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Geo. M. Beard, M.D.



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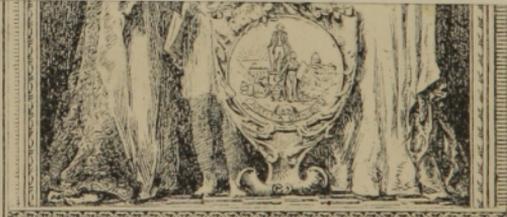
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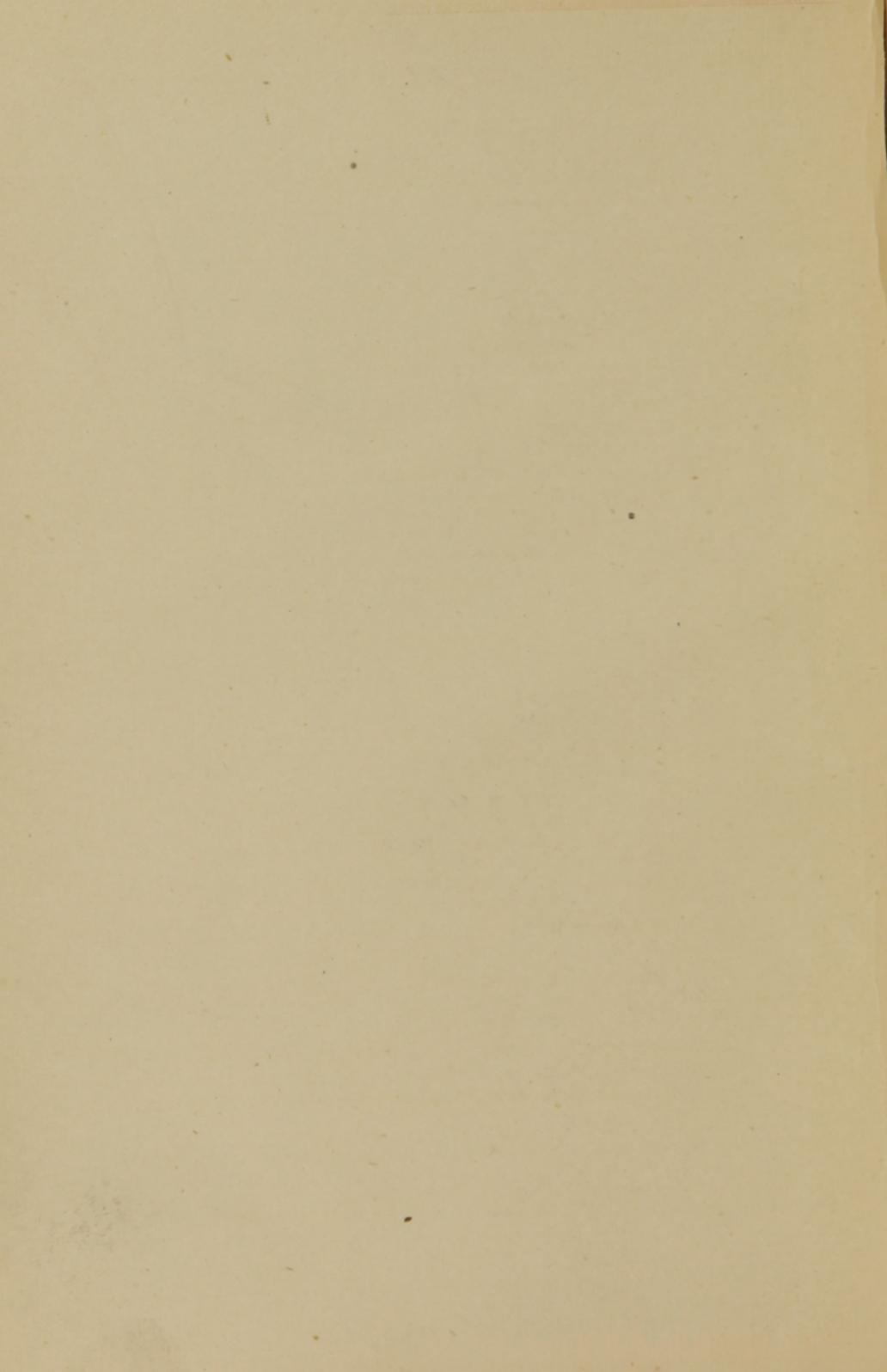
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A
PRACTICAL TREATISE
ON
SEA-SICKNESS:
ITS
SYMPTOMS, NATURE AND TREATMENT.

BY
GEORGE M. BEARD, A.M., M.D.,

FELLOW OF THE NEW YORK ACADEMY OF MEDICINE; OF THE NEW YORK
ACADEMY OF SCIENCES; VICE-PRESIDENT OF THE AMERICAN ACADEMY
OF MEDICINE; MEMBER OF THE AMERICAN NEUROLOGICAL ASSOCI-
ATION; OF THE AMERICAN MEDICAL ASSOCIATION; OF THE
NEW YORK NEUROLOGICAL SOCIETY; AUTHOR OF "NERV-
OUS EXHAUSTION," (NEURASTHENIA); "OUR
HOME PHYSICIAN," ETC

THIS Treatise is not a theory, or dream, but represents extensive experiments of the author, and much experience at sea, on long and short voyages, and in different climates.

The philosophy advocated in this work is that Sea-Sickness is a *functional disease of the central nervous system*. The treatment proposed is in harmony with the philosophy, and has already been tested, not only by myself, but by a number of other medical observers, with most satisfactory results.

The position taken is that sea-sickness, like any other form of sickness, is an evil to be avoided, and that by the plan of treatment here proposed it can, in the majority of cases, be prevented or greatly relieved.

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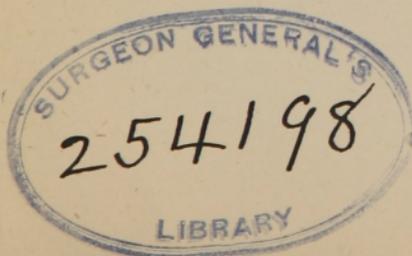
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PREFACE.

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PREFACE TO THE FOURTH EDITION.

SINCE the publication of the first edition of this work, the plan of treatment that it recommends has been tried, with more or less thoroughness, by large numbers of the profession and the laity all over the world.

The result has been a substantial confirmation of all that is here claimed. One year ago, sea-sickness was thought to be the most hopeless of all diseases; to-day there is no other nervous disease of the family to which it belongs, and few diseases of any kind, except, perhaps, small-pox, that are so completely under medical control as this. Large numbers of persons, whose memories of previous sea voyages were of the most distressing nature, have been enabled to cross the Northern Atlantic and the English Channel, and to take extensive trips along our coasts, and also far longer journeyings in other oceans, either without suffering at all from sea-sickness, or with substantial and most satisfactory relief.

The significance of these experiments of different individuals, lay and professional, is all the greater from this, that they have been made in many cases against serious disadvantages; some have known of the treatment only at second or third hand; others, who have read the work, have not fully understood the philosophy of sea-sickness, and the plan of treatment; others still, have not fully carried out the system here enforced. Despite these disadvantages, the experiments have been, in the majority of cases, either partially or completely successful, and in nearly all those instances where there was reasonably approximative obedience to the rules laid down, the success has been absolute.

In the preface to the first edition I specially requested that all those who adopted this plan of pre-

venting and treating sea-sickness would inform me of the results, whether successes or failures. In a number of instances, I have written to parties who I knew had used the treatment, and have obtained from them the results of their experience. I have learned of just one failure of the bromization treatment, and have learned of no failure of the whole plan of treatment; although I have little doubt that there are individuals so sensitive as not to be able to bear, perhaps, any of the remedies here prescribed; but such persons must be a very small minority indeed. By carrying out this plan, the most sensitive and delicate ladies, who, unless this treatment were used, would be prostrated even in smooth waters, have crossed the sea in rough as well as calm weather, without discomfort.

Although sea-sickness is not entirely driven from the sea, yet if, hereafter, any considerable number of those persons who travel by sea shall suffer continuously and seriously, it will not be because science has not found a plan of prevention and relief, which, in the majority of cases, can be made effective.

The new facts and suggestions that have been derived from the experience of the past year, either in my own practice or under my own observation, or in the experience of others, will be found in the *Addenda*, the last chapter of this edition; and to this chapter special attention is called.

I renew the request made in my first edition, that those who carry out this plan of treatment report to me the results, whether failures or successes; and as the number of successful cases reported thus far have been sufficient to confirm all the claims made in the work, I shall be under special obligations to those who will report failures.

GEORGE M. BEARD.

N. Y., 161 MADISON AVE.

April 15.

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SEA-SICKNESS.

CHAPTER I.

SEA-SICKNESS A FUNCTIONAL DISEASE OF THE CENTRAL NERVOUS SYSTEM.

The importance of the subject.—Sea-sickness is a subject of extreme practical importance. The amount of suffering caused by this disease is beyond estimate. The physicians and the laity have grappled with the problem for centuries, and have given it up as beyond solution; and those who suffer resign themselves to it as something entirely beyond human control. It is so serious that, as a relief and a necessary reaction, it becomes a joke, and men try to forget its evils by laughing about them. The number of those who are obliged to go upon the sea for subsistence, and the number who are obliged to travel, is very great, and is increasing every year. The number of those who travel for pleasure is also enormously great, but it would be at least ten-fold greater were it not for

the horrors of sea-sickness. The Atlantic travel would be certainly multiplied many fold were it known that sea-sickness is, in a majority of cases, unnecessary. And when we remember that a sea voyage is one of the best possible hygienic resources for the neurasthenic, we see the great loss which the nervous sufferers of civilization experience in not being able to go to sea. In nearly all the letters that I receive from my scientific friends in Europe—in England, France and Germany—the invitations to visit us in America are met with the statement that nothing prevents them but the dread of sea-sickness, of which they have some mild suggestions crossing the channel. Undoubtedly ten times as many Europeans would visit this country as now do, were it not for this fear. It is my hope that the publication of this work may be the means of increasing the amount of international travel, which is of incalculable service to humanity in ways innumerable, physiologically and therapeutically, as well as financially.

More injurious than beneficial.—It is a widely prevalent delusion, and one that probably will never die till the sea itself dries up, or the land sinks out of sight beneath the waters, that sea-sickness is a beneficial disease, and that it is good for one to suffer, more or less, from it on a voyage.

I once met a literary gentleman, who, on a voyage across the Northern Atlantic, tried every means to make himself sea-sick, in order that he might get the benefit of the trip, and failed, and was utterly disappointed. He smoked strong cigars in great excess, exposed himself in every way, and sought eagerly the symptoms that most people dread and flee from.

In all this belief there is this basis of truth, that any acute disease of any kind, as typhus or typhoid fever, may clear out the system and work a change in the constitution, which may be of service to the patient for years afterwards. This, however, is no more true, indeed, far less true, of sea-sickness than of almost any other disease. After one comes out from the attack of sea-sickness he feels better; he is, of course, better than he was when he was sick, if he were not he would still be sick; and the tonic effects of the sea air and leisure combined make him better still; but, to one person who has this experience, there are numbers who are weakened, more or less exhausted by sea-sickness, and deprived of a portion of the good that the voyage would have done them if they had been free. There is, on scientific grounds, no more reason for seeking an attack of sea-sickness than for seeking an attack of typhoid fever,

Author's Experience.—My first experience with this interesting disease was during our late war, when I acted for one year and a-half as assistant surgeon in the navy. Nine months consecutively, of these eighteen months, our gunboat was anchored at sea, during which time I did not once go ashore. I took two voyages from New Orleans to New York, have taken a number of sea trips along our coast, and have made four voyages across the Northern Atlantic, between America and Europe, and across the English channel.

I mention these facts of autobiography first of all, in order to show that the conclusions presented in this essay have been wrought out by personal experience and extended observations, from my very first attack of sea-sickness off Cape Hatteras down to the last trips on the Atlantic during the present year. I have taken special interest, as opportunity appeared, to study the nature and treatment of this disease, both on myself and on my fellow-sufferers.

My studies of the nervous system during the same period aided me in the investigations of this special form of nervous disorder, and, I trust, without warping my judgment.

In the study of pathology one malady sheds light on another; through diseases we learn to treat disease; hence, through the study of the nervous

system in general, and through the special diseases of the nervous system we are able to solve, in a measure at least, the mysteries of sea-sickness. If one would study sea-sickness let him first study sick headache, hay fever, cerebral congestion, neurasthenia, and morbid conditions that are related to these. These diseases, or symptoms of disease, are, indeed, the doors that open to the secrets of sea-sickness; and the entire revolution which has been made in the philosophy and treatment of these conditions, now makes it possible for us to revolutionize and systematize the philosophy and treatment of sea-sickness.

Sea-sickness is a functional disease of the central nervous system.—The popular and even professional view has been that sea-sickness was mainly a disease of the stomach, liver and digestive apparatus; and all the treatment that has been advised, such as capsicum, calomel, and champagne, and cathartics of various sorts, and starvation and feeding, and acids and bitters, and belts around the body have been prescribed, on the theory that the disorder was in the stomach. For centuries this has been the prevailing belief of mankind among those who have occasion to go upon the sea. This mistake in reasoning was inevitable; the symptom of vomiting was the most prominent symptom of

the malady, in many cases, though not always its most annoying symptom, and it was as natural for the non-expert human mind to refer the disease to the stomach as it was, in observing the rising and setting of the sun, to infer that the earth was the centre of the universe. In sick headaches the same error was made, and only recently are we beginning to know that the symptoms of nausea and vomiting, which belongs to this disease, come from the brain; and, as a natural and very pleasant result, have learned how to relieve and break up this terribly annoying disorder.

