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AMERICAN HEALTH PRIMERS

SEA-AIR AND SEA-BATHING

PACKARD

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AMERICAN HEALTH PRIMERS.

Edited by W. W. KEEN, M.D.,

Fellow of the College of Physicians of Philadelphia; Surgeon to St. Mary's Hospital, etc.

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"Who does not love to shuffle off time and its concerns, at intervals,—to forget who is President and who is Governor, what race he belongs to, what language he speaks,—and to listen to the great liquid metronome as it beats its solemn measure, steadily swinging when the solo or duet of human life began, and to swing just as steadily after the human chorus has died out and man is a fossil on its shores?"

The Autocrat of the Breakfast Table.

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SEA-AIR AND SEA-BATHING

CHAPTER I.

INTRODUCTION.

THE following pages are intended to explain how and why people derive benefit from sea-air and sea-bathing; to show in what way these advantages may be best obtained, and to point out how the accompanying risks may be avoided. The subject is one which must always possess interest for those who resort to the sea-shore for its sanitary effects upon themselves, or upon invalids or children under their charge. But there are many matters involved in it which may well engage the attention of those also who go thither merely for amusement and relaxation.

The author's experience and observation have been derived mainly from many summers of residence on the shore of New Jersey; but the general principles to be set forth are such as are equally applicable in any locality. No material difference exists between

the effects of sea-bathing at one place and those at another; the same ocean washes the coast of this country and that of England or France, and the same effects may be looked for on the American bather as on the Englishman. A very slight lowering effect may be produced upon the temperature of the water along the eastern shore of North America by the cold current setting downwards from the Arctic Ocean, as compared with that part of the Gulf Stream which travels across to the British Isles; but the difference in thermometric observations taken on the two coasts would probably be noticeable only in the average of a very long series. The variation from day to day at any one point on either would often be far greater.

Bathing is resorted to for the objects of health, pleasure, and cleanliness; sea-bathing, for the two former especially, since salt-water is much less active as a cleansing agent than fresh, and the usual circumstances and mode of its employment are much less favorable for thorough washing than are those of the fresh-water bath. And yet, if the skin is kept in a state of activity by exercise, the complete immersion of the body in even salt-water will carry away its secretions, and a great deal of the effete cuticle or scarf-skin will be gotten rid of by energetic use of the towel in the process of drying. This is the true *rationale* of a pure skin; and many a "sweaty"

laborer is actually cleaner than those who would call him dirty, and shrink from contact with him. Upon keeping the skin (which is a most important organ of excretion, or the throwing off of waste matters,) in such a sound and wholesome state of activity, the health of the entire system largely depends. Hence many persons, bathing for the mere pleasure of it, unconsciously obtain cleanliness and health also. Certain it is, that cleanliness in itself is not so highly valued by most people that they would resort to bathing to secure it, were it not for the pleasure derived from the latter.

Baths are classed according to the medium employed, whether air, vapor, sand, or water. Water is much the most commonly used, and may be fresh, salt, or variously medicated; the body may be partially or wholly immersed, or it may be sponged, showered, or douched. Another very important classification has reference to the temperature of the bath.

The *hot-air* bath is simply an exposure of the body to dry air at a temperature of from 130° to 160° Fahrenheit. It is productive, at first, of stimulation of the skin and lungs, as well as of the circulation. In a few minutes a copious sweat starts out, and there is a sense of fulness and constriction of the head. This bath can only be used for a short time; its secondary effect in suitable cases is tonic.

The *Turkish bath* consists, as used in Philadelphia,

of the following processes: (1.) A dry hot-air bath, at a temperature of 140° to 170°, according to location in the room (sometimes the air is raised to 220°, but seldom). In this the bather remains from ten to fifteen, twenty, or thirty minutes, if cool and comfortable, and perspiring freely. If thirsty, he is allowed ice-water to drink. Often the difficulty is, not to keep bathers in this room, but to induce them to leave it. (2.) Shampooing, in a moist air at 100° to 110°, preceded by a hot shower-bath, if desired, to wash off the sweat. This process occupies ten to thirty minutes, or longer. (3.) Soap and brush are now used, and then a hot or warm shower, followed by either a cool shower or a turn or two in the swimming-pool. (4.) The body is now thoroughly dried, great care being taken with the hair, and a brief rest is taken before the bather goes away. These various steps are modified somewhat to suit individual cases.

The *Russian bath* differs from this only in the fact that the steam-room, at a temperature of from 100° to 150°, is used instead of the dry hot-air room.

The *Turko-Russian* bath, which is very popular, is a combination of these two, the dry hot-air being taken first, followed by manipulation, shampooing, and showers; then the steam, followed by cool or cold showers, swimming, and drying. Dr. Lutz, the proprietor of the Philadelphia "Thermæ," lays down the rule that one ought never to stay in either the

hot air or the steam room, if in anywise oppressed, or to use very cold water afterwards, if one feels any shrinking from it.

Sand-baths are of very ancient date, and consist simply in burying the body in hot sand on the sea-shore or near some hot spring (or in sand artificially heated). Establishments for the methodical application of this remedy may be found in Dresden and some other European cities.

Trousseau recommends douches of hot sand (140° to 158°) in some cases of articular rheumatism.

Sun-baths may, perhaps, be mentioned here, as they are considered by many persons a great luxury. They are nothing more than exposures of the body, naked or lightly clothed, to the sun's rays. Of course, the head should be protected.

Mud-baths are used at many spas of Germany. They are prepared by working up peat-earth with mineral-waters into a pultaceous mass, which is brought to the desired temperature (85° to 100°), and the patient immersed in it. After a suitable time, he is transferred into a warm-water bath, for the purpose of cleansing, and then dried. Baths made with sea-mud are in high repute in some parts of Sweden and Russia.

Pine-leaf baths have been used in some cases, especially of chronic muscular rheumatism, with supposed advantage. An extract of the leaves, or a

decoction, strengthened by the addition of the product of distillation of the juice, is added to water in the desired quantity. Such baths are strongly stimulant to the skin, at a lower temperature than the ordinary hot-bath, and their perfume is agreeable. The resinous evaporation has, moreover, a soothing and tonic effect upon the mucous membrane of the air-passages.

Baths of this kind are to be had at many German spas and watering-places; but are in this country mainly, if not entirely, in the hands of irregular practitioners.

Baths are classed according to temperature, as follows: Below 85° Fah., they are called *cold;* between 85° and 95°, *tepid;* from 95° to 104°, *warm;* and from 104° up to 110°, *hot.*

Very great mistakes are often made in estimating the temperature of the water used for bathing, as in that of rooms or of the person. The only accurate test is the thermometer. People sometimes speak of water as "icy cold," when in reality it is not below 60° or 65°. On the 16th day of September, 1879, in taking my morning bath, which felt quite cold to my skin, I found by the thermometer that the air was at 68°, the water at 72°. I had some curiosity to see whether the temperature of the water was raised by the immersion of my body for one minute, during which time it seemed to me that I was giving off a

good deal of heat; but could not perceive that it was so in any appreciable degree.

A marked difference exists between bathing in still and in running water; the latter seeming to be colder, from the constant bringing of fresh, cold water in contact with the skin. Somewhat the same result is brought about by the bather moving in still water; but it is in some degree counteracted by the muscular effort involved in doing so. Of course, this condition obtains in an eminent degree in surf-bathing.

The effects of baths vary greatly with the temperature of the water employed. In general terms, it may be stated that the cold bath is at first depressing, and then, by reaction, stimulating; the tepid or warm bath, relaxing and prostrating (persons have often been known to faint from too long continuance in them); the hot bath, stimulating. Hence, a good deal of judgment may be needed to determine the propriety of employing one or the other form of bath in any special case. Of course, the surf-bath, the one by far the most used at the sea-shore, is a cold bath, modified somewhat by the exercise commonly involved in taking it.

The *hot salt-baths* lately established at many sea-side resorts have some very great advantages. They are very stimulating, and form an admirable tonic in cases of convalescence, in rheumatism, and in many chronic affections.

They are not followed by depression. They excite the functions of the skin and tone up the whole system. The only caution to be observed is to have them of exactly the required temperature, and this is generally that which is most agreeable,— and not to remain in them too long. Ten minutes is usually long enough to derive all the benefit they can give.

Sponging with hot salt-water is very useful in many cases of debility. It may be done without fatigue to the patient by simply putting a piece of water-proof cloth beneath the part to be bathed,— one arm at a time, then the other, then the legs successively, and thoroughly sponging each part.

A salt- and whiskey-bath is very refreshing, and, of course, more stimulating than that with salt-water alone.

Still another classification of baths is based on their general or partial character. Besides those which consist of immersion of the whole person, there are foot-baths, sitz-baths or hip-baths, and various other local applications of water, mainly for remedial purposes.

We may properly mention here, also, the different modes of applying water to the whole or a part of the person.

Sponging is an extremely valuable method. Many persons who find the plunge-bath too severe for them in the winter season, are in the habit of sponging

themselves all over with cold water every morning, and with the most agreeable effects. The slighter shock of the cold thus applied induces a reaction which fails to occur after the powerfully depressing influence of an immersion of the whole body in a tubful of water at 50° or lower. Locally, the hot sponge-bath is very useful in many cases as a remedy.

Although chiefly used in the so-called water-cure establishments, the "wet-pack" is sometimes employed under other auspices, and proves very beneficial. It consists in wrapping the body and limbs in a large sheet wrung out of water at the desired temperature. One objection to this plan in private life is that to carry it out thoroughly the aid of an attendant is required.

The douche is a local shower-bath, much used, and ingeniously modified to suit special cases. Its effects are also, of course, local, except when it is employed in the ordinary form over the whole person, and this, with cold water, is very often felt as a greater shock than even the plunge. It, also, generally requires an attendant for its administration.

Of the plunge-bath we need hardly speak, as it is found in almost every modern house of the slightest pretensions to respectability, except perhaps in some country neighborhoods. For any one who can take it cold in the winter season, and react well after it, it

is an excellent tonic, and forms an admirable element in the daily exercise which should be a part of every healthy life. Hot plunge-baths are of course the best means of cleanliness, but they should be taken usually at bedtime, or, at all events, with caution as to subsequent exposure. Many a weary doctor would gladly end the day with a refreshing "soak" in his tub, but the dread of his night-bell forbids.

A great deal might be said in regard to all these forms of baths, as well as by way of discussion of the various applications of them in medicine and surgery. But this would be to introduce subjects foreign to the purpose now in hand, and those curious about them can readily obtain all the information they desire from more appropriate sources.

[Such information may be found in Walton's "Mineral Springs of the United States and Canada," etc., Appleton, 1873; in Braun's work, "On the Curative Effects of Baths and Waters," etc., translated by Weber, London, 1875; and in a book by the late Dr. John Bell, of this city, entitled "Baths and the Watery Regimen." (This latter is, I think, now out of print.) There is, also, a good article on Baths in the Encyclopædia Britannica.

The medical part of the subject is usually discussed at some length in treatises on Therapeutics.]

CHAPTER II.

GENERAL CONSIDERATIONS AS TO SEA-SIDE RESORTS.

THE difference between the atmosphere in an inland city and that in the open country consists mainly in the fact that the former is subject to constant contamination, and its movement so impeded that "fresh" air does not continually take the place of that which has become impure. Or, even if the air be in rapid motion, the area of pollution is so great that the very wind itself, the moving mass of air, is unwholesome. In the country, except, perhaps, in the neighborhood of marshes, there is an atmosphere which is not only pure, but continually renewed from a practically boundless supply.

At the sea-shore we have not merely a pure atmosphere, but one saturated with sea-salts. This is due simply to the breaking of the surf, and the dashing up of spray, which is carried in a finely divided state with the currents of air flowing towards the land. Such a salt-laden wind may sometimes be perceived for some miles inward from the coast. On the other hand, after a land breeze has prevailed for some hours,

the salt smell may become wholly imperceptible even at the water's edge; simply because there is no salt in the air forming the current. It is very seldom perceptible out at sea, unless there is a great deal of spray blown into the air from the tops of the waves.

Most persons are familiar, in a general way, with the difference between sea-water and fresh-water. The former contains an amount of salt (chloride of sodium), not indeed invariable, but nearly so, and always sufficient to justify the term "brine" as applied to it. If it dries on the clothing or skin, it leaves a perceptible incrustation of salt; and it is so much denser than fresh-water as to be in a marked degree easier to float or to swim in.* When, in still weather, heavy rain falls upon the surface of the sea, it often lies on it in a distinct layer, so that it may be scooped up in quantity sufficient to drink. Gradually, unless the wind agitates the waves so as to hasten the process, the fresh-water diffuses itself downwards, and mingles with the mass of salt-water below.

