Rain or Snow fell.
			Dry Bulb.		Wet Bulb.		Max. in Air.	Min. in Air.		Summary of Direction.		0—10.		
	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	9.30 A.M.		9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	
1879.	*Inch.*	*Inch.*	°	°	°	°	°	°	*Inch.*					
OCTOBER:—														
Max.	30.20	30.14	88	89	82	83	89	78	...			2 at 1 11 ,, 2 5 ,, 3 3 ,, 4 5 ,, 6 1 ,, 7 2 ,, 8 2 ,, 9	1 at 2 5 ,, 3 4 ,, 4 3 ,, 5 2 ,, 6 6 ,, 7 4 ,, 8 4 ,, 9 2 ,, 10	
Mean.	30.09	30.10	84.8	84.4	78.3	78.2	87	74.4	...					30
Min.	29.93	29.90	79	79	75	74	86.5	69	...					
NOVEMBER:—														
Max.	30.24	30.14	85	85	78	78	87	74	.95			3 at 1 3 ,, 2 1 ,, 3 2 ,, 4 2 ,, 5 2 ,, 7 3 ,, 8 2 ,, 9 12 ,, 10	1 at 1 3 ,, 2 2 ,, 3 2 ,, 4 2 ,, 5 2 ,, 6 2 ,, 7 2 ,, 8 5 ,, 9 9 ,, 10	
Mean.	30.08	30.00	78.8	79.5	73.2	73.7	80.1	69	.38					27
Min.	29.88	29.82	69	70	64	66	72	60	...					
DECEMBER:—														
Max.	30.22	30.25	81	81	75	74	88	67	...			9 at 1 9 ,, 2 1 ,, 3 2 ,, 4 1 ,, 6 2 ,, 7 2 ,, 8 3 ,, 9 2 ,, 10	4 at 1 11 ,, 2 8 ,, 3 1 ,, 4 1 ,, 5 2 ,, 6 0 ,, 7 0 ,, 8 0 ,, 9 5 ,, 10	
Mean.	30.12	30.08	72.8	74	65.3	64	78.7	60.6	...					31
Min.	29.32	29.98	60	65	57	53	67	55	...					
1880.														
JANUARY:—														
Max.	30.37	30.31	73	77	69	71	82	65	1.08			1 at 1 2 ,, 2 3 ,, 3 2 ,, 4 3 ,, 5 2 ,, 6 2 ,, 7 3 ,, 8 5 ,, 9 8 ,, 10	0 at 1 3 ,, 2 3 ,, 3 3 ,, 4 1 ,, 5 4 ,, 6 1 ,, 7 1 ,, 8 2 ,, 9 13 ,, 10	
Mean.	30.19	30.12	67.61	70.93	63.28	66.19	72.35	65.41	.46					25
Min.	30.02	29.95	56	59	51	57	58	50	...					
FEBRUARY:—														
Max.	30.27	30.20	78	81	73	76	83	68	1.35			2 at 1 7 ,, 2 1 ,, 3 3 ,, 4 0 ,, 5 2 ,, 6 1 ,, 7 1 ,, 8 13 ,, 10	2 at 1 9 ,, 2 1 ,, 3 1 ,, 6 1 ,, 7 2 ,, 8 2 ,, 9 10 ,, 10	
Mean.	30.13	30.07	70.5	73.2	66.6	68.7	75.5	62.4	.63					27
Min.	30.03	29.90	61	67	57	63	63	54	...					

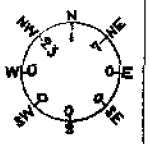
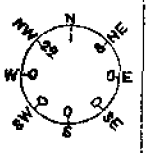
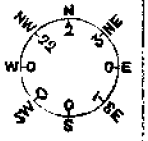
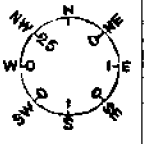
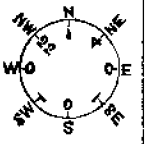
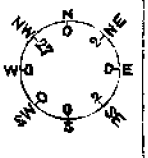
ABSTRACT of METEOROLOGICAL OBSERVATIONS—*continued.*

DATE.	BAROMETER.		THERMOMETER.				SELF-REGISTERING THERMOMETER.		RAIN IN 24 HOURS.	WIND.		CLOUDS.		No. of Days in each Month on which no Rain or Snow fell.
			Dry Bulb.		Wet Bulb.		Max. in Air.	Min. in Air.		Summary of Direction.		0—10.		
	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	9.30 A.M.		9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	
1880.	*Inch.*	*Inch.*	°	°	°	°	°	°	*Inch.*					
MARCH:—												2 at 1 8 ,, 2 4 ,, 3 5 ,, 4 2 ,, 5 1 ,, 6 1 ,, 7 1 ,, 8 1 ,, 9 6 ,, 10	2 at 1 9 ,, 2 6 ,, 3 4 ,, 4 0 ,, 5 1 ,, 6 1 ,, 7 1 ,, 8 1 ,, 9 6 ,, 10	
Max.	30.33	30.25	82	82	75	78	83	72	...					
Mean	30.17	30.09	72	75	67	70	76	63	...					31
Min.	30.05	29.97	60	62	56	59	62	53	...					
APRIL:—												5 at 1 7 ,, 2 1 ,, 3 0 ,, 4 1 ,, 5 0 ,, 6 1 ,, 7 1 ,, 8 3 ,, 9 11 ,, 10	4 at 1 5 ,, 2 5 ,, 3 4 ,, 4 3 ,, 5 0 ,, 6 0 ,, 7 0 ,, 8 1 ,, 9 8 ,, 10	
Max.	30.22	30.16	85	83	78	78	85	74	1.08					
Mean	30.1	30.03	75.04	78.06	70.13	72.40	79.16	67.93	.60					28
Min	29.89	29.81	66	68	62	64	69	59	...					
MAY:—												6 at 1 4 ,, 2 3 ,, 3 1 ,, 4 0 ,, 5 0 ,, 6 1 ,, 7 1 ,, 8 3 ,, 9 12 ,, 10	5 at 1 3 ,, 2 5 ,, 3 0 ,, 4 3 ,, 5 0 ,, 6 0 ,, 7 3 ,, 8 0 ,, 9 12 ,, 10	
Max.	30.11	30.05	87	88	82	83	90	80	5.70					
Mean	30.00	29.95	81.96	83.54	78.12	79	85.32	76.38	1					22
Min.	29.92	29.85	75	79	74	75	80	73	...					
JUNE:—												6 at 1 0 ,, 2 5 ,, 3 1 ,, 4 3 ,, 5 1 ,, 6 3 ,, 7 1 ,, 8 5 ,, 9 3 ,, 10	0 at 1 1 ,, 2 1 ,, 3 1 ,, 4 1 ,, 5 0 ,, 6 6 ,, 7 4 ,, 8 5 ,, 9 11 ,, 10	
Max.	30.08	30.03	89	87	84	83	89	80	2.60					
Mean	29.96	29.92	84.70	84.46	80.70	80.96	86.70	77.80	.84					8
Min.	29.87	29.84	82	78	79	77	83	75	...					
JULY:—												7 at 1 3 ,, 2 4 ,, 3 1 ,, 4 2 ,, 5 2 ,, 6 2 ,, 7 3 ,, 8 3 ,, 9 5 ,, 10	0 at 1 2 ,, 2 2 ,, 3 4 ,, 4 1 ,, 5 1 ,, 6 1 ,, 7 4 ,, 8 7 ,, 9 9 ,, 10	
Max.	30.05	29.99	88	88	84	87	90	81	9.63					
Mean	29.88	29.84	85	86	81	82	88	79	.75					17
Min.	29.76	29.70	79	83	77	78	83	75	...					

ABSTRACT of METEOROLOGICAL OBSERVATIONS—*continued.*

DATE.	BAROMETER.		THERMOMETER.				SELF-REGISTERING THERMOMETER.		RAIN IN 24 HOURS.	WIND.		CLOUDS.		No of Days in each Month on which no Rain or Snow fell.
			Dry Bulb.		Wet Bulb.		Max. in Air.	Min. in Air.		Summary of Direction.		0—10.		
	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	9.30 A.M.		9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	
1880.	*Inch.*	*Inch.*	°	°	°	°	°	°	*Inch.*					
AUGUST:—												0 at 1 3 ,, 2 4 ,, 3 1 ,, 4 5 ,, 5 1 ,, 6 2 ,, 7 3 ,, 8 4 ,, 9 8 ,, 10	2 at 2 1 ,, 2 2 ,, 3 3 ,, 4 2 ,, 5 4 ,, 6 2 ,, 7 2 ,, 8 3 ,, 9 10 ,, 10	
Max.	30.14	30.10	90	88	83	83	90	80	6.53					
Mean	29.89	29.86	85	84	80	80	86	77	.902					7
Min.	29.71	29.64	78	79	76	77	81	75	...					
SEPTEMBER:—												4 at 1 2 ,, 2 6 ,, 3 2 ,, 4 2 ,, 5 4 ,, 6 2 ,, 7 1 ,, 8 1 ,, 9 6 ,, 10	0 at 1 2 ,, 2 3 ,, 3 5 ,, 4 2 ,, 5 1 ,, 6 2 ,, 7 4 ,, 8 2 ,, 9 9 ,, 10	
Max.	30.13	30.05	89	88	84	83	90	82	3.48					
Mean	29.92	29.55	86	85	81	81	87	79	.211					21
Min.	29.40	29.05	77	80	75	76	81	67	...					
OCTOBER:—												4 at 1 5 ,, 2 3 ,, 3 0 ,, 4 0 ,, 5 0 ,, 6 4 ,, 7 1 ,, 8 2 ,, 9 12 ,, 10	3 at 1 1 ,, 2 5 ,, 3 1 ,, 4 0 ,, 5 3 ,, 6 3 ,, 7 1 ,, 8 2 ,, 9 12 ,, 10	
Max.	30.14	30.07	88	86	84	81	89	79	.28					
Mean	30.07	29.96	82	82	78	77	84	74	.4					26
Min.	29.76	29.75	72	71	70	69	75	68	...					
NOVEMBER:—												7 at 1 9 ,, 2 4 ,, 3 3 ,, 4 2 ,, 5 1 ,, 6 0 ,, 7 2 ,, 8 0 ,, 9 2 ,, 10	2 at 1 5 ,, 2 6 ,, 3 1 ,, 4 4 ,, 5 4 ,, 6 2 ,, 7 1 ,, 8 0 ,, 9 5 ,, 10	
Max.	30.32	30.24	82	79	76	74	82	69	...					
Mean	30.21	30.13	76	76	69	68	78	64	...					30
Min.	30.12	30.05	70	69	61	64	71	55	...					
DECEMBER:—												5 at 1 7 ,, 2 2 ,, 3 0 ,, 4 1 ,, 5 1 ,, 6 2 ,, 7 3 ,, 8 3 ,, 9 7 ,, 10	3 at 1 2 ,, 2 5 ,, 3 3 ,, 4 2 ,, 5 0 ,, 6 0 ,, 7 2 ,, 8 3 ,, 9 11 ,, 10	
Max.	30.38	30.29	79	76	74	71	79	68	.70					
Mean	30.20	30.18	68	70	63	74	72	59	.44					26
Min.	30.07	30.08	57	61	53	56	63	50	...					

ABSTRACT of METEOROLOGICAL OBSERVATIONS—*continued.*

DATE.	BAROMETER.		THERMOMETER.				SELF-REGISTERING THERMOMETER.		RAIN IN 24 HOURS.	WIND.		CLOUDS.		No of Days in each Month on which no Rain or Snow fell.
			Dry Bulb.		Wet Bulb.		Max. in Air.	Min. in Air.		Summary of Direction.		0—10.		
	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	9.30 A.M.	9.30 A.M.		9.30 A.M.	3.30 P.M.	9.30 A.M.	3.30 P.M.	
1881.	*Inch.*	*Inch.*	°	°	°	°	°	°	*Inch.*					
JANUARY:—												5 at 1 5 ,, 2 7 ,, 3 2 ,, 4 3 ,, 5 2 ,, 6 1 ,, 7 2 ,, 8 3 ,, 9 1 ,, 10	1 at 1 0 ,, 2 9 ,, 3 5 ,, 4 4 ,, 5 2 ,, 6 1 ,, 7 1 ,, 8 3 ,, 9 5 ,, 10	
Max.	30.37	30.30	70	71	66	67	73	65	...					
Mean.	30.24	30.16	66	68	59	61	70	57	...					31
Min.	30.06	30.01	59	61	52	53	64	52	...					
FEBRUARY:—												0 at 1 9 ,, 2 3 ,, 3 6 ,, 4 4 ,, 5 3 ,, 6 0 ,, 7 2 ,, 8 0 ,, 9 1 ,, 10	2 at 1 3 ,, 2 4 ,, 3 7 ,, 4 5 ,, 5 2 ,, 6 2 ,, 7 2 ,, 8 0 ,, 9 1 ,, 10	
Max.	30.36	30.26	78	83	74	78	84	74	.05					
Mean.	30.21	30.12	72	76	67	69	76	65	...					27
Min.	30.08	30.01	66	69	61	64	70	59	...					
MARCH:—												5 at 1 4 ,, 2 4 ,, 3 2 ,, 4 4 ,, 5 1 ,, 6 0 ,, 7 0 ,, 8 2 ,, 9 9 ,, 10	0 at 1 2 ,, 2 6 ,, 3 2 ,, 4 1 ,, 5 2 ,, 6 3 ,, 7 2 ,, 8 6 ,, 9 7 ,, 10	
Max.	30.35	30.28	79	81	75	76	82	70	...					
Mean.	30.23	30.14	69	74	65	68	75	63	...					31
Min.	30.10	30.02	56	58	53	53	58	52	...					