The evidences that sea-sickness is a central, and not peripheral disease, belonging to the brain and spinal cord more than to the stomach and digestive apparatus, are both deductive and inductive; and to one familiar to the phenomena of the nervous system, in health and disease, would seem to be absolutely demonstrative.

Reasoning deductively, it would seem inevitable that any mechanical agitation of the body, such as is caused by the rolling, pitching and tremor of a ship, would affect primarily and chiefly the central nervous system, which is the centre of life, and the most sensitive to external irritation. Vomiting is one of the symptoms of concussion of the brain; in sea-sickness there is a series of mild concussions.

Here it is well to note what seems not to be

generally understood, that sea-sickness is not confined to the sea. One may be sea-sick on land; the jolting of a carriage over rough pavement, and even on smooth country roads, in some cases, and the train motion even of the easiest and best improved cars gives rise to many of the symptoms of sea-sickness in peculiarly sensitive individuals. Likewise, the motion of swinging and rocking have, as we all know, a similar effect.

Another fact of great interest is, that sea-sickness but rarely affects the extremes of life—infancy and old age. It is the disease of active cerebral life, between fifteen and sixty-five; the extremes on either side, the very old or the very young, being much less likely to suffer from it. In relation to this subject, it may be noted that children and the very aged rarely suffer from sick headache, or certain forms of neuralgia. It should also be noted that children are much more likely to vomit than adults; their stomachs more readily disgorge anything that chances to disagree with them; they are more liable to certain forms of bowel diseases, but the motion of the ship does not make them vomit, or produce nausea in the majority of cases. I have several times seen children vomit on ship-board, apparently from sympathy, seeing their friends doing so all around them, and without any previous or subsequent sickness. In

some cases, however, even young children do suffer somewhat from sea-sickness.

Most frequent and severe with the nervous and sensitive.—As a rule, on the average of a large number of cases, with individual exceptions and variations, the nervous, delicate, and finely organized, and those into whose system a vein of nervousness enters, are more liable to be sea-sick, and to suffer severely from the malady than those of an opposite temperament—the coarse, the phlegmatic, and the strong.

Comparing, under, the same conditions of ship and sea, a hundred women and a hundred men of the same age and station of life, a far larger proportion of the women will be sick, and will remain sick a longer time; this is a fact very easy to demonstrate. But there is another fact bearing on this same subject that is not so well known, namely, that Americans of both sexes, who, for climatic influences, which I have elsewhere explained, are far more nervous than the English,* suffer more from sea-sickness than the English do.

Put a hundred English men and women, and a hundred American men and women on the same steamer, and let them make the same voyage

* In my work on Neurasthenia (nervous exhaustion), and also in the "North American Review," for December, 1879, and "Atlantic Monthly," for June, of the same year.

together, and there will be more sea-sickness among the Americans than among the English. This fact I have observed in all my transatlantic voyages, and this Summer I talked of the matter with the surgeon of the Inman steamer "City of Richmond," who has had many years' experience at sea, and he told me that his observations were in accordance with mine.

Previous theories of sea-sickness.—Here I may say that the various theories which, from time to time, have been advanced relating to sea-sickness—such, for example, as that the brain is in an anemic condition, or that the symptoms are reflexed through the eyes, and may be prevented by keeping the eyes persistently closed—of these, and of all allied theories, it may be said that they do not, in any sense, account for the phenomena, and are not confirmed by the results of the treatment based upon them; and hence very properly have not received the endorsement of any considerable number of those who are practically most familiar with the subject; it is sufficient to dismiss them with mere mention. These theories are quite analogous to the explanations of all the phenomena of neurasthenia by cerebral anemia, or by reflex irritation through the eyes, with which the neurological world is now quite familiar. The cerebral anemia theory of sea-sickness was brought up

in order to account for the good effects that sometimes follow the administration of nitrite of amyl. This theory was a step in the right direction, partial and imperfect as it was, since it directed attention to the central nervous system, which, whether in an anemic or hyperemic condition, is the real seat of the disease. This cerebral anemia theory is, I may say, not sustained by the results of the treatment to a sufficient extent to justify our accepting it. In defense of it, it has been claimed that those who keep in a horizontal position, with their heads low, do not suffer, or rather ought not to suffer; but this speculation is negatived by the fact, that in very many cases, the first symptoms of sea-sickness come on during the night, or in the morning, owing to the coming on of rough weather while the patients are asleep. In the majority of cases there is probably more hyperemia—congestion of the brain—than anemia; but these disturbances of circulation in the brain are secondary to disturbances of innervation.*

* The general subject of the relation of innervation to circulation is discussed in chapter III. of my work on Neurasthenia.

CHAPTER II.

THE SYMPTOMS AND SEQUELS OF SESA-ICKNESS.

So far as I know, the symptoms of sea-sickness have never been fully described.* There is some reason for not having hit upon a mode of treatment at all satisfactory, but it does appear somewhat strange that the phenomena of the disease have thus far remained unknown to science. If a thousand medical students, just at the point of graduation, or a thousand physicians in practice, general or special, were called upon to describe the symptoms of sea-sickness in any considerable detail, it is doubtful whether any one, out of the thousand, would succeed; indeed, it is not to be expected that they could succeed in giving a correct picture of this disease, since medical literature would give them

* Dr. Nelken, resident surgeon of New York State Hospital, Ward's Island, published, in 1856, a little work on sea-sickness, in which a few of the symptoms are noticed.

Some of the symptoms are also referred to briefly in Dr. Barker's interesting monograph on sea-sickness, published a few years since.

no assistance; and if any one is to know this subject fully, he must study it for himself, with little or no aid from teachers, lecturers or literature.

I cannot here undertake to give an exhaustive list of the symptoms, but will try to note those which are most obvious and important.

Abnormal appetite.—This is sometimes one of the very first symptoms of sea-sickness. A person goes on board of the ship, walks about the deck, enjoys himself looking upon the scenery, as the shores recede from view, and on getting into rough waters he begins to feel very hungry. He fancies the sea air is doing him good already, and he feels quite sure he shall have a strong appetite for supper. If he be a novice in sea-going, he does not even suspect that the dreaded disease already has its hands upon him. He is in great haste for the meal to be ready—he cannot wait for the announcement—and when it comes, he hastens; is the first at the table, first to begin to eat, but in a few moments is forced to leave, a miserable man. This symptom does not appear, so far as I have observed, in the later stages of the malady—it is specially a premonitory symptom, and it is quite impossible to diagnose it, to differentiate it from a normal appetite, without submitting it to the test of the presence and taste of the food.

Brain or head symptoms.—Headache of various kinds is as much a symptom of sea-sickness as nausea or vomiting. The headache of sea-sickness is sometimes precisely like that of sick headache, with or without nausea, just as sick headache may be with or without nausea. In some cases this is a premonitory symptom, or rather one of the premonitory symptoms, and in many cases the disease does not go beyond this stage, which may last through a long voyage. Pain in the back of the head and neck is not uncommon. In many cases there is a hyperæsthesia of the eye, such as we see in neurasthenia. The top and back of the head are oftentimes the seat of pain; heaviness, cerebral congestion, a feeling of pressure and fullness of the veins is a symptom, sometimes, of the most severe character, without any nausea or vomiting. Vertigo is in some cases quite annoying, though not so frequent as many other symptoms.

Hopelessness.—The world has always made sport of the despair of the sea-sick, but has not thought it worth while to study this mental phase as a symptom of the disease. The despair, the hopelessness, the indifference as to the fate of the ship and passengers, the willingness to die, the almost hope that the ship may sink—all this is as much a part

of the disease as the headache and the vomiting, or in fact any other of the phenomena attending it.

In neurasthenia the same hopelessness is observed, and it is found in those who have every objective external reason to be happy. It is while in this stage of the disease that the sick passengers declare, in substance and in absolute sincerity, that, although the whole world were converted into a diamond and given to them, they would never again go to sea. The next year these same persons shall be found making an entirely needless voyage. The philosophy of this symptom is exceedingly interesting, just as it is with nervous sufferers on land, and mainly for this reason—that it is out of all proportion to the real suffering of the patient. It is not an imaginary sorrow ; it is as real as the storms of the sea. It is a direct effect of the disturbance of the brain, and when that disturbance ceases, the patient's hopefulness returns.

Back Pain.—Pain in the back, in the upper or lower portion, between the shoulders, or the middle lumbar vertebra, is one of the results of the agitation of the ship. We may have spinal irritation, just as we may have cerebral irritation. I once saw on ship-board a physician, who complained of this symptom most of all, and I have, myself, suffered from it when at sea.

Nausea and Vomiting.—These symptoms are so familiar that it is needless to dwell upon them. They are the result of the disturbance in the central nervous system, more than in the stomach itself, although it is every way possible that the great plexuses of nerves connected with the stomach are directly operated upon by the agitation of the body, just as all the nerves of the body must be influenced in that way.

Nausea, without any vomiting, may be very prolonged for many days at sea, causing a degree of misery even greater than that experienced by many who are compelled to vomit.

Constipation.—This symptom is a very familiar one, and is a source of much discomfort and annoyance at sea. It is in all respects probable that this constipation is of a purely mechanical character, the result of the constant pounding of the nervous system, and which aggravates, without doubt, all the other symptoms.

Diarrhæa.—This condition, as a symptom of seasickness, is not so well known and recognized. It is known, however, that the two opposite conditions—diarrhæa and constipation—may result from the same conditions. Life on ship-board illustrates this most interestingly.

Neuralgic pains.—Flying neuralgic pains in the upper and lower extremities sometimes, of a distressing character, may come from the irritated nerve centers—the upper and lower part of the spine. These pains are quite similar to those observed in neurasthenia.

Chilliness and Flashes of Heat.—Creeping chills up and down the spine, and all over the body, are noticed by many victims of sea-sickness. They are also quite similar to those that neurasthenic sufferers in general experience. There is oftentimes a general chilliness, that makes much clothing necessary, both in berth and on deck.

Deficient Intellectual Control.—The inability to control the mind while at sea—the difficulty in concentrating the attention in the task of writing or reading even the most trifling fiction—the impossibility of sustained, prolonged effort of any kind—the tendency of the mind to wander and to dream, rather than to think and to plan, is to be explained partly, I think, as a symptom of sea-sickness, at least in some cases. The sea itself, the air at sea, without reference to the movement of the ship, is pleasantly sedative, in some cases almost stupefying; but any one with large experience at sea, or on the sea-shore, would claim that to visit the sea-

side where the mind is flowing directly from the ocean, is not comparable to the hypnotic and anæsthetic effects of a short trip by sea, even when not far from land. It would appear that the molecular agitation of the brain through the movements of the ship, interferes directly with mental operations far more in some cases than in others, and varying also at different times. When the sea is very rough and very high, and the ship rolls, lurches and pitches excessively, it is observed that those who have no other symptoms of sea-sickness whatever, who can go up and down, and walk the deck without nausea or headache, are in some respects, *miserable*; even old sailors complain of these symptoms at times, and are unable to apply the mind to any book, however simple or fascinating. From this experience the best disciplined minds are not free. When at home on land, they can, without friction or disturbance, carry on mental operations even while many are talking or playing about them—their faculties are so well poised, so well harmonized, that they obey the word of command; but at sea, particularly in rough weather, at a word of conversation, or interruption of the most trifling nature, they can do nothing with the intellect. Neurasthenia (nervous exhaustion) in some of its cases produces just this symptom.

Many of the greatest minds of the world have been upon the ocean, but how few great thoughts have been conceived at sea. Men of the highest genius seem to be transformed as soon as they get at a distance from land in a rolling ship. All the more worthy of notice is this fact, because the absolute leisure of the sea tempts one to devise means to while away the time. The great terror of sea-travel next to sea-sickness is monotony; the sameness of each daily experience, coupled with the imprisonment, makes even the lovers of the sea—those who most enjoy and are most benefited by ocean voyages—count the days and hours and minutes of their release. Were it not for this impossibility of controlling the intellectual forces, a ship on a long voyage would be the best conceivable retreat for one who wishes to think, or write, or read; but it is observed by many, if not by all, that what is read at sea is not remembered easily or long, but speedily floats out of sight and recall like the clouds in the sky. Inexperienced voyagers sometimes carry small libraries with them, but I observe that they have little use for them. I have seen the time, while at sea in sub-tropical latitudes, when the exertion of reading a “dime novel” was sufficient for a day. Habitual smokers often find that they cannot indulge as freely as on shore.

Feeling of Exhaustion.—That there should be a feeling of profound exhaustion after a long attack of sea-sickness, during which the body has been constantly agitated, and the system has been slightly nourished, is inevitable; but, the same feeling, though less profound and protracted, sometimes appears in an acute form, comparatively early in the attack, and as one of the symptoms of the malady. This feeling is common in the nervously exhausted, and in them may come and go without traceable exciting causes. From this special symptom of sea-sickness females are most likely to suffer.

Suppression of the Menses.—A very frequent phase of sea-sickness is the temporary suppression of the menses. Emigrants from Ireland, strong women with vigorous constitutions, are not infrequently troubled in this way, and this may endure for some months after landing. In some instances this suppression is only partial, but frequently causes distress to the patient.

This symptom, so far as I know, does not usually appear alone, but is more likely to occur in connection with some other symptoms of sea-sickness, although it may arise when the severer symptoms are not experienced.

Dr. Barker is quite decidedly of the opinion,

derived from his own expert observation, that travel by sea is not likely to induce miscarriage.

Sequels of Sea-sickness.—The worst fact in relation to these symptoms is, that they do not always cease with the voyage; they may persist for weeks, and months and years, in some cases, after the sufferer has landed; not in full force, of course, nor constantly, but intermittingly and annoyingly. A friend of mine who was sick, as he tells me, for one entire year at sea, after his return could not enter any public assemblage, or any place where the air was foul, without feeling the symptoms of sea-sickness come upon him.