Besides chloride of sodium, sea-water contains minute but appreciable quantities of sulphate of magnesium, sulphate of potassium, and some other salts, besides traces of iodine, bromine, etc. For our present purpose, it is needless to go into particulars in regard to these constituents. The salts have, how-

* Taking fresh-water as 1000, the average specific gravity of sea-water may be stated at 1026.

ever, an important influence on the temperature of the sea-water, which is generally higher than that of fresh, because the heat of the sun's rays is felt not merely on the surface of the former, but penetrates the mass. As every school-boy knows, the temperature of the water of the Gulf-Stream is higher than that of the sea generally. On the other hand, the water that flows from the icy regions near the Poles is very much colder. These colder masses of water sink, and the warmer water, whether made so by the heat of the sun or by other causes, remains at the surface. Hence, as might naturally be expected, the result of temperature-soundings shows the deep-sea water to be everywhere much colder than the upper strata. From the deeper parts of the North Atlantic Ocean readings have been obtained as low as 29.5° Fah. (Geikie.) Near the shore, however, the shallower water is heated by the sun (and this process is facilitated by the contained salts and other solid particles), and the temperature is, of course, much higher.

As another result of its chemical constitution, the temperature of the sea-water is rendered also more equable.

The salts contained in sea-water are derived from the decomposition of marine plants and animals, as well as from the mud carried in vast quantities into the ocean by every large river.

We are told by meteorologists that, by recognized tests, it is found that the sea-air contains more ozone than that at inland places. This whole subject (of ozone) is as yet very obscure ; but it may be taken as a fact, that the presence of oxygen in this form is one important element of the tonic and stimulating effect of the atmosphere at the sea-shore.

Hence we have at the sea-shore a pure air, containing oxygen in the form of ozone, besides finely divided sea-salts, and water which is rendered stimulating by the presence of the same salts.

Upon most persons the effect of breathing this air is tonic and invigorating, producing an immediate sense of exhilaration, improving the appetite, and promoting digestion. In like manner, the bathing in salt-water stimulates the skin, and renders the circulation more active. Compare the pale, bleached, puny children, just out of the nursery and the school-room, who are taken down to the sea-shore in the early summer, with the same children returning to town in September,—tanned, ruddy, and hearty.

No doubt can be entertained, in view of often-observed facts, that the effect of exposure to sunlight upon animal life is directly invigorating. And when with this is combined the constant inhalation of salt-air, and the daily application of salt-water to the whole surface of the body and limbs, it is easy to see why children should gain health and strength at the sea-

shore. Adults do not generally show the same degree of improvement, because they are mostly subject to many drawbacks from which children are free. They lead more artificial lives, have more cares, and have lost much of the reactive power which marks the early years of life. This beneficial effect is especially noticeable in those who live inland, and who go to the coast for a change; but the robust health and long life so common among residents on the shore, afford proof of the salutary effect of the pure and stimulating air upon them.

There are those, however, who are never so well at the sea-shore as elsewhere; who find the air, as they express it, "too heavy" for them. And it sometimes happens that such seems to be the secondary effect upon those who are at first stimulated. This may be a mere notion, or it may be due to neglect of exercise, or to imprudence in diet, bathing, or other habits of life; but in some cases it is an indication not to be disregarded.

Sea-air and mountain-air, both exhilarating, both pure, both abounding in ozone, yet act somewhat differently upon the physical organism. The former is a more direct and immediate stimulant, and is more apt to induce a perceptible increase in the weight of the body in a short time. The latter is at the same time a rarer medium in which to breathe, and almost always, as would *â priori* be supposed, a much dryer

one. To the healthy frame, there is perhaps very little difference to be detected between the two; but it is found by experience that some invalids are benefited by one much more than by the other. Persons suffering from pulmonary diseases in some stages do better at the mountains, and some cases of affections of the heart are much relieved by going thither; while there are other cases of both classes in which sea-air seems to be far more beneficial. More particular statements can hardly be given here without entering too much into technical details.

Every one is familiar with the drowsiness apt to follow walking or driving in the wind. It is probably due to the reaction of the skin, and the increased activity of the surface-circulation, just as one can induce sleep by a cold bath, or by merely exposing the body or limbs for a few moments to the cold air. A very similar effect seems to be generally brought about by the sea-air, particularly during the first few days of exposure to it. There is a continual but not unpleasant sense of drowsiness, and the sleep at night is profound. After bathing, this languor, if it may be so called, is apt to be peculiarly evident, the "nap" taken then being to many people one of the most agreeable experiences of the day.

The climate at the sea-shore varies as it does elsewhere. When there is a sea-breeze, it is generally cool and refreshing; and persons leaving the stiflingly

hot atmosphere of a city may be surprised, on reaching the coast a few miles away, to find an almost chilly air blowing off the water. The *rationale* of this is simple; the air over the land becomes thoroughly heated, loses in density, and rises, thus creating a vacuum, into which the cooler air from over the sea at once rushes. During the summer season one may often observe this effect; the day beginning with intense heat, but a cool sea-breeze springing up at about ten A. M., to continue steadily until sundown, or later.

Perhaps the most unpleasant phase of weather at the sea-shore is experienced when a land-breeze prevails for several days; the heat may then be intense, and occasionally continues throughout the nights as well as during the daytime. Late in the summer, and through the early autumn, such a breeze brings hosts of mosquitoes, which add greatly to the annoyance due to the heat.

Occasionally there occur at the sea-side easterly storms, lasting a day or two. These are, of course, disagreeable, not only because they interfere with all out-of-door pleasures, but because the houses are not generally built or fitted up with a view to occupancy in any but warm weather.

Now during a large part of the summer season the changes between the various kinds of weather above noted are apt to take place at the sea-shore, as else-

where, suddenly, and, in some seasons, frequently. Hence it is better always to wear woolen clothing, however light and loose in texture; and thin gauze merino under-shirts, worn next the skin, afford a great safeguard against the checking of perspiration, or chilling, in case of a sudden fall of the temperature. Caution should also be observed at night, when it is often imprudent to walk or drive without extra wraps at hand.

It is a very common idea that there is no danger of "catching cold" from salt-water, whether applied to the surface of the body or existing in the air as spray or mist. And, indeed, the stimulating quality of the salt is such as to prevent, in some measure, the chilling of the skin, and the driving inwards of the blood upon the organs within the chest and abdomen. But this only holds good to a certain degree, and an imprudent exposure at the sea-shore may be followed by the same results as elsewhere. The risk is not set aside, but only lessened, by the counteracting effects of the tonicity of the air and water.

It may, however, be remarked that colds taken at the sea-side are apt, except in the case of persons weakened by previous ill-health, to be more manageable, and to run a shorter course, than at inland places. The same thing may be often noted in any bracing air, as, for instance, at the mountains.

For the sake of convenience, we shall take up first

the part of our subject which relates to the bathing season, or the sea-shore in summer.

The number of sea-side resorts has been greatly multiplied within the last few years. With the growth of population, and the increase in extent and density of the built-up portions of the cities, the heats of summer have become more intolerable, and the crowds seeking to avoid them have steadily augmented. From Maine to the lower end of New Jersey, the Atlantic coast is fringed with watering-places. Some of these, long established, have been greatly enlarged and improved; others are still struggling to obtain popular favor. Many of them are resorted to from long distances, even from Southern and Western cities. Old Point Comfort, at the mouth of the Chesapeake Bay, opposite Norfolk, is also a place deservedly of high repute as a sanitarium and sea-bathing place. On the coast farther south, there are very probably other very suitable beaches for health-resorts, but they are not widely known or largely patronized.

Along with this increase in the number of places of resort, there has been a great change in many other respects. About thirty years ago, the first private cottage was erected at Long Branch, by the late Commodore Stockton; and it was long the only one.*

* At Newport, Nahant, and perhaps at other resorts on the coast of New England, many private families had long been in

Now, at almost all these places, the great majority of the buildings are of this class. Cottage life at the sea-shore has, indeed, become a very marked phase of our social system, and will be made the subject of a special chapter.

Intermediate between the private cottages and the great hotels there is a large number of boarding-houses, some of which, indeed, although called "cottages," are really hotels in size and arrangements. There is somewhat less formality in the social life at these houses than at the hotels, and the prices are lower; they have fewer transient guests, and more families, or boarders who engage their quarters by the week, month, or season.

With these increased accommodations, at a very much greater number of places, and with a far larger body of visitors to be transported to and fro between them and the cities, it was simply a matter of necessity that the facilities of travel should be immensely augmented, while the growth of the railway system contributed largely to the development of new resorts.

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the habit of occupying cottages during the summer. But in most cases this was at towns where there was more or less of a resident population, and not at mere watering-places consisting chiefly of hotels. On the New Jersey coast, the instance above noted was the first, except, perhaps, Commodore Stockton's other house, Sea-Girt, near Squan Beach, which, I believe, was used chiefly for shooting and fishing.

There are now very few sea-side places which cannot be reached from one or other of the large Eastern cities by a short railroad trip. Express trains are run at such times as to enable business men to get readily to town in the morning and back again to the sea-shore at night.

The result of all this has been another change, in the time spent at the sea-shore. Not very many years ago, the man who gave his family a week or two away from home during the summer was thought to do very well by them. Now, even those of very moderate means can contrive to place their wives and children in comfortable quarters by the sea-side, and to spend at least the Sundays with them, perhaps for the whole summer. This change has been more marked in reference to places on the sea-coast, although it has occurred to a great extent also in regard to the country and the mountains.

Of the importance of this matter, especially to young children, it would be difficult to speak too strongly. Oftentimes the first fierce onset of summer heat will so prostrate a child as to endanger its life. This statement is made from personal observation, and can be borne out by the experience of many a family. The utmost care for the rest of the summer may scarcely suffice to undo the effects of such a strain upon the vital powers. Hence it is highly advisable, where it can be done, to avoid this danger

by an early removal from the city to the purer air of the sea-side. Especially when children have been the subjects of any illness during the previous winter and spring, it is a great matter to save them from the fresh tax which some of them feel so severely when the hot weather begins. For older people it is a luxury; for them it is sometimes a necessity.

Sea-side watering-places vary greatly in character. All along the coast of New Jersey there is a sandy beach which affords excellent facilities for bathing; and here this is one of the chief attractions. But as we go farther northward, the shores become bolder and more rocky, and the temperature of the water is lower; here the bathing is a matter of secondary importance, and the life led by visitors is more like that at the mountains. There is more temptation to activity; the excursions both by land and by water are more varied and more extended; the natural objects for study or sketching are more numerous and attractive; and the benefits derived by visitors are more in the way of change than by mere rest.

Besides the more fashionable resorts, there is a large class of "red-shirt" places, where the visitors are chiefly of the male sex, and the conventionalities are less rigidly observed. These are generally isolated houses, situated on sandy beaches or inlets, and during the fishing and shooting seasons are very largely patronized. They are usually well kept, and

at many of them there is excellent opportunity for bathing.

The choice between these various places must be made in accordance with circumstances: convenience of access, individual tastes as to society, amusements, etc., the length of the purse, and the needs of the physical system, may each and all have their influence.

The "season" at most of our sea-side resorts begins about the first week in July and ends in the latter part of August. During this period, the temperature both of the air and of the water is such as to render bathing a luxury, while the heat in the cities is so great as to drive away all who can leave. Both before and after this time, however, a residence on the coast has great charms. Indeed, in favorable years, one may enjoy it from the first of May, or even earlier, to the end of October, if protected by suitable arrangements from the chill of the mornings and evenings of the late spring and early autumn, and from the dampness attendant upon an occasional north-easterly storm. During the months of June and September, particularly, the weather is apt to be very fine, and the temperature such as to make exercise agreeable or laziness safe. The water, however, is apt to be too cold for most people to enter it with comfort; but this matter will be more especially discussed in the next chapter.

Mosquitoes are sometimes very annoying and troub-

lesome at the sea-shore. A few of them appear early in the season, but they are much more numerous and active in the latter part of the season, and in autumn before the first frost, just as at inland places. It is curious to note how quickly they are brought by a land-breeze.

Any strong odor will keep them off; eau de Cologne, bay-rum, or spirits of camphor may be used to bathe the face and hands occasionally. To allay the irritation caused by their stings,—strictly speaking, they do not bite,—the best remedy is strong spirits of hartshorn, or ammonia, directly applied.

