On the Treatment of Phthisis by a Long Sea-Voyage on a Sailing Ship.

Wm Gemmell MB.
Galston

On the Treatment of Phthisis by a Long Sea-Voyage on a Sailing Ship.

The above method of treatment has long been advocated in the cure of consumption, especially in its incipient stage. And it has usually been advised that such a voyage should take place in a sailing vessel in preference to a steamer; for example, Dr Whitla[1] says, "a long sea" "voyage in a good sailing ship from" "England to Australia is a powerful" "remedy in restoring the phthisical patient" "to health. It is here that the maximum" "amount of pure atmosphere can be enjoyed" "from early morning till late at night".

1. "Dictionary of Treatment". page 658.

Dr. Charteris[1] gives it as his opinion, that a sailing ship is preferable. Dr. Tanner[2] states, "the invalid leaving England for Australia" "will generally find the long uninterrupted" "voyage round the Cape of Good Hope, in a" "comfortable ship, much to be preferred to the" "more exciting route by Suez". How far this view requires to be modified in the light of recent experience will be considered later on, — suffice it to state that the writer having suddenly, in the spring of 1892 had an attack of Haemoptysis it was deemed judicious that he should not spend another winter in England. The following pages are an attempt to set down the progress and result of such a voyage, which he undertook with some others who were afflicted with the

---

1. "Health Resorts at Home and Abroad". page 71.
2. "Index of Diseases". 2nd edition 1876. p. 450

same complaint as himself.

The climatic treatment of phthisis is a subject which is often written upon; what follows is merely an attempt to note down the facts of the voyage. Of course from the number of passengers on board a sailing vessel being comparatively small, the number of cases available for observation is necessarily limited. Still, on the other hand, most of them have taken the voyage in the interests of their health, and not for pleasure or business. - Having seen advertised in the "Lancet" a line of sailing vessels in which special attention was given to invalids, the writer applied for, and obtained, the nominal position of surgeon on board the "S. Harbinger". She was bound from London to Melbourne, and left port in splendid weather on the last day of July 1892, with the thermometer at 72° F. This is earlier than one is usually

advised to start — the middle of September, or even the beginning of October being the favourite time. Dr Whitla gives the middle of September as the proper time for departure, while Dr. Charteris gives the end of that month. Of course invalids from Scotland should leave at an earlier period, than those living further south. As indicating the want of knowledge, shewn by people about sailing ships, it may be mentioned that none of us knew, until we had been a day or two on board, that sailing vessels, never call anywhere on the voyage out. There was a vague idea that they called at the Cape, and several passengers looked rather disappointed, on getting the information, that the prospect of sending letters, was a mere matter of chance. —— In regard to the invalids, the cases

of phthisis which alone concern us, were the following

I. R. G—, A young lad from Radnorshire, aetat. 17 years. Came on board suffering from cough, loss of flesh and a weak condition of the bowels: His father and mother had died of consumption at the ages of 48 years and 43 years respectively: Had never been robust; Latterly he had been training for a jockey, and this had evidently been too much for him. The report of his medical man was to the effect that it was "a case" "of phthisis accompanied by a rather low" "condition of the bowels".

II. Edith C—. A young lady aged 22 years. Had been studying for a governess. Her mother had died of phthisis aetat. 40; father of apoplexy at the age of 56. Had had three attacks of haemoptysis, the first one while in Cumberland dating from 6 weeks

before coming on board. The other two attacks were at intervals of about a fortnight. Previously she had felt in good health. Latterly had been staying at Clacton and derived great benefit. The medical report of Dr Slimon was to the effect that she had had dulness on both sides of the chest at the apices, more so on the left, but that this had now cleared up", and that she was taking the voyage by the advice of Dr Eustace Smith.

III. Annie J—. A young lady from London, rather older than the last, viz:— 26 years: Been at home and delicate all her life. Mother died of consumption aged 50, having previously suffered for many years from bronchitis: Father still living aetat. 60. According to her own account she had spitting of blood two years ago. Her

medical adviser's letter stated that "she had had lobar pneumonia at the base of the left lung a couple of months before arriving on board, and he thought that it had not resolved properly." This had left her very weak. He further reported that she was markedly hysterical. She had been having cod liver oil and a bismuth mixture for her stomach.

IV. E. W. L. J—. Young man 23 years of age, of fine physique. Clerk in the Stock Exchange. His father and mother were living aetat. 55 and 58 respectively: His brother had died of consumption, four years ago, at the age of 25, and he himself having developed a slight catarrh, with the sputum occasionally tinged with blood, had induced his father — a medical man — to send him the voyage. He resided at Blackheath and had previously been strong although

growing fast.

V. J. R—. A Colonial: Had been in England for his education: Did not seem to realize that he was phthisical: A month ago he had brought up a little blood and the Dr who examined him said that his "right lung was weak", and that there were bacilli in his sputum. Still physical examination shewed it to be a case of incipient phthisis, as there were mucous rales over the right apex, and the expiration sound was distinctly prolonged.

VI. W. J—. Marine engineer aged 32: The chief thing about him was that his family history was obscure. Two of his aunts (maternal) had died of consumption, but at what ages he did not know. He was rather weak-minded: On examining his chest it was found to be rather

ill-formed and inclining to the pigeon-shape.

VII. W. G.——. The writer aged 24 years. Had an attack of haemoptysis in February 1892. It was of moderate severity, and occurred about a week afterwards. The attacks lasted for about an hour each, and were treated with the usual astringents, gallic acid, acid sulph dil, and acetate of lead. These failed to do any good. But the hypodermic injection of ergotine (Burroughs, Wellcome + Co's tabloids) seemed to check the haemorrhage. Had spent two months at Torquay. Sister suffered from phthisis at 24 years of age, but recovered completely under treatment. Otherwise the family history was good. No physical signs up to time of coming on board, discoverable by the various medical men who had examined him. —

VIII. Mercy L.—. 25 years of age, lady companion to Edith C.—, and K. C.—. Father and mother still living, the former at the age of 62 and the latter at the age of 60. She suffered from anaemia two years ago, but was now well coloured and strong. The patient stated that she felt in good health, with the exception of a tickling cough, which was occasionally present.

IX. K. C.—. sister of Edith C.—, aged 24 years. With the exception of her family history she had otherwise a good account of herself. ——— The above then is a statement of the cases when coming on board, as furnished by themselves and the letters of their medical men.

A day or two sufficed to shew that the chief interest would settle upon cases I, II, III + VII. Cases II and VII were

seen at once to be cases of haemorrhagic phthisis, i.e. cases of consumption in which haemoptysis is the prominent symptom. Case IV. had to be put in this category later on. Here it may be remarked that according to Williams, the cases which do best at sea are cases of incipient phthisis and of the haemorrhagic type. Other authorities have, however, disputed this point. The view further prevails that haemorrhage is not more liable to occur at sea than elsewhere, for example Dr Whitla[1] says that "haemorrhage is no barrier to the ocean voyage". These points will be again alluded to in detail. — Case I. was one of ordinary phthisis of a severe type. A tendency to diarrhoea seemed likely to give trouble. Case III., was one per se, the listless expression and languid

1. "Dictionary of Treatment", page 659.

gait stamped it at once as one in which hysteria played a prominent part. VIII, & IX, have been included in the list as illustrations of cases shewing a "tendency to phthisis."

The first thing to do after becoming acquainted with one another, was to make a medical examination of the patients in regard to their present condition.

I, R. G——. In appearance a young lad of dark complexion and intelligent expression: on examination the body was thin and the contour of the ribs visible. The chest shewed distinct flattening at both apices, especially behind. The movement of the chest wall at those places was impaired. On percussion dulness was easily made out; about equal on both sides, but more marked behind than in front. Tubular breathing before and behind. There was the suspicion of a cavity on the

left side as indicated by a minor degree of cracked-pot sound being elicited in the infraclavicular region. Amphoric breathing was also present in the same situation. Mucous rales over the left apex. He stated that his cough was rather troublesome; his spit was muco-purulent but not abundant. He suffered from night-sweats of moderate severity. Pulse small and rapid. His tongue was red and irritable looking, and his appetite poor. His bowels were loose, moving twice and sometimes thrice in the twenty-four hours. Temperature.— Was elevated 1°5 F. the first three nights it was taken. After that it was uniformly raised 2° F. at night. Urine normal.

II, Edith C—. A blonde of slight build and narrow chest. She was flighty in manner. Sleeplessness was a prominent symptom,

and had to be combated with sulphonal. This drug acted well. There was no dulness on either side of the chest, nor bronchial breathing. Slight moist rales over the left apex and infraclavicular region. Cough hardly present. She had been having cod liver oil and a quinine mixture: Appetite good and spirits excellent. Pulse rapid (92) but of good tension. Temperature taken on seven consecutive nights varied between 99°8 F., and 100°2 F.; during day normal.