It is said of the philosopher Darwin, that he has not yet recovered from the effects of sea-sickness on the ship "Beagle," forty years ago, and it is asserted that his invalidism is the result of sea-sickness, acting on the nervous constitution which all great thinkers have.

A feeling of dizziness for some days after landing, is common enough, even with those who are not very sea-sick, or perhaps not at all. Constipation sometimes continues for days after getting ashore, and the appetite likewise is much impaired.

Death as a Result of Sea-sickness.—Neurasthenia and anemia resulting from sea-sickness may, in rare

cases, go on to death, either at sea, or after landing. A number of cases of this kind have been reported by Barker and others, in sufficient detail to leave small chance for doubt in regard to the diagnosis. I have not myself ever met with a case of the kind, although a number of instances have been reported to me, on authority not entirely satisfactory.

There are idiosyncrasies that can never acquire a tolerance of the sea ; instead of getting accustomed to it, they only become more and more susceptible to it.

There are sailors, even officers of ships in naval and mercantile service, who are always somewhat sick at the beginning of a voyage, and others who, after being long out, will suffer during heavy gales. After I had been many consecutive months on the open sea, I would always be slightly sick if my breakfast were long delayed.

CHAPTER III.

THE TREATMENT AND HYGIENE OF SEA-SICKNESS.

The best treatment of sea-sickness is to prevent it, and the best way to prevent it is to take large doses of bromide of sodium, say thirty, sixty, and ninety grain doses, three times a day, three or four days before starting, and keeping this up while at sea, until there is well grounded reason to believe that all danger is over.

The philosophy of this treatment is, that it bromizes the central-nervous system—renders it less susceptible to the molecular disturbance of the nervous system, caused by the movements of the ship.

The bromide of sodium is preferred to the other bromides, for a two-fold reason—first, that it is less irritating to the stomach; and secondly, that it contains a larger proportion of bromine. Where the bromide of sodium cannot be obtained, or where, as in England, on account of the moisture of the air, it cannot be well kept in large quanti-

ties, I should use the bromide of potassium, or ammonia, or calcium, or a combination of them ; but only as a second choice, inasmuch as many of those liable to sea-sickness have sensitive stomachs, which require to be treated with a certain reverence and caution.

This large dilution is advisable in all cases where there is not a special intolerance of water, for the reasons that the taste of the sodium is thereby disguised, so that, indeed, the solution tastes very much like some of the popular mineral waters, and also that it is less disturbing to the stomach. It is essential that whatever is given for sea-sickness should be as mild, and as little disagreeable as possible. Ice-cold, or at least cold, water disguises the taste more effectually than warm or tepid ; but it is not important to have the temperature different from what is most readily accessible.

Bromide of potassium, in moderate doses during the attack, had been recommended by Dr. Barker, in his work on sea-sickness, but the use of this remedy as a preventive of sea-sickness, by taking it before embarkation, was first suggested by that most original and active medical observer, Dr. F. D. Lente, in his excellent pamphlet on "The Constituents of Climate, with Special Reference to the Climate of Florida" (1878). He recom-

mended the bromide of potassium, or sodium in half-a-drachm doses.

There are very few persons so sensitive that they cannot take large doses of bromide of sodium when freely diluted. For the purpose of preventing seasickness, I do not weigh out the bromides, at least when I use it myself, under my personal supervision, but dissolve all the way from half a teaspoonful to a teaspoonful of the salt in a glass of water—preferably cold water.

Idiosyncrasies against bromides, like idiosyncrasies against other drugs, are, it is true, met with, now and then.

I once gave one hundred grains of bromide of potassium, in divided doses, in the space of two hours, to a patient of a nervous temperament, who was, for several reasons, in a specially exhausted condition. The effect was to produce acute bromism, beginning with giddiness and a reeling gait; and in less than an hour from the time the medicine was taken, the patient was unable to walk alone, and was for two hours unconscious, with muscular spasms that required vigorous treatment by electricity, ice at the back of the neck, and bottles of hot water at the feet. This patient was not seasick, she was simply nervous, and the bromide was given merely to calm the nerves. The bad effects were temporary, or at least passed away in a few

days, but very often indeed I have given doses fully as large, if not larger, even to nervous persons, without producing any such effects, and, so far as I know, there is no case recorded of such a dose of bromide producing so rapid and powerful results. In this case, the effect was more noteworthy from this fact—she had been accustomed to take bromide, in more moderate doses, and therefore the imagination had no influence.

I have heard also, from direct and good authority, of a lady who occasionally had attacks of epilepsy, and was directed to take bromides—in what doses I do not know ; but she took them systematically and persistently, without reference to any evil effects, with the idea that she would soon attain tolerance of the remedy, and obeyed the orders of her physician so rigidly that she died—taking the medicine till the latest gasp.

Cases like these of idiosyncrasy are very rarely found ; indeed, these two cases and one other case are the only ones I know of where serious temporary effects, or fatally terminating effects, have followed the use of this remedy.

For nearly all the members of the human race above the age of twelve or fifteen, it is probably entirely safe to begin with thirty grains of bromide of sodium, and to increase and keep up the action of the remedy until there is a weakness of the

limbs, a dullness, a stupor, a tendency to sleep by day and by night, to fall to sleep easily at any time, which indicate that the system is becoming bromized, that is, in a state where there is little likelihood of being sea-sick. In some cases a feeling of great weakness comes on before the disposition to sleep.

The failures that come from the use of bromides in sea-sickness are the result of these two factors :

First—The beginning too timidly, in doses of ten, fifteen, or twenty grains. This is mere playing with the remedy, and does but little, if any good, with sea-sickness. Anything short of mild bromization is useless. The dose is not to be considered so much as the effect—*bromization*.

Secondly—The waiting until sea-sickness appears before the remedy is given. The bromides are to be taken before we step on board or before sailing ; the system is to be prepared by bromides to contend with rough weather, and this action is to be kept up for several days, and, if necessary, during the entire voyage. Or the remedy may be taken at intervals, according to the weather and the condition of the patient.

In the *early* stages of actual sea-sickness also, where there is some nausea, head depression, constipation, and chilliness, before the stomach has reached the condition when it rejects every thing

that is put into it, the bromides may be given in this way, with the effect oftentimes of breaking up the attack. Where the stomach will not bear, or we fear it will not bear, even mild bromide of sodium, I have used injections by the rectum of the same remedy, well diluted, and in larger doses than we give by the stomach. I could recite many cases illustrative of the value of the bromides, both as a preventive of sea-sickness and as a means of breaking up the early stages of the attack. On my voyage home from Europe, during the past season, quite a number of the passengers came to me in the early stages of sea-sickness, and gave me an opportunity to try the effect of large doses of bromides. The effects, in the majority of cases, were among the most satisfactory experiments in therapeutics that I ever made, and confirmed results of my observation with myself and my family and friends who were traveling with me.

On the voyage over, I talked of the bromides with my friend Dr. Schell, of Philadelphia ; showing him how I was accustomed to use them for sea-sickness. He has since told me that while in England he met a lady who is always so sea-sick while crossing the channel, that she very much dreaded to make the journey. He prescribed for her bromide of potassium, thirty grains, three times a day two days before starting, and to keep it up for two

days after she got on board. She followed the prescription, and crossed the channel without seasickness, for the first time in her life.

In the case of a member of my own family, who is very liable to be sea-sick, I found the same results. Before starting for Europe she took the bromides with great freedom, and was not sick at all on the voyage. Before returning, she did not take the bromides to any great extent, and was attacked with sea-sickness, which I was compelled to treat in the manner I shall subsequently describe.

In England, and in Great Britain generally, and on the Continent, the moisture of the air makes it impossible to keep large quantities of bromide of sodium on hand in the drug stores. I tried in London and Paris and other cities to obtain a considerable quantity of this drug, and only one ounce could be obtained, and even that with much difficulty. The bromides of the different varieties are not used in that country as freely as we use them in America.

The great value of the bromides, in very large doses, as harmless and powerful sedatives, seems not to be understood in Europe. Even in this country, druggists tell me they are constantly getting prescriptions of bromides in ten, fifteen and twenty grains ; and physicians wonder that they do not get desired results when given in that way.

If we should give quinine, for chills and fever, in doses of half a grain, we could not expect to break up the chill, or do the patient any important good. All cases cannot be treated just alike, but in very many cases it is indispensable to push the bromides, and give large doses, if we are going to benefit the patient.

It is not always necessary to keep up the large doses many days, or for any great length of time, but it must be kept for several days, or as long as there is liability to exposure to sea-sickness.

A right and early use of the bromides, properly sustained and wisely directed by a physician who understands the use of these remedies, without anything else, robs sea-sickness of half its terrors, and will make it possible for thousands to take pleasant voyages, who are now kept prisoners at home through fear of great suffering if they should step on ship-board.

What I have here written, is a confirmation and amplification of what Dr. Lente has written on this subject ; the only points in which my scheme differs from his being, that I give a more earnest preference to the bromide of sodium, and use much larger doses than he recommends, and sometimes use it by injections, as well as by the mouth.

Atropine.—In cases where the bromides have not

been taken, or at least not taken in sufficient quantities to produce bromization, or where, from any cause, the sufferer becomes sea-sick, with symptoms of nausea and frequent vomiting, and inability to keep any substance upon the stomach, then I have been accustomed to resort to a different preparation—hypodermic injections of solution of atropia, in doses of from one two-hundredth to a twenty-fifth of a grain—enough to produce the effect of *great dryness of the throat*. When this dryness of the throat appears with marked power, the stomach is usually able to retain something, although, on account of the absence of secretions, it is very difficult to swallow. This dryness of the throat follows within fifteen minutes or half an hour after the injection. There are persons who have an idiosyncrasy against belladonna ; and in prescribing for a person with whose temperament I am not familiar, I prefer to use, at first, small doses—say one two-hundredth of a grain, and increase until I meet with the effect, dryness of the throat, and when that comes, the vomiting ceases, ability to hold something on the stomach returns, and then, if we think best, we can use the bromide again, if we have not already used them in sufficient quantities to bromize our patient.

Undoubtedly, sulphate of atropia can be taken by the mouth, and I have so given it ; but when in solution, it is colorless, and might be mistaken for

water, and it would, therefore, be dangerous to leave it in a state-room. And besides, the hypodermic injection brings the effect more quickly; and, as is well known, in severe cases of sea-sickness nothing will be tolerated on the stomach, a drop of any fluid being rejected before there is time for absorption.

It is idle and disheartening to tempt any conditions of this kind by giving medicines by the mouth, and indeed useless; and is the reason, I believe, in part, at least, of the failure and utter discouragement that attend most of the treatment in sea-sickness. What would be said of a fireman who should throw coal into a furnace where it was constantly dropping out through a hole in the side? This is just precisely what is done in attempting to give medicine through the mouth in bad stages of sea-sickness.

I suppose that belladonna, in the form of extract or tincture, would give the same effect as atropia; but, on account of its greater bulk, and also on account of the greater ease of injecting atropia, I prefer and recommend it.

I first used atropia for sea-sickness ten years ago, during a voyage to Europe. I used it hypodermically as I here recommend it, and was much pleased with its results. But on this last trip (1879) my opportunities of observing the results have been greater than ever before.

On my return voyage this year, I intentionally avoided taking much of the bromides, partly because I could not obtain the bromide of sodium in large quantities, and partly because I wished to experiment and see what could be done for sea-sickness, for I knew that my tendency was to be more or less sick, and I felt confident that my exemption on the voyage for America was on account of a thorough bromization.

One terrible Sunday morning, which will not soon be forgotten by those who were on board our steamer, large numbers of the passengers awoke in all the stages of sea-sickness. During the night we had struck rough seas—"the tail-end of a blow," as sailors say—and the rocking and pitching were more severe even than in the height of a great storm. Very few, even of those who were not sick, had had any sleep. On trying to get up I found I could not raise my head without vomiting, and the tincture of capsicum, which is beneficial in premonitory stages, was powerless. An arrangement for hypodermical injection of atropia being near at hand, I injected a quantity, which, in half an hour, made my throat exceedingly dry. I was soon able to get up and use the same treatment on my friends. I was also able to take some light breakfast, although there was some difficulty in swallowing on account of the dryness of the throat, which, how-

ever, was a light matter. During the day I found I could not see to read on account of the paralysis of the muscles of accommodation.

These physical effects, however, caused me no annoyance. What I ate was retained; but I had but little desire for eating. I also improved the opportunity to take large doses of bromide of potassium, which I had no difficulty in retaining on the stomach. I had no more trouble during the rest of the voyage, although the weather was rough, and opportunity was given me to treat others in the same way.

The dryness of the throat, and the difficulty of swallowing caused by the atropine were of temporary duration only, passing away in the course of half a day, and they are no objections whatever against the use of this remedy.

I have not seen, as yet, any nausea, vomiting or other unpleasant symptoms after the use of atropine pushed to these effects; but in the case of an idiosyncrasy such effect may follow.

In regard to the degree of effect, it should be understood that just sufficient to produce decided dryness of the throat is all that is needed, and it is always well to begin with a small dose on a patient with whose temperament we are unacquainted.

Caffeine.—The symptom of headache, especially

sick-headache, which is observed so often in sea-sickness, is treated most successfully by finely powdered citrate of caffeine, in doses of two or three grains, repeated every hour until the desired effect is produced. I prescribed this on my last voyage to Europe. I saw a number of cases where sick-headache, with severe pain in the eye and on the brow, nausea, and pain in the back of the neck—precisely the same symptoms as are felt in the sick-headache, of which we see so much on land—and I at once treated them with citrate of caffeine, finding the same rapid, brilliant, and in every way satisfactory results that we often meet with on land.