At several watering-places on the Jersey coast there have been built piers, extending many hundred feet outwards, upon which a different, and oftentimes far finer, view of the surf is to be had than from the beach. The effect of these piers upon the beach itself is not good, as they act upon the principle of the "jetty" in deepening the water in their vicinity. They are most dangerous as refuges for exhausted swimmers, as I have more than once seen. A man makes out to reach one of them, and clings to the supporting piles, with the waves breaking over him continually, since either to climb up on the pier, or to sustain himself above the level of the wave-crests, is no easy matter after a long swim for life; hence, unless assistance comes in some other way, he must soon be washed off to his death.

The piers at Cape May are not left standing during the winter season,—in fact, they are not built for it, and are generally carried away by the first heavy storm of autumn; but that at Long Branch is constructed of iron, and has already stood the gales of at least one winter. An obstruction of that kind might, in some states of the wind and tide, act just as wrecks occasionally do in forming the nucleus, as it were, of an immense sand-bank.

Having stated these objections, practical and theoretical, to such piers, it may be acknowledged that they afford a real luxury to visitors. One can hardly ever go out on them without finding some air stirring, even when there seems on shore to be absolutely no breeze; and the view of the sea thus obtained is wonderfully grand, besides being almost wholly different from that on the beach. Let me quote a passage from Ruskin, as illustrating this better than any words of my own:

"Afloat, even twenty yards from the shore, we receive a totally different impression. Every wave around us appears vast, every one different from all the rest; and the breakers present, now that we see them with their backs towards us, the grand, extended, and varied lines of long curvature, which are peculiarly expressive both of velocity and power. Recklessness, before unfelt, is manifested in the mad, perpetual, changeful, undirected motion, not of wave

after wave, as it appears from the shore, but of the very same water rising and falling. Of waves that successively approach and break, each appears to the mind a separate individual, whose part being performed, it perishes, and is succeeded by another; and there is nothing in this to impress us with the idea of restlessness, any more than in any successive and continuous functions of life and death. But it is when we perceive that it is no succession of waves, but the same water constantly rising, and crashing, and recoiling, and rolling in again in new forms and with fresh fury, that we perceive the perturbed spirit, and feel the intensity of its unwearied rage. The sensation of power is also trebled; for not only is the vastness of apparent size much increased, but the whole action is different: it is not a passive wave rolling sleepily forward until it tumbles heavily, prostrated upon the beach, but a sweeping exertion of tremendous and living strength, which does not now appear to *fall*, but to *burst*, upon the shore — which never perishes, but recoils and recovers."

CHAPTER III.

BATHING IN THE SEA.

THE customs as to bathing vary somewhat at different sea-side places. At some, there is one hour at which all ages and both sexes go into the water daily; at others, from the shelving character of the beach, there is a particular stage of the tide when the bathing is safer for women, children, and invalids; while another is set apart for men and boys. The "bathing-machine," so commonly in use at English and Continental resorts of this kind, is unknown in America. It is simply a bath-house, or rather dressing-closet, on wheels, which is drawn into the surf, when the bather can go into the water from it by means of steps. After the bath, it is re-entered for the purpose of dressing, and is then drawn ashore.

By far the most popular method of bathing is that in the open sea, or surf-bathing; but at all of the principal resorts there are establishments where baths, cold or hot, can be had in ordinary tubs, by those who prefer them. The hot baths are used chiefly by invalids, or by persons who either dislike cold water,

or who find the reaction after it insufficient. The mode of taking them will be separately discussed.

It is better for any one going to the sea-shore to be cautious in bathing during the first few days, especially if the weather be very hot. Even those who are in good health may suffer, after too long a bath, from headache, nausea, and the other symptoms which are generally associated under the term "biliousness." These are induced by the unwonted exposure to the sun's rays, and by the reflection from the water, together with the chilling of the surface of the body; the result being congestion of the internal organs, and particularly of the nerve-centres. By a more moderate indulgence, such unpleasant effects might be wholly avoided.

Children are as apt as adults to suffer in this way, and their parents or care-takers should guard them against the results of their ignorance and indiscretion in this respect.

How Long to Bathe. — It is quite absurd to lay down positive rules as to the time people should remain in the water, since they do not carry watches in with them. And any day's experience on the beach in the season will show a great many bathers sporting in the water for half an hour or an hour, and even longer, without any perceptible ill effect. It is quite a common practice among the young to go in, take a bath, come out and lie on the sand, and go in again, per-

haps a number of times. The powers of endurance vary greatly; and it is well known that swimmers have sometimes remained in the water for many consecutive hours, without harm.

There can, however, be no question that for sanitary purposes, and as a matter of prudence, it is better to take the bath, and then to leave the water for the day. And a brief consideration of the effect of bathing will show how the proper duration of it may be practically determined.

No matter what may be the temperature of the surface of the body, that of its interior is maintained at a standard almost absolutely constant. Thus, if the bulb of a thermometer (of the special kind used for the purpose) be inserted in the armpit or placed under the tongue, the mercury will be found, unless there is a serious disturbance of health, to stand at 98.5° Fah., or very close to it. Now upon immersing the body in a cooler medium, or in one which readily conducts away the heat, the surface will be chilled, and there is an immediately increased activity of the vital processes in order to maintain the temperature. If the bather should keep perfectly quiet, this loss of heat would go on very rapidly, and he would soon feel chilled. By exercise, jumping, moving about, resisting the force of the waves, however, the loss is diminished, although at the expense of muscular and nerve-force. Of course, the longer the chilling of

the surface is continued, the greater the tax upon the system to make good the loss of heat, until finally its resources would be exhausted.

A man, or any other warm-blooded animal, no matter how strong, must thus part with heat even in swimming; and as he becomes tired he also loses more and more the power of making up the loss, so that at length complete collapse and prostration would be the result.

A sudden shuddering inspiration is induced by the application of cold water to the surface of the body. The breathing for some little time remains quickened, and the pulse is also accelerated. Both the lungs and the heart feel the effect of the shock to the surface-nerves, as well as the driving back of blood into the internal organs generally. In a few moments, however, the breathing becomes deeper and more labored, and the pulse is depressed, until reaction occurs, when both are again quickened.

What is wanted in ordinary sea-bathing is to carry the chilling of the body only so far as to promote the subsequent reaction. The first sense of cold on entering the water is soon followed by the feeling of returning warmth; and this continues for some little time, to be again succeeded by a sense of chilliness. This second cooling is accompanied by a diminution in the activity of the circulation, shown especially by blueness of the lips or finger-nails; and this should *invariably* be regarded as a signal for leaving the

water *at once*. To wait until the teeth chatter, and the skin of the fingers becomes shrivelled like those of a washerwoman, is in a very high degree imprudent.

For those who have young children or invalids under their charge, and who are able to observe and regulate the exact time of their stay in the bath, it may be said that this may be, according to the condition of the skin, somewhere between two and fifteen minutes. It is always safer to err on the side of prudence, and to cut the bath needlessly short, rather than to prolong it at any risk.

Perhaps it need hardly be said that the colder the water is, the less time should be spent in it. This holds good either when, as at the more northerly resorts, the water is always cold, or where it is merely a temporary chilling, as by the presence of icebergs along the coast. Very robust persons, who could stay in the water at ordinary temperatures for a long time without feeling the loss of body heat, can remain longer than others in very cold water; but in every case the same general rule holds good.

When the air and the water are both cold, the duration of the bath should be correspondingly diminished. This condition of things increases the danger of shock and of insufficient reaction.

The apparent relation between the temperature of the water and that of the air is curiously deceptive. By reason of its greater conducting power, the former

always, or almost always, seems the colder. The writer has seen the thermometer in fresh-water in a swimming-tank mark 68° Fah. when the air was at 58°; and yet the water *felt* very much colder. In like manner at the sea-shore, the temperature of the water has been noted by him at 73° when the air was 74°. Another day, however, when the air was at 78°, the water was at 72°.

The sense of coldness felt on first entering the water is merely the impression made on the nerves of the skin, and varies in different persons, as well as in the same person at different times. Fatigue increases it in a marked degree; and weakly persons are much more sensitive to it than the robust.

While it is imprudent to bathe, in cold water especially, when one is perspiring copiously, simply because the effect is to check perspiration too suddenly, it is equally so to go into the water when one is nearly cooled off, because the general depression of the system is then such that the shock is very great. And the cooled surface may be so much further cooled as to give rise to internal congestion, and the reaction may be only very imperfect.

One should enter a sea-bath comfortably warm, and exercise actively during the stay in the water. The temporary chilling of the surface will then give place quickly to a glow, which may be kept up or even increased by thorough rubbing.

There are many days in June when the sea-bathing is not only delightful, but quite safe, so far, at least, as the temperature of the air is concerned; but the water is often so cold, perhaps from the currents chilled by floating ice, which at that season is apt to come southward in large quantities, that only the robust can endure it for more than a few moments. The reaction after such a cold bath, especially if promoted by a short run on the beach, is highly agreeable, and may last for hours. Its occurrence shows that the system is not only not depressed, but actually invigorated.

During September the surf is very agreeable, and the weather generally such as to admit of bathing with safety. Sometimes this is the case through the early part of October, although there is a gradual increase in the coldness of the water.

How to Bathe.— There is very seldom opportunity for diving into the sea, and only a very small number of bathers are expert enough to do it.

The best plan is to walk or run rapidly into the water, wading out at once far enough either to dip the whole person, head and all, or to allow a wave to break over the bather. Some like to have a bucket of sea-water dashed over them before going in. Once in the water, and thoroughly wet, one need only keep moving, occasionally going under a wave, as long as

the water is agreeable, and there is no sense of chilliness.

Floating is a very pleasant form of bathing, and easily learned if one has only confidence. It consists in turning on the back, and keeping the nose and mouth out of the water. Of course, this cannot be done when the surf is very rough. And it is best always to have some one near, standing on the bottom, lest, without his knowledge, a current or the tide should carry the floater out into deep water. Lives have been lost for want of this precaution.

Swimming is an exercise so generally known, and in these days an art so generally learned, as to be very frequently practised by sea-bathers. The greater density of the salt-water makes it easier than in fresh-water, and the temptation to venture out is sometimes seductive enough to lead to great risk.

It is not safe to swim in the sea when the tide is running out, as then it is difficult to make headway towards the shore. Under such circumstances, and indeed always, there ought to be a boat at hand to which the swimmer can make his way.

It is not safe to swim when there is a heavy surf, as even a good swimmer may be so confused and baffled by waves breaking over him as to lose his presence of mind, and perhaps swim seawards instead of to the shore; or he may be so exhausted by the force of the water as to sink.

It is not safe to swim when there are strong currents running in the general line of the shore, as these sometimes set outwards enough to keep the bather in deep water longer than his powers can hold out. Should he find himself in such a current, he should never try to make head directly against it, but should swim diagonally towards the shore, and, above all, should try to keep his presence of mind and save his strength.

There are many days, however, when the water is calm, the surf a mere swell, and the currents but slight; and at such times the pleasure of swimming may be enjoyed with comparative security.

On leaving the surf-bath, it is always best for the bather to wash the head with fresh-water, so as to free the hair from salt, which would otherwise make it very stiff and harsh. At many places there are connected with the bathing-houses, hydrants at a suitable height, by means of which this may be very conveniently done.

The whole surface of the person should be thoroughly dried, and rubbed down with coarse towels. This is a luxury even in very hot weather, and adds greatly to the benefit of the process of bathing. If reaction does not readily take place, it should be brought about by prolonged and vigorous rubbing with rough towels, with flannel cloths, or with the "flesh-glove" or "flesh-strap." This latter article—

a luxury which only those who have become accustomed to it can appreciate — is a very valuable aid to baths of whatever kind, particularly to the cold bath taken in the winter season. It is made of cloth (muslin, linen, or hair-cloth), attached to which are bristles or stiff hairs, so arranged as to form a rough surface for the purpose of friction. Perhaps it need hardly be said that the application of this should be made at first with the utmost gentleness. But the skin soon becomes used to it, and the friction may be made with a good deal of force. The process may be carried out either by the bather himself or by an attendant; the former plan being better by reason of the muscular exertion it involves.

Immediately after the mid-day bath, a slight lunch should be taken, and, if there is afterwards any sense of chilliness, exercise in some form, such as billiards, tenpins, or walking (on a piazza, not in the sun), should follow this for half an hour or an hour. Then a nap is often very agreeable, and not in any way harmful. Usually the dinner-hour at the sea-shore is an early one, so as to leave the afternoon free for riding, driving, or sailing.

Of course, this division of the day involves "tea" at seven o'clock or thereabouts.

Parties are sometimes made up for bathing by moonlight. This is in many ways objectionable, and fortunately the amusement is not popular. One great

risk is that of bathers getting beyond their depth without its being perceived. The reaction is apt to be imperfect, and the facilities for the subsequent toilet are small.