H.—Dr. Flemming Carrow's Report on the Health of Canton for the Half-year ended 31st March 1881.

During the last six months we have been visited by an epidemic of small-pox not only in Canton, but in the districts north and west of the provincial city. From the most reliable information I can get, I learn that this disease has raged to an unprecedented extent. In the streets of the native city, in the open squares before the temples, and in the boats on the river, as well as in the houses, one may see numbers of faces covered with eruption. Indeed, it has been so prevalent that it has kept many visitors away during the winter.

Foreigners have not escaped, although nearly every resident has adopted the precaution of vaccination. We have had five cases among the Europeans; no deaths occurred, and, in fact, although the disease has been so prevalent, it has assumed an exceedingly mild form.

I have to report a case of acute pneumonitis which ran its course to a speedy and fatal termination.

Patient, æt. 31, was in perfect health on 30th December; following day contracted a cold, and on 1st January took to bed, with severe rigors, followed by high fever. Temperature, 102°; pulse, 120; respiration, 40. High febrile symptoms continued, and the progress of the disease in the lungs was rapid. At the end of eight days temperature and pulse diminished, but the respiration increased in frequency until it rose to 60, where it remained till death. The rusty sputa and the significant râles, with the other symptoms I have mentioned, made the diagnosis easy. Death occurred on the 17th day.

The following case was diagnosed as a complication of typhus and variola hæmorrhagica. It was altogether the most interesting one I ever had, and I believe it to have been an example of a rare from of disease. I was therefore fortunate in obtaining a postmortem, for aid at which, as well as through the course of the case, I desire to express gratitude to Dr. Clouth of Hongkong.

J. B., æt. 29, strong and well nourished, in perfect health, had been feeling, as he termed it, "feverish" for two days. Had taken a long walk on a bright, warm day, and supposed his indisposition to result from this exposure to the sun.

3rd Day.—His symptoms increased in severity, and he sent for me. I found him suffering from a severe headache, high fever, a peculiar tingling of the skin, tongue thickly coated. Bladder had not been relieved for 20 hours, but felt no inconvenience from it, and no desire to empty it.

4th Day.—Said he had urinated since my last visit, but the servants had not kept it for my inspection; told me the urine was very scanty and like blood. (This last fact was very interesting after the disease had developed itself further.) Fæces black; cough, with rusty expectoration, marked dulness over the right lung; respirations very fast, 56 per minute; temperature about normal, and I may say it was natural through the whole course of the disease. Over the breast I noticed a few small ecchymotic spots. Ordered potassium bromide. No sleep.

5th Day.—Body and extremities thickly covered with ecchymotic spots; conjunctivæ injected, and the vessels engorged with blood; mucous membrane within the mouth and the tongue thickly studded with these black spots. Evacuated the bladder and found urine like blood. Face was swollen and of a leaden hue. No sleep. Very evident that death was soon to follow.

6th Day.—Face almost black. No sleep during the night just passed. Full command of the mental powers to the last. Death occurred in the evening.

Treatment throughout had reference to symptoms only, as it was evident from the first that we could not save life.

At the *postmortem* the entire mucous tract was found thickly studded with the same ecchymotic spots which we noticed on the skin, with here and there along the intestine small ulcers situated in the centre of these spots; in many places they had nearly perforated the bowel. A very noticeable ulcer, which had quite perforated, was found at the ileo-cæcal valve. In the liver, spleen, kidneys, heart and lungs were found these same spots, some of them as large as a shilling. The pericardium contained a large quantity of bloody serum. The stomach and bladder also held a considerable quantity of black fluid; that in the bladder was solid. In the right lung we found that condition which gave us the dull sound on percussion before death; it was greatly congested. We were requested not to open the cranium.

These two deaths are the first which have occurred at this port in two and a half years, and, upon the whole, we have had very little sickness, notwithstanding the fact that throughout China our climate is considered very unhealthy. I can bear Dr. MANSON out in stating that we meet with varieties of fever in South China which have not been described, and which do not fall under any classification heretofore made; especially is this so in this province. "Fevers which yield to quinine, and fevers over which it has no influence" seems to be a classification, although unsatisfactory, which one has to adopt in the treatment of these cases. At the present time I am treating two cases with quinine, and have had them under observation for two weeks, during which time I have kept up the symptoms of cinchonism, and thus far have noticed no improvement whatever. In a recent case I gave up the quinine treatment, and a cure was speedily effected spontaneously.

In February a death occurred from cirrhosis of the liver. The patient, a tidewaiter, was ordered to Hongkong, with the idea that this change might produce a favourable result, or at least prolong the life of the man; but death soon resulted.

During the autumn we were not visited by our usual epidemic dengue. Intermittent fever, measles, rheumatic affections and ophthalmia have been the diseases presented for treatment.

For the following meteorological table I am indebted to the Assistant Tidesurveyor, Mr. IFFLAND:—

Month.	Winds.							Weather.			Barometer.				Thermometer.			
											Day.		Night.		Day.		Night.	
	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.	No. of Days Fog.	No. of Days Rain.	Rainfall in Inches.	Highest Reading and Average Highest.	Lowest Reading and Average Lowest.	Highest Reading and Average Highest	Lowest Reading and Average Lowest.	Highest Reading and Average Highest.	Lowest Reading and Average Lowest.	Highest Reading and Average Highest.	Lowest Reading and Average Lowest.
1881.							*miles*				*Inches.*	*Inches.*	*Inches.*	*Inches.*	°	°	°	°
January.....	21	1	7	1	1	...	4·4	...	...	...	30.35 30.24	30.05 30.16	30.30 30.20	30.05 30.18	75 69	47 57	69 62	42 56
February.....	14	7	1	1	5	...	6.6	...	17	1.3	30.30 30.16	29.91 30.06	30.37 30.11	29.93 30.07	79 69	52 62	74 65	55 61
March.....	21	2	2	6	...	...	6.8	3	11	5	30.33 30.20	29.90 30.12	30.30 30.17	29.93 30.13	78 63	42 56	74 59	42 53

I.—Dr. E. A. ALDRIDGE's Report on the Health of Hoihow for the Half-year ended 31st March 1881.

HOIHOW is situated on the north coast of the island of Hainan, in latitude 20° 3′ 13″ N., longitude 110° 19′ 3″ E., and is the seaport of the city of Kiungchow, which was opened for foreign trade in 1876, and is situated about 3 miles inland from Hoihow. The width of the Hainan Straits between Hoihow and the mainland—the Leinchew peninsula—is about 12 miles. The town of Hoihow is built on the south bank of one of the mouths of the principal river in the island that commonly goes by the name of the Tingan River, the houses reaching to within a short distance of the entrance of the river into the straits. At high water, opposite the town the water is over 200 yards wide, but it is not one-third that width and very shallow at low water. The native population is estimated at about 12,000, while there are now 11 foreign residents.

From a sanitary point I consider that Hoihow does not compare unfavourably with other Chinese towns. The greater proportion of the inhabitants reside inside the walls of the town, but even there there is plenty of room for good ventilation, for the houses are not very thickly built together, and there are many large open spaces still unbuilt upon. The streets are well paved and drained. There is one large drain running through the town, from which there are numerous branches running up the different streets. The drainage runs into the river, and the householders subscribe so much yearly to keep the drains in repair. As a general rule, nothing but dirty water is emptied into them, all other refuse being kept in covered boxes, and collected every morning by the scavengers, by whom it is taken into the country and used for manuring the soil.

The people in Hoihow are mostly very poor, but as provisions are plentiful and cheap, they are able to live on a very small amount. Beef has been for sale in very large quantities. The meat of cows that have died of the cattle disease now raging on the island has been sold and largely eaten by the Chinese, without causing, as far as I can understand, any injurious effects. Most of the meat sold, however, has been from cows that have been slaughtered by the farmers soon after they have become affected by the disease. The foreign residents here have for a long time left off eating beef. The cattle are bred entirely for agricultural purposes, and we are hence unable to obtain cow's milk. Goat's meat can always be had; but as there are no sheep on the island, the want of mutton is very much felt. There is a certain prejudice among the foreign residents against the pork sold here. The supply of sucking pigs is large, and they are in considerable demand. There is always an abundant supply of fish, poultry and vegetables to be had in the market. The varieties of fish of good quality are numerous.

Since the port was opened, 16 foreigners have been resident for different periods of time; and I am given to understand from those that lived in Hoihow when they did, and still reside here, that none of them suffered from any sickness at all serious, and in not one instance did any of them have to leave the port on account of ill-health, but most of them, being in government employ, were transferred to other ports. Before I arrived here, seven

months ago, there was no medical man nearer than Hongkong, which is distant 270 miles; and though I have made numerous inquiries, I can only hear of one instance in which anyone has had to apply personally for medical advice. This man was then suffering from stomachic and biliary derangement, with which he was troubled after suffering from cholera in a more northern port; he has gained in weight since he arrived, and is now in good health. Another applied by letter for medical advice, as he was then suffering from eczema of the feet, and asthma; he was first troubled with asthma when in the north of China, and it is probable that there is a strong predisposing cause, as his mother has been for some years troubled with the same complaint; hence the cause cannot altogether be said to be climatic. If anything further than the even temperature of the place was required to show that residence in Hoihow was not unsuitable for anyone liable to chest affections, I may state that one man here now came to Hoihow on account of his suffering severely from asthma and bronchitis, since which time he has not had a single attack, and has gained 27 pounds in weight. Another man, now here three years, suffered from the same complaints for a long time before he arrived here, since which time he has not been for a day off duty on account of sickness. The only complaints for which I have been consulted that have not been of a trivial character have been asthma, which I have already mentioned, and synovial rheumatism, occurring in a man whose employment is mostly out of doors. This man came here five years ago, when he was suffering from chronic diarrhœa, for which he was taking large doses of opium, and he tells me that the change of residence was so beneficial that he was soon all right, and has not been troubled with diarrhœa since.

The average length of time that the foreigners here now have resided in China is a little over 11½ years, and their experience so far has been such as to make them believe that this is one of the healthiest ports in China.

The water obtained from the wells in Hoihow is brackish and not fit for drinking, but very good water can be obtained from the springs a few minutes' walk from the town. The supply of water from these springs has not been the least affected by the very dry season we have lately had here. On the 17th and 18th October last we experienced heavy rain and squally weather, while off the north-east coast of the island there was a typhoon raging, during which three sailing vessels were wrecked, and out of a crew of 42 on one of the vessels, only 9 were saved. The survivors arrived in Hoihow a few days afterwards, worn out with fatigue and exposure. I had several of them under my hands for diarrhœa, cut, blistered, and œdematous feet, the result of the trials and privations they had undergone; the natives of the districts through which they had to walk in many cases trying to rob them even of the clothing they had on.

A large number of the poorer classes have applied to me for relief, and they have no hesitation in taking foreign medicine. As in the other ports of China, diseases of the eye and skin predominate. I have to thank the Chinese merchants for subscribing the money to purchase the drugs I have used. A large amount of leprosy exists in the neighbourhood. The lepers are frequently to be seen along the sides of the principal streets exhibiting their sores and soliciting charity; more pitiful-looking objects it is difficult to imagine, their clothing in many cases consisting of nothing but coarse matting tied together by string, while they let their long, black, uncut hair hang over their faces. The huts of the lepers are clustered

together by themselves, and thus form a small village. Since my arrival here I have not seen a single infectious case. Small-pox is very much dreaded. Five years ago there occurred an epidemic, during which 600 or 700 lives are said to have been lost in Hoihow and the neighbourhood. The Chinese here have great faith in vaccination, and seem determined, should small-pox visit these parts again, that the ravages of the disease shall be lessened. At the end of 1877 the officials invited a Chinese vaccinator in Hongkong to come here, which he did, and vaccinated 300 persons. During the last months of 1878 and early months of 1879 there were 3,500 vaccinated, 1,200 were vaccinated during the same periods of 1879 and 1880, while since last October no less than 4,000 children and adults have been vaccinated by one man, who comes from the Tung'hwa Hospital in Hongkong. The present operator introduces lymph into four punctures on each arm, which the parents willingly allow, and bring their children for many miles to have them vaccinated. The vaccinator lays down an unnecessary dietary *régime* to be followed. These rules he has had printed, and he orders that for three weeks after vaccination only certain kinds of food are to be eaten; meat is forbidden, and everything eaten is to be first boiled.