Caffeine should be finely powdered before using, and placed dry on the tongue, but may be washed down with a little water. Even when there are symptoms of pressure and fullness, indicating cerebral congestion, this remedy acts well. It has one great advantage, too, in the treatment of sick-headache on land—that it can be taken when the stomach is very irritable.

There are cases where a dose of half a grain is sufficient; but as the many failures with caffeine result from timidity in its use, I prefer to begin with two or three grains, and I have never seen or heard of any serious effects from its use in these quantities. The action of citrate of caffeine in sick-headache is most rapid and beneficial and

highly satisfactory for temporary relief, as I have elsewhere pointed out. When it succeeds it seems to lift the pain and distress right off from the sufferer, particularly when given in the early stages.

I believe, also, from my experiments, that it has a not unimportant future before it for the relief of other symptoms of sea-sickness. I am convinced that it does more than relieve the headache, and that it fortifies the system against the other symptoms also. There are temperaments, however, with which it does not agree, and who are not helped by it, or who soon wear it out.

But the citrate of caffeine has this disadvantage, that when given in the latter part of the day it keeps some patients from sleeping. It is, therefore, not well to give it when it is expected that the patient will try to sleep shortly afterwards.

I much prefer to have the citrate of caffeine finely powdered before using, for the reason that it is more concentrated, and I am not sure but it has more effect this way; but in regard to that I want more evidence. I do not seem to get as much effect from even large doses of caffeine when used in the form of flaky crystals, as it is usually sold from the shops. I have always been accustomed to use it in the finely pulverized form, and do not

usually weigh or accurately measure it when I give it. In prescribing it, it must, of course, be prescribed in accurate doses.

Caffeine, as is well known, is the active principle common to that family of plants commonly known as tea, coffee, guarana, and the like, but it is in all respects superior to any one of these, for the purpose of relieving sick head-ache or seasickness. Its effects are temporary; but in seasickness only temporary effects are needed.

By the above plan of treatment, sea-sickness is deprived of a large part of its terrors. This scheme of treatment will, I am sure, make as complete and satisfactory a revolution in the management of seasickness, as the use of caffeine, cannabis indica, and various other remedies have recently made in the treatment of sick-headache. Ten years ago sick-headache was considered an unrelievable disease. We can now break up or relieve nearly every case. So hay-fever, which, but a few years ago was utterly unrelievable by treatment or by travel, is now, in very many cases, completely avoided by a flight in time, to the mountains or forests, and arrested, or relieved of its direst sufferings by medical treatment, for those who are obliged to stay at home. Similarly, neurasthenia (*nervous exhaustion*), but a few years since was forced to get well of itself, if at all, but is now by various treatment—hygienic and

medical—brought within the domain of curable and quickly relievable disorders.

What has been done for sick head-ache, for hay-fever, and for nervous exhaustion, can also be done for sea-sickness by the plan of treatment above proposed.

There are some patients with all diseases, who, from mental or physical peculiarities, will not yield to any treatment. Some are resolved not to get well of anything they have, and some persons are constitutionally so susceptible in every direction that they cannot bear remedies that everybody else can bear. When persons having these characteristics are sea-sick, it is quite likely that they will resist, in a greater or less degree, every mode of treatment; but I believe that these cases will be exceptional. Much of the suffering from sea-sickness, as much of the suffering from sick-headache, from hay-fever, from inebriety, from neurasthenia, is, in the present state of medical science, needless suffering. If there are those who for months and years are prisoners to these disorders, it is not because science has no means of relieving them; it is because they, or their physicians are unfamiliar with, or are unwilling to use, those methods that are almost sure to be of value to them.

Sea-sickness, like all other diseases of the nervous system, should, when practicable, be treated

by a physician ; its diagnosis should be made by a physician, and the management of the case, so far as possible, should be, when severe at all, in the hands of those who have made themselves, in a degree, experts.

The time is to come when those who go to sea for duty or pleasure, will, in cases of liability to sea-sickness, consult their physician, just as they now consult him when entering a region subject to malaria or yellow fever, and shall receive, instead of jokes or indifference, careful and systematic directions for their voyage.

Cannabis Indica.—For the headache symptom of sea-sickness one of the very best of remedies is cannabis indica, in doses of half a grain. The pills which are now made are a convenient way of giving this. The dose may be repeated until some effect is produced. It has the advantage over caffeine that it does not prevent sleep, but rather induces it, and can, therefore, be given late in the day, when caffeine is not advisable. It is not, however, as powerful as caffeine. I use it in special cases with very good success. But the bromides, or the bromides and atropine combined, will make unnecessary, for the majority of cases, both the citrate of caffeine and cannabis indica. There are, however, and always will be, many who have neglected to bromize them-

selves, or do it incompletely, and so suffer, more or less, from sea-sick symptoms that caffeine or cannabis indica can quickly relieve.

The constipation which is so common a symptom at sea, can be corrected by any mild laxative, but those who use bromide and atropine treatment would not be so likely to be troubled with constipation. In this respect, as in all respects, there is far too much attention given to the stomach and bowel symptoms, and far too little to the central-nervous system that presides over all these functions. Constipation, for a few days, is a slight matter if a person be otherwise comfortable. The complicated laxative prescriptions are needless.

On my voyage to Europe last year, I became acquainted with a family, two of whose members, the mother and daughter, suffered all the time from sea-sickness in its various stages, and with its different symptoms, from leaving New York until reaching Queenstown ; although the weather was at no time very severe. They were at no time well, and spent a considerable portion of their voyage either in their berths or in a state of despair on deck. Unfortunately, I did not have a sufficient quantity of medicine to supply any outside of my own family, and the surgeon of the ship, when appealed to, only sent a sufficient quantity of the bromide of potassium for a single dose, stating that it was all

that he had. I was, however, enabled to give them much relief of the head symptoms by the citrate of caffeine. It seemed to me that this family presented fair subjects for experiment with the bromide treatment alone. I therefore wrote down special directions for them, what to do on the return voyage, for again and again and again, the ladies of the family declared that millions of money would not induce them to take another sea voyage, so constant and severe had been their misery. Since their return, they reported to me that they did as I directed—purchased a pound, I think, of the bromide of potassium in Europe, being unable, like myself, to obtain any large quantity of bromide of sodium, and the mother began to take it before getting on board the steamer, and kept on taking it, more or less, during the voyage, and was not sea-sick at all during the entire voyage, although it was very much rougher than the preceding one. She kept herself mildly bromized, somewhat weak, easily disposed to sleep, night and day, and from sea-sickness free entirely. She used, I believe, no other treatment whatever. The daughter, like the mother, was sick all the way over on the first voyage, and she declined to take the bromide, because she heard me say that sometimes it produced bromic acne, and she was sick all the time, or nearly all the time, as on the previous voyage.

Here, then, was as fair a single experiment as could be made; the two persons were of the American nervous temperament, fairly representing the American woman in organization and nervous susceptibility, and specially susceptible to sea-sickness, even in mild weather. The bromic acne which the daughter feared, might have been prevented by the use of a few drops of Fowler's solution. From two to five drops with each dose of the bromide, will usually be sufficient to prevent the appearance of this acne, and even if the bromic acne does appear, it disappears, and generally within a few days after the medicine is suspended.

During the past winter—1880—a number of my friends have gone South by sea, to Florida, and to the Carolinas. Several of these were ladies, who had taken the voyage previously, and who had always suffered from sea-sickness. Two of these persons took the bromide treatment before and during the voyage. One took the treatment thoroughly, and was not at all sea-sick; the other did not have a sufficient quantity of medicine, and became sick the latter part of the voyage, although she was entirely or approximately well the first half. These, also, were as fair experiments as could well be made.

During this past winter, I returned from a trip to the South by way of one of the Savannah

line of steamers. I took, as I always do, my own medicine, having supplied myself with the bromide of sodium before leaving New York, feeling doubtful whether I might get it in the Southern cities in quantities sufficient for my purpose, and feeling also quite sure that I should not be able to find any on board the ship—as I did not. I experimented not only on myself, but on two passengers, both ladies. Part of the voyage the sea was rough, and a number were quite sick. From my previous experiments at sea, I am sure that I should have been sick at least half the time had I not taken the precautions with the bromide, and with the atropia. On this voyage, I combined the atropia with the bromide in the same tumbler, and found that they worked very well, indeed, producing the dryness in the mouth and relieving the symptom of nausea. I did not take much precautionary treatment, for I felt sure that I could control the sickness if it came on, and when the sea became very rough and a slight feeling of nausea came on, I took a larger dose of bromide with the atropia, which stopped it entirely, and I was not troubled any more during the voyage.

The ladies who were sick had taken, of course, no precautionary treatment, but were at once relieved by the bromide and atropia combined. In one instance, however, the sickness had gone so far that it was impossible to keep even anything on the

stomach, and I was obliged to depend exclusively on the atropia, which was injected hypodermically. In the case of both these ladies, the bromide, although given for but twenty-four hours, produced some weakness and drowsiness, and I have no doubt whatever that had they taken the treatment before getting on board the steamer, and kept it up systematically, they would neither of them have suffered at all from sea-sickness.

It is imperative, in order to get the good effects of this plan of treatment, that it be kept up not only before sailing and the first day of sailing, but through the whole voyage, more or less—though not always with regularity—and especially if the weather is rough; and for the majority of persons who are sensitive to the sea, it is best to keep it up anyway. This treatment I have tried thoroughly, and I cannot repeat too often or too earnestly this injunction.

Some friends of mine this year went to Cuba, and carried out my plan of treatment in part; that is, took doses of the bromides before sailing, but stopped after getting on ship, and some of them were sick, more or less. Had they kept it up, they might have been free from any symptoms, since they all of them bore very well the bromide treatment the short time that they used it. None of them were bromized.

It should be noted here that the essential thing is the mild bromization of the patient. It is the effect that we are after more than the dosage, and the dosage should be given large enough and frequently enough, and the treatment should be kept up long enough, to produce this mild bromization so long as it is needed. In the above cases, if I had been on board, I know, from my previous experience, that I could have helped them at once by means of atropia.

My friend, Dr. L. Bolton Bangs, of this city, tells me that a relative of his is so sensitive to bromide of potassium that five grains even will make him sleepy. The possibility that in giving any of the bromides to any person for the purpose of preventing sea-sickness, we may strike some idiosyncrasy of this kind, enforces the necessity of this rule: To always begin with moderate doses, and gradually increase as we find that there is no especial idiosyncrasy against it. The severe symptoms of bromism, such as thickness of speech, very profound exhaustion, very fetid breath, and very much disturbed digestion, can usually be avoided by a careful watching of one's self. It is not, I think, necessary to produce any very unpleasant symptoms of bromism in order to prevent sea-sickness. It is, however, quite possible—indeed probable—that there may be some individuals for whom

only profound bromism would be sufficient; and there are others, also, who would require to be treated by the hydrate of chloral as well as by the bromides, in order to make sure of relief or of prevention.

Hydrate of Chloral.—Chloral is a remedy which has been used for sea-sickness, in some cases with a very good degree of success. It can be used both in wafers of five or ten grains each, or in a solution by itself, or in combination with any of the bromides, or it may be used by injection into the rectum. When, however, one is thoroughly sick, or beginning to be sick, it is impossible to take chloral by the mouth. It is a remedy, under such circumstances, especially adapted to invite vomiting. Hydrate of chloral is really a stronger bromide, being more of a narcotic, while the bromides are sedatives. In cases where the bromides do not act, either through not being taken in sufficient quantity or from personal idiosyncrasy, it would be well to combine the chloral, either at the same time or as an alternative. A person who could not sleep through a stormy night at sea, would be pretty sure to sleep under a moderate dose of chloral combined with the bromide.

The great trouble with chloral is, however, that it is not a domestic remedy. It is not a drug that

is to be recommended for daily or long-continued use ; there is danger of the habit of taking chloral, with the symptoms of chloralism. In that respect it is very different from the bromides, which are sedatives and not anodynes or narcotics. The bromides are far safer to entrust into the hands of patients or of physicians who are careless or unskillful. Chloral, however, acts on the nervous system in such a way as to produce an effect that is desired during sea-sickness for a preventive of sea-sickness ; it allays the sensibility of the brain and spinal cord. I should not hesitate in my own person, or a member of my family, or any patient, indeed, to use chloral alone, or in combination with the bromides if necessary. Indeed, I should prefer to use it part of the time if I were on a very long voyage where it was necessary to keep up the bromism. It might be used occasionally—a quarter or half the time—to prevent the excessive and unpleasant effects of the bromide when continued too long. To depend, however, on chloral administered by the mouth as a means of relief of sea-sickness, after the attack is upon one, is as unscientific as it is to depend on alcohol, whiskey, champagne, brandy, and the like ; or nitrite of amyl, or capsicum, or acid phosphate, or creosote, or any of the thousand things that have been used without any satisfaction, or but slight satisfaction, against this annoying disease.