Bathing for Children.—The beneficial effects of sea-bathing upon children are usually very manifest, especially in the weakly and delicate. For them, the out-door life at the sea-shore and the stimulus of the salt air and water, will often do more than any tonic known to the druggist.

Children ought never to be forced into the surf. All the good effects which might be expected from the bathing are nullified by the fright and nervous shock, and there may be left a lasting impression of terror which will for many years prevent enjoyment, or even comfort, in the water. To many grown people the sensation of going under a wave is unpleasant; and it must be remembered that to children who are unused to it, the noise and movement of the surf is bewildering and terrifying in a very high degree.

The proper way is to get the little ones gradually accustomed to the sea, to let them have their bathing-clothes on, and play on the beach, when they will go to the edge of the water, and perhaps find their own way in. Or they may be very gently tempted in, by constant efforts, always seeing that they do not get frightened; or, if they do, letting them have plenty of time to become reassured. If they find that after

all they are not hurt, and that no attempt is made to force them in, they will soon gain confidence. Should a child be very slow in this respect, the salt-water may be carried up to the bath-house or bedroom, and the real bathing be quietly done there, until his fears of the surf are overcome.

Some children never have any dread of the water at all, but take to it naturally, running in boldly at once among the breakers. I have seen them do so when less than two years old. This is rare, except with the very robust, in whom the first chill is not much felt, and who react easily and fully. It may even be necessary to watch them, lest they should be too reckless, and get beyond their depth. These bolder children may do much to aid in allaying the fears of the more timid.

Precisely the same rules should be observed for children as for grown people. The amount of reaction after the bath is the test of its suitableness. At first, the time spent in the water should be but short, and subsequently it should be increased by degrees. A thorough rubbing down should always be given before the child is dressed, and subsequent chilling should be guarded against. Some children are inclined to sleep afterwards; but if they seem languid and chilly on waking (and they should always, even on a hot day, be covered with a blanket during the nap), it is better to encourage them to take a little

exercise before lying down. This may easily be done, by such judicious management as need hardly be pointed out.

As a general thing, children react so well after the bath, that it may be given daily. Any one used to them will be able to note at once, by their languor and indisposition to play, the fatigue which should lead to its less frequent use.

The whole person should always be thoroughly wetted, and as early as possible on entering the water. It is a very bad thing to let a child get its feet and hands chilled for any length of time, without the head and body being also subjected to cold. Neglect of this may give rise to headache and a good deal of discomfort.

It is not worth while to take mere infants into the open sea; they are only frightened by the noise and motion of the water, and may get an impression of fear which will prevent them from going in readily when they grow a little older. All the advantages of the surf-bath for them can be equally well secured by the use of a salt-bath in a tub in the house.

It may here be said that an excellent substitute for sea-bathing may be obtained in winter, in the city, by dissolving a lump of rock-salt in hot water, and adding this to the ordinary bath, or using it for sponging after the latter.

Very old people should, of course, be cautious about

bathing in the surf, as reaction in them often occurs but imperfectly, and the fatigue may be injurious to them. But this is not always the case, and no definite rule can be laid down.

A few words may be said here as to some of the dangers of ordinary bathing.

What is known as the "under-tow" is very commonly felt on shelving shores. It is simply the powerful backward rush of one wave as another comes on; and the effect of it is to undermine the footing and sweep the bather under the advancing breaker. Sometimes, when the tide is high, this is really a serious danger for those who are not very strong, as the on-coming wave may knock them down, and then they may be swept into deep water before they can make a stand again. The only thing to be done in such a case is to scramble into shallow water at once. Where the surf is strong enough for this, the sand is apt to be washed away, and the bather's feet may be bruised by the pebbles which are forced against them.

Another danger is sometimes met with, even on very level beaches, in the shape of holes in the sand, caused by conflicting currents. They may be deep enough to drown an incautious bather. Any one getting into such a hole should try at once to go right back as he came; but the difficulty of so doing, with the fright apt to be experienced, may be very great.

Several persons should always bathe together, holding one another's hands, when such holes are known to exist.

Quicksands occasionally form on some beaches where the sand is very loose and yielding. They are more likely to be met with after very strong tides, which have washed up a good deal of sand, before this has become settled by its own weight and by the pressure of the water. The danger from them is very great; but the places chosen for bathing-grounds are not apt to be subject to their formation.

At some places a bar forms a few yards from the shore, to which people are tempted to wade out. Now, if the tide is coming in, the water may speedily become so deep between the bar and the beach as to make a return impossible except by swimming. Under these circumstances, a boat should be immediately brought to take in all who are not good swimmers; and the only safety is to stay on the bar, where the water is yet shallow, until this means can be employed.

As a matter of course, the practice of general bathing at a certain hour of the day necessitates the wearing of bathing-suits; and the character of these is largely determined by fashion. Still, it may be well to refer to it.

The material should always be woolen, and flannel is decidedly the best. Those who do not swim will

find it more comfortable to protect the skin of the arms and legs from sunburn by having the sleeves come down to the wrists and the trousers to the ankle. For women and children, bathing-shoes afford an excellent safeguard against the bruising of the feet by shells or pebbles, as well as against the heat of the sand, which is often intense.

Swimmers will find it much more convenient, as well as safer, to wear short sleeves, wide at the shoulder, and trousers or drawers reaching only to the knees. There is nothing more hampering to one who is becoming a little tired than a heavy dress; and it might make the difference between danger and safety in the case of a man who had over-estimated his powers, or who had been carried out further than he intended.

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When to Bathe.—There is no valid objection to bathing at any time of the day, except just after a meal. The reason for avoiding this is simply that the process of digestion requires and involves a fulness of the blood-vessels of internal organs, as well as a certain amount of nerve-force. Hence any shock, as of cold water applied to the surface, which is apt to determine the blood towards the interior of the body, may readily induce an extreme congestion there. Moreover, like any other active exercise taken at such a time, bathing would hinder digestion, or even put a stop to it altogether. The result is generally a

very great degree of discomfort; reaction takes place slowly, and there is apt to be headache, gastric oppression, and perhaps serious illness. Life, even, may be endangered by imprudence in this respect.

At most watering-places on the sea-shore, circumstances forbid the enjoyment of that great luxury for men, a "buff-bath." When this can be taken, however, and the best time for it is before breakfast, it is as harmless as the ordinary morning scrub so dear to the English and American mind.

Usually the most convenient hour for the bath is about mid-day, when all the world meets in the water. This is the time generally adopted at places where bathing is a chief object; and it has a physiological advantage in the recognized fact that it is with most persons the period of greatest vital activity, so that the shock is better borne then than at any other part of the day.

Thus Braun* says, speaking of the daily variation of the amount of natural heat: "It reaches its maximum between ten and twelve o'clock; in the afternoon it falls again, and reaches its lowest point at two o'clock in the morning; between ten o'clock in the morning and five o'clock in the evening the variation is smallest, and between seven and nine o'clock in the evening it is greatest. In children this daily

* "On the Curative Effects of Baths and Waters," etc. Weber's Translation, London, 1875.

variation is greater than in adults, often amounting in them to more than 3.6° Fah.; in the latter it is less."

The correctness of this general statement may often be verified in cases of sickness, when the failure of power is apt to be plainly noticeable in the early morning hours, as well as its increase in the middle of the day.

The choice of this hour is open to only two objections: the heat of the sun, and occasionally, where the beach shelves sharply, the state of the tide. Sometimes the water, in the latter case, deepens so abruptly, and the waves are so strong, as to make it unsafe for any but robust persons to go in at all. At such places it is necessary to change the bathing-hour from day to day, so as to take advantage of a more favorable stage of the tide.

After a day in town, it is a great temptation to most persons to take an afternoon bath, and there is no objection to it for those in good health. It must be remembered, however, that the already fatigued body is less capable of withstanding the shock of the cold water, and hence that the bather should not stay in so long as at mid-day. Imprudence in this respect may give rise to serious discomfort, if not to permanent harm.

When Not to Bathe.—Persons suffering from acute disease in any form ought to abstain from sea-bathing, unless with the express sanction of a competent

physician; and the same may be said with regard to all who are laboring under organic affections, whether of the brain, heart, lungs, liver, or kidneys.

Indeed, unless the health is felt to be sound, it is better to be cautious about subjecting the body to the shock of immersion in the sea, with the violent exercise which it so often involves. Should any doubt be entertained, it is far safer to take medical advice in the matter.

Women should not bathe during their menstrual periods. All these points are more fully dealt with in Chapter V., on Sea-Bathing for Invalids.

How Often to Bathe.—Robust persons may occasionally, in hot weather, bathe twice a day in the sea without harm. But for most people once is enough. And it may be laid down as a rule, that if the fatigue of one bath has not wholly passed away, another one ought not to be taken. Many delicate men, and a great many women, enjoying the water by reason of the amusement and occupation it affords in an otherwise tedious day, do not thoroughly react from the fatigue involved in a bath for twenty-four hours afterwards; and, by repeating the strain upon their powers too soon and too often, are led to think that the seashore "does not agree with them." For such cases, a bath every other day, or perhaps twice a week, might be found not only amply sufficient, but in a high degree beneficial.

Children can generally bathe daily without harm.

Hot Salt-Baths in Summer.—There are many invalids, such as those suffering from chronic rheumatism, from general debility, from paralytic affections, from chest diseases, etc., to whom the shock of an open sea-bath would be injurious. To these, the hot salt-baths now available at most sea-side resorts are often a source of great benefit.

Medical advice as to the temperature, length, and frequency of these baths is requisite in each case. General directions cannot be laid down in a book of this kind.

Sand-Baths.—A few years ago, there was at some places a good deal of attention attracted to the supposed value of the old practice of applying hot sand as a remedy, chiefly in rheumatic cases; and it was a not infrequent thing, in walking along the beach, to see a number of invalids buried, all but their heads, their friends sitting by them with umbrellas, books, work, etc. The custom has been very generally abandoned at present, and it certainly had its inconveniences; yet there is no doubt that it was sometimes beneficial.

The "sand-douche" was referred to in the introductory chapter.

CHAPTER IV.

ACCIDENTS IN BATHING.

WHEREVER sea-bathing is indulged in by large numbers of persons, common prudence requires that there should be means at hand to prevent drowning accidents. Even if the beach is reputed a safe one, there will always be over-venturesome bathers who will run risks by wading out or swimming; if it is known to be dangerous, the need of such safeguards will suggest itself. These safeguards may be:

1. The carrying of reels by men. The ordinary skating-reel, about five yards of strong cord being rolled on a large spool-like roller, may be attached to the bather's belt. On occasion, the reel-carrier may afford assistance by throwing the spool to the person who is beyond his depth. Or, giving this to two or three of the bystanders, he may swim out to the drowning person, and both may be hauled in by means of the cord. This latter should always be stretched and dried after each exposure to the sea-water, lest it should become rotten, and give way when most needed.

2. Stout Manilla-ropes may be firmly attached on the shore, and their ends, reaching out beyond where the bathers ought to venture, may be fastened to poles driven into the sand; the ropes should be so stretched as to keep on the surface, and to them short lines, with buoys, may be attached. To one or more of the poles it would be well to have attached a life-line from 500 to 1000 feet in length, with a life-preserver at the end; this could be used by a strong swimmer to save a drowning person.

3. A surf-boat, of suitable size and strength, and well manned, may be kept ready for immediate service during the whole of the ordinary bathing-time every day. The boatmen can judge whether the state of the surf makes it advisable for them to lie off outside the breakers, or to be in readiness on the sand at the water's edge.

Two or three men on shore — men who understand their business, cool, determined, and good swimmers, with one in a surf-boat outside the breakers — form a better life-guard than the surf-boat alone, with two or three men in it. This is the arrangement of forces adopted by the Volunteer Life-Saving Association of New Jersey, and is preferred by them as proved by trial to be most efficient. In such matters experience is of far more authority than theory. When accidents happen, these men should not be interfered with by suggestions or advice; they should be allowed

to manage in their own way, which will generally be found to be the best way.

4. A person in danger close to the shore may often be reached and drawn in by a line of men joining hands. This only needs coolness, courage on the part of the outermost men of the line (who should be the tallest), and, above all, firmness of grip.