III. Annie J—. A brunette. Her general health was very poor as indicated by her sallow complexion and anemic look. Chest in front shewed no signs of disease: but at base on left side there were large mucous rales. They had existed from the attack of pneumonia, and indicated that the disease had not resolved properly. No

dulness was present over either base. Her manner was listless and apathetic. The tongue was furred and she had no appetite. There was a slight cough. Temperature — 98·6 F. in the day time, and also normal at night. The urine was albuminous but this was from a leucorrhoea.

IV. E. W. L. J. —. A very tall subject of dark complexion. There was some clubbing of the finger ends, and slight incurvation of the nails. No signs of disease at apices or elsewhere in the chest, but from his own impression he believed the left side to be at fault. Appetite hearty. Pulse 68 & full. Tongue clean. Temperature normal.

V. J. R —. As before stated there were small mucous rales over the right apex and prolongation of the expiration sound. He was of insignificant phsique but felt

strong. Tongue was furred in the morning, but appetite was good. Temperature as taken the first week was normal.

VI. W. T—. Was very thin and delicate looking, said he had been losing weight recently. As previously stated the chest was badly developed. Dulness in the right infraclavicular region but no rales. His appetite was poor, as indicated by the way in which he took his meals.

VII. W. G—. No cough. No physical signs detected by any of the medical men who had examined him, but from his own impression believed the right side to be the affected one. This seems to indicate the importance of consulting the patients feelings as the subject. How often in ordinary practice one cannot tell (not that it is much good) the side from which the blood originates. From personal

experience, the writer can vouch that in an attack of haemoptysis the patient has a distinct sensation from which side the blood comes. Similarly in bronchitis the invalid is conscious, which side of his chest is exerting itself most to expel the mucus. His temperature was normal.

IX. ~~VIII~~. K. C——. Chest sound. Of fine physique. Appetite good. Temperature normal.

VIII. ~~IX~~. Mercy L——. Resembled the last case in that although the family history was defective there was no physical sign of the disease.

As body weight is reckoned such an important point, the next thing to do was to have the patients weighed.

Case	Name	Weight on coming on board	Dr. Hutchinson's figures
I	R. G.—.	7 stones 3 lbs	9 to 10 stones
II	E. C.—.	7 stones 10 "	9 to 10 "
III	A. J.—.	7 stones 2 "	8 to 9 "
IV	E. W. L. J.	10 stones 12 "	12 to 14 "
V	J. R—	9 stones 8 "	10½ to 11 "
VI	W. J.—	9 stones 6 "	10½ to 11 "
VII	W. G.—.	10 stones 6 "	11 to 12½ "
VIII	M. L.—.	8 stones 8 "	10 to 11 "
IX	K. C.—	8 stones 10 "	10 to 11 "

It is interesting to compare their weights with their **heights**. Quetelet's figures, those of Dr Hutchinson, and others, are not of much use from various causes. They give the ratio of the height to the weight, but it must be remembered that this

varies with the age, and with the sex. All the above cases are under the standard weight, as shewn by Dr Hutchinsons figures placed alongside of them. In the case of the males this is partly due to the fact, that few of them had reached adult life — the difference in some instances is extreme.

Case	Name	Height	Weight
I	R.G.—.	5 feet 4 ins	7 stones 3 lbs
II	E.C.—.	5 " 3 "	7 " 10 "
III	A.J.—.	5 " 1 "	7 " 2 "
IV	E.W.J.	6 " 0 "	10 " 12 "
V	J.R.—.	5 " 8½ "	9 " 8 "
V	W.J.—.	5 " 8 "	9 " 6 "
VII	W.G.—.	5 " 10 "	10 " 6 "
VIII	M.L.—.	5 " 6 "	8 " 8
IX	K.C.—.	5 " 7 "	8 " 10

—In the foregoing cases it was found more difficult, to ascertain their exact weights, than was anticipated. Although the machine used, could not be warranted absolutely correct, still as the same steelyard was used all along, the comparative weights could be depended on.

Then as to the progress of the cases, it became evident from the first that,

Case I. R. G.—. was not deriving any benefit from the voyage. His cough at first was not troublesome, and he took his food well. But these things gradually changed. At the first blush one would have said, that his friends had delayed until it was too late. But enquiry into the case, shewed that he had only been two months under treatment

before coming on board, and that whenever the medical fiat had gone forth that a sea-voyage was advisable, so little time had been lost in giving effect to it, that he had come on board with a rather scanty outfit. The rapid progress of the disease was no doubt associated with the fact of his family history being so bad. Also "his stomach and bowels were in a rather low condition". This weighed against him, as on board a sailing ship one is supposed to have an appetite for his food. The letter of his physician, Dr. Graves, describes him as "a young man suffering from phthisis, sent a voyage in the hope that it would permanently cure him". This hope did not seem destined to be realized. He had great pain

after food, which was relieved by the following mixture.

℞

Bismuth Subnit ℥i
Ac. Hydrocy. dil ℥ß
Sodii Bicarb ℥ii
Gum Acacia q.s
Syrup ℥iß
Aquae ad ℥vi cM.

Sig. ℥ß after food.

His bowels instead of being moved two or three times a day, as when he came on board, now acted four times a day, unless he had astringents. Of those given, the aromatic powder of chalk was the most successful in giving solidity to the stools. It had occasionally to be combined with a

little opium. Examination of the chest every second or third day, shewed that the dulness was extending, especially over the apices at the back of the chest. The rales also were heard more extensively all over the chest. The temperature was now uniformly elevated 2° at night. Compare last report (August 12), with that on

14th Augt.— Dulness more extensive, moist rales increased, cracked-pot sound more distint, metallic tinkling (?) + amphoric breathing elicited.

3rd Sept:— Much thinner. Dulness still extending and rales increasing. No doubt now about cavity in the left upper lobe. Bowels moved eight times today. On 3rd Sept. temperature went up to 102·5 at 8 p.m.

In connection with this

case it may be remarked that the statement that people are often sent to sea when they are "too far gone" is probably not now so true as it once was. The danger of this, is too well known & reiterated, for it to happen often. Besides when a patient dies on the voyage, it is common to hear it said that "his friends were to late in sending him", and this even although he were a suitable case.

Here also may be considered those cases of consumptives, who have been sent to sea apparently in the "last stage of phthisis", and have miraculously recovered. It has been explained that they have been cases of great exhaustion, say, after repeated haemorrhage, or inflammatory

mischief, and not cases in which the local disease has made serious inroads in the lungs. Of course cases of phthisis in the second stage, and even advanced cases are sometimes sent to sea, but in these cases the affection is stationary. The evil consists in sending cases when the disease is active; as indicated by the pyrexia.

After we got round the Cape R. G. — was confined to his cabin. Diarrhoea much worse. The stools were very foetid slimy and often blood was present. In short there was no doubt that he suffered from tubercular ulceration of the bowel. Felt the want of cow's

milk very much in his case, as the cow-house had been washed overboard the previous voyage, and had not been replaced. This was not so much to be deplored, as after a time at sea, the milk of a cow often becomes unpalatable, owing to the animal having to live in a confined space. Still, condensed milk, unsweetened preserved milk, and the like, are poor substitutes for it. The absence of ice, also handicaps one very much, in a case like this. His appetite was very changeable all along. Dr. Hermann Weber[1] regards "a permanent delicacy of appetite, or inability to become accustomed to a certain monotony of food, or to a certain coarseness in

[1] Art. "Sea-voyages" "Quain's Dict. of Med." 1882. p. 1410.

ib preparation" as an obstacle to a sea-voyage. Lattely R.G. had become very emaciated. Stimulants including brandy & portwine were of little use and he died on November 5th — a day before getting into port.

Unfortunately he was placed in the same cabin as myself, owing to the ship being full. The evil of this is very obvious and should be emphasized. Here is a person coming to sea in order that he may breathe a pure atmosphere — a person predisposed to phthisis. Yet he finds himself put into a comparatively small space (8½ x 6½8) where germs of the disease must greatly abound.

In connection with this it must be admitted that Dr. Williams does not admit that living in the Brompton Hospital exercises a bad effect on the resident physicians and nurses. But the ventilating arrangements of a ships cabin are not to be compared with those of the Brompton Hospital, where the fresh air is admitted by numerous openings on a level with the different floors, and the foul air withdrawn by specially constructed extracting flues. Further the inhalation of the same air is not considered so deleterious, as the inhalation of particles of dessicated sputum, or the accidental use of the

same towels.

II. Edith C. —. This young lady improved if not at a rapid pace. The rales at the left apex and infra-clavicular region passed away. The sleeplessness had greatly diminished. She had been sick in the English Channel. Drugs as usual were of little use, and she had to wait until her whole system especially the vascular, had accommadated itself to the new conditions. She had suffered from prickly heat (Lichen Tropicus) in the hot weather. It was easily put right by some Enos Fruit Salt. The evening rise of temperature in this case continued during the voyage. About

the 21st of Augt it became more pronounced rising to 102·6° on the 27th, and 103° on the 28th. It then resumed its former level.