Remedies to be avoided.—There are a large number of remedies which have been used for sea-sickness, and which may, in certain stages and in some cases, have a slight value for some of the symptoms, though perhaps scarcely enough to reward one for the trouble of bothering with them; these remedies are largely displaced by the method of treatment above proposed. Phosphoric acid, and Hosford's acid phosphate; and capsicum in one or two drop doses, have been used, and all do have a certain power in the milder stage of the disease; but if the above treatment works well, its effects so far surpass anything that can be obtained by these agents, that they may be dispensed with or not thought of. Morphine or opium, in any form, is not to be used in sea-sickness; whatever temporary alleviation it may cause, is followed usually, or in a majority of cases, by bad reaction. About the worst things to use in sea-sickness, are precisely those which are most used—that is, liquors and champagne. They do no good, and do much harm; the only advantage that champagne has, being that it is the least bad of all the alcoholic liquors, and in small quantities does not so much harm, and will, perhaps, stay a little longer on the stomach; but against a full attack of sea-sickness, it is the merest waste and absurdity to use it. Electricity is also

of value in sea-sickness, when applied through the stomach and spine, and Dr. Lente urges this method, which he has found very successful in vomiting of all kinds. I have no doubt that, if used, in many cases it would relieve some, but, like the ice-bags, it belongs to the unpracticable things ; even if it did good, few would take the trouble to use it. The essential thing in the treatment of sea-sickness is, that the method used must be practical ; that it must prevent the disease, or keep it down so thoroughly that vomiting does not occur. After once a person is sick, it is of no use to talk to him of ice-bags or of electricity, or of anything that requires an effort to use for himself, or to be used by others. I have seen the time, during an attack of sea-sickness, when I would deliberate for an hour whether I would reach out my hand and open my valise, to obtain something that I wanted. It is sarcasm to suggest to a person in such a condition that he use a battery on himself, or put an ice-bag to his spine.

Among the remedies directed to the stomach, tincture of capsicum is one of the best I ever used ; a moderate quantity in a tumbler of water, diluted so as to be sharp and strong, and yet not so sharp and strong as to make it impossible to be swallowed ; placed in easy reach of the patient, and often used, will, up to a certain point, keep down and modify sea-sick symptoms.

While in the navy, I experienced great benefit from this simple medicine. When, however, the weather is very rough, or the individual very susceptible, it is thrown up at once, and loses all its power. I have tried it as thoroughly as any one can do, and should not now think of using it where I could get the bromides, atropia or caffeine.

There is one remedy which has been warmly advised for sea-sickness, which we should with all our might avoid, the nitrite of amyl. That any physician, with any experience at all with this remedy, could recommend, either publicly or privately, its adoption as a means of relieving sea-sickness, is a proof of how much the study of this subject is needed in our medical schools. The London Lancet, within a few years, has been filled with encomiums of this remedy by the ship surgeons, who have had ample opportunity to test it, and who ought to have learned, by their own observations and studies, that of all the remedies for this disease nitrite of amyl is one of the greatest failures. First of all, the odor of the remedy itself is enough to excite the symptoms in those predisposed to them. Even if it were a specific for the disease, that alone would make it impracticable; but aside from the odor it is a most uncertain and unsatisfactory means of relieving the disease.

In some stages it does, I admit, give immediate

temporary relief; but it must be often repeated, and soon the patient becomes disgusted with it, and will not bear it any longer. I would only use it in those cases where I could not get one of the other remedies I have mentioned. Both the effects of nitrite of amyl, and the theory of cerebral anæmia, on which it is based, are of that one-sided character for which our scientific discussions are too noted.

This conclusion in regard to nitrite of amyl is based upon my own experiments—and the surgeons of our Atlantic steamers, so far as I have been able to consult them, agree with me. One of these surgeons told me that one dose excited temporary paraplegia. I do not, however, object to nitrite of amyl because it is a dangerous remedy, for it is generally safe to use it; but I object to it because it is a failure, like the theory on which it is advocated, and because we have something much better.

Another plan of treatment that we should with all our energies resist, is the use of cathartics and purges, calomel or vegetable, during a voyage, or before a voyage. There are thousands who purge themselves with blue pill, and podophyllin just before they start upon a voyage, and think that they are doing good service. All this is based on the theory that sea-sickness comes from biliousness, and biliousness comes from bile, either

in excess or deficiency, and that purging drives out the bile, or does something else that relieves sea-sickness. This method, which still has a great hold on the people, is unphilosophical, useless, and, in some cases, positively injurious.

It may be argued against the above plan of treatment that it is or may be somewhat risky ; that the remedies are strong remedies ; and that it would be better to use milder and more gentle preparations. The reply to this is very simple : sea-sickness is a very powerful disease, and demands powerful treatment, and will never yield to anything but powerful treatment. The mild and mincing remedies, the dilly-dallying modes of treating this disease, have been tried for centuries, and they have failed utterly, and they always will fail. Nothing is to prevent sea-sickness and break it up, except something which makes a very powerful impression on the nervous system. But although this treatment is powerful, it is not dangerous, except when in dangerous hands. It is one that I use on myself ; that I use on the members of my own family, and that I would not hesitate to use, and do use, under my own eyes, on any sensitive and delicate American man or woman.

It will be observed by those who are familiar with the philosophy and treatment of functional

diseases of the nervous system in general, and with the action of the remedies mentioned in this essay, that I treat sea-sickness just as I treat any other functional nervous disease. For the plan of treatment here proposed, I claim that it is both rational and successful ; that is, in harmony with our theory of the disease, and practically successful when carried out on shipboard and before entering upon the voyage. Here, for once, in medicine, theory and practice agree. In many cases of disease we are very successful in our treatment, although we give no reason for the treatment ; in other cases, we have by theory a most excellent plan of treatment, which, carried out in practice, is of no value.

The question of the proportion of people that can be entirely saved from sea-sickness by this plan of treatment, will be settled by a large experience, by the accumulative observations of physicians and of sufferers who shall, in future years, carry out the suggestions here made. So many remedies have been offered for sea-sickness by those who chance to have had a few fortunate results under their observation, that there is a just and inevitable skepticism in regard to anything that can be presented. In reading the accounts of what has been done by nitrite of amyl, for example, as they first appeared in the London Lancet and other journals, one might suppose that really, at last, we had found a

specific for this disease, but a very short experience on shipboard in rough weather would soon dissipate this idea. There has, however, been sufficient experience with the plan of treatment here proposed, under the eyes of different observers and under different conditions, to make it pretty safe to predict that those who carry out this plan of treatment in its entirety, with judgment and patience, and who are not speedily or very greatly relieved, will be in the minority.

The Hygiene of Sea-Sickness.—One important hygienic suggestion while at sea, is to keep something on the stomach all the time, if possible. I have seen the time when, after having been at sea steadily for many months, I would be slightly sick if breakfast were long delayed. It is, therefore, wise for sensitive persons to take something before getting out of their berths, whether they feel sick or not. The question that sea-sick sufferers, or those who fear sea-sickness, always ask is, whether they shall go on deck or stay in their berths. One advantage of the plan of treatment here proposed is, that it makes but little difference whether we stay on deck, go into the dining-room, or remain in our berths. The patient can do what is most agreeable to him. The bad air of poor state-rooms is, no doubt, one of the excitants

of sea-sickness ; but it is not the chief excitant, and in cases where the bromides, atropia and caffeine work well, the patient can suit his caprice in this matter. For those who feel sick and weak the most agreeable and comfortable place, on the whole, is the state-room, where they are kept warm and quiet, where they can walk, talk or read—or do nothing—at their option. When they take much bromide they will feel sleepy most of the time, and, on shipboard, all the time given to sleep is so much saved from monotony and discomfort.

Equally needless, as well as impracticable, is the advice which has been given to get into the berth and lie down, with the head low, before the ship leaves the dock, and keep that position. Patients, who thoroughly carry out the mode of treatment I have recommended, can stay on deck, or keep in their state-rooms, as they may desire—in short do what is most pleasing to them. The custom of tying a band tightly around the stomach is a very good one, but is not necessary, as a rule ; of itself alone it has no great power, and in severe cases no power at all. Any one depending upon it would be likely to be disappointed. It would, however, be entirely proper to use it in connection with other remedies.

Cold, and Taking Cold, at Sea.—A great element of discomfort at sea, especially to those who are

more or less sea-sick, is cold. The ocean, particularly the northern Atlantic, is never warm. In seasickness, the circulation being very much disturbed, creeping chills passing over the body, extra clothing is very much needed. It is impossible to take an excess, on going to sea, of overcoats and wraps, and especially of the thickest under-clothing, and these will be needed, not only on deck, but in the state-rooms, and usually throughout the whole voyage. Many who are not sick are yet kept in constant misery by being cold, and the sick themselves have their misery greatly aggravated by this.

The arrangements of ships are for the average, not for individual exceptions. So those who are sensitive to cold and unprovided with clothing must expect to suffer.*

A great advantage of the bromization when the system is completely under its influence is, that it renders the person less susceptible to cold, as well as to all other irritants.

There is a delusion that people do not take cold at sea when off soundings. This delusion has this basis of truth, that in warm climates, at sea, one can

* While this book was in preparation, one of my patients, who was planning a first voyage to Europe, asked me how he should dress. "Just as though you were going to the North Pole," was the reply. This advice applies to all persons who visit Europe in winter or summer.

endure great exposure without taking cold ; and, generally speaking, at a distance from shore strong persons are less liable to take cold on exposure than they are on land. But sensitive persons may take cold a thousand miles from land just as easily as they do at home, and find it just as hard to get rid of it. One of the very worst colds I ever had in my life was on the Atlantic Ocean.

The best preventive of colds is thick under-clothing ; two or three sets, if necessary, at once ; worn night and day, no attention whatever being paid to all the talk of sailors and travelers as to the exemption at sea from taking cold.

One fact is beyond all question—that is, that on landing, or coming near land after a voyage, there is very great liability to take cold.

During the war I was nine months at sea, without once going ashore ; and, on approaching New Orleans, I was told by one of the old sailors that we should be very liable to take cold as soon as we landed. I took every possible precaution myself, and asked the officers and men to do the same, to see if we could possibly avoid this, but, in spite of all these precautions, I believe nearly every person on that ship took severe colds, some even extending to bronchial difficulties, lasting for several weeks, so that I was obliged to treat them.

When passengers land in England or Ireland,

from our Atlantic steamers, they are very liable to take cold in a few days, if not at once, and it would appear that in some cases no ordinary precautions are of any value, especially if the weather, as is usual in Great Britain, is wet, damp and cold. Aside from the regulation of the clothing, the use of the bromides, or very small doses of opium and camphor, for a few days, are the best remedies I know of as a prevention against taking cold.

Diet in Sea-sickness.—The diet in sea-sickness, like the other matters of hygiene, is not so solemn a matter as many believe. If a person be kept under the influence of bromides or atropine, he can hold something on the stomach, as a rule, at least in very many cases; and although, on account of the dryness of the throat, he may have some difficulty in swallowing, yet he does succeed in swallowing something. It is not as well to get up in the morning and go long out without anything to eat early; frequent light meals are to be advised; but in cases where the treatment results satisfactorily, the diet can be arranged to suit our moods and convenience, and we can take our meals on deck, or in the stateroom, as may be convenient.

I close with a practical suggestion, without which all that I have said will be of little service,

namely : that before going to sea, we should always take with us the remedies we are to use. There is no ship that sails upon the ocean, that carries remedies of any value in sea-sickness ; and not only that, but it is impossible to get in Europe the bromide of sodium, the best of any of these remedies, or even cannabis indica, in a convenient form. If I were going to Europe to-morrow, I would take with me sufficient quantities of bromide of sodium and solution of atropia, with a hypodermic syringe, and also of caffeine and cannabis indica, to last me on the voyage over, and on the return, also. Very true the caffeine can be obtained in Europe, but we must search for it in the leading drug stores ; and cannabis indica can be obtained also, but it is not put up in a convenient form, coated with gelatine, as we use it here. It cannot be repeated too often that it is useless to recommend for sea-sickness any remedy that is disagreeable, or hard to take or apply. It is the very essence of the disease that it always fights against a bad tasting drug, or any kind of unpleasant procedure.

On my voyage from Savannah to New York, on the steamer "City of Savannah"—which is one of the newest and finest steamers on which I ever sailed, and which is thoroughly furnished throughout with all other things that passengers require, except medicine for the sea-sick—I was requested by the

captain to see one of the officers who had injured himself, and was referred to the medicine-chest, which I found to be full of liniments, and pills, and plasters and the like—the same as might have been put up one hundred years ago. There was not in the whole contents anything that would have relieved or helped a single sea-sick sufferer, and the cases on the ship that I treated, were supplied from my own stores that I brought for the purpose.

On board the steamer "City of Savannah," my attention was called to an improved form of swinging berth (Huston's) that may be of some assistance to the sea-sick, and comfort to the well. I occupied one of them on the short voyage from Savannah to New York, but could not determine with certainty in regard to its value. For those who are well it is certainly a very agreeable luxury, and it will probably be of some service to the sick.

RECAPITULATION.

The facts and reasonings in this essay on which I lay especial emphasis, may be thus epitomized :

1. Sea-sickness is a functional disease of the central nervous system, mainly of the brain, but in some cases of the spinal cord also. All the symptoms—whatever they may be—from nausea and vomiting through all the milder and less-known symptoms, come from the brain and spinal cord ; and are the results of a series of mild concussions.

2. The symptoms of sea-sickness are,

(1st.) Headache.

(2d.) Backache.

(3d.) Nausea of various grades without vomiting.

(4th.) Vomiting.

(5th.) Pain in the eyes.

(6th.) Constipation and diarrhœa.

(7th.) Menstrual suppression.

(8th.) Hopelessness and mental depression.

(9th.) Abnormal appetite, of a temporary character.

- (10th.) Neuralgic pains, chilliness and flashes of heat.
- (11th.) Insomnia or sleeplessness.
- (12th.) Nervous exhaustion—(neurasthenia.)

In very many cases there is no nausea or vomiting, the symptoms being confined to headache, oftentimes precisely like headaches we have on land. The hopelessness or mental depression of sea-sickness is the direct result of the cerebral irritation and disturbance; cerebral exhaustion from any cause, temporary or permanent, causing this in all functional nervous diseases, particularly in neurasthenia or nervous exhaustion. The neurasthenia and the nervous exhaustion resulting from protracted sea-sickness combined with anæmia from loss of nourishment, may, in some cases, lead to death, or if not, to long-continued depression of the vital forces, from which the patient may not recover for months, if ever.