I have seen this plan most successfully employed. A lady was bathing with a boy about thirteen years of age, and they had ventured out as far as they could stand, when an unusually large and strong wave carried them both seaward beyond their depth. The next wave washed the boy, who was light and floated high in the water, in again towards the shore; but the lady was compelled to swim, which she fortunately was able to do. An alarm was soon given, and one or two male bathers swam out beyond her, but not before she had become fatigued, and with great coolness turned on her back and floated. One of the swimmers approached her, and told her she should be saved if she would promise not to clutch him; which she readily did. He then told her to let him grasp the collar of her bathing-dress, and turn over; when he began to swim ashore with her. By this time a line had been formed out to the deep water, and, as the swimmer brought his burden in (and it was rapidly becoming more than he could manage), the two were caught and drawn into shoal water. This whole

process occupied so much time that word had been sent along the beach, a distance of an eighth of a mile, and a surf-boat had been rowed to the spot, arriving just as the two had reached safety. Without the line of bathers, I believe that at least one life would have been lost on that occasion.

5. Only very strong and confident swimmers ought to venture upon the attempt to save drowning persons by their own unaided efforts. Nothing calls for greater courage, calmness, or address; the drowning man will often, unless carefully and dexterously approached, clutch his rescuer with desperate tenacity, and the lives of both may be lost. The best method is for the swimmer to grasp the person in danger by the collar, or by the hair if long enough, and to keep him as far off as possible, while swimming with the legs and the other arm. An easier way, but one which cannot often be practised by reason of the terror of the person in danger, is for the latter to place his hands on the hips of the swimmer, and simply remain quiet. The real buoyancy of both bodies is so great that the work the swimmer has to do is almost wholly propulsive, and not sustaining; so that a man of ordinary strength and skill in swimming can under such circumstances do nearly as much as if unencumbered. The danger is lest, if, as is often the case, the swimmer happens to sink a little in the water for a time (from letting out some of the air in the chest),

the other man should lose courage and clutch him,— in which event both would probably be drowned.

If two confident and strong swimmers can go out to the drowning person, and each take one of his hands (which must be done simultaneously), they have comparatively an easy task, since he cannot clutch both of them, and they thus guard one another.

Captain R. S. Belisle, of the Volunteer Life-Saving Association of New Jersey, who has had a large experience in these matters, says, that in approaching a drowning person, he finds it the best and safest way to keep just out of reach of the person drowning, and face him. Whenever the person is going down, reach out and place the left hand under his chin, and raise the head from the water; this must be done very quickly, lest the person drowning should get hold of the rescuer's arm. Then the swimmer should back away from the person drowning, until the latter gets so exhausted that he ceases to struggle; next quickly grasp him in the small of the back, turn him upon his back, and the rescuer can with ease float him ashore.

Life-preservers are of course useful to prevent the wearers from drowning; but those who need them at all, would do better to let swimming alone.

Treatment of the Apparently Drowned. — When persons are brought ashore after submersion, in a state of insensibility and apparent death, it is necessary at once to institute intelligent and energetic measures

for their resuscitation. Several methods of doing this have been proposed, the chief of which are Marshall Hall's, Silvester's, Howard's, and the one known as the "Michigan" method, from its having received the endorsement of the Board of Health of that State.*

In each of these, it must be remembered, the great object is to *re-establish the action of the lungs*, or breathing, and with it the circulation. No time is to be lost in carrying the patient anywhere; hot dry blankets may generally be had from the nearest house, and meanwhile the patient, stripped of any wet clothing that is upon him, may be wrapped in any garments that can be spared by the bystanders.

To restore respiration, the natural movements of the walls of the chest are to be artificially produced. To restore circulation, the limbs are to be firmly and briskly rubbed *upwards* (towards the body).

Marshall Hall's Method. — Clear the throat by placing the patient gently on the face, with one wrist under the forehead.

To excite respiration, turn the patient slightly on his side, and apply some irritating or stimulating agent to the nostrils, as veratrine, dilute ammonia or hartshorn, etc.

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* It has been thought unnecessary even to allude in the text to the exploded and absolutely harmful methods of hanging the man up by the heels, rolling him on a barrel, etc.

Make the face warm by brisk friction; then dash cold water upon it.

If not successful, lose no time; but, *to imitate respiration*, place the patient on his face, and turn the body gently, but completely, *on the side, and a little beyond;* then again on the face, and so on, alternately. Repeat these movements deliberately, and perseveringly, *fifteen times only* in a minute. (When the patient lies on the chest, this cavity is *compressed* by the weight of the body, and *ex*piration takes place. When he is turned on the side, this pressure is removed, and *in*spiration occurs.)

(The more rapidly these movements are made the better; provided only that they are thoroughly executed, and not so hurried as to imperfectly effect the object in view.)

Each time the patient is turned on the face, make a uniform and efficient pressure *along the spine*, removing the pressure immediately, before turning him on the side. (The pressure augments the *ex*piration; the rotation commences *in*spiration.) Continue these measures. From time to time, *to excite inspiration*, let the surface of the body be *slapped* briskly with the hand.

Rub the body briskly till it is dry and warm, then dash *cold* water upon it, and repeat the rubbing.

Avoid the use of bellows, or any *forcing* instrument; also, the *warm bath*, and *all rough treatment.*

Silvester's Method.—The body being placed on the back (either on a flat surface or, better, on a

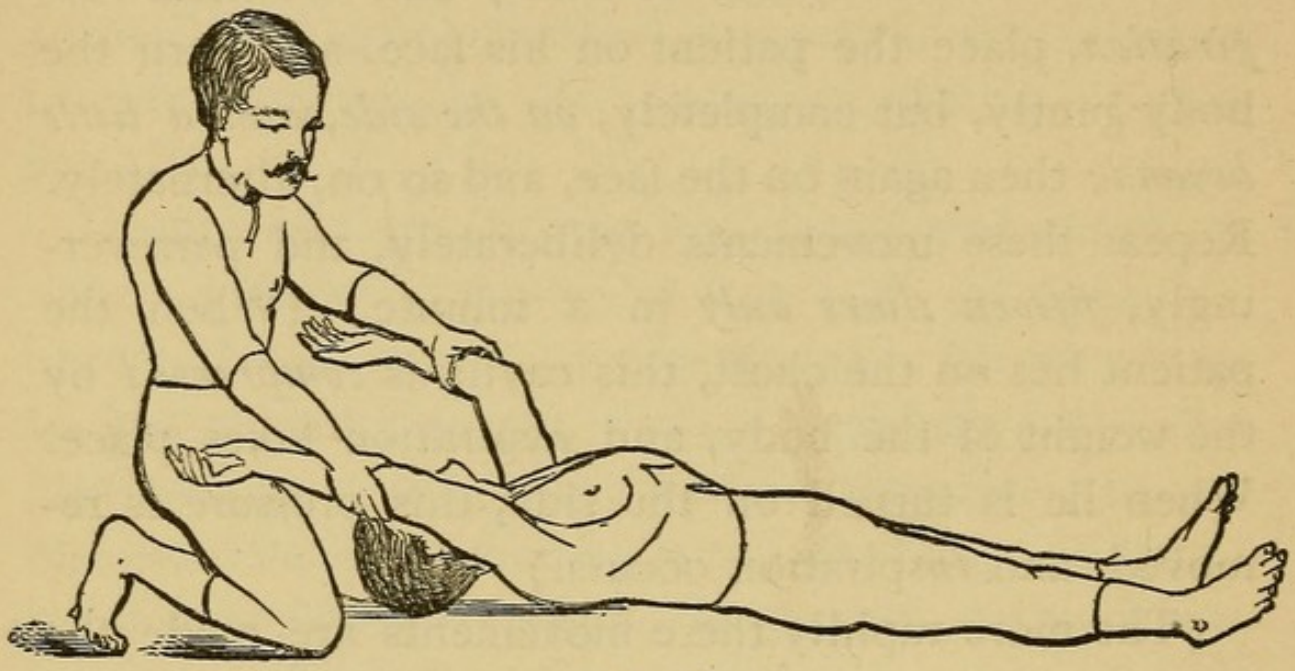

Fig. 1.

plane inclined a little from the feet upwards), a firm cushion, or some similar support, should be put under

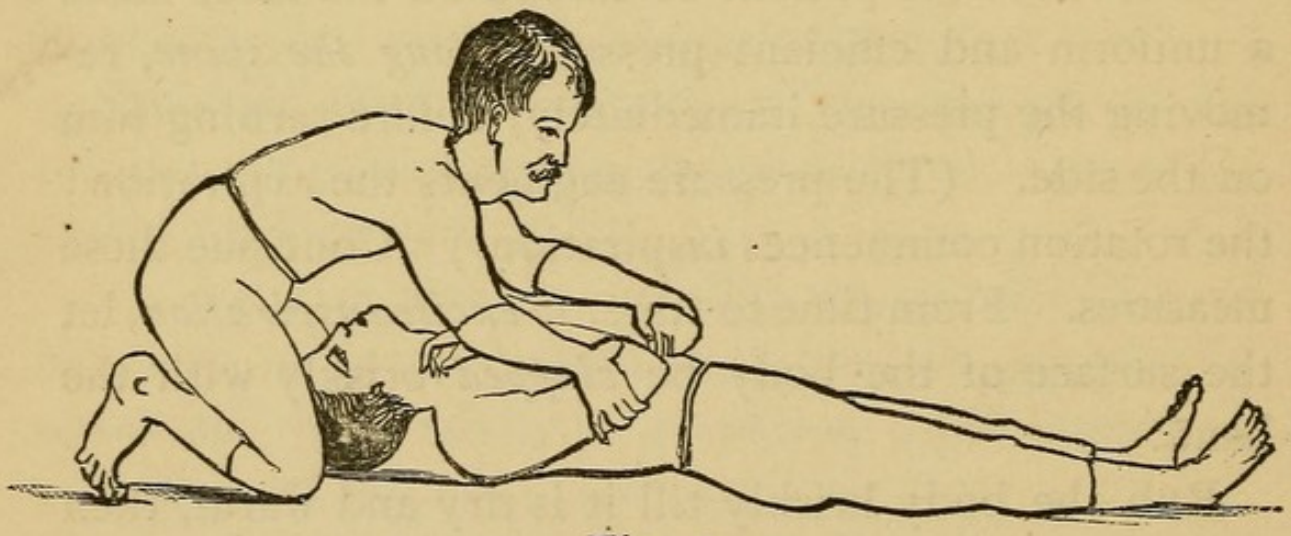

Fig. 2.

the shoulders, the head being kept in a line with the trunk. The tongue should be drawn forward (grasp-

ing it by a handkerchief to get a hold on it), so as to project a little from the side of the mouth; then the arms should be drawn upwards until they nearly meet above the head (the operator grasping them just above the elbows), (Fig. 1), and then at once lowered and replaced at the side (Fig. 2). This should be immediately followed by pressure with both hands upon the belly just below the breast-bone. This process is to be repeated *not more than fifteen times in a minute.*

As soon as the natural movements of breathing recommence, cease the employment of artificial means, unless the efforts are feeble and imperfect. Should no natural respiration supervene, a dash of hot water (120° Fah.), or of cold water, may be used.

Howard's Method.—1st. INSTANTLY turn the patient's face downwards, with a large firm roll of clothing under the stomach and chest.

Press with your weight two or three times, for four or five seconds each time, upon the patient's back, so that the water is pressed out of the lungs and stomach, and drains freely downwards out of the mouth. Then

2d. QUICKLY turn the patient face upwards, the roll of clothing put under his back just below the shoulder-blades, the head hanging back as low as possible.

Place the patient's hands together above his head.

Kneel with patient's hips between your knees.

Fix your elbows against your hips.

Now, grasping the lower part of the patient's chest, squeeze the two sides together, pressing gradually forward with all your weight, for about three seconds, until your mouth is nearly over the mouth of the patient; then, with a push, *suddenly* jerk yourself back.

Rest about three seconds; then begin again.

Repeat these bellows-blowing movements, so that air may be drawn into the lungs, about eight or ten times a minute.

Remember, the above directions must be used *on the spot*, the instant the patient is taken from the water. A moment's delay, and success may be hopeless. As soon as the water is pressed from the lungs, all clothing should be ripped away from the chest and throat. In making the pressure, either for the removal of water or for breathing, increase it *gradually* and thoroughly, and *suddenly* let go with a jerk. With women and children use less force.

Do not stop these movements under an hour, unless the patient breathes. Be careful not to interrupt the first short natural breaths. If they be long apart, carefully continue between them the bellows-blowing movements as before.

After breathing is regular, keep patient warm with blankets, rubbing with warm hands, etc.

Prevent crowding around patient; plenty of fresh air is all-important.

Spirits and water only, in occasional small doses, may now be given; if hot, the better. After this, encourage quiet and sleep.

The essentials of the "Michigan" method are as follows:*

TWO THINGS TO BE DONE — RESTORE BREATHING; RESTORE ANIMAL HEAT.