On the 8th Sept she had an attack of haemoptysis, lasting that day and night. It was treated with,

℞ Acid Sulph. dil
Acid Gallic āā 3ī
Aquae ad 3vi M.
Sig. 3ß every hour.

also with the hypodermic injection of ergoline, which seemed to have a good effect, in spite of the fact, that by contracting the arterioles, it raises the blood-pressure. She did not remain as long in bed, as one could have wished. She was confined to the saloon as much as possible, but soon came up

on the poop and seemed just to do as well when she had a free run. The attack of haemoptysis left her with a persistent cough which became worse in the "easting". On examination abundant moist rales were detected over the left infraclavicular region. In the cold weather the insomnia left her. Her appetite was good but she only put on 2 lbs during the 3rd month.

III. Annie J.—. This case went from bad to worse like No I but in a different sense. The chest complaint did not get worse, but from sea-sickness her general health became deplorable. Amongst cases that should not be sent to sea Dr. Charteris[1] gives cases of unconquerable sea-sickness. This shews how.

---

1 "Health Resorts at Home & abroad."

careful persons of a weak or languid disposition should be of coming to sea. For, it must be admitted that a voyage if at all rough consists so to speak of a struggle between the organism and its environment. What way the victory will turn depends on the resisting power of the former. If it be weak the patient must go under, and thus lose to a great extent the benefit of the trip. The patients appetite was very poor and she seldom appeared at meals. Examination of Chest:- On 14th Augt:- same as before

28th -"- in addition slight mucous rales on left infraclavicular region.

On only one occasion was the temperature found to be elevated, viz the 25th Augt, and then only 1·5 deg. at night.

About this time she also brought up some blood but this was due to the rupture of a small blood vessel in the stomach, which was caused by the retching during the sea-sickness.

During the month of October when we were in the Southern Ocean she was in a very low condition indeed. As the weather became stormier the sea-sickness became even worse. The cold seemed to have a very depressing effect on her. She hardly eat anything, and by her own account did not sleep any. The latter was no doubt to a great extent imaginary. Did not weigh her the third month, from fear of the effect on her mind. The rales at the

base of the left lung were about the same; those at the left apex had disappeared. Her strength was still further reduced by menorrhagia. This is not uncommon at sea and Dr. J. A. Irwin of New York has pointed out in a pamphlet (1885) that "the frequency of the catamenia and the customary discomforts are both increased at sea."

Dr. Sparks[1] remarks have a distinct bearing on cases like Annie J—s. He says "people of a desponding disposition should not be sent to sea, who would be likely to suffer by the long absence from home".

---

[1] Quains "Dict. of Med." p. 267. Art. "Treatment of disease by climate"

IV. E. W. L. Y.—: He progressed favourably and derived great benefit from the voyage as indicated by his improved appearance and increased weight. This during the first month amounted to 5 lbs. This and the other cases shew that it is not so easy to fatten people at sea. They may get a small increase but nothing like the gain of a stone or two. When a distinct gain does take place the chief factor is, apparently, the limitation of bodily exercise on board ship, the appetite and power of assimilation remaining undiminished.

About mid-voyage i.e 13th Sept the patient had a slight

attack of haemoptysis, during the night. It did not recur, and on examination nothing could be detected in the chest. He gave one the impression of being a young man, who to use the common expression, had overgrown his strength. He was only 23 years of age and his height was 6 feet. There was a tendency to slight looseness of the bowels in his case also; they were frequently moved twice or thrice a day.

During the second part of the outward voyage, he improved even more than he did before. Had been taking stout and cod liver oil during the cold weather.

On examining his chest no rales could be detected. Neither cough

nor spit. The temperature was never elevated at any time on the passage out. The increase of weight during the third month was only 1 lb. — not so much as had been expected.

V. J. R.—. He improved in appearance and put on flesh although the actual increase during the first month had only been 2 lbs. During the second month it was 3 lbs. A slight cough which he had developed after bathing in the tropics had passed away by the end of the second month. His appetite was good. The few moist rales over the right apex were still present however. His temperature had always

been normal with the exception of two occasions in the tropics when it was raised 1·4° & 2°. This was due, no doubt to the bronchial catarrh he had then contracted. When the cold part of the voyage commenced the improvement was not so marked. Had been having cod liver oil during October. In spite of suffering from the cold he put on weight during the third month — 4 lbs. On his chest being examined before landing no signs of phthisis were found. He intended to go to Sydney for a time, and then return to England.

VI. W. J.—, Remained much about the same, as when

he came on board. He diminished slightly in weight — 1½ lbs the first month. The patient had suffered from nervousness, which had greatly improved at sea. Appetite still poor. Had an irritating cough on the passage between the Equator and the Cape. The heat of the tropics seemed to suit him. In regard to his chest the dulness in the right infra-clavicular region still existed. Generally he was in poor health. When the ship was running the Easting down, he complained very much of the cold. Could not take the oil then. There was a still further slight diminution of weight.

Examined his chest before

getting into port and found that the dulness below the right clavicle was still present. He intended to go to Brisbane.

VII. W. G.— The writer got on well during the early part of the voyage and enjoyed it. He suffered from sea sickness in the Channel but found great benefit from the mixture recommended by Dr Charteris.

℞ Chlorabrom.
Potass Bromid aa gr xxx
Syrup ℥ss
Aquae ad ℥iss m.

Sig. The draught to be taken frequently preceded by a blue pill.

The above prescription had little effect in Annie J—'s case.

Dr Williams states that consumptives are less liable to suffer from sea-sickness than other people. The writer improved in weight gaining 4½ lbs the 1st month — August, but by the end of the 2nd month this increase had been lost. The temperature had always been normal. In spite of feeling well, the voyage did not strike him as being such a panacea for all the ills of the consumptive. One symptom did improve, and that markedly. viz. sleeplessness. Insomnia is no doubt, often greatly benefited by a sea-voyage. Others, however, state their experience to be the opposite. Still in sending

consumptives, suffering also from insomnia or nervousness a sea-voyage, — although ideally the perfect rest meets the requirements of the case — still in those accustomed to active mental work the extreme monotony tells against them. They have nothing to occupy or fill up their minds with and from this cause, may become morbid and despondent. During the month of October the writer felt the cold of the Southern Ocean very much. The heat of the tropics was much more endurable than the cold of the "Easting".

He had a bad attack of haemoptysis just before landing. It lasted two days and pulled him down greatly.

On getting on shore he soon picked up as the weather was beautifully mild. Got chest examined on landing. Report. — a few moist rales over right apex otherwise chest sound. —

As noted at the beginning of this paper, according to Williams and others haemorrhage is not more liable to take place at sea than on land. Of the three cases of haemorrhagic phthisis, all had haemoptysis during the voyage and some of them badly. The limited number of cases proves nothing.

On theoretical grounds haemoptysis would be expected to take place more readily at sea. Sea-air has three attributes,

it is salt, it is moist, and it is warm. Accordingly Roland G. Curtin[1], in an essay on the climatology of haemoptysis, argues as follows. Salt air hastens the breaking down process in the tuberculous lung. Moist air hastens the ulcerative process, it macerates the diseased surface, and it liquefies the blood and excretions, and thus tends to render the oozing of blood more liable. Warm air relaxes the tissues and blood vessels of the lungs. It also relaxes the system generally.

VIII M. L. — and IX K. C. — As before explained those two cases have been included in our list, not because they were actually

[1] "Medical News" Aug- 28th 1890.

cases of phthisis, but because they had a "hereditary tendency to the disease". In regard to both of them during the voyage, there was nothing to report but progress all round. They had both improved in colour, and appearance generally. During the first month they had both increased 4 lbs in weight. By the end of the second month this had increased to 6 lbs in the case of Mercy L—, and to 7 lbs as regarded K. C—. The slight cough of the former soon passed away at sea. Their weights at the end of the third month are given in the table (page 47). It must have been cases like those

that led Dr. J. Sparks[1] to place "a hereditary tendency to phthisis", first on the list of his indications for a sea-voyage.

As the weights of the patients have been so often referred to in the preceding pages, the following tables, indicating the weights at the end of each month may be given:

Weight at end of 1st Month.				
			Inc.	Dec.
I	R. G.—	6 stones 6 lbs	—	11 lbs.
II	E. C.—	7 stones 13 "	3 lbs	—
III	A. T.—	6 stones 10 "	—	6 lbs.
IV	E. W. L. T.—	11 stones 3 "	5 lbs	—
V	J. R.—.	9 stones 10 "	2 lbs	—
VI	W. T.—.	9 stones 4½ "	—	1
VII	W. S.—.	10 stones 10½ "	4½ lbs	—
VIII	M. L.—.	8 stones 12 "	4 lbs	—
IX	K. C.—.	9 stones 0 "	4 lbs	—

[1] "Ibid." p. 264.