3. Sea-sickness is an evil, just as any other form of sickness is an evil, and it should be dreaded and avoided by every means, just as other forms of sickness are dreaded and avoided. An attack of typhoid fever may clear out the system so that a person is permanently better therefor, but no one on that account seeks an attack of typhoid fever. Much of the apparent benefit from sea-sickness is the con-

trast between the misery one suffers while undergoing the attack and subsequent improvement and the general tonic results of the sea air. *All the good of a sea voyage can be obtained without suffering sea-sickness.*

4. The cause of sea-sickness is purely physical or mechanical—a series of mild concussions—the agitation of the nervous system by the movements of the ship. It is a disease that attacks animals—dogs, horses—and even birds or fowls, and attacks human beings of all races, but is most likely to attack, and is most severe in its attacks on those who are most sensitive and nervous. Therefore, Americans are greater sufferers than Europeans, and women suffer more than men, and delicate women more than strong women. The extremes of life—youth and old age—are less likely to suffer from it than those between the ages of 15 and 60.

5. Sea-sickness can, in the majority of cases, be either entirely prevented or very greatly relieved by proper treatment. The suffering of sea-sickness is very largely needless suffering. The exceptions will be mostly those who have some constitutional idiosyncrasy against the remedies that are best adapted to relieve it, or who are so very susceptible to the motion of the ship that the influence of all medicine is overwhelmed.

6. The treatment of sea-sickness consists, (1st.) In the preliminary use of the bromides, preferably in large doses, preferably the bromide of sodium. This should be taken from one to three days before sailing, so that the individual may become mildly bromized before reaching rough water, and this mild bromism should be kept up during the voyage if necessary.

(2d.) In the use of sulphate of atropia in doses of from one one-hundredth to one twenty-fifth of a grain, hypodermically or by the mouth, repeated with sufficient frequency to produce great dryness of the mouth. This treatment may be used either alone or in combination with the bromides. This is a remedy of such power that it cannot be indiscriminately recommended to the laity, but all physicians who advise patients before going to sea, and all surgeons on the steamers, should be prepared to use it. In some cases—perhaps in the majority of cases—atropia in skillful hands is sufficient of itself without the bromides ; it prepares the way for the bromides, and enables the stomach to bear them and bear food and other medication during the attack.

(3d.) The powdered citrate of caffeine, in two or three grain doses, for the sick-headache.

Pills of *cannabis indica*, of one-half or one-third of a grain, are excellent for relieving the sick-headache of sea-sickness, and have the advantage

over caffeine that they do not cause sleeplessness, which caffeine would sometimes do when used in the latter part of the day.

Those who carry out this line of treatment properly and thoroughly—and it is better that it be done under the direction of a physician who well understands the use of these remedies, if possible—may do very much as they please in the hygienic management at sea. They may spend their time in their berths or on deck, as may be most agreeable to them. They can eat what is most attractive at the table and in their rooms, and need spend no time or force in discussing the useless and unsatisfactory question whether it is better to be on deck or below. Those who are under the influence of the bromides find it most pleasant to be in their berths, and will sleep much of the time, by day as well as by night, and there can be no better way of passing a long sea voyage than in sound sleep, provided it is brought about, not by any narcotic or stupefying agent, but by a sedative, which, in good hands, wisely used, and stopped in proper time, except in the case of individual instances—which must be watched for carefully by the physician—cannot do any permanent harm.

ADDENDA.

IN this chapter, it is proposed to give the results of experience in the study and treatment of sea-sickness, since the publication of the first edition of this work.

It is desirable, also, to correct some misunderstandings that have arisen, and are likely to arise, in regard to the prevention and treatment of the disease.

The suggestions which I have to offer, may be included under the following propositions:

1. It is not the bromides, but *bromization* that prevents sea-sickness.

Bromides have been used, for I do not know how long, or in how many different ways, for the relief of sea-sickness, but without sufficient success to give great encouragement to those who made the experiments. The bromides, as such, are powerless to prevent sea-sickness; it is *bromization*—that is, bromides, given in such doses, and with such frequency, and pushed so far, as to cause certain symptoms, to

which the name of bromization is applied—that prevents sea-sickness; and it is to that, and not to the use of bromides, that this work refers.

Surgeons have objected, others have objected, that the bromides have been tried, and that they have not accomplished what is alleged in this treatment. This is quite true; but bromization, whenever it is tried, has almost always succeeded. Bromization, indeed, is, to sea-sickness, much what vaccination is to small-pox.

2. How to prepare the bromides for use.

A very convenient and easy way to prepare the bromides for use, in cases of sea-sickness, is to have the dose put up in papers, and wrapped with oil-silk and tin-foil, to keep out the moisture.

Powders prepared in this way will keep on the ocean, and, I believe, also in the moist atmosphere of Europe. The bromides may be put up in this way, in doses of thirty, sixty, or more grains, as may be desired, and according to the adaptability of the individual to bear the remedy. On board the ship on which I went to Europe this last year—1880—there were several travelers, who, before embarking, had consulted a physician, who had prescribed the bromides in this way, and they had begun to take them several days before coming on board the ship, and used them more or less on the steamer;

also on the return voyage. I found, this last year, that the bromide, in a bottle, would keep even in the moist atmosphere of England and Scotland, and could be carried, not only across the ocean, but across Great Britain, and through the Continent, without deliquescing; the year before, I had observed that small powders of bromide of sodium, wrapped in the usual way, in paper, quickly deliquesced in the damp air of Great Britain.

3. How to begin taking the bromides.

The battle against sea-sickness must be fought before going to sea—cure the disease before the disease is upon us. For this reason, it is advisable, while practicable, to see one's family physician, and take the bromide, at first, under his eye, in order to see whether or not there be any idiosyncrasy against it; to see, also, how large doses are needed, and can be tolerated to produce bromization. Those who have been long used to taking the bromides, who are familiar with its action upon them, and know what doses are to be given to produce bromization, need not exercise so much caution in this respect. While there are very few remedies which people take habitually or frequently, that are, on the whole, so harmless as bromides—*when taken but for a short time*—and while the number of those who have a positive idiosyncrasy against them is

small, comparatively, yet it is always right, and more satisfactory, to be on the side of prudence, to one who does not well know his own constitution in this respect. The most satisfactory results of this preventive treatment for sea-sickness, that I have heard of during the past year, have been with those who took their treatment, at first, in this way, under medical supervision. If one does not have this supervision of some person in whom he has confidence, he feels all the time in doubt whether he is doing just the right thing—taking too much, or taking too little, or taking it improperly—and will be likely either to overdo or underdo the treatment. The bromides are remedies that are now so familiar to the people, and so much used, for so many diseases and symptoms, that nearly every one we meet knows, or seems to know, something of them, by personal experience, or by observation. But most of those who have taken the bromides, or learned of their use, know only of them in small, or moderate, or medium doses; of bromization, as such, they know nothing, do not understand its phenomena, and do not recognize them when they see them.

One day there came into my office one of my nervous patients, who said he was going to Europe, and he wished to get advice in regard to the preliminary treatment before sailing. He is a person

who is very sensitive to sea-sickness, and has usually been confined to his berth all the time during his voyages across the Atlantic. He was, indeed, one of the very worst cases possible—one who has every reason to dread a voyage, even in mild weather. He, therefore, wished to do the work of bromization thoroughly; and he is one of those who does everything with energy. He was to sail in three or four days, I believe, and I suggested to him that he had better begin his treatment at once. To my surprise, he told me that he had been taking the bromide for about three weeks. He said that he had just caught cold, and felt sick and miserable. On examination, I satisfied myself that he was over-bromized, and that the symptoms of hoarseness, and weakness through all his limbs, and general miserableness, that he experienced—so similar to that which we feel when a cold has caught hold of us—were simply the symptoms of bromization, and nothing more. I afterwards learned that, for the first time in his life, he crossed the ocean, and crossed the English Channel, without being sick. He deserved his success, for he had worked hard to earn it—much harder than was necessary, or advisable, or proper. I said to myself, if this man, who has been under my professional care, and who ought, at least, to know my views, if any one should know them, should so far misinterpret my

advice as to take the bromides through weeks instead of three or four days, how would it be with many others, who only hear of the treatment indirectly, and who know of it by hearsay only. For this reason, even at the expense of repetition, I go over again the caution and rules for taking the bromides.

4. Signs of bromization.

The signs of bromization that are to be looked for by those who are taking the remedy with a view to prevent sea-sickness, are : weakness in the limbs, and sleepiness and drowsiness by day, a disposition to fall asleep, and, withal, an indisposition for active exercise. These are not all the signs of bromization, but they are sufficient for the purpose in hand—that is, to teach and tell us that the nervous system is so far under the influence of the bromides, that it will be likely to be able to endure the agitation of the vessel at sea. A very good sign of bromization is anæsthesia, or numbness of the pharynx or fauces, so that when a finger, or spoon, or other instrument is pressed against the back part of the throat, there is not, as usual under such irritation, a disposition to vomit. This is as far as it is necessary for us to go, and it is not always necessary to go as far as that ; but it is quite sufficient to carry

the bromization to that point in most all cases—perhaps in all cases, provided we know when to stop.

5. *When to stop taking the bromides.*—This is a question harder, perhaps, than almost any other, to answer ; indeed, it cannot be answered absolutely by day or hours, or by any varying rule.

The last time I went abroad, I was well bromized when I got on board the steamer, and did not take any more, or anything else for sea-sickness, during the whole of the voyage, which was, with the exception of two or three days, a very smooth one. In summer, when the ocean is usually still, and storms are but little likely to rise, it is entirely safe for those persons who are accustomed to the sea, who know their own constitutions, and who are also familiar with the action of the bromides upon them, to wait until a storm rises, or until there are signs of a storm, before they take any more. This is my own practice, both for myself and for my friends who travel with me, and are all the time under my direct observation.

This course, however, is hardly safe in mid-winter ; and it is certainly not safe for those who do not know their own constitutions, and are not accustomed to sea-sickness, and have not learned, by experience, how much bromization is required to

save them entirely from any of the symptoms of seasickness.

The effects of bromization, when once noticed, usually last for two or three days, more or less, varying with the individual, and with the degree to which bromization has been carried. In some cases, indeed, in the majority of cases, it is, perhaps, a wise, as it is certainly a pretty safe, course, to take the bromide at night, in pretty good doses, or in sufficient doses to keep up the mild bromization, just within the edge of the symptoms, but not far within them, so as to feel slightly drowsy by day, and to sleep very soundly at night, and so as to be prepared for any storm, if it should arise. For those, however, who are especially sensitive to seasickness, and who have reason to dread it as a terrible thing, as it really is, and who know, or even suspect, that, when once it attacks them, it will keep hold of them during the voyage, or for several days, it is not safe—certainly not, on crossing at most seasons of the year—to allow many days to pass without taking more or less of the bromide, no matter how smooth the sea may be; for oftentimes it happens that, though we retire at night in calm, we are awakened in the night, or in the morning, in an ugly storm, or at the tail end of a blow, and only a few of the passengers are found at breakfast next morning.

There are, in short, two errors to be avoided by those who resort to bromization as a means of preventing sea-sickness—the not taking enough, and taking too much. The idea is to take just enough to accomplish the purpose; but it is better far to take little too much than much too little. I have heard of several cases where the bromization was carried far beyond what is advised in this work, or what is necessary for the purpose. I heard of a gentleman who crossed the ocean last year, and who was taking the bromides under the advice of his physician, and who had been told, either by his physician or some one else, that the bromides would never hurt any body, therefore, he kept on taking them—although he was not at all sea-sick, and had already taken enough to keep from getting sea-sick—until he became dizzy, and showed symptoms of intoxication, and found it more or less difficult to get around the ship. In my writings there is no warrant for any such excess as this; but, even when carried to this extreme, nature will soon assert itself, and, in a few days the effects will pass away. We can, it is true, kill a person with the bromides, as surely as with the pistol, but it takes much longer, and large doses must be given, and must be exhibited frequently, to produce this effect, especially in case of special idiosyncrasy. The experiment I made on one of the “Maine Jumpers,” whose strange performances

I have described elsewhere illustrate this important fact in a striking way. As was mentioned, they cannot help jumping, when they are suddenly struck, and they repeat, automatically, and in an explosive manner, whatever is said to them, in any language. I was desirous of ascertaining what the effect of bromization would be on one of these remarkable cases; the particular point to be settled in my mind being, whether the condition was purely psychological, or partly psychological and partly physical; if the condition were partly physical, it seemed to me that thorough bromization would help the man, would be of some service, and make the subject, perhaps, able to resist, when he was struck or commanded to strike another. I, therefore, bromized one of the cases, on whom I was experimenting, so thoroughly, that he became dizzy, and, on going up-stairs, he fell and hurt himself somewhat; and partly on that account, and partly, I think, on account of the thorough bromization, and, probably, partly through superstition and fear, he was kept in bed for some time, but eventually fully recovered. I was not able to ascertain just how large a share mere bromization had in producing his symptoms. It is certain that the laymen who had charge of him feared, at one time, that he might die, and so notified me by letter.

I mention this not to alarm any one, and not

to deter any one from the free use of bromides, (with caution, and under the suggestions I have given); but that the darkest possible side may be presented, and to prevent any excessive and unnecessary over-use of this remedy.