RULE 1.—*Remove all obstructions to breathing.* INSTANTLY loosen or cut apart all neck- and waist-bands; turn the patient on his face, with the head down hill; stand astride the hips with your face towards his head, and, locking your fingers together under his belly, raise the body as high as you can without lifting the forehead off the ground, and give the body a smart jerk to remove mucus from the throat and water from the windpipe; hold the body suspended long enough to slowly count ONE, TWO, THREE, FOUR, FIVE, repeating the jerk two or three times.

RULE 2.— Place the patient face downward, and maintaining all the while your position astride the body, grasp the points of the shoulders by the clothing, or, if the body is naked, thrust your fingers into the armpits, clasping your thumbs over the points of the shoulders, and *raise the chest as high as you can* without lifting the head quite off the ground, and

* It has been thought better to give this in the exact words in which it has been officially issued.

hold it long enough to count *slowly* ONE, TWO, THREE. Replace him on the ground, with his forehead on his flexed arm, the neck straightened out, and the mouth and nose free. Place your elbows against your knees and your hands upon the sides of his chest, *over the lower ribs, and press downward and inward with increasing force* long enough to slowly count ONE, TWO. Then suddenly let go, grasp the shoulders as before, and raise the chest, then press upon the ribs, etc. These alternate movements should be repeated ten to fifteen times a minute for an hour, at least, unless breathing is restored sooner. Use the same regularity as in natural breathing.

RULE 3.—After breathing has commenced, RESTORE THE ANIMAL HEAT. Wrap him in warm blankets, apply bottles of hot water, hot bricks, or anything to restore heat. *Warm the head nearly as fast as the body, lest convulsions come on.* Rubbing the body with warm cloths or the hand, and slapping the fleshy parts, may assist to restore warmth and the breathing also. If the patient can SURELY swallow, give hot coffee, tea, milk, or a little hot sling. Give spirits sparingly, lest they produce depression. Place the patient in a warm bed, and give him plenty of fresh air; keep him quiet.

BEWARE! AVOID DELAY. A MOMENT may turn the scale for life or death. Dry ground, shelter,

warmth, stimulants, etc., at this moment are nothing — ARTIFICIAL BREATHING IS EVERYTHING — is the ONE REMEDY — all others are secondary.

Do not stop to remove wet clothing before efforts are made to restore breathing. Precious time is wasted, and the patient may be fatally chilled by the exposure of the naked body, even in the summer. Give all your attention and effort to restore breathing by forcing air into and out of the lungs. If the breathing has just ceased, a smart slap on the face or a vigorous twist of the hair will sometimes start it again, and may be tried incidentally, as may, also, pressing the finger upon the root of the tongue.

Before natural breathing is fully restored, do not let the patient lie on his back unless some person holds the tongue forward. The tongue, by falling back, may close the windpipe and cause fatal choking.

If several persons are present, one may hold the head steady, keeping the neck nearly straight; others may remove wet clothing, replacing at once with clothing which is dry and warm; they may also chafe the limbs, and thus promote the circulation.

Prevent friends from crowding around the patient and excluding fresh air; also from trying to give stimulants before the patient can swallow. The first causes suffocation; the second, fatal choking.

DO NOT GIVE UP TOO SOON. You are working for life. Any time within two hours you may be on the

very threshold of success without there being any sign of it.

Of all the plans suggested, these are the most practical and the simplest. Silvester's is, perhaps, the one most readily put in operation, and has, I believe, been adopted by most of the life-saving societies. (Perhaps I ought to say that it is the only one with which I have had practical experience, but it has been entirely satisfactory.)

It may, however, be stated that any one of the above treatments may be used with safety, as they are all good. Whichever is selected, coolness and nerve are required in the person using it.

Much of the success in any case depends upon the promptness of the rescue, and of the institution of restorative means. The delay of removal to a bath-house or other shelter may be fatal. When, as often happens, water has been both swallowed and drawn into the chest, the chance of success is less than if the lungs have remained full of air.

It must be remembered that fainting may take place in the water, perhaps from fright at a supposed danger; and that apoplexy, an epileptic seizure, or heart disease may be the real cause of the trouble. Under any circumstances, the treatment of the case should, if possible, be intrusted to medical care at once, and the bystanders should assist if called upon.

Much harm is sometimes done by the crowding around of the curious, and by their useless and impertinent suggestions. All this should be prevented by some one assuming the authority to command every one to stand back, and enforcing it.

The mere chilling by long-continued immersion may be a source of danger. I have seen a robust man, undertaking a rather long swim against the current, becoming exhausted, and rescued by a boat going out to him as he clung to the piles of a pier, so thoroughly chilled as not to react for several hours; yet he had been in the water not more than half an hour, and had never once lost consciousness.

Cramp, although much less apt to occur in sea- than in river-bathing, is sometimes brought on if the water is very cold. The person affected should be at once helped ashore, when warmth and frictions will probably give speedy relief. No person subject to this very painful affection should swim unless a boat is constantly close at hand.

When a swimmer becomes exhausted, if he will turn on his back and float, he can often regain his strength, and with it his self-possession. This latter is of the utmost possible importance; the moment it is lost, and the bather begins to struggle and to call for help, the danger is imminent. A swimmer should never lose his courage.

It may be well to suggest here the importance of

having some signal agreed upon by which the boatmen can be notified from the shore that there is need for their services. Perhaps it would be best to have a pole or staff, upon which a flag or other signal might be displayed. If they once began to row towards the bathers, they could soon see where the trouble was. The continual noise and shouting of the people in the water is so great during the bathing-hour that an accident may readily be unnoted in the midst of it. Several instances of this kind have occurred in the writer's experience.

The cases requiring surgical care, fractures (it is remarkable how often the bones of the toes are broken in bathing), bruises, and other injuries, need no special mention, as their treatment is the same as under other circumstances, and should, of course, be intrusted at once to competent professional hands.

Sometimes, especially after storms, the sea-water is full of jelly-fish. These are very irritating to the skin when brought in contact with it, as they are apt to be in bathing. I have seen the face and hands of a young man swollen and painful for several days after such an exposure. Alkalies, such as solution of carbonate of soda, or lime-water, will generally allay the irritation ; if it is extreme, cold lead-water may be applied.

Some persons are apt to be very much annoyed by the water getting into their ears, especially if they

dive, or if the surf is very rough. Instances have been known where deafness has been thus induced, and has required medical treatment for its relief. This may be either from the irritation caused by the presence of the salt-water, or from the concussion produced by the violent shock of successive waves against the side of the head. For special remarks on this subject, the reader is referred to Dr. Burnett's volume of this series on "The Hearing, and How to Keep it."

By way of precaution against the entrance of the water, it is well to put a small piece of cotton lightly into each ear before going into the sea. The cotton should not be pushed in far, nor be tightly stuffed in, but should be of such a size as to just keep its place easily.

The best way of getting rid of the water is that usually resorted to by boys after swimming, viz., to turn the head well over towards the affected side, putting a finger in the opposite ear, and then to hop about on one foot. A few moments of this exercise will generally cause the water to escape in a stream.

CHAPTER V.

SEA-BATHING FOR INVALIDS.

THE effect of sea-bathing upon invalids varies, of course, with the character of their disease, the stage which it has reached, the form in which the bath is taken, and other circumstances impossible to define in a general way.

It has been said elsewhere, that no one, suffering from any acute disorder, ought to bathe unless by direction or consent of a physician. The same rule applies to many cases of chronic disease, in which there is a liability to the occurrence of mischief from sudden shock, from over-fatigue, or from chilling of the surface. In fact, all invalids are safer in taking medical advice with regard to the probable effect of the bathing, before they go to the sea-shore; and in case of doubt, unless furnished with very full and explicit directions as to when, how, how long, and how often to bathe, and what dangers to guard against, they should go only where the attendance of competent physicians can be readily had. None but very general statements will, therefore, be looked for in these pages.

For the most part, chronic affections of the lungs are benefited by open sea-bathing, moderately indulged in; the test being the completeness of the reaction after each bath. Neither chilliness nor fatigue should be induced; and it is better to avoid going into the surf when it is running very high, as the efforts then required may bring about congestion, and do harm. Still-bathing, in a tub or by sponging, is often of very great benefit in these cases, especially if followed by thorough rubbing of the whole surface of the skin, so as to excite the circulation in it. The hot salt-water bath, if properly regulated as to time, length, and frequency, may also be resorted to with advantage.

Patients with diseases of the heart should bathe with great caution. Of course, functional disorders involve less danger than organic, but in either case the violent exercise often involved may be injurious. Still-bathing would answer much better than the surf, for this class of patients. It is highly probable that in some of the instances of supposed drowning, the real cause of death is heart disease.

Cases of brain-affection, with or without paralysis, are very generally benefited by judicious sea-bathing, which should be under competent medical advice. And there is a large class of the so-called nervous disorders — chorea or St. Vitus' dance, hysteria, etc., — in which it is an invaluable aid to other treatment.

Almost all chronic diseases of the abdominal organs are apt to be relieved by a proper use of the surf-bath. Here also care should be taken to avoid undue fatigue, to excite the skin to thorough reaction, and to employ all other means of promoting the health. Dyspepsia, chronic diarrhœa, congestions of the liver, are among the affections most commonly observed to be thus corrected. It need hardly be said that in these cases proper rules of diet and hygiene are as important at the sea-shore as elsewhere, and essential to the obtaining of its full advantages.

Diseases of the kidneys and bladder may be referred to as sometimes yielding in a marked degree to the tonic influences of sea-air and surf-bathing, or in some instances to the hot salt-bath. It is in the convalescent stages of these, as of the other disorders previously mentioned, that the beneficial effects of a residence at the coast are most evident.

The question is often put to physicians at the sea-side, whether women ought to bathe when pregnant. The answer to this can only be conditional. If there be no other special reason for abstinence, this need not be a bar to going into the surf, except after say the seventh month of pregnancy. Indeed, many women during the earlier months are clearly and greatly benefited by sea-bathing, indulging in it freely, without any perceptible discomfort.

Sea-bathing is almost always of great benefit in

those cases of debility from rapid growth, so frequent in either sex at or a few years after the age of puberty. Here the frame gains largely in height, while there is not a corresponding increase in weight; the figure becomes lank and awkward, the cheeks are pale, there is frequent headache, and an almost constant sense of lassitude or fatigue. The tonic effect of exposure to sea-air and bathing, in improving digestion and assimilation, is perhaps more marked in these than in any other class of cases. Where there is, in young girls, delayed or difficult menstruation, a summer at the sea-shore will sometimes correct the difficulty altogether, with decided improvement to the general health. Exposure to the sun's rays seems to have a good deal to do with the result in all these cases, in accordance with well-known hygienic observations.

There is an affection which has become, of late years, much more common than it formerly was, or, perhaps, it is more generally recognized,—hay asthma, or summer cold,—of which a resort to the sea-coast is, in many cases, a complete preventive. According to the most reasonable theory, this very troublesome and annoying disorder is caused by the diffusion in the air of the pollen of certain plants, and the absence of these plants on sandy shores gives an immunity from their effects. There are some points on the Atlantic coast where those who have for years been annually laid up in this way

escape the visitation of their old enemy altogether; and these are invariably, so far as the writer is informed, barren sand-spits, or nearly so.

Perhaps some allusion ought to be made to the effects of sea-bathing upon diseases of the skin, but the subject would be too special for these pages, and the reader is referred to the Primer on "The Skin in Health and Disease," by Dr. Bulkley. The general rule may, however, be laid down, that in all skin affections dependent upon debility and want of tone, the stimulant and invigorating effect of sea-air and sea-bathing will be, if not immediately, at least in the end, beneficial; whereas, in those disorders which are the result of irritants, local or constitutional, the opposite effect may be induced. It would be far better, however, for competent medical advice to be had on this point in every case.

CHAPTER VI.

AMUSEMENTS AT THE SEA-SHORE.

MOST persons go to the sea-side either for health or for relaxation, and when there devote a much larger part of their time to amusements than they do at home. Leaving their business, with its appliances, behind them, they could not follow their usual occupations, even if they desired to do so. Many are satisfied with mere idleness, the bath making a break in the monotony of the day, which is otherwise filled up with walking, reading, and conversation.

Very little need be said in these pages concerning any in-door amusements, or of out-door sports, except those for which the sea-coast offers special advantages. It may, however, be remarked that, in case of confinement to the house, either by extreme heat, by stormy weather, or by any other cause, resources for passing the time agreeably are very desirable. Under such circumstances, as well as in the evening, billiards or ten-pins afford exercise as well as pleasure. Of sedentary games — chess, cards, backgammon, etc. — we need not speak.