The explosion of some gunpowder that was being dried over a charcoal fire in an iron pan, resulted in a man and a woman being severely burnt about the face, neck and chest, while another man was also badly burnt on the lower extremities. The persons burnt were according to their religion all vegetarians and teetotallers, and their friends would not let anything be given them to keep up their strength but boiled rice and water. I always upon seeing them dressed the wounds and wrapped the parts burnt in cotton wool, but upon my return I used to find my dressings removed and fermented rice and cabbage leaves applied in their place. Death resulted in all the cases. An infant that was lying in the same room in which the accident occurred also died, though I cannot believe that its death was caused by the explosion. The mother of the child had poisoned herself with opium shortly before the accident, on account, I was told, of leprosy having shown itself upon her, and hence, I believe, the relatives neglected the child rather than keep it alive. I have had one case of opium-poisoning under my care in a boy, aged 15 years, who, to save himself from a thrashing that he expected, pawned his coat, and with the money thus obtained bought some prepared opium, and was shortly afterwards found lying in the streets under its influence. I was immediately sent for, and, after using the usual remedies, was able to bring the boy round, and he made a satisfactory recovery.

The majority of the houses here are only one story high, but the Europeans, though having to content themselves with Chinese architecture, have been able to obtain two-storied dwellings. They are built close to the water's edge, upon a sandy soil, but though within such close proximity of the water, they have only once been flooded in the last five years; this occurred last September, the water in the river rising 10 feet,—the highest, the inhabitants say, during the last seven years. Residence in these houses has so far not proved injurious, yet were not other buildings so close to some of them, they would be more enjoyable places of residence. Within 10 minutes' walk of the town of Hoihow the ground rises considerably, on which ground there is a site admirably situated for European dwellings; the elevation would ensure that houses built there would be free from damp and that the sea breeze would be felt. The fresh-

water springs are close by; and though quite away from the town, the distance from business is so slight that little inconvenience would be felt. Judging this situation from a picturesque point, there is an extensive view on all sides; looking towards the north, the view extends over the harbour and Straits of Hainan. The surroundings of the ground I refer to are good, as it adjoins the very pretty village of Tyingshan, which, on account of its thick woods intersected by paths, is the frequent resort of the foreign residents. Should any of the Europeans here build houses for themselves, I think they would find the situation I mention the most suitable.

My experience, after the seven months I have resided here, is that Hoihow is not such an undesirable place of residence as might be imagined. We have had fine, clear weather, the temperature being neither unpleasantly hot or cold; and I believe a more agreeable climate than that which I have so far experienced is impossible to be found in any part of the world. Hoihow presents numerous facilities for out-door exercise. There are fairly good opportunities for sea-bathing and boating. Within 10 minutes' walk of the town there is wild pigeon and golden plover shooting, and for six months in the year plenty of snipe can be bagged. Within seven miles, jungle fowl, deer and wild duck can be obtained. There are also to be had here strong, sturdy ponies for those who care about that exercise.

The farmers must have had a bad time of it lately on account of the epizootic among cattle, which not only has injured the owners, but also the sugar planters, who, owing to the scarcity of cattle, have been unable to get the cane crushed, and a large quantity has thus been lost. The dryness of the late season has also done a good deal of injury to the rice and other crops. Disease appeared first among the cattle at Haian, which is situated on the mainland, and the farmers there, finding that the supply of beef for the markets was in excess of the demand, shipped some of the cows to Hoihow as soon as they became sick. The disease showed itself round Hoihow in the early part of 1880, from which place it soon spread into the interior of the island; at the end of the year it was thought that it had died out, but during the dry weather we experienced in January and February of this year it again appeared. I cannot hear that the water buffaloes have been affected in this neighbourhood, though it is said that they have suffered in the interior. Some idea of the large number of cows that have died, in excess of those that were killed or died a natural death in 1879, may be imagined when I mention that five times as many hides were exported in 1880. I am told that the dry season has greatly increased the mortality amongst the cows and their liability to catch the disease, and I believe this opinion to be correct. I have examined several diseased cows both before and after death, and have noticed that the disease lasted from 3 to 12 days, the average length of time being 5 days, death usually occurring on that day, recovery being rare. The first symptom shown was loss of appetite, the animal affected refusing all food; this symptom was carefully noticed by the owners as being the first warning of the disease. There was great thirst and diarrhœa; no vomiting; tongue covered with a brown fur; the skin cold and bathed in perspiration, and the animal rapidly lost flesh; it did not seem in pain, and appeared to die from exhaustion, the result principally of the diarrhœa. Upon making a postmortem I noticed that decomposition was very rapid; the bowels were empty and rapidly became black. I examined the mucous membrane, but did not find any ulceration, though the mucous lining was easily stripped off from the

other coats; Peyer's patches were very prominent, and the mesenteric glands enlarged. The liver was enlarged, and the gall bladder distended with bile, and when separated from the liver weighed 20 ounces. After letting out the bile it measured in length 8 inches. The butchers are so struck by this prominent sign that the disease goes by the name amongst some of them of the "dābae" or "gall-bladder disease." All the other organs of the body appeared healthy. Some of the cows were also during life troubled with the running of mucus from the nostrils; and in two cases that I examined after death, the upper lobes of the lungs were congested, and at their apices the tissue was soft and friable. The disease I believe to be rinderpest, complicated in some cases by pneumonia.

During the six months under review the weather has been very agreeable; the average temperature by day during the whole period, including October, which was a hot month, has been about 68° F. In February we had some very warm weather, the thermometer rising on one day to 87°; on this day there occurred a squall from the south-east, accompanied by a fall of very large hailstones. We experienced the coolest weather in March, when the lowest reading was 52°. We have had the driest season since the port was opened. The average number of days on which rain fell from March to October of previous years has been 40, while during the last six months we have only had rain on 22; from 19th October to 3rd December, or for 45 days, and from 2nd January to 4th February, or for 33 days, we were without rain. We have only had fog on 8 days. The wind during almost the whole time has been north-east; in February, however, for half the month the wind was more southerly; though the force of the wind has only on one or two occasions been very strong, we have had not a single calm day. The tides at this port are very irregular; we have had but one freshet, which occurred after heavy rain in October.

For the greater part of the material from which I have drawn up the following meteorological table, I am indebted to Mr. POYNTER, the Hoihow Harbour Master:—

Year and Month.	Winds.						Barometer.		Thermometer.		Number of Days Fog.	Number of Days Rain.	Average Rise and Fall of Tides.	
	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 and Average Highest.	Lowest and Average Lowest.	Highest and Average Highest.	Lowest and Average Lowest.			Highest.	Lowest.
								Inch.	*Inch.*	°	°			*Ft. in.*	*Ft. in.*
1880.															
October	27	...	...	4	...	...	3	30.13	29.90	90	75	...	6	6 0	5 0
								30.06	30.01	84	80				
November	30	...	...	...	...	...	2	30.36	30.10	80	66	...	...	5 6	5 0
								30.23	30.19	78	73				
December	30	1	...	...	...	...	4	30.41	30.08	75	56	4	9	5 0	4 6
								30.25	30.20	69	63				
1881.															
January	31	...	...	...	...	...	3	30.35	30.08	73	56	...	1	3 6	3 0
								30.25	30.20	69	63				
February	14	10	1	1	2	...	3	30.32	29.89	87	65	1	2	4 0	3 6
								30.13	30.08	77	72				
March	25	4	...	...	2	...	4	30.35	29.92	81	52	3	4	4 6	4 0
								30.17	30.14	70	64				

K.—Dr. Alexander Jamieson's Report on the Health of Shanghai for the Half-year ended 31st March 1881.

Abstract of Meteorological Observations taken at the Observatory of the Jesuit Mission at Sicawei, for the Six Months ended 31st March 1881. Latitude, 31° 12′ 30″ N. Longitude E. of Greenwich, $8^h\ 5^m\ 44.63^s$.

DATE.	Barometer at 32° F.	Thermometer. Diurnal Mean Temperature in Shade.	Thermometer. Extreme Temperature in Shade.	Elastic Force of Vapour estimated in Inches of Mercury.	Humidity, 0–100.	Ozone, 0–21.	Velocity of Wind per Hour.	Mean Direction of Wind.	Total Evaporation during Month.	Total Rainfall during Month.	REMARKS.
1880.	*Inch.*	° *F.*	° *F.*	*Inch.*			*Miles.*		*Inch.*	*Inch.*	
Oct. Max.	30.370	65.5	81.5	0.701	99	13	18.5	N. 40° E.	2.67	1.99	Six days rain. On the 11th the fall was 1.04 inches.
Oct. Mean	30.110		62.2	0.488	78	9	5.5				
Oct. Min.	29.898		42.8	0.189	36	5	0.6				
Oct. Range	0.472		38.7	0.512	63	...	...				
Nov. Max.	30.527	48.3	73.9	0.476	98	14	26.2	N. 47° W.	2.87	0.34	Three days rain. First frost on the morning of the 8th. First snow at 2.20 P.M. on the 28th.
Nov. Mean	30.270		47.5	0.233	68	9	6.6				
Nov. Min.	29.945		21.0	0.071	22	0	0.0				
Nov. Range	0.582		52.9	0.405	76	...	...				
Dec. Max.	30.788	37.8	63.5	0.311	100	16	24.5	N. 15° W.	2.19	0.70	Seven days rain. On the 29th the humidity was 100 in the morning, and 18 in the afternoon. During nine days the mean reading of the thermometer was below freezing point.
Dec. Mean	30.428		38.7	0.165	70	9	7.9				
Dec. Min.	30.137		14.0	0.059	18	0	0.6				
Dec. Range	0.651		49.5	0.272	82	...	...				
1881.											
Jan. Max.	30.561	36.7	60.3	0.319	100	15	34.8	N. 51° W.	3.01	0.03	Two days showery. Several dust-storms.
Jan. Mean	30.279		39.4	0.138	64	10	8.9				
Jan. Min.	29.961		18.5	0.032	14	5	0.6				
Jan. Range	0.600		41.8	0.287	86	...	...				
Feb. Max.	30.681	43.3	77.2	0.547	100	21	21.1	N. 48° E.	1.77	2.11	Eleven days rain. On the 23rd the heat was like that of summer, but was followed by a storm and sharp cold on the 24th.
Feb. Mean	30.224		50.9	0.232	79	12	8.8				
Feb. Min.	29.725		24.6	0.071	30	7	0.0				
Feb. Range	0.956		52.6	0.476	70	...	...				
March. Max.	30.575	42.4	65.3	0.374	96	21	25.1	N. 26° E.	2.16	5.52	Fifteen days rain. Rain fell on each of the first 13 days of the month. *The last fall of snow for the season* occurred on the 8th.
March. Mean	30.317		47.9	0.204	75	12	9.8				
March. Min.	29.999		30.6	0.094	35	7	0.9				
March. Range	...		34.7	...	61	...	...				

For the above abstract of observations I am as usual indebted to the Rev. Father Dechevrens, S.J., Director of the Sicawei Observatory.

BURIAL RETURN of FOREIGNERS for the Half-year ended 31st March 1881.*

CAUSE OF DEATH.	OCTOBER.	NOVEMBER.	DECEMBER.	JANUARY.	FEBRUARY.	MARCH.	TOTAL.
Small-pox	...	...	...	...	1†	...	1
Typhus fever	...	...	...	...	2†	1†‡	3
Typhoid fever	1†	1	...	1§	...	...	3
Alcoholism	...	...	1	...	...	...	1
Septicæmia	1	...	...	...	...	...	1
Gout	...	2	...	...	...	...	2
Bright's disease	...	1	...	...	...	...	1
Dysentery	*f* 1†	...	1	...	1	1	4
Cancer (of œsophagus)	1	...	...	...	...	...	1
General tuberculosis	...	...	1‖	...	...	...	1
Phthisis	1	...	1¶	*f* 1	*f* 1	...	4
Pneumonia	...	...	...	...	...	1†‡	1
Disease of the heart	1**	1	...	1†	...	...	3
Aneurism of aorta	1†¶	...	...	...	...	...	1
Abscess (multiple) of liver	1	...	1	...	...	...	2
Cirrhosis of liver	*f* 1	1	...	...	...	...	2
„ „ and kidneys	...	...	...	1	...	...	1
Peritonitis	...	...	...	...	1†¶	*f* 1	2
Trismus neonatorum	*f* 1††‡‡	...	...	...	...	...	1
Tumour of brain	...	1	...	...	...	...	1
Convulsions	...	...	...	*f* 1††§§	...	...	1
Hemiplegia	...	...	...	...	...	1¶	1
Still-born	...	...	...	...	*f* 1††	...	1
Frozen to death	...	...	...	2†	...	...	2
Drowned	2	2†	...	...	...	...	4
Suicide	...	1 *f* 1¶	...	...	...	...	2
Uncertified	1¶	...	...	...	...	...	1
TOTAL...	13	11	5	7	7	5	48

* Not including deaths among the Catholic religious bodies. † Not resident (14). ‡ Lascar (2).
§ 8 years old. ‖ 11 years old. ¶ Native of Manila (6). ** 10 years old.
†† Macao (3). ‡‡ 6 days old. §§ 2 years old.

Clearing away 1 still-birth, 2 suicides and 6 deaths from accidental causes, 39 deaths remain attributable to disease. Of these, 2 were due to specially infantile maladies, and of the 37 remaining (among which I include 3 deaths at the ages of 8, 10, and 11 years respectively, resulting from typhoid fever, disease of the heart, and general tuberculosis), 10 occurred among non-residents. The mortality among foreign residents past the age of early childhood was thus 27—23 males and 4 females,—as against 14 males and 3 females during the same period of 1879–80.