The rapid loss of weight during the first month, was due in R. G.—'s case to the progress of the disease. In A. Y—'s case it was due to inanition consequent on the sea-sickness.

By the end of the second month there was a distinct loss in case I + III and a distinct gain in IV. V. VIII + IX.

Weight at end of 3rd Month.

			Total increase	Total decrease	Increase for 2 mos	Decrease for 2 mos
I	R. G.—	dying	—	—	—	15 lbs.
II	E. C.—	9 stns 12 lbs.	2 lbs	—	2 lbs	—
III	A. Y.—	was not weighed	—	—	—	7 lbs.
IV	E. W. L.	11 stns. 6 lbs.	8 lbs	—	7 lbs	—
V	J. R.—	9 stns. 12 lbs	4 lbs	—	5 lbs	—
VI	W. Y.—	9 stns 4 lbs.	—	2 lbs	—	1 lb.
VII	W. G.—	10 stns. 7½ lbs	1½ lbs	—	nil	—
VIII	M. L.—	8 stns. 12½ lbs.	4½ lbs	—	5½ lbs	—
IX	K. C.—	9 stns. 1 lbs.	5 lbs	—	7 lbs	—

The foregoing table does not shew that the invalids gained more weight, comparatively, upon the second part of the voyage, than upon the first. The first part of the outward voyage, is that from England to the Cape and it lasts about two months. The second part, is that, between the meridian of the Cape and Australia, and takes about a month.

It is usually stated that a distinct gain in weight, does not take place, until the third month, when the patients are in the colder and more bracing part of the outward journey.

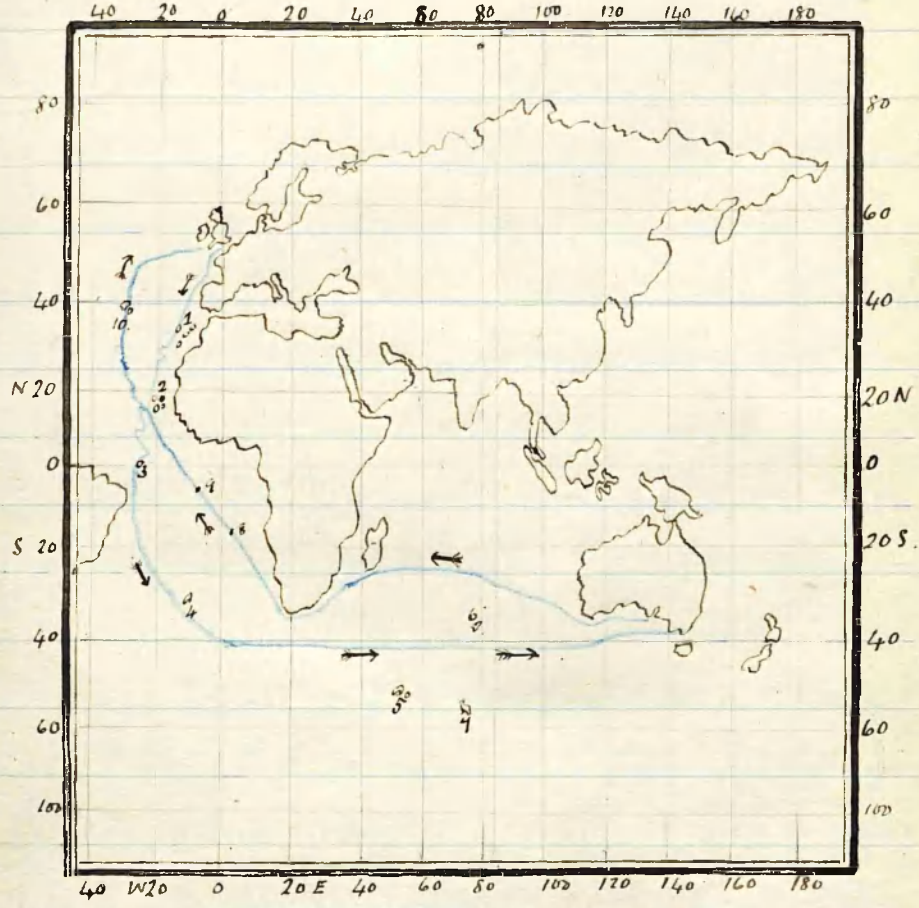
There now remains a description of the Course, and Meteorology of the voyage out.

On leaving England we got clear of the Channel in three days, as a favourable east wind was prevailing. This was fortunate, as both going and coming it is often the worst part of the voyage. A ships-surgeon writing lately said that the time spent in the English Channel alone, was often enough to kill any consumptive. The Bay of Biscay was smooth, as in fact it usually is. Then we have passed along by Madeira, and the Canaries, and got into the

region of the N.E. trades. These extend from about 30°N to 9°N, but their extent varies with the seasons. They are light cool steady breezes and of great benefit to the invalid. After having struggled through the "belt of calms" — a region 4° to 5° wide, the ship comes under the influence of the S.E. trades. They extend from 4° N. to 26° S. lat.. The trades are the most agreeable winds met with on the passage. The S.E. trade winds are stronger than the N.E., and coming from the south are also colder. We crossed the line on the 3rd Sept., about a month after leaving port. This was in long. 25° W., near St. Pauls, and rather far to the westward. The tropics, — the region 22½ degs.

on each side of the equator — were not uncomfortably hot. At any time ordinary summer clothes could have been worn. A pith helmet or white duckes were not necessary. In spite of this, patients should be warned as regards sun-stroke. The number of cases of mental weakness, insanity, paralysis, and epilepsy met with due to this, and the hopeless nature of them, is sufficient ground for caution. As the result of contrary winds, after crossing the equator, we were driven over towards S. America, and sighted the coast of Brazil. (see chart page 52). This is not uncommon. After this we have been carried by a long westerly sweep down by Tristan d'Acunha to the latitude of the

Cape. Ships do not make the Cape on the outward passage, but go 4 or 5 degs. south of it.

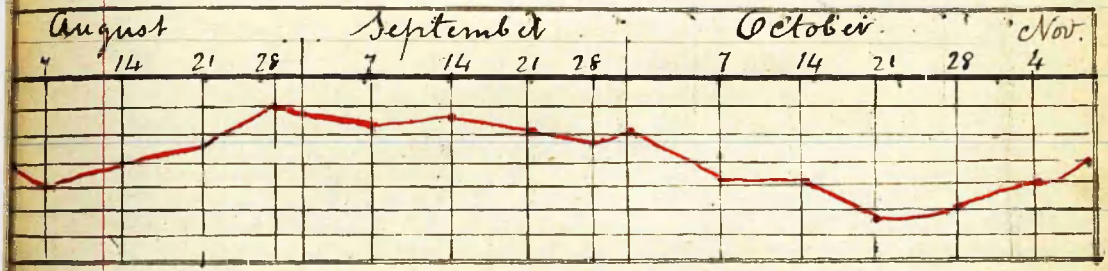


I Madeira + Canaries.
2 Cape d' Verde.
3. St. Paul.
4 Tristan d'Acunha.
5 Crozets
6 St. Paul.
7 Kerguelen.
8 St. Helena
9. Ascension
10 Azores.

The voyage is supposed to be like a cool summer day the whole way. **Temperature**:- When we left England it was 72° F. It continued at this for a few days & then fell, off the Azores, to 58°. Off Madeira it was 70°, and in the N.E. trades it averaged 76°. The highest temperature during the voyage was 90F in the shade, on the 25th Augt in latitude 9°.50 N & longitude 25°.40 W. The average temperature in the tropics was 82.5°. During September, that is in the S.E trades – the average temperature was 80.5. According to Webert the "effect of tropical heat in most persons is to raise

[1] "Quains Dictionary of Medicine" p. 1409 art "Sea voyage". 1882.

the bodily temperature slightly above the normal". This he states is usually about ½° F, but sometimes as much as 2° or 3° F.



These results are also embodied in the following table in which both the regions and the months are given.

	Temp. 12 noon	Temp. 12 p.m.	Sunny days	Cloudy days	Rainy days	Gales	Snow
N.E. Trades Aug.	76°	74·5	24	2	2	1	—
Tropics Aug.–Sept.	82°	75°	9	2	4	2	—
S.E. Trades Sept.	80·5	76°	19	7	5	—	—
S. Ocean Oct.	48°	45°	13	5	8	6	1

The latter table also shews the daily variation. This is important as it shews that the temperature of the air of the ocean, besides varying less from day to day than on land, also varies less during the same day.

Mean daily Variation

Tempt taken at 12 noon and 12 p.m.	NE trades 3·4 to 4·4	Tropics 2·1 to 3·9	S.E trades 3·8 to 4·9	S. ocean. 4·8 to 7
average daily temperature	76	80·8	80·5	48
Max. daily T.	80	90	82	60
Min. daily T.	62	82	58	43·5

Dr. Jas. Struthers[1] illustrates the fact of the small daily variation at sea by the following comparison,

In London 11°F

In Scotland 12°F

On Australian Voyage. 5°F.