There is one form of in-door amusement — dancing — against the abuse of which I feel bound to protest. It is often carried to excess at the sea-shore, as at other watering-places. In moderation, it is an excellent thing; but within a few years there has been a tendency to convert the modest "hop" into something much more like the ball of the winter season, and, by late hours, to interfere seriously with the sanitary effects of sea-shore life. It certainly seems like an absurdity to spend a hot night in midsummer in dancing a "German," beginning at ten o'clock and ending at two in the morning. When the wise man said that there was "a time to dance," he could hardly have referred to this sort of thing.

Among out-door amusements at the sea-side, there is none which so readily suggests itself as sailing, and none which under favorable circumstances is more agreeable or wholesome. It affords a gentle form of exercise, with exposure to the health-giving air; and even if the sun is hot, a good sailing breeze tempers it so as to make it bearable. Some persons are naturally good sailers, and never suffer from sea-sickness; others are only affected in this way by the motion of the boat when becalmed. At many points, there is plenty of smooth water, in bays, inlets, and "thoroughfares," on which sailing may be enjoyed without motion enough to make any one sick. On long sea-voyages, the treatment of sea-sickness is a matter of

great importance, and has received much attention; but it would not be worth while to dwell on it here, as relief is generally experienced on landing, or perhaps even on getting into smooth water. Persons who find that they are always made sick, or who suffer from headache and prostration as after effects, would do better to avoid sailing altogether. There need be no fear of accidents on excursions of this kind, since the fishermen who sail these boats are thoroughly acquainted with their business, and as a general rule are very cautious. On some parts of the coast, where the shores are very bold, there are sometimes sudden flaws of wind which are dangerous; but for the most part the boatmen can and do avoid taking parties out when these are likely to occur.

Fishing is another amusement greatly affected by many sea-side visitors. Of course, the sport is widely different from that in fresh-water streams, which has always found such ardent and eloquent advocates; but it is by no means to be despised as an occasional pastime. It would be out of place here to go into details on the subject. Perhaps one caution may be given with regard to this as well as to the humbler but allied sport of "crabbing," that the exposure to the sun's rays, which they are both apt to involve, may induce severe headache, and even graver symptoms, in persons just from the city.

Indeed, it can hardly be too often or too positively

insisted on, that those who go to the sea-shore should avoid *immediately* subjecting themselves to the full glare of the sun for any length of time. It is far safer to become accustomed to it by degrees. I have seen most painful blisterings of the face, neck, and hands, as well as violent and persistent headache, brought on by neglect in this respect.

Of course, invalids and the very old must be cautious about indulgence in sailing, fishing, etc. I have, however, seen a gentleman of seventy-five years fish for three or four hours, in a sail-boat anchored a mile or two out from the shore, with as much energy and interest as the youngest member of the party; and that, too, when the motion of the boat was such as to occasion the loss of several breakfasts by others. And I once had under my care a gentleman in his eighty-second year, just recovering from a large carbuncle on the nape of the neck, who insisted on going out fishing in a sail-boat, contrary to my somewhat urgent advice. I had to acknowledge that no perceptible harm resulted from his imprudence.

But these are exceptional cases, and these gentlemen had both of them been long accustomed to the water. It would be a great risk for an old man to try the experiment of sailing for the first time, since the shock of violent sea-sickness might readily develop some unsuspected weakness, the result of the changes incident to advanced life.

Perhaps it is scarcely needful to mention the very rich fund of pleasure and instruction which may be found in the study of natural history on many portions of the sea-coast. The following extract may give a general idea of what there is to be seen by those who will look for it on the coast:

"Standing by the margin of the sea, we observe that the water breaks upon sand, gravel, mud, or strewn fragments of stone or shells, and that these materials pass down beneath it. If the shore is rocky, pools of the salt-water may be noticed, from which some idea may be formed of the nature of the bottom of at least the shallower parts of the sea. Each of these pools forms, as it were, a miniature sea. Its sides are hung with tufts of delicate sea-weeds, and bright with clusters of sea-anemones, while many a limpet and periwinkle stands fixed to the shore or creeps cautiously over its surface. The bottom of the water abounds in shady groves of sea-weed, through which many tiny forms of marine creatures dart and crawl. As we look into one pool after another, we find them all to be more or less full of plant and animal life.

"Turning from these shore pools to the edge of the sea itself when the tide is low, we mark that the ledges of rock support a thick growth of coarse, dark-green or brown tangles and sea-wrack, among which, if the water is still enough, tiny crabs, sea-urchins, jelly-fish, and other bright-colored marine animals

may be seen. If the water is examined from a boat, this forest-belt of large, dark sea-weed is found not to extend to a greater depth than a few fathoms. Beyond it the bottom, whether rocky, sandy or muddy, can be seen through the clear water, or may be examined by means of the dredge. Delicate scarlet sea-weeds, with corallines and deeper-water shells, inhabit these tracts. The sea-weed belt which fringes the land has an average breadth of about a mile. Beyond it, as we gradually get into deeper water, the common plants and animals of the shore are found one by one to disappear, and other kinds to take their place. The dredge may be dragged along some parts of the sea-floor and bring up only sand or mud, while at a short distance off it may come up full of many and varied forms of marine life, thus showing that there must be bare tracts of sand, mud, or stone on the sea-floor, and other patches where plants and animals are crowded together."

No one can read the above clear and graphic words of Prof. Geikie, without at least a momentary longing to look into the charming and mysterious realm of which they almost seem to give us a glimpse.

Let me say here, that Prof. Joseph Leidy has found, in an ounce of sand collected between high and low tide, more than 18,000 varieties of minute shells at Atlantic City, and over 28,000 at Cape May. His well-known acuteness of research and simple accuracy

of statement warrant the acceptance of these truly wonderful numbers without question. In view of them, who can say that even a flat, sandy shore is destitute of interest to the educated eye? Of course, a certain amount of previous knowledge is requisite to enable any one to work in this field, and the power of observation varies in different individuals; but almost any one can acquire enough to give him a pleasant sense of acquaintance with the animals or plants which meet his eye.

A microscope and a few well-selected books will be found of great assistance in carrying on these most fascinating studies. The following may be mentioned:

Torrey's "Manual of Zoölogy."
Agassiz' "Methods of Study in Natural History."
Damon's "Ocean Wonders."
Morse's "First Book of Zoölogy."
Dana's "Zoöphytes."
Gould's "Invertebrata of Massachusetts."
Taylor's "Half-Hours at the Sea-Side."
Fraser's "Sea-Side Naturalist."
Harvey's "Sea-Side Book."
J. G. Wood's "Common Objects at the Sea-Shore."
Lewes' "Sea-Side Studies."
Hibberd's "Aquarium."

No list of this kind would be complete without mention of Kingsley's "Glaucus." Mrs. and Alex-

ander Agassiz' "Sea-Side Studies in Natural History" is also a valuable book, but is now out of print.

It may not be digressing too much to speak of the interest which is also afforded by the observation of atmospheric phenomena, and of such geological facts as are recorded in the structure of the sea-coast. On this subject much valuable information may be found in Geikie's "Elementary Lessons in Physical Geography," Agassiz' "Geological Sketches," and Guyot's work on "Physical Geology." Even where the hand of man has been applied to efface the natural features of the shore as far as possible, there is always something in the wide expanse of sea and sky, and in the changes which can be traced to the mutual influence of the sea and the land, which will repay study. To any one who can use a pencil or a brush, an unlimited field of enjoyment is open in the effort to fix upon paper or canvas a suggestion of the tints and forms presented by the clouds and waves. One need not be a profound naturalist or a skilled artist to obtain these simple pleasures, which grow in fascination the better they are known.

Of late years, those who are not yet beyond the period of boyhood and girlhood have had their pleasures at the sea-shore greatly enhanced by the fact that, since it has become the custom for so many families to stay for a great part of the summer, base-ball, cricket, lawn-tennis, and perhaps other games,

have become regularly-established institutions there, instead of being played only at home. It is, indeed, curious to behold a party of boys, under a broiling July sun, working away at cricket or base-ball as if they needed the exercise to keep them warm; but they certainly seem to enjoy it. Some of them wear wet sponges in their hats; but somehow it seldom happens that even the most reckless suffer from the exposure. Match games are not unusual where the players are sufficiently numerous, and excite a great deal of interest.

As for the children, the sand affords them an unfailing source of employment and pleasure. Armed with their little spades and buckets, they swarm on the beach, digging away with as much zeal and energy as their elders display in their graver pursuits. A cleaner or more healthy occupation can scarcely be imagined; and the only caution needful is the obvious one as to the mid-day heat. There are not many days during the summer when this need interfere with them except for a few hours, and those such as are naturally taken up by the bath and the subsequent nap. This precaution as to exposure to the sun should be especially regarded for the first week or so, before they have become accustomed to it.

No one familiar with the ways of children need be told that they wake early, play vigorously, and are early ready for bed. And yet it is too often the case

that the poor little things are kept up long after they should be asleep, by the excitements of a hotel or boarding-house. "Children's hops" are open to great objections on this score. It is painful to see little creatures who ought to be in their beds, dressed up to gratify a foolish vanity on the part of their parents, and dancing in spite of the fatigue which they can hardly repress. The harmless and engrossing pleasures of childhood are so great that it seems a pity to hurry it, before the time, into the artificial excitements of later life, especially when health is supposed to be the main object in view. Of course, these remarks apply only to the very little children. For those ten or twelve years of age there is much pleasure in an occasional dance in the evening; and if it is not kept up beyond nine or ten o'clock, it can do no harm.

The whole subject of amusements, whether for children or for grown people, is one which is liable to be wrongly dealt with, either in the way of license or of limitation.

CHAPTER VII.

COTTAGE LIFE AT THE SEA-SHORE.

THIS is, strictly speaking, a development of modern life. Within the last twenty-five or thirty years, there have been put up, at many of the watering-places along the coast, a very large number of houses of suitable size for occupation by families, which may be rented for the season at a reasonable cost.

One of the advantages of this arrangement is the comparative privacy of the mode of life. For children especially, it is very desirable to avoid the bustle, confusion, and irregularity, as well as the demoralizing influences, inseparable from a stay in a hotel. Foreigners are apt to accuse Americans of a tendency to congregate in hotels, and to speak of domestic life as a thing almost unknown with us; but this is simply ignorance. Our social system has its defects, and grave ones, as will be admitted by thinking people here as elsewhere; but the very fact of the great popularity of this cottage life is a proof of the value of the home in American eyes.

Another great advantage is the fact that in this way

families may, without incurring additional expense, remain a much longer time at the sea-shore, than by any other plan. Indeed, in most cases the amount of the house-rent is the chief outlay, since the cost of living may be even less than in the city, and the incidental expenses need not be heavy. A family going to the coast in June, and remaining until some time in September, will thus escape the intense heat of the entire summer. To do so by going to a hotel or large boarding-house would involve a very heavy bill; but by taking a cottage, the expense of living is simply transferred from one place to the other. People of moderate means find this a very important matter; and it may readily be seen why the demand for these cottages should be so great.

There are several points in connection with this mode of summer life, to which reference may appropriately be made here. And first in regard to the water-supply. This is sometimes derived from wells, and it is curious to find, at some places along the shore, fresh water of excellent quality for drinking purposes, to be had by digging for it. This is done by sinking what are called "drive-wells," pipes driven down through the sand. On the other hand, however, it occasionally happens that the water so obtained is more or less brackish or hard. If good water can be procured from a well, this is of course the best plan, since the consumer is thus entirely independent.

But the writer has known of instances in which, although the water seemed to be good, its effects were very unpleasant, the use of it giving rise to a marked degree of diarrhœa; the symptoms ceasing at once when the water supplied by pipes from an Artesian well further inland was substituted for it.

In old houses, particularly, we sometimes find that great carelessness has obtained in the planning, so that cesspools and wells for drinking- and cooking-water are in close proximity to one another. At the present time it is needless to point out the danger of such an arrangement. Almost all the newly built houses are constructed on better sanitary principles. But it may be well to urge the importance of always paying attention to these matters, and of having a careful and scientific inquiry made if there is any indication of mischief from the water-supply.

Very few sea-side cottages are at present built with cellars. This is partly to avoid the outlay of money, and partly because of the character of the soil, which is readily washed by heavy rains. The plan usually adopted is to set the frame of the house a foot or two from the ground, on brick piles or pillars. A great advantage is thus gained in the dryness of the lower floors, which is better secured in this way than in any other.