6. The bromides, when used for a short time, even in large doses, do not, as a rule, have any permanently injurious effect; all the symptoms of bromization will soon pass away after the remedy is discontinued. This is true, even when such symptoms as the bromic breath and bromic acne, and even dizziness and inco-ordination have been produced. The evil effects that have come from bromides are the result of keeping up the use of the remedy for weeks or months, or, at least, for a very long time. Not a few of the nervous patients who consult me have been injured by taking the bromides in this way; they have abused a good remedy, and have gained weakness rather than strength, thereby. But I have never seen a person injured in that way, who took the bromides for a few days only, to prevent sea-sickness.

There are some persons who do not bear the remedy well, on land or at sea, or for any disease. Idiosyncrasies of this kind are not found very often, but they do exist, and are to be considered in practice; but even these are not permanently injured

by a trial of this remedy for a short time, or all that is necessary for an ordinary voyage. Those who read only what is written above, might get the impression that, in all cases, in order to insure prevention to sea-sickness, large doses of the bromides must be taken, and bromization must be produced. This, however, is quite untrue; in very many cases, a single large dose of bromide—one hundred grains, or so—is sufficient to overcome beginning nausea at sea, and to save a person from sea-sickness, and no more is needed the rest of the voyage. I have had the pleasure, in very many cases, to witness this result among my own friends who have been traveling with me. There are persons, not a few, who need no other direction than this: to have with them, at hand, for the emergency, a sufficient quantity of the bromide to put them well to sleep; it is not, however, wise, for those who are very sensitive and impressionable to sea-sickness, and are liable to suffer severely from it, to stop short of bromization.

7. The bromides may, in some cases, be supplemented by the chloral, with advantage.

Chloral—as stated in the body of the work—and, as is generally known—is not so safe a remedy for popular use as the bromides; but, under medical supervision, it is entirely proper, and, in some cases, it may be a great help to combine chloral with bro-

mides on shipboard. The advantages of this combination are, in some cases, as follows :

The more speedy production of sleep. This is much to be desired in persons who are predisposed to sea-sickness ; and at night, especially, it is an advantage beyond measure to be put in profound slumber before there has been time for sea-sickness to appear.

I doubt whether the effect of the chloral, by itself alone, is equal to the effect of bromization as a preventive of sea-sickness ; but the combination may produce sleep where bromide alone might not—that is, in a short time. Persons, for example, who have neglected the preliminary bromization treatment, and who find themselves on shipboard, in fear of sea-sickness, may, very properly, put themselves rapidly under the sedative influence of chloral and bromide combined. It is necessary, however, to recognize all along, in treatments of this kind, the fact that chloral is to be dosed out more carefully and mathematically than the bromides. I do not hesitate to give the bromide of sodium by the teaspoonful, or by the half-teaspoonful, dipping it out as I would sugar, when administering it to persons with whose constitutions I am familiar, and who, I know, are to be under my direct observation ; but chloral should be given in mathematical doses of

five or ten grains, if used in combination with the bromides.

In cases where the stomach is already weak, and throws off whatever is taken very soon after it is swallowed, a little of the chloral may be retained or absorbed by it, and thus prepare the way for the bromides. The mixture may be taken by the table-spoonful every five minutes (although the vomiting continues) until enough is absorbed to affect the system.

This year, while returning north from Savannah, on one of the Savannah steamers, I was asked to see a lady who was suffering from sea-sickness. While in Florida, she had consulted Dr. Lente, who prescribed for her the preliminary bromization treatment, which she properly carried out ; but, as happens so often in traveling in that region, the steamer failed to connect with the New York steamer, so that they were obliged to wait several days before they could leave, and during that time she had lost, to a degree, the effect of her bromization. The patient was of a sensitive organization, and was excited from long attendance on a sick relative, and thus was prepared for sea-sickness. When I saw her, she was already in a condition where nothing could be retained on her stomach ; the solution of the bromide was thrown up very soon after it was swallowed. My hypodermic syringe I did not have with

me, and no atropine, and no caffeine. I, therefore, gave chloral, in the hope that, although each dose would be pretty soon thrown up, yet sufficient might be absorbed to act as a sedative. This result seemed to follow, and she was very soon relieved. This case, I may remark incidentally, was interesting, on account of extreme nervousness, which is one of the most distressing of all the symptoms of sea-sickness. Patients who have this symptom feel as though they would like to fly; they cannot keep still; they are sometimes semi-hysterical, if not absolutely so, and their distress from this symptom is far greater than from nausea and vomiting. I have seen one case where the bromides seemed to fail, apparently, to relieve this symptom entirely; in this case the chloral, given in the way prescribed, relieved this distressing nervousness, and also the other symptoms.

Chloral may also be given by itself alone, without any bromides, and in wafers, which will keep for a very short time at sea. All these recommendations of chloral are given with the understanding that it is to be used under medical direction, either before sailing, or at sea, and that the patients know just how many grains they are taking at each dose. Chloral, like the bromides, may be used by injections in the bowels when the stomach will not retain medicines; and, in this way, the system can be

quite rapidly brought under its influence. This procedure is some trouble, but anything is preferable to severe sea-sickness. On very long voyages, as across the Pacific, I have recommended that the bromides should be supplemented or alternated with moderate doses of chloral; and, with the precautions here indicated, I believe it to be, for some cases, good practice.

8. The other remedies that are advisable in sea-sickness, as caffeine and atropine, have not been used as extensively as could be wished. The number of cases where the symptom of sea-sickness is headache, is so great, that every person who goes to sea, and is liable to suffer in this way, should be provided, at least, with a moderate quantity of citrate of caffeine. The atropine can only be given hypodermically by the physician; but caffeine, in three-grain doses, or less, or more, in some cases, can be used domestically up to a certain point; but it cannot be used as freely as the bromides, and it is not necessary that it should be so used. A little powder of citrate of caffeine, placed dry on the tongue, will be retained, when everything else will be thrown up, and, in some cases, will relieve, in a magical and incredible manner, the troubled feelings of fullness, and throbbing, and distress in the head, which are sometimes the only symptoms of sea-sickness;

but I would not restrict its use to this symptom, but give it in any stage.

It will be seen, from what is here stated, that there is no single exclusive preventive treatment for sea-sickness ; it is rather a plan of treatment that is advocated in this work ; but, as it is easier to state one fact than several facts at once, the portion of this work referring to bromides has received exclusive attention, while the other portions have been ignored almost entirely by the profession and the laity. This is, I am sure, a mistake on the part of those who are studying this subject either scientifically or practically ; for, although bromization is the best of all preventives for sea-sickness, yet, practically, so many will be ignorant of, or neglect this remedy, that it is well to be provided for emergencies in the case of persons who are not bromized, or insufficiently so ; and for these persons the caffeine, and atropine, and cannabis indica, and chloral may be needed.

I have experimented during the past year, and have had a number of others experimenting for me, with a combination of very small doses of bromide, with belladonna and ipecac in very small quantities, with capsicum. This combination is to be administered during sea-sickness, or while it is coming on, to settle the stomach so that it will bear a full dose of the bromide.

Dr. Wm. F. Hutchinson, of Providence, called attention, in a letter published in the first edition of this work, to the value of very small doses of bromide in combination with a very small dose of ipecac during an attack of sea-sickness, and it seemed to me that, by uniting the belladonna and capsicum with the bromide and ipecac, it would be possible to give temporary relief, at least, to persons who were on the borders of sea-sickness, and make it possible for the stomach to retain enough of the bromide to get under its influence. In emergencies—for example, when a storm has unexpectedly risen, and the passengers are unprepared for it—a combination of this kind is well in order, and I have used it successfully in such emergencies, and it has been so used by others. I have not fully made up my mind as to the exact dosage of the different substances in this combination, but a teaspoonful, which would contain a few grains of the bromide of sodium, with from one to three drops of tincture of belladonna, and a half-drop of tincture of capsicum, and one two-hundredths of a grain of ipecac, seems to have a very pleasant effect in many cases; indeed, in the majority of the cases in whom I have tested it; but, in very bad cases, it fails, being thrown up at once, before it has had time to produce any effect. In mild cases, it seems to be all that is necessary. There are a certain class of persons who, on ship-

board, are attacked with nausea, and who, if they have that attack, are relieved by some remedy of this kind, and are well for the rest of the voyage.

I advise no one, however, to trust to this combination, or anything else that can be used at sea, but to go on board prepared not to be sea-sick, in storm or in calm, whether the voyage be long or short.

I made, myself, the experiment, this year, of going to sea without being bromized; the experiment was made intentionally and deliberately, so that I might test on myself the value of palliative remedies. The result was not very satisfactory. I became sick, as I always do when the sea is heavy, and threw up the palliative combination; but, after some difficulty, I got myself under the influence of the bromide, and was safe for the rest of the voyage.

Nitro-glycerine has been employed for the relief of sea-sickness. It is taken in tablets containing one-hundredth of a grain. A writer in a British medical journal says, on taking this dose at sea, a fullness and throbbing appeared, and, although the nausea had subsided, there remained a qualmish feeling at the pit of the stomach, which did not disappear on a short voyage on the English Channel. The same writer states that, on this voyage, he gave one-third of a tablet each to two boys—one six, the other

eight—who were taken ill very early in the voyage, with excellent results.

From these and other experiments, the writer recommends that, on short voyages, nitro-glycerine, in doses of one-hundredth of a grain, for adults ; one two-hundredths or three-hundredths, for children and delicate grown people.

Unless nitro-glycerine accomplishes more than the nitrite of amyl, it would be of little value in sea-sickness for any considerable number of cases. The difficulty with all these various remedies that are constantly recommended is, that they are not fairly and properly tried, with a large number of people, before the accounts recommending them are published. No person with a large experience in the treatment of sea-sickness, and with the power of using his experience, would ever have recommended the nitrate of amyl, with any enthusiasm, as a means of relief in this disease.

In the first edition of this work, it is said that no ship, on any sea, is provided with the medicines for the cure of sea-sickness. This statement is now not entirely true. I am informed, for example, that the late Dr. Dore, of the steamer "City of Richmond," of the Inman Line, had provided the remedies for sea-sickness, and I have no doubt that other vessels are also much better provided, in this respect, than they were one year ago, and,

probably, the time will soon come when passengers will not need to provide themselves with the bromides and the caffeine, and so forth, as has been necessary to do, except in their preliminary treatment on shore. It is, however, an advantage to have the bromide convenient and near at hand, so that it can be got at in a moment, and without any difficulty. This is a practical matter of very great importance at sea, where exertion of any kind is distasteful.

Great improvements are made every year in our steamships, and the additions for the comfort and convenience of passengers are of a most important character; and it is probable that the companies will, in time, see the necessity of providing their ships with the remedies for the prevention and treatment of sea-sickness, by the introduction of which, already ocean travel has been considerably increased, and by which it is destined to be much more increased in the future. There has been a disposition on the part of some ocean travelers, who have received benefit by this treatment, to censure the companies very severely in not being prepared to use it; but, in justice to the companies, both American and European, it should be remembered that this plan has only been fairly before the world for one year; and that it should not be forgotten, also, that a new and revolutionary truth cannot usually be

popularized in much less than a quarter of a century. For the steamship companies to take up immediately a method of treatment which, in philosophy and in practice, overturns the experience of the ages, in the face of the fact that specifics without number have been introduced during these ages, is not to be expected; for the present, sufferers, or those who expect to suffer, or rather, those who wish to avoid suffering, must take the matter, to a certain extent, in their own hands.

It is satisfactory, also, to be able to state that the bromide of sodium can now be obtained in Europe, and, in some places, in as large quantities as may be desired; at least, in Liverpool, and, I am told, also in some of the drug stores of Paris. One of the chief druggists in Liverpool informed me this last year, that he put up large quantities of this remedy for travelers; but he also informed me, to my astonishment, that he was putting it up in ten and fifteen-grain doses, and he further said, that many of the passengers, who asked for the remedy, supposed that they were carrying out the plan of treatment recommended in this book. If any persons, who take the bromide in these small doses, fail of preventing sea-sickness, they must blame themselves for not having taken pains to get correct information on the subject.

Illustrative cases.—I have received from friends and from strangers, accounts of their experiences with the plan of treatment here recommended. One physician, who had spoken to me on the subject, writes as follows :

“I promised to let you know the effects of bromide of sodium in the case of my wife. She returned a few days ago, and I am happy to inform you that the bromide was a perfect success in her case ; she was not sea-sick a minute, either in going or coming. The dose was sixty grains three times a day before sailing, and ninety grains on the day of sailing ; after that none. She never missed a meal the whole voyage. The only inconvenience experienced was a very thickly-furred tongue, with dry mouth, to relieve which claret and soda-water was found the most efficacious.”

The interest of the above case lies in the fact that the lady had never been able to go even as far as Sandy Hook without suffering from sea-sickness. She was, as I understand from her husband, peculiarly susceptible to this disease. There are large numbers, similarly susceptible, that have crossed the ocean the past year without any sickness.

A well-known druggist of New York writes as follows :

“We had, to be sure, a very smooth trip, but a large amount of sea-sickness in consequence of the

motion of the screw, as well as the water. I treated fifteen or twenty passengers, who had no previous bromide of sodium treatment, according to your instructions, in doses of twenty to sixty grains. All got well on the same day, with the exception of one lady, who suffered from severe headache, which yielded to two grains of citrate of caffeine."

The following letter was sent me by a lawery located in a Western city : " Some days before sailing we asked the advice of our physician concerning the remedy suggested by you in your work on seasickness. This physician recommended the remedy, and under his advice we took the powders for two and a half days prior to sailing. At first we took thirty grains, but on the second day increased it to sixty grains, the powders producing a pleasant feeling of drowsiness. After the vessel sailed we continued to take sixty grains a day for the first three days, then reduced the quantity to one powder of thirty grains upon retiring at night. During the last three days of our trip we have not used it. The drowsy feeling passed away in a few days ; we slept uninterruptedly, and the sleep was very refreshing. We have taken every meal provided by the ship, and our appetites have never been weak. We have not been sick, nor have we had any symptoms of sea-sickness, although we have never prior to this

been in a situation where sea-sickness could be expected.