As, however, it is important to bear in mind the consideration of race when weighing such statistics as are here furnished, the information derived from the following tables is more valuable than any that could be drawn from a study of the general return:—

CAUSES of DEATH from DISEASE among RESIDENT EUROPEAN ADULTS, October 1880 to March 1881.

Typhoid fever	2	Phthisis	3 (2 females).
Alcoholism	1	Disease of heart	2
Septicæmia	1	Abscess of liver	2
Gout	2	Cirrhosis of liver	2 (1 female).
Bright's disease	1	„ „ and kidney	1
Dysentery	3	Peritonitis	1 (female).
Cancer	1	Tumour of brain	1
General tuberculosis	1		

20 males and 4 females.

Causes of Death from Disease among Non-Resident European Adults, October 1880 to March 1881.

Small-pox	1	Dysentery	1 (female).
Typhus	2	Disease of heart	1
Typhoid	1		

5 males and 1 female.

Causes of Death from Disease among the Children of Resident and Non-Resident Europeans, October 1880 to March 1881.

There were 3 deaths between the ages of 8 and 11 years among the children of residents, but inasmuch as none of these were due to diseases peculiar to children, they have been included among the deaths of adults.

Causes of Death from Disease among Non-European Adult Foreigners, October 1880 to March 1881.

Typhus fever	1 (native of India).	*Peritonitis*	1 (native of Manila).
Pneumonia	1 („ „).	Hemiplegia	1 („ „).
Phthisis	1 („ Manila).	Uncertified	1 („ „).
Aneurism of aorta	1 („ „).		

7 males, of whom 4 (indicated by italics) were non-resident.

Causes of Death from Disease among the Children of Non-European Foreigners, October 1880 to March 1881.

Trismus neonatorum	1 female (parents natives of Macao).
Convulsions	1 „ („ „ „).

2 females.

The latter half of October was dry and windy, and somewhat colder than usual. The lowest temperature registered was 42°.8, at 6 A.M. on the 26th, while the mean of hourly observations on the 31st, which was the coldest day of the month, was 54°. The highest mean of hourly observations, observed on the 1st, was 73°.31. November and December were dry, clear and cold, and, as will be observed by reference to the remarks appended to the table on page 78, the mean daily temperature during nine days of the latter month was below 32°. The average temperature during December was 37°.76. The latter half of January and all February were, with the exception of three days in February, cold and tempestuous. During these three days (21–23), however, it might have been thought that spring had already arrived. On the 21st the thermometer indicated 62°.8; on the 22nd, 70°.7; and on the 23rd, 78°.25. On the morning of the 24th the scene changed rapidly. A violent thunderstorm with heavy rain burst over the settlement, bringing the temperature down to 37°.5, a fall of 40° within 14 hours. March was wet, windy and cold until within the last week, when the daily maximum temperature oscillated slightly about 60°.

Local conditions are not favourable to the institution of parallel series of observations bearing on meteorological phenomena and the contemporaneous presence or absence of particular forms of disease. Such observations would be interesting, but could hardly be of much value at present, considering the limited field open to foreign practitioners in China. It is impossible to obtain from the most intelligent native any but the vaguest and often completely contradictory accounts of reigning maladies, while foreign practitioners have not the leisure

necessary for the prosecution of inquiries in person. Valuable aid in this direction might be obtained from the missionaries, both Catholic and Protestant, who, living among the people or being brought frequently into contact with them, and moreover enjoying their confidence, have opportunities for seeing and hearing which are denied to other foreigners.

With regard to Europeans there is nothing to learn from a reference of the bills of mortality to the months which produced them. Deaths from the specific fevers and dysentery, from diseases of the lungs and heart, are impartially spread over months wherein the temperature was mild and the air laden with moisture, and months wherein the temperature was low, the air dry, and bitter winds defied all means of protection. In fact, the numbers dealt with are too small to possess any value. Here, too, the absence of the aged and of the class which in Western countries is specially obnoxious to vicissitudes of season renders it impossible to gain any useful end by attempting to reduce observations made among foreigners to the scales adopted in other parts of the world, where the conditions of existence are in no respect similar to those which prevail here.

Fifteen years ago some of the older practitioners denied positively that typhoid fever was ever seen among foreigners in China. More accurate diagnosis now refers a large number of cases to typhoid which at an earlier date would have been classed somewhere under the heading of malarious affections. For my own part, after the collation of a very considerable number of cases extending over 13 years, and in which all the phenomena accessible to direct observation are recorded, I have come to believe firmly that the remitting fever which lasts more than a week and does not yield to antiperiodics is typhoid. Some cases of remitting fever which before being seen have been treated fruitlessly with quinine yield when the drug is interrupted and its administration resumed after the action of an emetic or of a smart purge, or when it is combined with salines or with arsenic, or occasionally when, instead of giving it by the mouth, it is given as an enema. But when it is clear that antiperiodics are of no benefit, they are, I believe, hurtful, and the sooner they are abandoned the better. In these cases we have, I do not doubt, to deal with typhoid, although there may be neither delirium nor diarrhœa nor eruption, nor tenderness in the ileo-cæcal region.* There is, however,

* Plusieurs malades n'éprouvèrent, pendant un certain espace de temps, qu'un simple mouvement fébrile, une chaleur forte, une soif vive, peu de somnolence, quelques étourdissements, une perte incomplète d'appétit, un affaissement médiocre ; sans douleurs de ventre, sans diarrhée, sans aucun symptôme qui indiquât d'une manière sûre le siége de l'affection. Quelques-uns même n'eurent de dévoiement à aucune époque.—Louis, *Recherches sur la Fièvre typhoïde*, i. 423 (2me éd.: Paris, 1841). Le diagnostic de la maladie fut incertain, son siége indéterminé, pendant un espace de temps plus ou moins considérable, chez quelques sujets ; et la prédominance de certains symptômes altérait plus ou moins le caractère habituel de l'affection, chez d'autres.—*Ib.*, i. 426. Les symptômes les plus importants manquent quelquefois.—*Ib.*, ii. 186. L'altération des plaques de Peyer n'est pas toujours également grave, et il n'y a pas toujours proportion entre elle et la gravité des symptômes.—*Ib.*, ii. 513.

Les taches rosées manquent assez souvent ; sur 70 cas de fièvre typhoïde, Chomel n'avait pu 16 fois en trouver aucune trace à aucune époque de la maladie . . . . Nous ne voyons plus les fièvres intermittentes se changer en fièvres putrides (typhoid), mais nous voyons celles-ci prendre en quelques circonstances, à leur début, les allures de celles-là. C'est surtout dans les contrées où les fièvres palustres sont endémiques . . . que nous voyons la dothiénentérie prendre à son début le type intermittent. . . . . L'épithète d'intermittente ne saurait donc être réservée pour désigner une seule espèce de fièvre, puisque l'intermittence est un phénomène des plus mobiles qui se retrouve dans les fièvres de nature toute différente.—Trousseau, *Clinique Médicale*, i. 228, 273, 274 (3me éd.: Paris, 1868).

No acute disease presents itself under a greater variety of forms than enteric fever. . . . . These differences are partly accounted for by constitutional peculiarities in the patient, and partly by differences in the intensity, or perhaps quality,

generally more or less tympanites, and almost invariably a marked depression, for which the actual degree of fever is insufficient to account. In all these cases the time for quinine comes later. During the third week, when the morning temperature may be normal or subnormal, there is commonly a rise to 100° or 101° between 6 P.M. and midnight. One large daily dose of quinine is at this stage invaluable.

An interesting case of typhoid fever occurred in my practice during the month of May. An adult male, aged 28, had during the last 10 days of April passed through an exceptionally severe attack of measles, characterised by high temperature (max. 104°), profuse eruption, severe catarrh of all the *mucous membranes except that of the urinary tract, and night delirium. He was out of the house for* five days when symptoms of typhoid fever declared themselves. There was smart diarrhœa during the latter part of the first week and at the beginning of the second, when three spots were discovered on the abdomen. Epistaxis occurred twice during the first week, and at the same time difficulty and pain on attempting to swallow led to the discovery of a deeply excavated circular ulcer, about ½ inch in diameter, situated on the posterior wall of the pharynx. On the 9th and 10th days there was frequent and abundant hæmorrhage from the bowels, which left the patient in a condition of marked prostration, while distinctly lowering the temperature. During the day (8th) preceding the hæmorrhage, the temperature, taken at intervals of three hours, had varied between 102° and 103°.6. On the second day of the hæmorrhage the temperature fell to 100°, rising on the following day, when the bleeding was definitely arrested, to 103°. On this day the patient was exceedingly deaf in both ears, and this condition lasted through the ensuing week. Four days later the stools (6 in 24 hours) were like meat juice, and horribly offensive. From this out (15th day) improvement was steady. On the 17th day, the temperature having somewhat suddenly fallen from 102°.5 to 99°.5, there was slight delirium, or rather incoherence. The stools were now healthy, and during the third week castor oil had once or twice to be administered. On the 18th day, the morning temperature being 98°.6 and the evening temperature 101°, 10 grains of quinine was administered late in the afternoon, and this dose was continued daily. After the 19th day, which was *marked by a profuse perspiration lasting for about three hours, the temperature at no time reached* 100, and was generally subnormal in the morning. On the 27th day the patient was able to go as a convalescent to the country. During his illness he lost 39 lbs. in body weight, and subsequently his hair fell in large quantities.

Typhus fever appears for the first time since March 1878 as a cause of death. It will be observed that three patients succumbed to it. 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 typhus 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. Typhus fever is fortunately rare in Shanghai. 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 from this disease was recorded. The immunity from typhus enjoyed by foreigners

of the poison. . . . . Sometimes the temperature is the only evidence of the existence of fever.—MURCHISON, *The Continued Fevers of Great Britain*, pp. 586, 587 (2nd ed., 1873).

The unknown author of the Appendix to HIPPOCRATES (Περὶ διαίτης ὀξέων) enumerates very minutely and describes very clearly (§ 8) the various symptoms which, separately or combined, characterise typhoid fever. He lays stress on increased heat, diarrhœa, delirium, restlessness, vertigo, headache, epistaxis and tympanites; but says nothing about hæmorrhages from the bowels or eruption of rose spots on the abdomen. In the *Aphorisms* (27), HIPPOCRATES notes the occasional occurrence of hæmorrhage in the early stages of fever with diarrhœa.

in Shanghai is surprising, and is not likely to be permanent, considering the densely overcrowded condition of the most central portions of the settlements, the want of ventilation, and the almost incredible filth in which thousands of Chinese live within our very midst. Were the post of health officer somewhat less of a sinecure, something might perhaps be done in the way of reform. It would probably be impossible to prevent the dense aggregation of human beings, which is in itself a grave danger;* but a great deal might be effected in the way of enforcing cleanliness by insisting that, among other obvious precautions, the interior of every native tenement should be limewashed at least once a month. A simple measure of this kind need cost the public nothing, and at all events would be far less expensive than the ludicrous folly of watering the streets with an attenuated solution of carbolic acid. This latter practice, besides being offensive to the nostrils and absolutely useless as a prophylactic against disease, has the further disadvantage, which it shares with all showy and useless measures, of lulling people into a false security. Supervision would not be out of place if exerted over 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.

Small-pox, although present throughout the winter half-year, caused but one death. This case was imported from Chinkiang. Dr. BURGE, who can speak with full authority on this subject, informs me that the cases of small-pox which he encounters on board ship are either imported from Japan or contracted by the sailors when visiting the back slums of Shanghai, or in consequence of their contact with the coolies who work cargo. These coolies, coming from the poorest class, necessarily live in the hotbeds of contagious disease ashore. However satisfactory it is to find that vaccination is sought by a certain number of natives in and around Shanghai, our figures are relatively insignificant when compared with those furnished by such a port as Hoihow.† During 1880 there were vaccinated at the Anglo-American Dispensary, 1,472 children; at the French Dispensary, 1,232; and at the Gutzlaff Hospital, 1,481. It is stated in a report published in the *North-China Daily News* (19th March 1881) that "the total number of vaccinations (in connexion with the Shantung Road Hospital) during the year (1880) was 5,414;" but no information is given as to whether these were vaccinations performed or vaccinations verified (an objection which might be laid against all the figures given above), or as to whether the vaccinations at the Municipal Dispensary and at the Taotai's City Dispensary are included. It is therefore quite impossible to form any judgment as to the area covered or the success achieved by the praiseworthy attempts made to spread vaccination in the districts surrounding Shanghai. I can speak with confidence only about the results obtained at the Gutzlaff Hospital. There not more than half the children vaccinated are brought back for inspection. Of this half, a number, varying from one-eighth to one-sixth, have not taken at all. Of the remainder, a very considerable ratio have had the vesicles broken by accident or carelessness, or covered with native medicine.

* It appeared from investigations undertaken during the Paris cholera epidemic of 1873 by Dr. JULES WORMS, physician to the préfecture de la Seine, that the prevalence of cholera in the different arrondissements was proportional not to the poverty of the inhabitants, but to the degree of their crowding.

† See ante, page 75.

When abstraction is made of all these, it is obvious that a bare record of vaccinations performed is quite misleading as an indication of the real value of the work done.