[1] "Orient Guide" 1889.

The average height of the barometer is also high at sea being seldom below 30 inches. The hygienic importance of this is not known. So also the relative humidity is greater at sea owing to the constant evaporation. On this voyage it is set down as varying from 70 to 90 per cent. On the large amount of aqueous moisture depends to a great extent the superior equability of the ocean. This it does by preventing the radiation of heat from the sea. In addition according to Tyndall "to the rays (heat) emitted by water, aqueous vapours is especially opaque." Rainfall - The amount cannot be given in inches but according to the table (page 54) 19 rainy days were met

with during the outward voyage.

The progress of the invalids thus far may be summed up by saying that of those who could have been reasonably expected to improve, some had done so slightly, while others had only remained in statu quo ante.

We have now to give an account of the voyage from the meridian of the Cape to that of Melbourne. This is what is called "running the easting down", otherwise the region of the "roaring forties". A mistake is that while the heat of the tropics is often enlarged on, the cold of the "easting" is quite forgotten. Hence we find patients bringing any amount of

light clothing, but totally forgetting any heavy materials, such as ulsters and overcoats, for this, the rough part of the voyage. A waterproof and sea-boots are now essential. The cold here varies, depending on what latitude the ship "runs the easting down" on. We ran it down on 43° S. Lat, which is a little lower than the average. Some ships go as low (nautically as high), as 45° or 47° S. The lowest temperature we had was 43·5° F, and the highest 60°. The average was 48° F, and on thirty-three occasions it was on or about 45° at night. This necessitated the use of more blankets or a rug, while in bed. We had neither snow nor sleat, which are sometimes met with. A good many seas were shipped

but no water came into the saloon. Patients are now expected to improve as the surroundings are more bracing. It has been customary to regard the influence of the first part of the voyage, as sedative, and the action of the second part as tonic. Our experience was that it was too cold to be considered tonic, or even bracing.

The temperature which while we were in the Easting averaged 48°F, now gradually rose to 56°, as the course was shaped more northward. As the ship approached C. Leeuwin, it increased to 63°, and finally before reaching Melbourne, to 70°F.

The result of the foregoing notes is to shew that the invalids on the whole did not improve as much as might have been expected. Their impression seemed to be that they could have got as much benefit from a stay in the South of England. No doubt some of them expected too much of the voyage. It must not be forgotten that a sea-voyage is only one of many elements in the treatment of a case. Just as in the treatment of a disease the usual medicinal treatment may fail to do good, or may even appear to do harm, so in a

particular patient a sea-voyage may not only be unproductive of benefit, but may even disagree.

We Arrived in Melbourne in the beginning of November, that is at the commencement of the colonial summer. The weather was very sunny and salubrious owing to there having been an abundant fall of rain previously. On arrival one is struck with the fact that the physique of colonial-born people is much inferior to that of the English. From this one would infer that it was not advisable for invalids to stay out a lengthened period in Victoria. A temporary

stay benefits one greatly as it acts as any other change of air would do. The ship stayed in Melbourne eight weeks, which is shorter than usual. Three calendar months is a common time. Our notes of the temperature for the two months give the following results.

	November	December
Mean day tempt.	80	75
Mean night tempt.	50	55
Fall	30	20
Highest tempt.	93° on 10th Nov.	
Lowest tempt.	47° on nights of 13 & 15 Dec.	

The above figures shew how cold the night is compared with the day in those months. They also illustrate a point formerly noticed, namely the

large daily variation of the thermometer on land compared with the sea. The mean annual temperature of Melbourne is 57.5 which is about the same as that of the Cape. It also corresponds with that of the Riviera. The average annual rainfall is 30 inches. Frost is uncommon and snow very rare as in all Victoria. The number of sunny days is very large, and has been put down at 140 in the year. The drawbacks to the climate are the changeable nature of the weather, and the hot north sirocco-like winds or "dust-storms". In the neighbourhood of Melbourne is

the sanatorium of Mt. Macedon. But better than staying in Victoria is for the invalid to go to the Blue mountains, or as Dr Sparks advises to run over to Tasmania and New Zealand. The reason of this advice is that phthisis is more common in Victoria than was at one time supposed, and that the favourable influence of the climate on the course of the disease has been overestimated. It has also become more prevalent of late years. The figures published by the Medical Society of Victoria for a period of five years shew that the proportion of cases

of consumption to 10,000 people living is 12·60 for Victoria, as against 22·83 for England. Dr Jas A Lindsay[1] takes a single year (1883) of this report with the following results.

Cases of phthisis 13·21 pr 10,000 living Victoria.
" " " 22·91 pr 10,000 " England.

But when we compare the returns for Melbourne alone, with those for the rest of Victoria an instructive result is obtained. Thus for the year 1883 the mortality from consumption in Melbourne was 2·2 per 1,000 while that for the rest of Victoria was only ·871. Those startling results

---

[1] "The climatic treatment of Consumption" London 1887 pp. 120-121

may be contrasted with those of England.

Mortality from Consumption.

London 3·2 p. 1,000. Melbourne 2·5 p. 1,000.
Rural England 2·5 to 2·2 p 1,000. Rural Victoria ·87 p 1,000

These results shew that the newly arrived consumptive should not stay in Melbourne, but go to the country or better still should cruise about during his three or four months stay in Australia. As R. H Otter[1] says "I have grave doubts "whether either place, "Sydney or Melbourne is "particularly suitable for "invalids, who have any serious

[1] "Winters Abroad" John Murray 1882 p. 38.

affection of the chest. The hot north winds during the summer are succeeded by a wind from the south which causes a very sudden lowering of temperature".

While in Melbourne I had letters from the passengers regarding their experience of the climate. Edith C—, and K.C— had gone to stay with a doctor near Sydney. They wrote that "they were now beginning to feel the good effects of the voyage". Annie Y— who was with them was in a very weak condition on landing, but after a fortnights rest was able to join the other two in Sydney.

A month after we reached Melbourne the 'Hesperus' a sailing ship of the same line arrived. The surgeon — Dr Cook gave me notes of three cases of phthisis he had on board. These are added to our list for two reasons. First because in two of them haemoptysis occurred, and second because the third case — No XI — returned with us. —

X. F. B.—, A clerk in London aetat. 23. An only child. Mother died of bronchitis aged 26 years. Father alive aetat 56. While in business one day in July 1892 he brought up some blood, about a wine-glassful. Went

to a doctor, who laid him up for a week. Was advised to try his luck in Australia. His general condition improved during the voyage, but on November 10th when the ship was south of the equator he had an attack of haemoptysis of moderate severity. The rest of the voyage did not seem to do him much good. He gained 4 lbs during the three months. On our examining the chest on his arrival, we could not detect any signs of the disease. His temperature had been elevated 1½ degs at night early in the voyage but was now normal.

XI. P. H. ——. Retired army

Captain aged 42. Father died of "the liver complaint" aetat. 48. Mother living at 80 years of age. Had had spitting of blood for the first time at the age of thirty-five, and several times since, but evidently with no great impairment of the general health. His first illness started with a chill. Never had rheumatism. During the voyage out, the haemorrhage returned twice. Once in the Bay of Biscay, and the second time after they were round the Cape. The latter attack was very profuse. On arrival he looked florid and well. With very rare exceptions, the temperature had been elevated ½° to 1° at night. It was not due to the

effect of tropical heat, as it occurred in the Southern ocean to the same extent as in the tropics. Gain of weight had been 3½ lbs during the voyage. Chest. - Considerable dulness over the right infra-clavicular and mammary regions. Tubular breathing, but not well marked over the same areas. No rales. Heart. action slightly irregular as was also pulse. Sounds at the apex rather weak. No murmur. Behind at the bases there were some large moist rales.

XII. Dr. Cook. himself. Age 22. His family history was good. While attending classes in Winter

of 1890 he got into bad health with pains in the chest, cough & spit. On his chest being examined, nothing definite could be made out. These symptoms improved by a three months stay in Bournemouth. After getting the double qualification he took this trip. The cough improved and the spit disappeared in the first part of the voyage, but returned in the easting. Felt the cold then to be extreme as the weather was stormy. On arrival looked thin and in bad condition. On examining his chest the writer could discover nothing. He had gained only

3½ lbs. during the voyage. Temperature at night had been normal. Dr Cook did not think much of the beneficial effects of the voyage.

In regard to the voyage home some of the foregoing cases did not return with us.

III. Annie Y.——, Advised her to stay out some time and then to return by mail boat. Considered the risks of the Red Sea less than three months sickness.

V. I. R.——. Stayed at his father's sheep station some time. Then went to England via Vancouver Island, ~~across~~ by the Canadian Pacific Railway

to New York, and thence by steamer.