“We have had opportunities of watching the effect of your remedy on many of our fellow-travelers on this trip, and in every case it relieved and cured the patient ; in some cases the effect was very noticeable, and almost instantaneous. We desire to bear testimony to the efficacy of the bromide, and to express our heartfelt thanks for the pleasant trip we have had.”

The above was written while on board the steamer, and mailed me from Europe.

I had heard that a distinguished medical friend had taken the bromide treatment thoroughly, and that it had failed in his case. I said to myself, if this is true, then I have found two cases where bromization has failed ; previously I had learned of but one. I wrote to him, and in reply received the following letter :

“DEAR DOCTOR: my case proves nothing. I was not sick going over ; sea smooth, took no sodium. On my return I took two large doses of bromide, at Liverpool, to procure a good night’s sleep, and at least two drachms on shipboard. On third day out was very sick ; sea rough. You see, I am not a competent witness from personal experience.”

In closing I would urge, what in America

seems, perhaps, hardly necessary, the more frequent indulgence in sea voyages than is the custom among travelers. The great dread of sea-sickness has disappeared at last ; only those suffer from it who prefer to do so, as some do ; and it is now in the power of those who have the opportunity, to take long or short voyages, as they please, without experiencing one of the severest forms of suffering of which the system is capable, and with the hope—which in very many cases is realized—of obtaining benefit thereby.

Many persons have said to me that they are waiting for the perfection of the method of treatment described in this work, and for the confirmation of the experiments recorded here, before undertaking the voyage to Europe. There are large numbers who all their lives have desired to cross the sea, who have not done so for fear that the agonies of sea-sickness would more than counterbalance the delights of travel in distant lands. To all such I would say, that the obstacles in the way of their travel are taken away, and that, by carrying out the rules presented in this work, they may be able, in the majority of cases, not only to escape the horrors and the weakness of sea-sickness, but also to positively enjoy the experiences of the voyage. Travel between Europe and America, great as it is, and increasing as it is, ought to be, and in time will

be, ten-fold greater. Travel rightly used is an educating force, as well as a tonic and sedative to the nervous system, more economical, more agreeable and more useful than much of the teaching of the college and the seminary ; and, as I have pointed out in my work on nervous exhaustion, it is, although not indicated for all classes, and not a specific for the nervous in any way, yet an excellent adjutant and supplement to other hygienic and medical treatment.

Although I am consulted frequently by patients who have been disappointed in sea voyages which have been recommended, yet in other cases, where the system has been properly prepared and furnished for travel, they find benefit which is sometimes of a permanent character ; and this benefit would be found oftener, did not patients suffer themselves to be wheedled and coaxed and bullied into the delusion that sea-sickness is healthy, and is necessary for those who would get strength from the voyage. Another delusion connected with this subject is that it is not well to take medicine of any kind while you are traveling. In the brain of what non-expert this absurdity took its origin I do not know ; but I do know that it is now wide-spread, and that many persons of reasonable intelligence in other matters believe, and act upon the belief, that while traveling it is better to abstain from all medi-

cation ; whereas travel and medication re-enforce each other, the one being more delightful, and the other more effective, oftentimes, when taken in combination.

The fear of the sea is so great that thousands who annually visit Florida and our Southern coast, prefer the tiresome land to a delightful sea route. There are no better ships of their size than those which run between New York and Savannah, and the Charleston line, I am told, is constantly improving ; and yet these elegant steamers carry but a small percentage of those who annually visit Florida and the Carolinas, and for this reason, mainly, that travelers dread sea-sickness, and do not know that it is a disease from which they do not need to suffer. This fact of preferring land to sea trips southward is noteworthy and impressive all the more for this, that the railway lines between the North and South have not yet obtained absolute perfection ; interruptions without number, and beyond all calculation or forecasting or fore-inquiry ; broken bridges and connections dislocated ; a slowness of motion over ill-ballasted roads, that probably have no parallel in any country where roads exist ; railways and stations without heads or control, where whatever is done seems to be done not in obedience to any command or fore-ordination of any human being whatsoever, but by a constant

series of miracles outside of all human calculation or estimation ; such were my experiences in traveling southward by the various railways ; the differences between one line and the other being mainly this : that whichever one you take you will agonizingly repent, and wish you had taken some other. For those in health, with iron frames, capable of bearing great fatigue, sleepless nights, and days of disappointment, and disjuncting of all plans and expectations, and whose means and time have no limit, the land trip to Florida may very well be undertaken, inasmuch as they will have, on the route, by forced stoppages, ample opportunity to see and study the interesting country through which they traverse ; but for invalids, who are after health and peace and rest, and who desire to reach the warm belt of the South the same season in which they start, it is a series of risks to go by any of the railway routes, as at present organized. This is not a sectional matter, for most of these roads are under Northern control.

On the contrary, many of these same invalids would be benefited by short sea voyages, such as between New York and Savannah and Charleston, or even Fernandina and Nassau and Cuba, and if they are not sea-sick, as they need not be unless they choose, they will have a delightful experience. A trip to Europe is somewhat too long, the last three or four days being always tiresome, even to

those who are perfectly well, but our Southern trips are just about long enough ; unless we are sea-sick, we are in no special haste to be on shore, and there is not usually time for those wranglings and clanships and gossips and temporary imbroglios of nameless varieties, by which passengers on our first-class lines are apt both to disturb the peace and while away their time the last few days of the voyage.

One of the immense problems of the future of our country, pre-eminently, but more or less of all civilized countries, is how to reduce the increasing and unprecedented nervousness of our time? This is a question which I discuss elsewhere in my writings on that subject ; but here this point may be emphasized, and made clear, that short trips, especially sea trips, are a most important means of preventing functional nervous diseases of those who have not neglected themselves too long, and allowed the nervous symptoms to get too firm a hold upon them. Sea voyages are better as preventives for those who are going to be sick than as curatives for those who are already sick.

Land Sickness (Travellers' Sickness).—Land-sickness, which is much similar to sea-sickness, though not so severe, and which is so very often experienced by those who take long rides in stage-coaches, or on the cars, or in some cases in the ordinary carriages,

has also been proved very amenable, indeed, to the bromization treatment.

Persons who are prostrated, and made excessively and distressingly nervous by railway and stage travel, and to whom a trip across the continent, for example, may be almost as serious as a voyage to Europe, though manifesting itself by a different class of nervous symptoms than the ordinary sickness at sea—who are liable, on such trips, to suffer greatly from headache and backache, and nervousness and exhaustion, to a degree as to take away all the pleasure and compensation of traveling, have found incalculable relief by very mild bromization, as well as by occasional use of caffeine and cannabis indica. In the treatment it is not usually necessary to carry bromization any where near as far as in sea-sickness ; a much less quantity of the remedy will answer the purpose, and it need be kept up only as it may be necessary to obtain a comfortable feeling, and induce agreeable sleep at night. I find that not an inconsiderable number of my nervous patients are liable to be annoyed, more or less, in some way, and many ways, by railway and stage travel.

And I have met with a number of cases that cannot ride in a carriage any distance, without suffering at the time or subsequently, and there are nervous invalids, who horribly dread the thought of trans-

portation, either for medical treatment or for change of environment. By carrying out these suggestions, with proper directions and good judgment, many of these need have no difficulty in traveling, even for considerable distances.

ADDENDA TO FIFTH EDITION.

SINCE the publication of the last edition of this work, the plan of treatment herein suggested has been carried out on a larger scale and more extensively than ever before.

This experience has established these two facts :

First—that in the majority of cases, sea-sickness can be absolutely prevented, or very greatly relieved, by a faithful, methodical and judicious use of this plan of treatment.

The highest success is obtained by those who are located under the eye of the physician who understands the remedies—how to use and how not to use them ; and when practicable, this plan should be adopted always. But even non-experts—those who know nothing of sea-sickness or of the remedies used for it—can and do find prevention and relief, and without injury, as a rule, provided they carry out the general directions, and are successful in avoiding the two extremes of not doing enough and doing too much.

Secondly—in a certain proportion of cases, injurious effects, usually, if not always, of a temporary character, have resulted from an excessive or prolonged use of the bromides, when taken without proper medical supervision, and in entire disregard of the cautions laid down in all the editions of this work. One person was made in-

sane, it is said, by the use of an immense quantity of the bromide, kept up for a long time, and jumped overboard. One of my personal friends was made insane temporarily by an excessive and prolonged use of the same remedy, and a number of others have been made dull, and more or less stupid, some time after landing. These effects, bad as they are, are generally temporary, and they pass away, leaving the person as well as before. Thus my friend who was made temporarily insane will use it on his next trip to Europe, both for himself and his family, but will have some one to watch him, and see that he does not carry it to an extreme. These evil effects can be, should be, and, as a rule, will be, avoided. Bromization is to sea-sickness what vaccination is to small-pox; and the evil effects of bromization, like the evil effects of vaccination, can, as a rule, be guarded against. This last year, a friend of mine, coming with me from Europe, was able to be present at nearly every meal, with a good appetite, through the severest storms, when scarcely half a dozen of the whole body of passengers were at table. This result was obtained by not much more than an ounce of bromide during the whole voyage, given under my personal supervision day by day; had he taken double or treble the quantity, he would, temporarily, at least, have been injured. This person had been across the Atlantic at least twenty times

before, and had always been sick and miserable, even when the ocean was smooth.

This case is one of a large number of similar cases that have come under my personal observation, or that of my professional friends in different parts of the world. Dr. Benjamin Howard, of London, who was temporarily in surgical charge of the "City of Berlin," tells me that his experience confirms all the claims here made in regard to the whole plan of treatment; but declares, and I quite agree with him, that each case should, if possible, be studied by itself, and the effect of the remedies carefully considered.

The following letter is as strong an indorsement of this plan of treatment as could well be conceived:

George M. Beard, A. M., M. D., New York city.

DEAR SIR,—Since you have demonstrated to us a safe and effectual means of treating sea-sickness, in common with many members of the profession, and a far greater number of those who have derived benefit from your treatment, I desire to express my thanks and gratitude. I have had considerable experience, which, with your permission, I will briefly relate.

About three years ago I began to use the bromides in treating sea-sickness, following as nearly as possible the directions given in your most valuable monograph on that subject. I had then been in the service of the Pacific Mail S. S. Company nearly four years, and as my field for experiment was large, I had tried nearly every drug, or combination of drugs, that had ever been proposed for the cure or alleviation of this disagreeable malady. Repeated failures and humiliating disappointments had so

shaken my faith in the power of drugs over this disease that I began to use the bromides with a good deal of doubt and hesitation. Greatly to my surprise and gratification, however, I found that I was able to entirely prevent or alleviate the disease, and have not one single failure to record. The following is the combination I most frequently employed, viz.:

℞—Sodii Bromidi ʒ iv.
 Ammonii Bromidi ʒ ij.
 Aquæ Menthæ Piperitæ f ʒ iij. M.

Sig.—A teaspoonful before meals and at bed times; begin treatment three days before going on board.

When preparatory treatment had been neglected and the disease fully established, I put a teaspoonful of the above in a half tumbler of water, add a drop of Ext. Epecac Fld., and give a teaspoonful every five minutes. It generally relieves the patient in less than an hour. I have received several letters from passengers asking me to send them the above formula.

Next to the bromides I have found hyoscyamia the most successful remedy. Atropia will frequently afford relief, but is not altogether safe, as I have noticed a few cases of retention of urine to follow its use. I gave nitrite of amyl a fair trial, but it proved a complete failure. I have notes of several cases where the bromides entirely prevented sea-sickness, during voyages of from twenty to thirty days, although these patients were always sick on previous voyages.

I have written very hurriedly, but should you desire to use any part of it in connection with my name, you are at liberty to do so.

Very respectfully,

Your obedient servant,

MILAN SOULÉ, M. D.,

Member British Med. Ass'n, &c.

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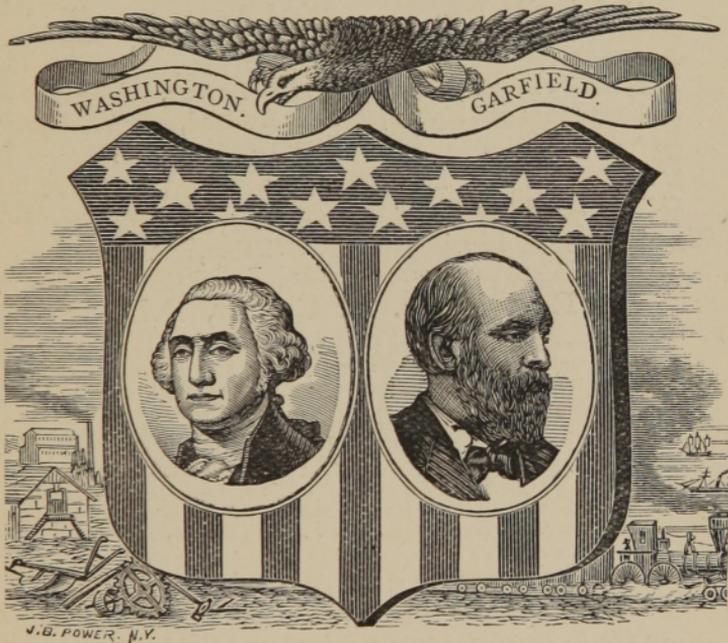
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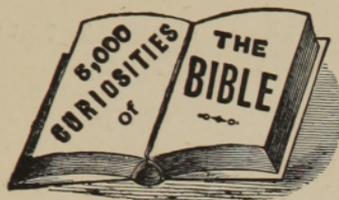
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