Dysentery is certainly less fatal, and I think relatively to population less frequent, in Shanghai than it was a few years since. This may probably be ascribed to the gradual rising of the settlements above the level of their earlier days, to their more efficient drainage, to the small number of rice fields in our immediate neighbourhood, and in general to all the influences operating in favour of the extinction of local foci of malaria. The causative connexion of malaria with dysentery is still in doubt; but there can be no question as to the influence of malaria upon dysentery when already present, or as to its importance as a predisposing cause. Greater care on the part of individuals as regards diet, drink and dress has also tended to limit the number of cases, and perhaps to render those which do occur less severe. From 1st April 1878 to 31st March 1881 but 12 fatal cases are recorded. In October 1878 the disease proved fatal to a non-resident female. In the interval between that date and September 1880, the death of but one infant is ascribed to dysentery. During the period now under review four deaths occurred, of which one was the case of a chronic alcoholic, and a second was imported.

The last mentioned was a young married lady who in the middle of October arrived here from another port, dying, gangrene of the bowel having already set in. The motions were scanty but extremely frequent, and consisted solely of blackish-green sloughs of various sizes, and blood clot, with occasionally a smart gush of hæmorrhage. Excessive loss of blood, and probably the treatment adopted, had prevented the appearance of the more acute symptoms of general peritonitis, but the abdomen was distended and tympanitic, and its entire surface so sensitive that it was impossible to discover whether any fluid effusion was or was not present. Thirst was intense, and vomiting incessant, but both were more or less controlled by ice and hydrocyanic acid. The patient lingered for five days after her arrival, during the first two of which a marked and puzzling symptom was furious delirium, with extraordinary hallucinations, lending an indescribable expression of terror to the face, which the natural course of the disease had rendered yellow and pallid. Wide and persistent dilation of the pupils led to minute inquiries into the previous treatment, when it was discovered that through some misapprehension colossal doses of belladonna had been administered. The patient had been taking pills containing ½ grain of opium and ¼ grain of sulphate of zinc, with extract of belladonna "q.s." Each pill weighed 8 grains. Hence, if nothing but what appeared in the prescription entered into its composition, the dose, which was ordered to be given six times daily, contained 7¼ grains of extract of belladonna. The pills had however been, in fact, taken only four times one day and three times the next, and had been omitted on the third day. Thus, always supposing that nothing but the three ingredients above enumerated was contained in the pills, 50 grains of extract of belladonna had been swallowed in two days. It is to be presumed that the extract had suffered from the effects of climate and age. The prescription, it should be remarked, had been made up by a Chinese dispenser.

The body temperature was moderate, never exceeding 100° during the short period of observation, and for 36 hours before death it was subnormal. At this time hiccough was incessant. Death was due to exhaustion and blood-poisoning. There was no postmortem.

The fatal case of septicæmia occurred in a middle-aged man who for several years had suffered from two strictures of the urethra for which he declined surgical treatment.

One stricture, traumatic, the result of a fall straddlewise on a bar, was situated immediately behind the bulb; the other was about an inch in front of the bulb. The former usually admitted a No. 6 French

bougie without much difficulty, the latter a No. 10. Any imprudence, however, quickly narrowed the anterior stricture, so that on two occasions, separated by nearly three years, great difficulty was experienced in getting even a filiform bougie into the bladder. It was not very easy to judge, but it seemed that accidental causes had little or no influence on the posterior stricture. The patient was in the habit of introducing a No. 3 English catheter from time to time, and this would occasionally slip into the bladder; but whether it did or not the stream was always better after a slight dilation of the anterior stricture. Early in October he found the stream rapidly diminishing, but it was not until obstruction was complete that he tried to pass an instrument. After many attempts, and doubtless much rough usage, he succeeded in emptying his bladder. This was on the 5th October. Next day he again attempted to pass an instrument, and again succeeded, but after still more protracted attempts, and the stream was preceded by a smart hæmorrhage. In the evening I saw him. Three false passages existed in front of the anterior stricture, one of them, probably that made a few hours before, bleeding slightly on being entered. At length I got a No. 5 French olivary catheter into the bladder, and after leaving it for two hours replaced it by a No. 8, which I tied in: but during the night he pulled the instrument out, and towards morning (7th) forced a mounted English catheter in various directions through the walls of the urethra. Infiltration had already taken place into the penis and perinæum when I saw him a few hours later, but by an unhoped-for accident an attempt to reach the bladder with a No. 5 French olivary instrument proved immediately successful. Comparatively little urine escaped except by the catheter, though there was constant draining from the incisions made into the infiltrated tissues. Next day (8th) fever was high, urine mingled with pus, blood clot and sloughs escaped freely from the incisions, but there was evidence of a collection of matter within the pelvis, which a finger passed deeply into the perineal wound failed to reach. Symptoms of blood-poisoning now declared themselves, and the patient died on the 10th October, on the fifth day after the occurrence of total obstruction.

In Dr. PICHON'S Report for 1880, presented to the French Municipal Council, he states:—

Les temps humides qui ont prédominé pendant l'année ont donné aux manifestations de la diathèse goutteuse une intensité et une fréquence inusitées. Douze accès de goutte se sont présentés à mon observation dans le personnel de l'Administration, et l'un de ces accès, qui avait offert dès le début des symptômes de la plus haute gravité, s'est terminé par la mort.

My experience was altogether similar. Several severe attacks occurred in patients who had previously been frequently under observation. Of these, two, one terminating fatally, are worthy of more extended notice.

A foreigner, middle-aged, of temperate habits—who had long suffered from articular gout and various other gouty manifestations, such as obstinate eczema and, on two occasions, pustular eruptions on the extremities, running rapidly into extensive ulcerations undermining the skin—was without obvious cause seized with a violent shivering fit, which continued, with brief intervals of respite, through an entire night. The onset of shivering was accompanied by rather severe bleeding from the nose. I saw him on the fourth day after the beginning of the attack. He was then coughing in severe paroxysms, and expectorating with some difficulty a small quantity of pinkish-yellow mucus mixed with froth. The cough produced intense pain at a point about 2 inches outside the nipple line on the upper border of the sixth rib. There was considerable dyspnœa on any exertion. Swallowing was painful, owing to congestion of the soft palate and pillars; the bowels were regular; the tongue loaded with a yellow fur, except at the tip; the skin retained its natural tint. Appetite was impaired, but not absent. Sleep was interrupted by cough, but there was no delirium. The pulse was 84; respirations, 30; temperature in mouth (8 A.M.), 101°. Percussion and auscultation gave normal results over both backs, except at the lower part of the left lung towards the axillary line, where there was a small patch of dulness with fine crepitation. The left apex from the clavicle to the third rib was dull. Here a souffle, almost cavernous in intensity, was audible, along with fine moist

râles, which were also distinguishable in the axilla. Bronchophony was well marked over both areas of dulness, but was strictly limited. Elsewhere in the lungs nothing abnormal could be detected, and the general condition was far better than would be anticipated in a case of apical pneumonia.

The patient had been rather more than three months without any symptom of gout. Remembering the obstinacy of all his previous multiform ailments so long as specific treatment was withheld, and the rapidity with which they yielded when that treatment was adopted, I ordered iodide of potassium with colchicum after a purgative, while the local treatment was restricted to steam inhalations and a small blister over each of the inflamed areas. Within 24 hours improvement was far too decided to have been the result of chance or of a natural and unaided process of resolution. On the third day the morning temperature had fallen to normal, the paroxysms of cough were less violent and far less frequent, appetite had quite returned, sleep was natural, but there was by no means a corresponding improvement in the physical signs. Two days later the dulness, souffle and bronchophony began to disappear with so much rapidity that the change from the condition at 9 A.M. to that at 4 P.M. was readily appreciable. Simultaneously with this improvement the left great toe became swollen and painful, and a day later all the joints of the left foot were engaged, and a frank attack of ordinary gout ran its customary course, completely replacing the chest mischief.

It seems clear that the lung inflammation in this case was purely gouty; but it is hard to explain why specific treatment should have diminished the intensity of local symptoms without diminishing the force of the attack, which was as violent as usual after its seat was displaced from the lung to the foot. The case is worthy of notice as furnishing an instance in proof of the tendency of diatheses to direct inflammation towards the apices of the lungs. Everybody knows of what evil omen an attack of apical pneumonia is in an old person or in one already tuberculous, how likely it is to run on rapidly to suppuration. In the case just related there never was an alarming symptom. The patient though gouty was otherwise healthy, and therefore, although the existence of gout made the apex a probable seat of inflammation, this seat did not in itself lend any additional danger to the attack. In other words, the ominous character of apical pneumonia in an adult arises not from the position of the inflammation, but from the evidence it affords of a constitution either broken down by age or profoundly affected by a diathesis.

The other case alluded to above turned out badly.

A man, aged about 50, a very free liver, had for many years presented symptoms of gout in all its forms. In the autumn of 1879, after a prolonged period of imprudence in drinking, he suffered from what he at first considered to be mere dyspepsia. In a couple of days there was evidence of severe hepatic congestion, followed by violent headache, and palpitation of the heart so distressing that for several nights he was unable to lie down. The cardiac trouble appeared to be purely functional; no disease could be discovered to account for the tumultuous action. Vomiting was so persistent that neither food nor medicine could be administered by the mouth. These very acute symptoms lasted for three days, but yielded to, or after, a treatment consisting of small blisters to the joints which had previously been the most usual seats of inflammation, mustard baths to the hands, which were always seriously affected in frank attacks of gout, and applications of belladonna to the præcordia. As the visceral symptoms ceased the joints became involved, and an exceptionally severe attack of ordinary articular gout ran its course. *Recovery appeared to be complete after three or four weeks, but it was ascertained that a general and* undefinable malaise had replaced the sense of vigorous health which the patient had always enjoyed in the intervals between his attacks. All the bodily functions were sluggishly discharged, there was a certain incapacity for exertion, and a distaste for violent and sustained exercise, which had previously been much enjoyed. Appetite flagged, partly perhaps in consequence of abstinence from stimulants, for which there

was for a time no craving. Large quantities of milk were consumed every day, but very little meat. This condition lasted for several months, during which there was no joint attack, while a chronic eczema of the hands which had lasted for several years almost disappeared. On the 9th November 1880 the patient met me in the street and told me that he had had a "burst" at the races, that, instead of feeling worse for it, he was feeling much better, quite his old self, but that he noticed that his hands were beginning to break out again. Next day (10th) he sent for me, and I found him enveloped in flannel, the left foot and knee, both hands and the left shoulder and elbow violently inflamed. An ointment of belladonna was smeared over the joints, a purgative given, followed by an opiate enema, and iodide of potassium with colchicum wine was freely exhibited. There was some improvement during this and the following day. Sleep was obtained in snatches, but late in the evening of the 12th, sudden and almost complete relief from pain was experienced in the foot, leg and hands, while the elbow and shoulder remained stiff and somewhat painful. I left word that the patient was to be more carefully watched than ever, and that should any unexpected symptom arise during the night I was to be summoned. Next morning (13th) there was no change, but the night had been sleepless, the patient, however, saying that he had dreamt all the time, and had seen endless processions passing the foot of his bed. Temperature under tongue, 100°.4 (6.30 A.M.); tongue brown and dry; bowels constipated. A purge was ordered, and mustard to all the joints previously inflamed. At noon the tongue was moist, the purgative had acted; temperature, 101°; but complaint was made of nausea and epigastric pain. Blister below sternum. Urine had been passed in considerable quantity at stool. The skin was bathed in perspiration. In the evening vomiting was violent after every attempt to take nourishment, but was temporarily arrested by an injection of $\frac{1}{4}$ grain of morphia. The temperature was still 101°. During the night great distress in breathing was experienced, and when I saw him at 5.30 A.M. (14th) he was propped up in bed breathing irregularly and with difficulty, but able, when he pressed his hands firmly over the heart region, to fill his lungs completely. This manœuvre, which he had discovered for himself, was performed every half minute or so, and gave him great relief, although the pressure which he exerted over his heart was in itself painful. The stethoscopic signs were peculiar. Air entered all parts of the lung freely at each of the deep inspirations just described. Placing the stethoscope over the heart, a little within the apex, which point was particularly sensitive, while the finger rested on the radial pulse, a series of three or four rapid and irregular contractions was to be observed, during which the second sound was alone to be clearly distinguished, the series being interrupted by a tumultuous contraction resembling a shake or tumble. This flutter was succeeded by the series of beats, and so on. Generally, but not always, the *faux pas* of the heart was accompanied by an intermittence of the radial pulse. The heart was beating, as nearly as could be ascertained, at the rate of 94 per minute; the pulse was (counting the intermittences) 115. Vomiting had ceased, but taking anything into the stomach increased the heart distress. A very small quantity of urine was obtained during my visit. It showed an abundant deposit of albumen on boiling. The condition remained unchanged during the day, except that exhaustion was deepening. An enema with 40 drops of laudanum was given at night, which produced occasional dozes, in the intervals between which the patient's friends thought he was delirious, but this they attributed to the laudanum. On the 15th there was a slight apparent improvement, but the temperature (6 A.M.) had risen to 102°. During the day he was able to lie down, but he became very restless, tossing from side to side, and rolling half over from left to right. Milk was now taken without difficulty, and in considerable quantity. He spoke quite rationally when addressed, but when not roused lay in a doze, muttering incessantly. The night was agitated, and next day (16th) bursts of maniacal delirium alternated with the muttering of the previous afternoon. The face became pale, but the conjunctivæ were injected. Vomiting recommenced, but ceased after about four hours. There was no marked heat of skin, but on account of restlessness no accurate observation could be taken with the thermometer. Death occurred on the morning of the 17th, about an hour after a violent outburst of maniacal excitement. There had been no paralysis, no muscular spasm, and until the morning of death no contraction of the pupils. Shortly before death they were observed to be strongly contracted.