VI. W. Y. — Stayed out in Brisbane. Wrote me, "that the great heat agreed with him".

VIII K. C. — Wished to stay three months in Australia. So returned by "S. Hesperus"

— Voyage Home. —

We left early in January 1893. The following is a note of the cases.

II. Edith C. — The stay in Sydney seemed to have done her good as she was looking better. Temperature normal. No cough. There were a few rales in the left

infraclavicular region.

IV. E. W. L y. — When he returned on board was looking bronzed and in splendid health. Also stouter. The weather while in New Guinea had been very hot, but he had had no return of the haemoptysis. Temperature normal. On examining the chest nothing was made out.

VII W. G. —. Although most of the time in Victoria and chiefly in Melbourne, the writer improved under the warm sunny weather. Felt better than when on board. Chest examined by Dr Durham Stooper, who from examination could not tell that

there had ever been anything the matter with the lungs. Temperature normal for day and night.

VIII. Mercy L—. Had been staying while the ship was in port at Ballarat. On coming on board she was looking well, but not so stout. The great heat had evidently pulled her down. Chest and temperature normal.

XI. P. St.—. Who had come out by the "Hesperus" had been staying in Tasmania. On returning he looked in the best of health. In his chest there was still the same area of dulness in the right infra-clavicular and

mammary region. Heart sounds stronger. Pulse 78. good tension. The large coarse rales at the back of the chest were not so numerous.

For weights see page 85.

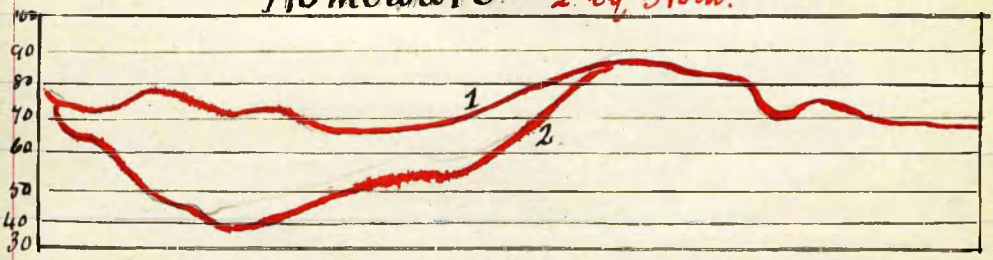
Sailing ships almost always return by Cape Horn as the winds are stronger. The route by the Cape of Good Hope is much warmer as the Cape is in lat. 34°.22' while the Horn is in lat. 55°.58', a difference of 20 degs.

An exception is made to the general rule when the number of declicate passengers affords the agents sufficient inducement to attempt the

longer passage by the Cape of Good Hope. We returned this way. The difference between the two routes is extreme. Dr Williams animadverts on the passage by the Storm. There is no doubt that when a patient is prescribed a sea voyage in a sailing ship his physician should insist on his not coming back round the Storm.

The chart shews at once the difference between the two.

Homeward 1 by Cape. 2 by Storm.



Last year the "Harbinger" returned by the Horn. The following figures are from the captains log. On leaving the ship makes for the southward and the temperature which was at 80 F on leaving now falls to 52° a 50°. On reaching parallel 54° the ship proceeds on its easting with the temperature at 40°. It continued at this until the Horn was reached, when it fell to 38°. During this time there were bitter Southerly and Westerly winds. Fogs were common and ice was met with for days. After rounding the Horn the temperature was 48° and on reaching 40° S, 53° F.

Off Rio Janeiro it registers 76·5. When the equator is reached it is 84. After that the two routes are identical. Any ordinary map will shew that a great part of the ships course between Melbourne and the Horn is below the ice limit. This year (1892-93) a more than usually large quantity of ice was met with and some ships had their spars damaged. It must not be inferred that it is the mere cold of the S. Ocean that is here condemned. Cold per se has not been shewn to be injurious in phthisis any more than great warmth has.

But it is the combination of cold with damp and fog. As Dr Hermann Weber[1] says "Most people still cling to the idea that cold is injurious, and warmth curative in phthisis, but this idea is quite incorrect. Another idea that equable climates are the best in the treatment of phthisis should likewise be very much restricted". In spite of this it must be admitted that as the cold and other conditions met with in the "casting" are very depressing to healthy persons they must be much more so to the delicate.

---

[1] "Croonian Lectures" Brit. Med. Journ. 1885 vol I pp. 689.

Route via Cape. On leaving Melbourne and Bass' Strait we had a pleasant cruise along the Australian Bight, the temperature averaging 78° F at mid-day. After C. Leeuwin the course is a gradual northerly curve to reach the regions of the S.E. trades. Still we were always 28 degs. from the equator. Thus we were just on the margin of the tropics. The heat was just agreeable, and was tempered by the light cool S.E. winds. The temperature taken at noon during January averaged 75° F. On the 15th the mean was taken for the whole day and was found to be 70°.

We had slight showers on four occasions only.

Ships returning by this route call at the Island of St Helena, and sometimes at the Cape. It has thus come to be regarded as typically a voyage for invalids.

About the cases.

Weights on leaving Melbourne.

			Inc.	Dec.
II	E.C.	8 stones 1 lb.	3 lbs	—
IV	E.W.L.	11 stones 12 lbs	6 lbs	—
VII	W.G.	10 stones 12 lbs	4½ lbs	—
VIII	M.L.	8 stones 6½ lbs	—	6 lbs.
XI	P.H.	13 stones 5 lbs	—	—

This table gives the increase of weight, or diminution, while in Australia. —

Every one had enjoyed the voyage between Melbourne and the Cape. Looks improved, appetite was good and spirits excellent. In the case of P.H.—

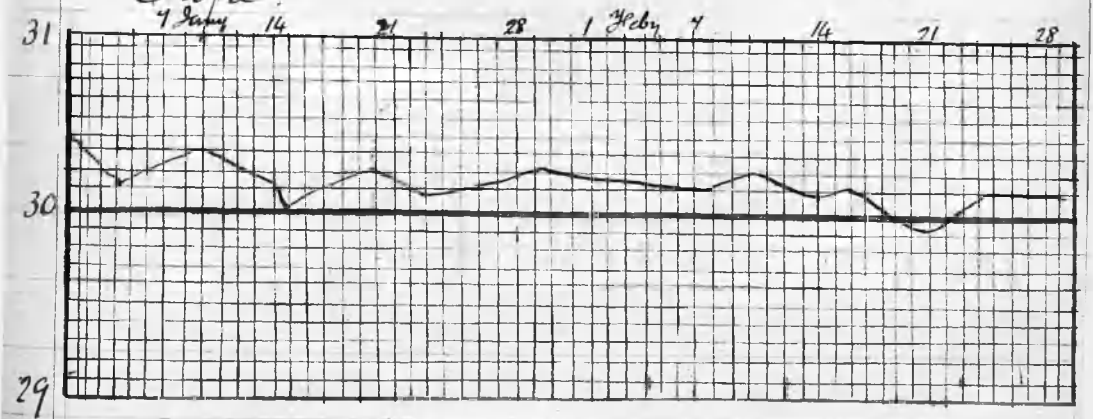
the cough improved, but he had some expectoration streaked with blood occasionally.

As a difference from Melbourne the nights in the Indian Ocean were almost as warm as the day. The average temperature during February was 75° — the same as January.

The **Barometer**. As before stated the average range of the barometer is very high at sea. The oscillations are greater but more regular. When the mercury does rise or fall, it indicates changes of weather with far more certainty than on land. This meteorological fact is of the highest

importance to the invalid, as it enables him to prepare for changes. Still one is not so liable to catch cold at sea from getting wet. The reason of this depends on a fact previously stated, that the larger quantity of watery vapour in the air prevents the radiation of the heat of the body.

The following chart indicates the state of the barometer, between Melbourne and the Cape.



It will be seen that the range for the two months Averages over 30 inches. As formerly stated the therapeutic effect of a high barometric pressure is not known. It would be interesting to know the different effects on diseases of the chest of a barometric pressure averaging 30 inches as at sea, and one of 25" in an alpine health resort. It would be supposed that owing to the diminished support given to the lungs, a small barometric pressure would lead to haemoptysis, but facts contradict this. Even on theoretical grounds the decreased air pressure while it facilitates

the oozing of blood from the lungs, compensates for this by causing a fall in the general blood pressure.

During January the ship in its course follows the isobaric line of 30" for that month.

It must be evident, that on a long sea-voyage, climatic conditions of different kinds must be met with, on different parts of the voyage. For example, the climate in 40° S. Lat., must differ from that in 9° N. Lat.. Again the parallels of latitude, on each side of the equator, do not exactly correspond, those to the south of the equator, being rather lower in temperature

than those on the north side corresponding to them.

So here we may consider the nature of the oceanic climate. There is the chemical composition of sea-air; it contains saline matter, and more ozone and less carbonic acid than land-air. The saline matter is at least not hurtful. The presence of ozone and the greater density of ocean air which means a greater volume of Oxygen in a given volume, has been considered the chief cause of its stimulating effect by some. The climate of the Ocean is more equable; this is usually considered of great importance. Islands are more

equable than continents. A ship may be regarded as a very small island. This superior equability depends for one thing on the greater humidity of sea air, as already explained. The other factor is the greater specific heat of water — four times that of the earth. That is it is more slowly heated than the land and parts with its heat less rapidly. From the greater relative humidity the deposition of dew takes place more rapidly at night. But the causes which prevent the water of the ocean from cooling down, also keep the ship warmer at night. So the fall of dew is not so

heavy as might be. But the most important characteristic of the air of the ocean is its purity. It is chemically and bacteriologically pure. It is free from dust, organic and inorganic. The writer is not aware of any actual calculations of the organic impurity of ocean-air. Miquel has calculated the number of bacteria in 10 c.c. of air at different places. On the Lake of Thun he found this to be 8, while at the Hotel Bellevue (Thun 560 metres) he found it to be 25. This difference is significant, and although the same calculation has not been made for the ocean,

we may reasonably infer with Weber[1] "that a still greater rarity of microbes exists in the air of the high sea". —— It will be evident now that in a long sea voyage almost every kind of climate is met with. Climates are usually divided into four kinds, relaxing, sedative, exciting and bracing. The first part of the outward voyage has been regarded as sedative, and the second as bracing. The tropical part is certainly relaxing. The return voyage has a sedative action. On this view the first part suits phthisical patients in the second

1 "Croonian Lectures" 1885.

stage best ie those with cough and expectoration. The second part showed suit those in the first stage, but our experience was that it was too cold — it was depressing. The return voyage would benefit both cases. —— The physiological effects of the air of the temperate part of the voyage may be regarded with Julius Braun[1] as "powerful stimulation of the changes of substance both retrogressive and formative, expressed in a striking increase of urea, and decrease of uric acid and phosphoric acid in the urine."

[1] "Curative effects of baths + waters" Eng. edition 1875. p. 253.

This of course implies a certain power of responding to the stimulus. In connection with the air of the tropical part of the voyage it may be stated that the temperature is of course higher, and the amount of moisture greater.

In concluding this part of the subject it must be admitted that our knowledge of the climate of different parts of the ocean is not very complete. Dr Yaber[1] in an article on "the effects of sea-voyages on the human body." points out that the temperature of the air of the ocean is not so uniform as had

[1] "Practitioner" Mar. 1876.

been thought, and that the daily variation was greater than had been set down.

As the ship approaches Africa there is usually a swell on the sea, but in our case it was very slight.—We have been fifty days in getting this far. That is roughly about two months.

As this is half-way we had the passengers weighed.

Weight at end of two months

			Inc.	Dec
II	E. C.-	8 stns 1 lb	—	—
IV	E. W. L.	12 stns 0 lbs	8 lbs	—
VII	W. G.-	10 stns. 13½ lbs	1½ lbs	—
VIII	M. L.-	8 stns 12½ lbs	6 lbs	—
XI	P. H.-	13 stns 9 lbs	4 lbs	—

Edith C.—, had remained stationary, the others had increased in weight.——

After seing Table Mountain the ship proceeds in a straight line to St Helena. Here we anchor and go ashore. ——

III. Edith C. — No cough. Still a few rales over the left infraclavicular region. Appetite good, but had not gained any weight the last two months. Temperature had been normal at night except between the 19th and 27th Jany. when it was raised ½ to 2½ degs.

IV. E. W. L. Y. —— Was still looking well. Had only gained two lbs between Melbourne and the Cape. During the hot weather found the cod liver oil

did not agree. Chest: No signs. Temperature normal.

VII. W. G——. Very well. No cough. Insomnia which had returned in part now passed away. Appetite good but only gained 1½ lbs. Temperature normal.

VIII. Mercy L——. Had made up the weight she had lost in Australia. When three weeks out took a feverish cold, which was prevailing amongst the crew. Temp^t went up to 104° and caused some anxiety, but she soon got over it. Chest still normal.

XI. P. H——. The blood-tinged spit which he had the first three weeks, had now

ceased. His appetite was too good as he was getting corpulent-looking. The local condition had not improved however. as the dulness in front of the right side was about the same. The large moist rales at the back were nearly gone. The temperature had been normal.

This last case was one of chronic phthisis and had not benefitted much locally. When it is stated that cases of chronic phthisis do well at sea it is meant chronic in regard to course; for example cases of incipient phthisis with no pyrexia.

A week after leaving

St Helena we made Ascension. The making of so many "landfalls" relieves the tedium of the voyage.

Still on board a sailing ship it does become monotonous, although the Amusements are pretty numerous. There are concerts and deck games. Sports are always indulged in on crossing the line. Reading is often found not to be a success. One's mental calibre does not improve at sea, and towards the end of the voyage a new idea is a scarce commodity. Passengers can interest themselves in navigation and the use of the sextant. The study

of astronomy and the practice of photography also come in.

Diet. Of great importance to the consumptive. It is much better now by recent improvements in the tinning of meats, but especially of vegetables e.g. peas beans carrots and parsnips. The live stock carried includes a cow (occasionally), sheep, pigs, and any number of fowls and ducks. Also a few geese. It must be confessed that after a time the food does become monotonous. One gets tired of fowls and ducks. Very often the coffee and tea, which are of importance to ladies, are not what they should be. Sheep

seem to thrive as well on sea as on land. Patients when the voyage is doing them good often eat food which they would not digest at home and more of it.

Wines whiskey and beer are obtainable on board, but the price is high. Phthisical patients who have been prescribed stimulants, should be warned against falling into excess, as owing to the monotony the danger is great.

The following were the meals on board.

6 A.M. Cup of tea or coffee.

8.30 A.M. Breakfast :- Porridge (with condensed milk). Liver & bacon. grilled bacon, Curry & Rice

Irish stew, cold mutton, cold chicken, dry hash, fish cakes, kippered herring, crumb chops, Marmalade, Coffee tea or cocoa.

1 p.m Lunch:- Curry + rice cold mutton, cold pork, cold ham, sardines, sardines on toast. cheese. In cold weather soup (pea etc) and sea-pie. In addition salmon, lobster, cold chicken + duck, cold tongue, corned beef.

6 p.m. Dinner:- cup of tea 3.30 p.m.

Soup:- Mulligatawny, Sr Julienne Mock turtle, Cock a leekie, gravy, Scotch broth.

Joints:- Roast mutton, roast shoulder, roast leg.

Boiled neck, Boiled chicken, roast duck. Roast pork and apple sauce. haricot mutton. Jugged hare.

Sheeps head, calfs head.
Potatoes baked boiled + mashed.
Pea beans carrots + parsnips.
Pastry:- Cherry tart, rhubarb,
gooseberry, and red currant tart
Plum pudding. blanc mange + jelly.
Sago rice and tapioca.
Nuts raisins apricots
Cup of tea + coffee.
9 p.m. Supper. Bread and cheese.

The invalid must take as much underclothing to last him three months as the washing done on board is not satisfactory.

Water:- The condensed water is wholesome and delightfully cool. It is put through a filter to aerate and mineralize it. Amount

allowed each passenger two gallons, one of which is sent forward for cooking. This is amply sufficient.

To resume the voyage. When at Ascension we are in the tropics. The highest temperature was 85° and the average 78°. From this to the Azores it begins to get chilly, averaging 65° F. The mean temperature during March was 72°. Still it must be said that the weather from Australia to the Azores left nothing to be desired. On passing those islands the weather usually is stormy. With us it reached the strength of a full gale from the S.E., lasting ~~for~~ four days. From this to the Channel

the air was cold and damp. The average temperature during April was 67°. We passed up Channel in splendid weather and arrived in London on the 25th April 1893.

The result of the voyage to Australia and back was that we returned pretty much in the same condition as we left. The general condition had improved in some cases e.g. E.W.L.Y. The local disease had not been much altered in any.

The following is a list of the weights of those who came back with us. Also of those who came back

by other routes as far as could be ascertained by letter. This was easier, as they all lived in London, and four of them had gone as a party.

Weights at the end of Round Voyage.

			Inc.	Dec.
I	R.G.-	Dead.	—	—
II	E.C.-	8 stones 0 lbs	4 lbs	—
III	A.Y.-	6 stones 8 lbs.	—	8 lbs
IV	E.W.Y.	11 stones 10 lbs	12 lbs	—
V	J.R.-	10 stones 2 lbs ½	8 lbs	—
VI	W.Y.-	stayed out.	—	—
VII	W.G.-	10 stones 8 lbs	2 lbs	—
VIII	M.L.-	9 stones 4 lbs.	10 lbs	—
IX	K.C.-	9 stones 4 lbs	8 lbs	—

XI. P.H.- Increased 6 lbs coming home.

Edith C.-, Looked rather better, than when she left England. Still a few rales below the left clavicle.