This history speaks for itself. The *successive shiftings of the gouty attack from point* to point, each change being to a position more menacing to life than the last, were very distinctly marked. There was little opening for treatment. Vapour baths would have been given, but that the skin was bathed in perspiration from the first until about five hours before death, and that urine was secreted in some quantity. The question of cold baths did not arise, for the body temperature did not exceed 102°. Rheumatism with cardiac complications does not necessarily involve an excessive temperature, and the same would seem to be true of gout, but a distinct elevation would naturally be expected as soon as the stress of the disease fell on the membranes of the brain.

Gout in young persons, and especially in young girls, is notoriously rare. A case presented itself last year at a charitable institution in which there seems little room for doubt as to the accuracy of the diagnosis.

A girl, aged 16, of healthy appearance, daughter of a woman of drunken habits, father nobody in particular, had long been subject to occasional nervous paroxysms occurring at night, in some of which she lost consciousness. Menstruation occurred at 14 and had since been regular. The loss of consciousness was sometimes immediately preceded by a cry, but the tongue was never bitten, and there was no convulsion. She said that each attack was preceded by the rising of a ball in her throat, or by an indescribable sensation starting from her feet or ankles and travelling up both sides of her body to her head, when she became insensible. She always recovered quickly, but felt ill next morning. Tapeworm was suspected, but varied anthelmintic treatment produced no worms of any kind. Improvement was obtained during the administration of large doses of bromide of potassium. For several months she had suffered from internal *hæmorrhoids, which resisted all palliative treatment, and which, as they not only were a source of weakness* from constant hæmorrhage, and of nervous exhaustion from sleeplessness caused by frequently-recurring calls to stool during the night, but also produced a persistent leucorrhœa, were finally removed by clamp and cautery. The operation was followed by the best results, but six months afterwards, while apparently *in perfect health, the patient was waked one morning by pain in the left foot, which during the course* of the day localised itself in the ball of the great toe. During the following three days the joint was red, hot, swollen, and tender on pressure. In addition to this there was paroxysmal pain independent of pressure, so that but little sleep was obtained at night. The fever was remittent in character, and on the second night *the temperature of the mouth rose to 103°. The urine was scanty and turbid. On* the third day the ankle was slightly affected, but this came to nothing. Under purgatives and iodide of potassium the acute symptoms rapidly subsided, leaving nothing but œdema, which lasted for about a week, and was followed by desquamation.

This array of symptoms can hardly be accounted for except on the supposition of gout. The occurrence of a second attack would settle the matter, but it is probable that I shall have to wait many months before getting this confirmation.

The case of general tuberculosis which proved fatal in December presented itself in a boy, aged 11, who three or four years before had narrowly escaped death by typhoid fever. Previous to the typhoid fever he was, according to his parents' account, healthy and strong. Subsequently he became delicate and was observed to grow very fast.

Early in October, without any special warning, he voided a large quantity of blood by stool. On examination the abdomen was found tender and swollen, and the stools watery, offensive and blood-stained. There was deposit all through the left lung and in the upper lobe of the right. There was some cough, but this was not a distressing symptom. For several days diarrhœa continued, but gradually

became less violent, and at the end of a fortnight was succeeded by constipation. Immediately, hæmorrhage from the lungs, apparently from both, set in, and before it could be effectually checked the child was blanched. A few days respite seemed now to promise improvement, but the lull was succeeded by a renewal of hæmorrhage from the bowels. This cycle was accomplished once more during the following six weeks, at the end of which time death occurred. There was very little fever at any time, but it was noticed that the evening temperature rose from 1° to 1°.5 shortly before each attack of pulmonary hæmorrhage. During the lulls appetite returned, and along with food a considerable quantity of cod-liver oil was consumed. Death was apparently due in the main to exhausting hæmorrhages from the bowels. Although a careful examination three days before death failed to discover any portion of lung unaffected by disease, there was neither cough nor dyspnœa. The absence of dyspnœa was no doubt accounted for by the diminished bulk of blood demanding to be oxygenated.

The following case is interesting as an example of a complication of diseases. That the existence of tumour in the posterior portion of the brain gravely influenced the course of the pneumonia can hardly be questioned.

Tumour of Brain; Pneumonia terminating in Gangrene; Death.—The patient, a man of about 40 years of age, consulted me in October 1880 about his sight, which had been failing for about two years. As he entered my room I noticed that his left leg dragged a little, and that progression was unsteady. His speech was jerky in character, alternating between rapidity and drawling. Intelligence was evidently unaffected, for he gave a lucid and lengthy account of his symptoms extending over about three years. He had never had syphilis, nor was he aware of any nervous or other disease in his family. He was married and had three healthy children. His health was good until at an outport he sustained a sunstroke in 1878. He knew very little about what occurred to him then, further than that his life was despaired of for several days. Convalescence was slow, and shortly after he resumed his occupation he observed that sight was failing nearly equally in both eyes. After some ineffectual treatment he returned home, where he placed himself under the care of the late Mr. Soelberg Wells. His sight steadily became worse, and finally he was (according to his own account) told that perhaps a sea voyage might benefit him, and was therefore recommended to return to China. This he did, arriving in Shanghai some time during last summer. He soon found that he was unfit for work of any kind, as uncertainty about the size and shape of surrounding objects made it almost impossible for him to guide himself. Hence his application to me. He now complained of severe frontal pain of a paroxysmal character, accompanied by stiffness of the neck muscles, and generally worse at night. There was frequently-recurring nausea, never followed by vomiting, except when he artificially induced it for the sake of relief. He constantly felt giddy, but never fell. I ascertained that this vertigo was not increased by shutting the eyes and taking two or three steps. He had occasionally noticed that the fingers of the left hand were affected by an involuntary and fugitive contraction. There was nowhere any defect of common sensibility. The pulse was 60, of high tension; the temperature under the tongue (4 P.M.) was 99°. On superficially examining the eyes the first thing that engaged the attention was the existence of double horizontal nystagmus, which presented this peculiarity, that the oscillations were more violent when the patient was desired to direct his eyes in an upward and oblique direction, and obviously interfered with his power of doing so. He was quite unable to read any type or to distinguish colours. The pupils were sluggish, but equal and of natural size. Ophthalmoscopic examination revealed double optic neuritis. The circumference of both discs was cloudy, but degeneration was farther advanced in the left eye than in the right. The left papilla was atrophied, looking like a flat depression (direct image), while a sort of halo was formed round it by closely set radiating streaks of a dull white. The arteries were hardly to be made out, but a few veins were distinct. On the right side the disc was pale, but many large and tortuous veins, as well as a few shrunken arteries, were easily brought into view. There had been no pain previous to the ophthalmoscopic examination, but next day the patient complained

much of a feeling of tension in both eyes, with diminution of the little power of vision he before possessed. The pain passed away in a day or two, but he maintained subsequently that the beam from the mirror had certainly harmed him in a permanent manner.

He returned three or four times at short intervals, and then I lost sight of him for a few weeks. On the 19th November I was sent for. Five days before he had had a severe shivering fit, followed by diarrhœa, agonising headache, and pain in the right side, increased by any attempt at deep inspiration. He had been sleepless for three nights. His skin was yellow and dry, his expression stupid, though he described his subjective symptoms clearly enough, his features were drawn, his eyes sunken, and his voice reduced to a whisper. There was a purple flush on the right cheek. The lips were blue, the tongue dry, red at the point, brownish yellow in the centre. Pulse irregular and dicrotic, 120; temperature under tongue, 103°.5 (11 A.M.); respirations, 36. Although the breathing was of this panting character, no complaint of dyspnœa was made. Cough was constant and very painful; expectoration scanty and of the colour and consistence of prune juice. Breathing was abdominal, but so far as the chest expanded at all, both sides appeared to expand equally. There was absolute, high-pitched dulness on percussion over the lower two-thirds of the right back, with crepitation and bronchophony over the same area, and an intense souffle over the space of the palm of a hand in the centre of the crepitating area. Supplementary respiration was being carried on by the upper two-thirds of the left lung, but the lower third was dull; breath sounds were absent; there were no râles audible, no crepitation, and a complete absence of vocal vibration even when the patient spoke with effort. An emetic of ipecacuanha, followed by free administration of wine, relieved the more urgent symptoms. The skin became moist, the diarrhœa was checked, and quiet sleep for four hours was obtained. Dry cupping to both sides, and jacket poultices of linseed meal sprinkled with mustard, brought about temporary improvement. Milk was given in large quantities, alternating with wine, strong soup and coffee. Next day the expectoration was more profuse, and the patient for an hour at a time would cough up rusty sputa of the ordinary pneumonic character. This would be succeeded for several hours by the prune juice expectoration first observed, and during the remainder of the illness there was but little change in this respect. On the 10th day from the initial rigor (23rd November), all the symptoms were aggravated. The expectoration was black and viscid, and exhaled a fetid smell, which was distinguishable equally on the patient's breath. The areas which before were crepitant were now the seat of large moist râles; the patient hardly slept, and when he did he muttered incessantly. When roused he expressed his pleasure at feeling so well. The respirations were 40; the pulse, 140; temperature in mouth, 104°; urine scanty, s.g. 1,026, no albumen, and showing a faint trace of chlorides. The patient now gradually sank, still, however, taking milk and wine in considerable quantity. The expectoration became scanty merely because there was not sufficient strength to enable it to be expelled, but the little that was coughed up was horribly offensive. On the 29th a necessarily brief examination showed that respiration was cavernous throughout almost all the right lung and in the left axillary region. Below the nipple line on the left side nothing could be made out, and the back was not examined. Intelligence was preserved up to the afternoon of this day. In the evening several large and involuntary passages, chiefly of altered blood, occurred from the bowel, and death followed during the night.

Postmortem, 12 Hours after Death.—Liver, spleen and kidneys not particularly examined. All were softer than natural, but otherwise apparently unaltered. Mucous surface of small intestine injected throughout, the bowel containing much grumous fluid. Stomach healthy but for a small, partially healed ulcer on the posterior surface, close to the pylorus.

Both pleuræ were thickened and opaque, small, old adhesions existing in several places. The left cavity contained about 16 fluid ounces of reddish serum without any flakes of lymph. Soft yellowish lymph was smeared over the surface of the right pleura, and a small quantity (about 5 ounces) of bloody and purulent fluid was found in its cavity. At the apex of the left lung was a calcified deposit about the size of a walnut and of the consistence of mortar, the lung immediately round it being dark but firm. On the right side, at the apex, a like calcified deposit was found, but much harder than the other. It was

the size of a Brazil nut, and completely encapsuled in firmly condensed tissue. Corresponding to it was a depressed, adherent scar on the pleura. On both sides the deposit was quite cut off from the general lung tissue, which at the distance of half an inch from its border was healthy.

The middle and lower lobes of the right lung and the lower lobe of the left were broken down into a blood-soaked pulp, which retained little or nothing of the original shape or appearance of the lung tissue, and was in many places diffluent. The lower portion of the upper lobes was congested, but between this and the patches of deposit in the apices the front of both lungs was reasonably healthy. The backs, however, were so gorged, or rather soaked, with blood as to be impervious to air. The small portions which remained available as breathing space crackled under pressure between the fingers. On both sides, but more extensively on the right, the lining membrane of the bronchial tubes was purplish (soakage); the smaller tubes contained much blood-stained mucus and bloody fetid fluid, while those of the first and second order contained a reddish exudation of sufficient consistence to be partially withdrawn without breaking.

The heart was large. The right ventricle was full of soft clot, with several nearly colourless concretions among the columnæ. A firm white clot occupied the pulmonary artery, extending a little way (about ½ inch) on both sides beyond the bifurcation. There was nothing particular to be noted on the left side.

A mass of enlarged glands in the posterior mediastinum compressed and sensibly flattened the right bronchus.

Both pneumogastric nerves were carefully dissected out to the points of their exit from the skull, and were found to be (to the naked eye, at least) perfectly healthy.