Annie J.— Had arrived before us by the Orient Line. Was just as sea-sick as before. Still in a poor condition. Dr Parnell thought that the back of the left lung was in a worse condition than when she left.

Whether cases of chronic pneumonia should be sent to sea is regarded by Williams and others as still doubtful.

E. W. L. J.—, Looked ever so much better than when he left. Had gained about 12 lbs. Chest:- no signs of the disease. No cough. temperature 98·8.

J. R.— From his letter he had enjoyed the journey overland across America. Weighed himself, 10 stones 2 lbs.

W. G.— The writer. No definite increase of weight. Got chest examined at home but auscultation and percussion revealed nothing.

M. L.— Was the picture of health. The increase of weight since she left England was 10lbs.

K. C.—. Of her E. C— wrote "that her sister had had a splendid voyage in the "Hesperus" via the Cape," and that she was the same weight as Mercy L—".

Still although the voyage as a whole was disappointing. The voyage home was much more beneficial than the voyage out. Still writing now six months after arrival in England, when cough has become troublesome and spit

has returned, one has an idea what might have occurred if the previous winter had been spent in England. Probably we had all forgotten Dr. Yanner's advice and expected too much of the voyage.

This leads to the remark that one voyage is not sufficient. Two years is about the minimum time to spend on the ocean. As Dr. J. A. Lindsay[1] writes "when we consider the extremely gradual nature of the reparatory process in phthisis, it will not seem surprising that even a voyage of three months duration should be altogether

[1] "The climat. treatment of Consumption" London 1887. p. 98.

inadequate to secure the repair of the diseased lung."

Having given an account of a voyage to Australia and back, with the results in a few cases of phthisis, we will now discuss some General Considerations.

1. Is a sea-voyage advisable in phthisis?
2. If so, should it take place in a sailing ship in preference to a steamer?
3. Is haemoptysis more liable to take place at sea than on land?

In answer to the first question hear what Walshe says. He states "that a sea-voyage, especially in the case of young adult males, will occasionally work more effectual change in the phthisical organism,

"Diseases of the Lungs" 4th edition p. 655.

than any other single influence, or any combination of influences with which he was acquainted". Dr. C. Theodore Williams[1] says "the writer's statistics, founded on 251 consumptives, who passed one or more voyages out of England, assign the most favourable results to sea-voyages, next to Egypt and other dry climates,----.

On the other hand Rochard[2] the French climatologist brought forward evidence to shew that they were injurious. His statistics shewed that phthisis was more common in the French Navy than in the French Army. Rattray[3] by a series of observations on the English Navy came to a similar conclusion. His

1 "Art. phthisis". "Quains Dict. of Med" pp. 1182.

2. Mém. Acad. de Méd. tome 20 1856.

3. "Proceedings of the Royal Society 1869-72

statistics were taken during voyages in different climates, and demonstrated the baneful influence of the tropics on persons from temperate climates. This was especially the case in those suffering from chronic disease, and in the young, or delicate.

Dr. Burney Yeo[1], judging from a paper he wrote three years ago, is inclined to regard sea-voyages as hurtful rather than otherwise.

The above quotations shew what a difference of opinion there is on the subject. The balance of evidence is, in favour of their being considered of as much benefit, in proper cases, as any other form of climatic treatment.

The reply to the second query depends on the advantages or

---

[1] "Nineteenth Century" Aug[t] 1890.

disadvantages of a sailing ship, as contrasted with a steamer.

The chief advantage is that the voyage being much longer, the patient is brought more under the influence of the ocean-climate. Again the Red Sea is avoided. But is the heat of the Red Sea any more injurious than the cold of the Southern Ocean? For one thing the discomforts of the latter have to be endured for 21 to 28 days on the outward passage, while the passage of the Red Sea is made, from Port Said to Aden, in 5 days. — So also changes of latitude and consequently changes of temperature are less sudden. The cabins are larger, — about double the size of those of steamers. This is a real advantage in the treatment of phthisis at sea. — The motion of a sailing ship is more comfortable.

Now take the disadvantages. There is the monotony of the surroundings, and the sameness of the food. Then there is the prospect of being becalmed for a longer or shorter time in the tropics.

On the whole perhaps it would be as wise for the consumptive to take advantage of a mail steamer, choosing of course a proper time for going through the Red Sea. The difficulty is that October[2] — the month he wants to quit England in — is often about the worst time for passing down the Red Sea. In such a case, a compromise may be effected, by making use of a steamer going to Australia via the Cape.

To guide us in our choice there is the opinion of Sparks[1]: "where a long sea-voyage is advisable route No I

---

1 Quain's Dict. of Med. 1882. p. 267.
2. See charts of eight voyages 1886-87: "Orient Guide" 1889.

(via Cape to Australia 90 days) is decidedly the best. Dr. C. J. Williams[1] gives it as his opinion, in the "Lettsomian Lectures" for 1876, "that of all sea voyages the one to Australia or New-Zealand is most to be commended."

The third consideration — is haemoptysis specially liable to take place at sea — has already been discussed from the theoretical side (vide page 44). Williams in all his writings has argued in favour of cases of haemorrhagic phthisis being sent to sea. Dr. Sparks[2] on the contrary, gave quite the opposite opinion; "patients with a tendency to haemoptysis should not be sent". In a list of circumstances contra-indicating sea-voyages Dr. Hermann Weber[3] gives

1 "Brit. Med. Journal" 1876 p. 220.

2 Ibid. page 267.

3. Ibid. page 1410.

"a tendency to haemorrhage", and states further, "that pulmonary haemorrhage occurs more frequently under high, than ordinary degrees of heat". "Cases with a tendency to haemorrhage, ought not therefore to be exposed to tropical heat".

"Lumleian Lectures"[1] 1893

Since writing the foregoing I have come across the above lectures "on aëro-therapeutics in lung disease" by Dr C Theodore Williams. They will be commented on merely in so far as they contradict, or agree with, the views expressed in this thesis. Writing on the benefits often derived from a sea-voyage, he says "especially is this the case if a clipper (sailing ship) be chosen in preference to a steamer". So there is no

[1] British Medical Journal Mar. 25th 1893.

doubt in his mind about the advantages of a sailing ship. In regard to the Red Sea he does not minimize the perils of it. The following are his words, "I have known more than one phthisical patient returning from Australia die in the Red Sea, and many others are deteriorated thereby." The statistics which he gives in these lectures, shew, that on a sea-voyage, the general state in phthisis improves more than the local condition. By this is meant that while the patients may improve in colour, grow stouter, and even feel better, the local lesion may remain unaltered, or even may become worse. This is another way of stating the fact, observed by many, who have taken a sea-voyage, that the symptoms improve more than the signs.

As bearing on an important point in general practice, viz. what cases of phthisis

ought to be sent to sea — the following paragraph gives the latest views of our highest authority on the subject.

"With regard to the forms of phthisis specially benefited by sea-voyages, I would place the scrofulous or strumous form first; next the haemorrhagic type; next the cases of chronic unilateral cavity without local irritation." The last remark to be made on Dr. Williams paper is that he endorses the view that insomnia is especially benefited by a voyage on the sea.

Here it may be admitted that the general intention of this thesis has been to shew that "the treatment of phthisis by a long sea-voyage", is not so satisfactory as some writers would lead us to believe.

The reason of this is not

far to seek. When a sea-voyage is prescribed both the physician and the patient are apt to believe that its effects are more measurable and exact than they really are. The least consideration will remind us, that a sea-voyage in its very nature is beset with uncertainty. As has been said, a great many elements enter into the constitution of the "compound-agent", sea-voyage. Again as medical men, we have not emancipated ourselves sufficiently from the old routine prescription for consumption, viz. a "sea voyage"; and as a sea-voyage must end somewhere, the one we have been writing about is often chosen. —

There is no doubt the time will come when by a more

exact knowledge of the climatology of the ocean the results will be more satisfactory. In the mean time this much the general practitioner can do — he can exercise a more careful selection of his cases.

In conclusion, in sending patients a sea-voyage we must insist on the difficulties with which the subject is beset. In this method of treatment as in all others we must shake ourselves clear of routine. Besides the disease in the chest full note must be taken of his other organs, also of the individual himself, his habits tastes and means, and above all of his disposition and ability to make himself happy under trying

circumstances. We must teach the patient that a sea voyage is not a specific for his disease, but only one of the means by which it is to be combated, and that it will not accomplish much if not combined with medicine, regulated habits, and a strong determination to get the better of his weakness.

Bearing all those things in mind, and viewing the difficulties of the particular case, we must be very careful in prescribing a sea-voyage, and if Dr. Williams be correct, as much consultation and deliberation, is required before sending people to sea, "as is given by surgeons in deciding on a life and death operation."——