When the skull-cap was removed, the dura mater presented a natural appearance on the convexity, but on attempting to remove the brain a small collection of greenish pus welled up at the right side of the foramen magnum from between the membrane and the bone. The dura mater was highly injected for about the space of a dollar all round the spot where the pus lay, but no disease of bone could be discovered in the neighbourhood or elsewhere. There were no clots in the sinuses, which, moreover, were not remarkably full of blood, though the veins of the pia mater were gorged. The brain was so soft that it hardly retained its shape when laid on the table, and the cerebellum was almost diffluent, so diffluent, in fact, that no satisfactory section of it could be got. The ganglia at the base of the brain were apparently healthy; the lateral ventricles contained each about a fluid drachm of turbid fluid. The choroid plexus was dark red from distension. The central white substance of the brain was throughout of a yellowish tinge, mottled by puncta cruenta, which could not be washed away by a gentle stream of water. At the posterior extremity of the centrum ovale on the right side, and occupying nearly the entire thickness of the couche moyenne, a single, more or less elastic and highly vascular tumour was discovered of an ill-defined oval form, about 1½ inch in length by ½ inch in width. This was surrounded by softened medullary substance for a distance of about ¼ inch, beyond which limit this substance, though sharing in the general softness of the whole brain, did not seem to be specially affected by the vicinity of the tumour. An extremely fine layer of apparently healthy brain tissue separated the lower surface of the tumour from the digital portion of the lateral ventricle. Corresponding to the inner surface there was a slight bulging inwards (perhaps accidental) of the præcuneus. In the left hemisphere, in the region exactly corresponding to the tumour, there was a softened and vascular patch surrounding an ochre-coloured spot, evidently the remains of an old small hæmorrhage. This ochre-coloured spot was about the size of a pea.

The tumour was indistinctly trilobed, and under a hand lens seemed to be composed of a soft granular substance, exhibiting numerous minute extravasations on its cut surface. Under the microscope (× 250) it exhibited "cement granules" and compound corpuscles, without a trace of nerve fibres. It was therefore a glioma. I am inclined to think, although I cannot at the moment find authorities to support my opinion, that the occurrence of glioma in the posterior portion of the centrum ovale is rare.

I have dwelt at what will perhaps be considered extravagant length on this case. My excuse is partly the interest which it excited in my own mind, for when not expecting that I should have a chance of controlling the diagnosis by a postmortem examination, I had thought it probable that the patient was suffering from a tumour in the cerebellum. It was at least true that the entire cerebellum was the seat of degenerative change, but there was no evidence of either hæmorrhage or tumour in its substance. Even with the vastly increased means of cerebral localisation that we now possess, accurate diagnosis of the precise seat of a tumour is often, if not generally, impossible. Whether the tumour had anything to do with hurrying the pneumonia into the gangrene which closed the scene, need scarcely be discussed. Just as inflammation of the lungs is a common cause of death in the aged* and in those affected by diatheses, it is likely to be specially fatal in any other condition under which the vital powers are enfeebled. In diabetes, for instance, the lowering of the general vitality renders all the soft tissues exceptionally liable to inflammation, and the same cause operating after inflammation is set up makes that inflammation prone to assume a gangrenous character.

The group of photographs on the opposite page represents the condition of a little girl brought to the Gutzlaff Hospital for treatment.

Sarcoma springing from Base of Skull, involving all the Bones of the Face except the Lower Jaw; Operation; Death.—WANG MAIYUNG, native of the Shanghai district, aged 13, entered hospital 29th August 1880. Two years ago a small swelling was noticed on the right side of the palate, apparently connected with one of the molars. It was painful, and a Chinese doctor first cut it, under the impression that it was an abscess, and then extracted the tooth, which meanwhile had become loose. Pain ceased, and although the face began to swell rapidly, and speech and mastication were seriously hindered, no further notice was taken of the growth until six months ago, when the child began to complain of total inability to chew or even to swallow rice and vegetables, and soon lost all power of articulation. It was noticed that she was very stupid at times, and that on the right side she was deaf. She was taken to as many native doctors as the parents could afford to employ in succession, each of whom promised a speedy cure, and ordered enormous quantities of medicine, which for the most part the parents could not buy. Within a few weeks breathing had been interfered with, and indeed could not be performed at all except in the sitting posture. Meanwhile the only nourishment that could be swallowed was rice congee. The photographs which represent the front face and the profile give an excellent idea of the child's appearance and of the visible extent of the disease, but that intended to display as far as possible the palatal surface is deceptive, as one would suppose that a considerable free cavity existed in the mouth. In fact, however, the roof of the mouth was completely occupied by a smooth, shining, convex and densely hard mass extending to the pharynx, which latter could not be seen, nor could the finger be insinuated sufficiently far back, or moved about with sufficient freedom, to ascertain the posterior or left lateral limits of the growth. There were a few scattered spots of superficial ulceration on the palatal surface in the neighbourhood of the distorted alveolar border. The lip was adherent to the tumour for about 1½ inch in front and towards the right angle of the mouth. A probe passed freely in an upward and outward direction into the left nostril, but could not be introduced into the right. External examination showed but little distortion of the left side, and on the right side the lower segment of the circumference of the orbit felt natural. There was no protrusion of the eye, and no interference with vision. During the night which followed her admission I was called, as she seemed suffocating. I was about to open the trachea when the attack lessened in violence, and shortly afterwards passed by. The child was put on a diet consisting chiefly of milk, bottled porter, and cod-liver oil, and soon began to pick up strength. At the same time, however, the tumour

* La pneumonie . . . . . est l'affection la plus fréquente et la plus fréquemment mortelle de la vieillesse.—PETER, *Clinique Médicale*, i. 699 (2me éd.: Paris, 1877).

increased with alarming rapidity, so that by the 17th September difficulty was experienced in swallowing even liquids, and breathing became much embarrassed. Meanwhile it had been decided in consultation that although the tumour was probably a growth from the base of the skull, there was a possibility of its being confined to the right superior maxilla, the condition of the mouth making it impossible to ascertain whether the apparent encroachment on the left side of the palate was or was not due to pressure. At all events the child, if left to herself, must die of starvation, if not more quickly of suffocation. Her father, who was frankly told all the dangers which surrounded each course of action, settled the question by saying that as the hospital nourishment was the only thing that was keeping her alive, as she could not have that except in the hospital, and as even with that she was clearly going to die, if there was any chance of an operation succeeding, trial had better be made of it, provided that in case death followed I could guarantee that it would not have been rendered more painful by the operation.* It was easy to set his mind at rest upon this last point. Accordingly, on the 19th September I operated in the presence and with the valuable assistance of Drs. BOONE, HALL, and ROGERS. In view of the probability of severe hæmorrhage, a practically inexhaustible supply of forcipressure forceps had been provided. Thanks to this precaution, and to the quickness with which every vessel, large and small, artery or vein, was caught as soon as cut, the loss of blood, considering the formidable character of the operation, was almost incredibly small. It was variously estimated by those present at from 4 to 7 fluid ounces, and was probably between 5 and 6 ounces. A first incision from the inferior internal angle of the circumference of the right orbit to the middle of the edge of the upper lip not giving sufficient room, the knife was carried along the lower border of the orbit to the middle of the external surface of the malar bone. The cheek and lip being thrown back, the tumour was seen to fill the zygomatic fossa, sending a prolongation upwards to the orbit, and upwards and outwards into the temporal fossa, surrounding and involving the malar bone. The right superior maxilla was now loosened in the usual way, and removed, along with the malar bone and the mass of adherent tumour, opening up the orbit from below. It was then found that the left superior maxilla was involved, and this was removed, with the left malar, which formed part of the mass. The superior maxillary, palate, malar, nasal, lachrymal and inferior turbinated bones of both sides, as well as the vomer and the ethmoidal cells, having now all disappeared, a remaining portion of the tumour was seen springing from the anterior extremity of the inferior surface of the body of the sphenoid, and from the cribriform and remains of the perpendicular plate of the ethmoid. This was carefully cleared away, along with the corresponding portion of periosteum, the bone surface looking healthy. The soft parts were brought together, after a most minute examination, which satisfied us that no portion of the tumour was left behind. A loop of silk was passed through the tongue and fastened to the cheek. The operation occupied 35 minutes; the chloroform was well borne, and recovery from it was complete. About an hour afterwards the child made signs that she wanted something to drink, and a little milk being poured over her tongue she showed dissatisfaction, and made it understood that she wanted tea, which she got. She made several attempts to drag away the string which held the tongue, but was of course prevented. She then went to sleep, and remained dozing quietly for two hours, after which she passed urine, and again slept. An hour later she was seen sleeping by the native assistant, who left her for a while in her father's charge. On his return in half an hour he found her dead. Recovery from such an amount of mutilation was hardly possible, but I am inclined to think that the immediate cause of death was a surreptitious loosening of the loop by the child's father, whereby the tongue was allowed to fall back to an extent sufficient to close the entrance to the glottis. Shock, hæmorrhage and chloroform seem to be excluded. Syncope is a possible cause, as it is proved by DURET† to supervene occasionally several hours after a severe operation, and to occur in this insidious way most frequently after operations on the face.

* This elaborate review of all the cases that might arise, and the intelligence displayed in the decision he finally arrived at, astonished me not a little in an ordinary Chinese peasant. He was a stupid-looking fellow enough, but he was devoted to this little girl, and affection had doubtless sharpened his wits.

† *Des Contre-indications à l'Anesthésie chirurgicale.* (Thèse d'Agrégation en Chirurgie, 1880.)

Sections of the tumour were examined by Dr. BOONE, who found that it was almost exclusively composed of spindle and giant cells, showing little trace of intercellular tissue, and with no apparent tendency to calcification in any part. The entire mass was, as described above, removed in three pieces. Exploration made from each of the surfaces thus presented failed to discover any remains of healthy bone. The ethmoid and all the bones of the face, with the exception of the lower jaw, had in fact been invaded and swallowed up by the tumour in its advance.

As documents having a place in the medical history of the settlement, and without reviving the criticism once aroused by the details of the lock hospital system as applied to Shanghai, I reproduce the following extracts:—

1°. *Extract from Despatch dated 5th April 1880, addressed by the Chairman of the French Council to the Chairman of the Anglo-American Council.*—Le Conseil, tout en reconnaissant que le dispensaire rend des services, ne pense pas qu'il puisse donner des résultats effectifs tant que les femmes malades ne seront pas retenues à l'hôpital jusqu'à leur complète guérison. Il propose donc à la majorité de supprimer pour l'exercice prochain la somme qui est allouée pour participation aux dépenses de ce service; se réservant de contribuer de nouveau lorsque de sérieuses réformes auront été apportées au système actuel.

2°. *Extract from Dr.* PICHON'S *"Rapport sur le Service médical de la Municipalité française pendant l'année 1880."*—Le Conseil a pris (depuis le 1 Octobre 1880) la résolution de contribuer de nouveau aux dépenses occasionnées par le dispensaire des filles publiques. Cette décision, dont je remercie hautement le Conseil, aura pour effet de consolider d'une façon définitive le fonctionnement du dispensaire dont la création et le maintien avaient rencontré tant d'obstacles jusqu'ici.

In connexion with this subject it is not amiss to recommend caution about matters apparently trivial, and which would not suggest themselves at first sight as sources of danger. Bearing in mind the mode of manufacturing tobacco, and the filthy habits of all Eastern people, there seems no reason, for instance, why cigars and cheroots, when held between the lips without the protection of a cigar-holder, should not convey syphilis if there should be any accidental breach of skin surface. Shaving, too, performed by a Chinese barber, whether he uses his own or his customers' razors, may prove a very dangerous operation. One must see in order to believe the extraordinary calmness with which a native extern patient at a hospital wipes the surface of a chancre with his finger before submitting it for inspection. There is no question of washing his hands afterwards. It is true that the same thing may be seen any day in the out-door practice of every English or Continental hospital. But suppose the patient a barber, and suppose an accidental scratch during the process of shaving, the delicate head swept off a pimple for example, the consequences are likely to be serious. For invariably whenever a barber makes a scratch his first impulse is to smear his finger over it, thus in the case supposed very probably inoculating it. Many years ago I had two cases of syphilis occurring within six months of one another, both in members of the out-door staff of the Customs. This was in itself surprising, for that staff was then, as now, endowed, I apprehend, with almost saintly virtue, inasmuch as it was and still continues remarkably free from venereal affections. These cases were, however, otherwise curious.

One man had an ashy ulcer with a cartilaginous rim and base on the lower lip, close to the right angle of the mouth, an ulcer which if situated on the penis would not have left the slightest opening for doubt. The submaxillary glands on the same side were slightly enlarged and hard. There was nothing to be seen within the mouth. The ulcer healed under mercury, but the glands continued hard, and six weeks

later a roseolar eruption, followed by sore throat, and later by iritis, confirmed the diagnosis. This man was shaved every day by a native barber, who brought his own apparatus with him.

The second case occurred shortly afterwards. A man had enjoyed a trip to Japan, where, according to his own account, his conduct had been exemplary. About three months after his return he found that his body was covered with copper-coloured blotches, which he imprudently showed to an experienced friend, whose opinion as to their nature was expressed with uncompromising frankness and unnecessary publicity. He came at once in order to have this scandal refuted, and showed me his chest and forearms, which told their own tale. I examined the penis and groins. The result of this latter exploration was altogether negative. I then stripped him, and found on the left arm an elaborate device in many-coloured inks which he had had tattooed by a Japanese artist. This he said had always been a little irritable. It was limited by a slightly thickened margin, which with the immediately surrounding skin was of a colour similar to but somewhat deeper than that of the blotches scattered over his body. A course of specific treatment was giving satisfactory results in this case when the patient was removed to another port, and I lost sight of him.

Recently I have found similar cases reported. Thus, DESPRÉS (quoted in *London Medical Record*, 1881, page 160) details two instances of inoculation of syphilis by razors; and M. ROBERT, a French army surgeon (quoted *ib.* 1880, page 159), relates three cases of infection by a tattooer who being at the time suffering from syphilis, with mucous patches about the mouth, used his saliva to dilute the ink employed. Persons who are about to visit Japan and contemplate bringing away with them a specimen of the tattooer's art will do well to bear these facts in mind, and the additional fact that, according to Dr. SIMMONS of Yokohama, three out of four of the urban population of Japan are syphilitic.

In my last Report I referred briefly to the frequency with which measles is observed in Shanghai, and the differences from the English type which it presents, as regards course and symptoms. The following description is drawn from the observation of a very large number of cases:—

Chinese Measles.—On each occasion of late years when an epidemic of measles has occurred I have 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. In support of this assertion I might cite a number of cases, one of which occurred in my own family. 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. Oddly enough, 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), and that although she had had measles of average severity twelve months before. It is possible that here there may have been other centres of infection, but very careful inquiry failed to discover them.

Related in point of time to each epidemic of measles we have had a prevalence of whooping-cough. In four cases during the past season I found measles immediately follow on whooping-cough, and in five

cases immediately precede it. In two out of the latter group the history of subsequent separate infection was clear, and doubtless might have been made out in all the rest. 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 (always) protect against it, nor, finally, does it protect against a second attack of the same form.

I have but one observation sufficiently precise to aid in determining the period of incubation.

In this case 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 Dr. PICHON informs me that in three instances he was able to fix with certainty that period 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 diarrhœa, perhaps amounting to severe purging (occasionally *constipation*), *loses appetite, and vomits once or twice in the day. The conjunctivæ are injected, there are* sometimes fits of sneezing, the skin is hot, especially at night (100° to 102°.5), the tongue is occasionally dry, and the child may talk in his sleep, or wake several times in fright from a series of troubled dozes. Severe pain in the crural muscles is not uncommon. I have never seen convulsions. In three cases *occurring in adults there was marked delirium, especially at night.* Vomiting may be persistent for two or three days. Hæmatemesis occurred in one of my cases, a healthy, well-nourished little girl, aged 6. The vomiting may be independent of cough, or caused only by the cough.* Severe epistaxis may occur and be repeated several times. This I observed in an adult, and in a boy of 13 (seen in consultation), in which latter this and the delay of the eruption to the eighth day had given rise to the suspicion of typhoid. As the fever persists the eyes become more injected, there is much lachrymation and photophobia, but the *comparative slightness of the nasal catarrh is generally remarkable. From the second to the fourth 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, while simultaneously with, or a little before the *appearance of the skin eruption minute brilliant vesicles dot the palate and pillars.*

In three cases I 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 not happened to me to observe any severe pulmonary complication in children. In three adult cases (and probably also in children who cannot accurately *describe what they experience) there were early deafness and the sensation of singing in the ears. On any* day from the second to the eighth 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 borders of the orbits, 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

* This I observed in but one case—an adult. 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 tousse 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.

the body followed by the face. The rash is generally thick and somewhat purple in colour on the legs. Occasionally it is seen first on the wrists, and frequently it appears simultaneously on the wrists and face. 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 second or third day, its reappearance is generally (not always) heralded by a marked rise of temperature (1°.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 ninth day, when it finally vanished, the body and extremities having then been clear for nearly two days.

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 muco-purulent 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. 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 that no more is found than a mottling of the skin of the face, but the fever (slight or severe), the conjunctivitis, 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 is sometimes to be noted. The rash begins to fade, not always in the order of its eruption, on any day from the third to the seventh, dating from its first appearance, while the fever usually disappears from the seventh to the ninth day of the catarrh, and whether the rash has or has not completely faded. The rash finally disappears between the fourth and tenth day from its first appearance, but seldom later than the seventh day. I have rarely noticed any special tendency to glandular enlargements. In one of the cases referred to above, where there was a semifibrinous deposit on the tonsils, the cervical glands became swollen and tender 10 days after the eruption had cleared away from the general surface.

The highest temperature I noted was 104°.5. This was at 11 P.M., in a little girl, on the third 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 8 months.

In this case the eruption appeared on the second day, on the forehead. On the third day it came out on the arms and trunk, next day (fourth) on the legs. On this day it began to fade from the face, and on the fifth day had completely disappeared. There was not much fever, but cough was very severe.

Among the sequelæ nothing of very serious import is to be noted. This is no doubt due to the good conditions under which most foreign children in Shanghai are placed. 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. There is perhaps a tendency to bowel derangement for several weeks after the last symptoms of the disease have passed by, and once, in a case referred to above, superficial ulcers on the corneæ demanded a prolonged constitutional and local treatment before recovery was complete.

It may be noted that measles in the host disagrees with lumbricoid worms that happen at the time to be guests. In five of my cases during last season, as the attack of measles was passing off, three, two (twice) and one (twice) dead round worms were expelled.

I have never seen small-pox in a vaccinated European child in Shanghai.

L.—Dr. R. G. White's Report on the Health of Chinkiang for the Year ended 31st March 1881.

The health of the community has been unusually bad during the past year, and specially bad for the last nine months. Considering the cool weather we had in the summer, the reverse might have been expected, but doubtless in the summer the weather may be injuriously cool as well as injuriously hot. There was an unusual number of lung cases, as well as some cases of small-pox and typhus fever. The accompanying table will give all necessary information as to the meteorology of the port. I am indebted to Mr. Harbour Master Günther for its details.

Meteorological Table for the Year 1880.

Month.	Aneroid Barometer.				Thermometer.				Winds.					Fog, Rain, and Snow.			
	Highest by Day.	Lowest by Day.	Highest by Night.	Lowest by Night.	Highest by Day.	Lowest by Day.	Highest by Night.	Lowest by Night.	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 Calm.	No. of Days Fog.	No. of Days Rain.	No. of Days Snow.	Rainfall.
	Inch.	*Inch.*	*Inch.*	*Inch.*	°	°	°	°	*D. h.*	*D. h.*	*D. h.*	*D. h.*	*D. h.*	*D. h.*	*D. h.*	*D. h.*	*Inch.*
January...	31.17	30.48	31.17	30.48	44	25	42	24	15 9	5 6	2 21	7 12	...	...	3 0	8 0	1.77
February..	31.04	30.43	31.05	30.43	44	32	45	30	17 9	4 18	0 6	6 15	...	1 0	3 12	2 0	2.28
March	31.04	30.01	30.98	30.11	72	35	67	34	12 15	11 21	3 9	2 6	0 21	1 0	4 0	...	1.78
April	30.87	29.94	30.81	30.02	73	47	71	43	7 15	10 18	4 12	7 0	0 3	...	5 3	...	5.00
May.....	30.50	29.81	30.50	29.82	82	55	80	54	4 9	11 12	10 15	4 9	0 3	2 0	3 18	...	0.84
June	30.34	29.93	30.38	29.93	86	68	83	62	4 12	15 3	4 12	5 0	0 21	...	1 0	...	0.84
July.....	30.20	29.90	30.17	29.90	88	69	88	70	15 9	6 21	3 9	5 3	0 9	...	2 18	...	3.37
August ...	30.37	29.85	30.40	29.86	89	68	85	68	22 15	3 21	1 3	2 21	0 12	...	2 21	...	2.22
September	30.80	30.22	30.78	30.25	85	67	83	66	15 12	10 0	0 6	3 15	0 15	1 0	2 0	...	1.65
October...	31.05	30.42	31.05	30.42	76	50	72	50	14 18	13 9	1 6	1 3	0 12	2 0	1 9	...	0.59
November	31.20	30.42	31.20	30.45	65	29	63	28	8 15	3 12	3 0	10 15	2 6	...	0 6	0 12	0.08
December	31.50	30.65	31.48	30.76	53	24	48	22	11 0	5 12	0 9	12 21	1 6	0 12	1 6	2 3	1.24

Remarks.—*First part of January fine; from 10th to 24th, snow and rain at intervals; latter part of month fine.* First part of February mostly rainy and disagreeable weather; snow on 4th and 20th; latter part fine, with a few dull and rainy days. *March, very fine, with only a few rainy days; on 18th, thunderstorm accompanied by heavy showers.* April, beautiful weather, with occasional heavy rain; on 23rd, strong gale from N.W. May, beautiful weather; only a few foggy and rainy days, and occasional thunderstorms, accompanied by light showers; on 30th, gale from N.W. June, beautiful weather; latter part of the month thunderstorms accompanied by heavy showers. July, fine, with occasional thunderstorms accompanied by heavy showers. August, beautiful weather, with occasional light showers. September, fine, with a few rainy days. October, very fine and clear weather; on 25th, strong gale from N.E. November, very fine and clear weather, with occasional windy days; 7th and 25th, gale from N.W.; 28th, heavy fall of snow. December, fine, with occasional cold and windy days; on 14th, 16th, 18th and 19th, snow; and on 18th, strong gale from N.E.

The thermometer readings are a little below the average temperature, owing to the unusually cool place where the instrument is hung.

A case of small-pox occurred in June.

The patient was of intemperate habits, and the disease threatened during the first week to prove severe. Tepid baths were most valuable in reducing temperature, and a good recovery was made. Unfortunately, contrary to orders, being tired of solitude and possibly of abstinence, the patient visited some of his brother officers of the out-door Customs staff, and exactly 16 days after, one of these had the usual symptoms of the disease, including lumbar pain, with a temperature of 104°. It became necessary, therefore, to remove this latter from the out-door staff general quarters, and having no other suitable quarters, he was placed with his recent visitor, who had doubtless communicated to him the disease. When the eruption was due, none appeared except one questionable spot on the trunk; pyrexia subsided, and slight pleurisy was the only remaining trouble, which cleared up in three days. Taking into consideration the well-marked premonitory stage and the exposure to infection (if not already infected) from companionship with a patient in an infectious condition, there can be little doubt that this latter case was one of variola sine eruptione. Patient had vaccination marks, but had not been vaccinated since childhood.

Five cases of pneumonia occurred. Two of these were adults, and three children. Four cases of acute bronchitis in children were observed, and of these one was fatal.

There had been several attacks, and in the last nature yielded, the lungs being already unable to perform their functions from previous repeated attacks.

Two cases of remittent fever came under notice; one of these proved specially persistent. Three cases of acute dysentery yielded to treatment, as well as several of diarrhœa—none of a severe character. One case of acute rheumatism recovered well. The first case of typhus fever which came under my observation was from H.B.M.S. *Pegasus*.

The junior medical officer was removed from his ship and placed under my care, with a temperature of 105°. Next morning the characteristic rash was visible. The temperature reached 105°.5, and the heart's action was very feeble, and there was marked blood stasis at the periphery. Repeated doses of whiskey had the usual good effect, and tepid sponging proved invaluable in reducing temperature. After the crisis the patient was for seven days unable to evacuate either the bladder or rectum, but regained the needed power just in time to prevent any trouble from the constant use of the catheter. Ultimately there was complete recovery.

There was a fatal case of typhus on board the *Pegasus* while she was here, which I did not see, and subsequently there were other cases developed after the ship removed to Shanghai. The commander was attacked by confluent small-pox, which ended fatally in Shanghai. I made inquiries amongst the people as well as amongst the mandarins as to the origin of the typhus epidemic, and the information elicited confirms my impression that the disease arose on the north of the Yangtze, where there is greater poverty than here, and a continuance of dry weather for several months had increased this condition. The *Pegasus* was anchored near a small native town where there were several deaths from fever, and the prevailing winds were from the quarter where the town was situated. Since last January several cases of typhus fever have been reported, and invariably these have come from the north, or have contracted the disease from some one who has brought the infection across from that quarter. Happily, even there the disease is much less prevalent, and here we have had only one case amongst the foreign community (April 1881). A second death ashore occurred from arachnitis.

The patient was a syphilitic of many years standing, and had constantly suffered from tertiary manifestations. His last was under treatment 10 days before it proved fatal, and steadily induced general

paralysis, although now and again it seemed to yield to the action of iodide and bromide of potassium. The autopsy revealed the usual condition of this disease.

Practice amongst the Chinese, in the majority of serious cases, was of a surgical nature. Several cases of gangrene of the lower extremities presented themselves, and in two cases double amputation was demanded.

The left half of the inferior maxilla was removed for a large fibrous tumour. The operation was rendered more troublesome than usual on account of an attempt having been previously made to remove a portion with a brass knife and caustic, which caused the buccal mucous surface to adhere to the tumour, and the hæmorrhage from the dissected surface made it necessary to desist now and then from the operation and apply pressure. There was very little deformity observable after recovery.

The subclavian artery was tied in its third part for a diffused aneurism in the axilla bulging up to the clavicle. While the patient was under observation for four days the tumour had appreciably extended and was threatening to rupture. Owing to thickening of the parts and several enlarged glands there was some delay in finding the vessel, but it was finally secured, and the patient did well for the first 24 hours. The second day he complained of uneasiness over the region of the heart, the action of which was feeble and rapid. About 56 hours after the operation the patient raised himself to go to stool, contrary to orders, and died suddenly. Of course no postmortem was allowed.

Three cases of epithelioma of the penis were operated on, but one of these has presented himself (15 months after) with a recurrence of the disease.

II. SPECIAL SERIES.

No. 1.—Native Opium :..... Published, 1864.

„ **2.**—*Medical Reports* :..... *First Issue, 1871.*

„ **3.**—Silk :..... Published, 1881.

„ **4.**—Opium :..... „ 1881.