In regard to drainage, it may be said that fashion has prescribed the substitution of trapped water-closets

for the privy-wells once in vogue, and not always to advantage. Of course, where there is a decided difference of level in the ground, and the drainage flows off readily, the former plan may work well; but when the sewage-pipes must of necessity be horizontal, or nearly so, every unusually high tide must drive back all the sewage, to find an exit wherever it can; that is, wherever there is a leak in the pipes or a badly-constructed trap. Hence, a sewerage system of this kind must be either especially well constructed or especially dangerous. It may be argued that cases of obvious trouble from this source are rare, at least at the sea-shore; but this does not prove that they do not occur. We believe that the best system is for each house to have a deep and thoroughly-walled well (quite separate from the house), into which drainage of all sorts may flow, and *well-trapped* water-closets to discharge into this well. The next best plan is to have the old-fashioned arrangement of shallow wells, disinfected from time to time as they need it. Earth-closets answer a very good purpose, and can easily be arranged; but sand does not answer as well as earth for a disinfectant.

The ventilation of summer cottages at the sea-side should be provided for on the same principles as elsewhere, and needs no special comment. If there are fire-places,—which there always should be in the main rooms,—they afford an excellent means of purifying

the air, even when the weather necessitates the closing of doors and windows.

It has just been said that there should always be fire-places in the main rooms of these houses; and this is very important, not only for mere warmth, but on account of the dampness which is so very apt to prevail, especially in the event of a long storm. One of the advantages of sea-air is its saturation with the sea-water, tossed up in the form of spray. Now, it will readily be seen that if there occurs a gale, with rain, for twenty-four hours or more, the air in a house will be loaded with moisture, partly from the sea, partly also from the rain; and evidence of it will be afforded in the mould so quickly deposited on boots and other articles of the kind, in the rusting of iron, and in the dampness of clothing, furniture, etc. Against this there is no protection so certain as to have a fire, raising the temperature and increasing the capacity of the atmosphere for retaining moisture.

Many of these houses have their own bath-houses or dressing-rooms, but the occupants of others are obliged to resort to the hiring of such accommodation, which is generally a matter of no difficulty.

The facilities for obtaining all sorts of table-supplies are abundant at places of much resort. Groceries can be either ordered from the city or obtained at the shops at hand, the former being somewhat the cheaper plan. Fresh vegetables, fruit, etc., are brought

round daily by dealers, while the supplies of fish, oysters, and crabs are abundant and readily procured. At the more northern places lobsters can be had directly out of the water, when they are, of course, at their best.

An indispensable addition to a cottage at the sea-shore is the piazza, which should surround the house on three sides, if possible; but, at least, should be so placed or distributed as to afford shelter from the sun during most of the day, and large enough to accommodate the family and their visitors without crowding. The piazza is not only a great source of pleasure and comfort, but it has a positive sanitary value, in that it draws the inmates of the house continually into the pure out-door air. From experience, the writer would recommend that, if possible, there should be a piazza on the eastern and southern sides of the house. When so placed, and wide enough, they are available at all seasons of the year, for invalids as well as for the healthy. It is well, also, to have second-story piazzas in addition to those on the ground-floor.

There is one luxury to which allusion may be made in passing, viz., the hammock. This article has come into extensive use of late years, and can be easily obtained in any large city. Swung in the piazza of a cottage at the sea-side, it affords a delightful resting-place in which one may spend many agreeable hours.

CHAPTER VIII.

SANITARY MATTERS.

THE general laws of sanitary science hold good at the sea-shore as elsewhere. But there are certain special conditions of diet, drainage, etc., on which it may be well to speak in a book of this kind.

Diet.—The bracing effect of the air at the sea-side tends to increase the appetite, while at the same time there is often a neglect of proper habits of exercise, partly from the indolence induced by the social surroundings, and partly from the want of regular occupation. Hence, especially at large hotels, where there is a varied and tempting bill of fare, the viands not being always cooked in the most wholesome way, indigestion and its consequences are not unfrequently experienced. This is a matter to be dealt with by individual discretion and self-control, on general principles.

Many persons, however, find themselves always more or less disturbed as regards their digestion for the first few days that they spend at the sea-shore. This is no doubt, in some measure, due to the mere

change of air and food, perhaps also of drinking-water, just as horses are apt to be disordered by change of stable; and it is not an unfrequent experience, especially to those who leave home but seldom, to have headache and impairment of digestion for a day or two after beginning a journey.

But there are some peculiarities of diet at the sea-shore which may be noticed. As a matter of course, fresh fish are more easily procurable than elsewhere, and are apt to form a more prominent feature of various meals. For most persons this change is not unwholesome, and, indeed, is beneficial. It is a curious circumstance that, generally speaking, the fresh-water fish improve in edible quality as we go farther northward, the salt-water fish as we go southward. Hence there is some difference of experience at different resorts. The cod and haddock of the New England coast are certainly inferior to the sheepshead and weak fish of the Jersey shores. And these again are said to be surpassed in flavor and digestibility by the pompano and drum-fish found in more southern waters. When fresh and well cooked, however, any of these fish may be eaten with safety by any one who has not a special inability to digest this kind of diet, and especially when leading an out-of-door life, with much exercise.

Oysters are generally supposed, from their freshness, to be eaten with impunity at the sea-shore when

they are not wholesome at inland places. The rule is well known and observed in most cities, to abstain from them during the months in the names of which the letter R does not occur; so that from the beginning of May to the end of August, or the middle of September, they are scarcely to be found in the markets. But, although at the sea-side they are more palatable during the summer season, and are often eaten without apparent harm, there can be no doubt that they sometimes prove treacherous. One is apt occasionally to come across a bad oyster,—it may be merely a "milky" one, or it may be one which is actually spoiled,—but the effect is to induce a most unpleasant disturbance of the digestive organs, with nausea, vomiting, diarrhœa, and often great prostration. For this the best remedies are absolute rest, a rigid diet, and, perhaps, a small dose of castor-oil. Unless the symptoms yield very promptly, medical advice should always be had in cases of this kind.

Crabs and lobsters are, perhaps, less easy of digestion for some stomachs than oysters; but when perfectly fresh (the rule is, I believe, that the cooking process should begin during their life), they will not often give any trouble. Occasionally we meet with individuals who are liable to attacks of curticaria, or nettle-rash, from the use of a fish diet. It is generally the flesh of some special fish, or perhaps that of the crab or lobster, which has this effect. Absti-

nence, with alkalies, and such local remedies as will be found detailed in Bulkley's work of this series, on the Skin, will, for the most part, give speedy relief.

At some places, especially where the soil is very sandy, as on beaches away from the mainland, and consequently at a distance from good pasturage, difficulty is often experienced in procuring a supply of suitable milk for the diet of children. Of course, milk can be brought from inland, but it is apt to undergo change in the transportation, and, although it may seem to be good, the effect of it on the stomach is more or less disturbing. Under such circumstances recourse may be had to condensed milk, mixed with water in proportions suitable to the age of the child. It may be used also for adults as an ingredient of tea or coffee, just as on long sea-voyages. The best brand, I believe, is that known as the "Eagle." With many physicians this article is a great favorite, being even preferred to fresh milk for the purpose of feeding children by means of the nursing-bottle.

In the case of older children, if any tendency to diarrhœa exists, it may be well to restrict the diet to some farinaceous preparation, which may be cooked with milk, either fresh or condensed. Arrow-root, farina, rice-flour, corn-starch, "granum," Nestlé's food, Castillon's powders, papoma, and many other

articles of this kind, are thus employed, and afford a wide range of choice.

While there are some persons who are liable to diarrhœa when at the sea-shore, there are others on whom the opposite effect is apt to be induced. As a general rule, the latter condition will be found to be best corrected by the adoption of suitable diet, and by the taking of an additional amount of exercise. Grits (coarsely-ground wheat or corn, sometimes called "hominy"), bran-bread, Indian-cakes, or mush, may be made a constant element of the breakfast; or fruit may be eaten at that meal. By this means, with a brisk walk, either before or afterwards, the bowels may often be sufficiently acted upon. A glass of cold water, the last thing before retiring and the first thing on rising, answers the purpose in many cases. Or, a glass of Hunyadi, Vichy, Congress, or Friedrichshall water may be taken before breakfast. Should these simple measures fail, it is better to have professional advice.

Drainage.—This subject has already been referred to in connection with the sanitary arrangement of cottages. At the hotels and boarding-houses it is a matter of great importance, and not always properly attended to in their construction. One great safe-guard, however, is the fact that at the season when these buildings are used, the doors and windows are so constantly kept open, that any foul air which col-

lects is apt to be continually diluted, and thus to be less harmful than it would be if breathed in a concentrated state.

It may be laid down as an absolute rule, that all water-closets, as well as all sinks and washing-places, whether for the person or for clothing, should be placed as far as possible from the dwelling-part of the house, and so arranged that any emanations from them will not be likely to be carried to the latter by currents of air.

Water-closets should drain into properly constructed wells, which, with the pipes leading to them, should be as far as possible from the pipes for the water-supply. And these water-closets should always be ventilated by means of shafts for the purpose, leading directly to the open air. If any foul odors are at any time perceptible, their source should be carefully inquired into, and the leak or other defect remedied. Kitchen-sinks and stationary washstands (where these latter nuisances exist) should empty their foul contents by a separate outfall from that of the water-closets.

As a general rule, it is safer to have the drainage of each house provided for separately. The expense of having a well-arranged system of sewerage is very great, particularly in towns which, like most of those at the sea-side, are spread over a good deal of ground. Then, again, it would be exceptional to find

a sufficient slope for the drainage to flow off readily. But it is not unfrequently the case that two adjoining houses, built at the same time, have a common well into which all the sinks, water-closets, etc., are drained. This is highly objectionable. Every house, cottage, boarding-house, or hotel should have its own arrangements for sanitary protection, unless there is a thoroughly-well constructed and efficient system, planned by a competent engineer, and kept constantly under intelligent supervision.

Several notable instances could be readily adduced, which have occurred at well-known resorts within the last twenty years, in illustration of the danger of neglect in this matter of drainage. Important at all times, the need of precautions against such danger become absolutely imperative when a great number of persons are crowded together, as at a large and popular sea-side hotel in the height of the season.

Precautions against Fire.— As a matter of course, wherever people live, there must be a certain amount of risk of fire; and especially in large hotels, in spite of the utmost watchfulness, whether from want of care on the part of visitors or servants, or from unavoidable accidents, this terrible danger has sometimes to be faced. It is rendered more likely to arise at the sea-shore, from the fact that so large a proportion of the buildings are constructed almost wholly of wood.

On this subject I have only two hints to offer, but I think they are of sufficient practical importance to justify their insertion here.

At many places kerosene-oil is the only means of illumination, and it is very generally used for portable lamps. The danger from this substance is well known and much dreaded; but it may not be so generally known that it can be easily avoided by a very simple process. If the glass bulb containing the oil (as in most of the lamps used) be very gradually filled with either a mass of cotton rags or raw cotton (which may be done without displacing the oil), the lamp will burn equally well; and if by any chance it should be broken, the burning oil will not flow away, setting fire to everything around, but will be retained by the cotton or rags in a comparatively small space, and can be extinguished by excluding the air. This can be done at once in a kitchen, for instance, by putting a sauce-pan or kettle over the burning mass.

The other suggestion I have to make is that every one going to the sea-shore should provide himself with a strong three-eighths or one-half inch cord, say twenty yards in length, having at one end a double hook, such as is sold in the hardware-shops under the name of a "sister-hook." This takes up very little room in a trunk, and the person provided with it may find it the means of escape for himself, as well as perhaps for others, in case a fire should occur. It is

hardly necessary to give directions for the use of such a rope, as the circumstances would vary greatly; but it may be suggested that, in lowering others, a turn should always be taken round a bed-post, piazza-railing, or other suitable article, to prevent the cord from running out too quickly. Of course, very much depends upon the coolness and courage of the individual as well as upon his physical strength.

CHAPTER IX.

THE SEA-SHORE AS A WINTER RESORT.

UNTIL within a very few years, it was usual, from the closing of one "season" until the beginning of the next, for utter solitude to reign at every sea-side resort in this country. Any one having occasion to visit the coast in winter was obliged to avail himself of slow trains, and to be satisfied with whatever he could get in the way of board and lodging. There was something unspeakably melancholy in the absolute desertion of beach, hotel, and bathing-house, as compared with the gayety of the same scenes in summer.

It may well be thought strange that this should have been the case; that the value of the sea-shore as a sanitary resort in winter should have remained so long unrecognized by the medical profession and by the public in the United States. In England, Torquay, Brighton, the Isle of Wight, and other points on the coast, had been for many years known as places of refuge for invalids, especially for those suffering from pulmonary complaints, during the winter

months. Nice, Mentone, and many ports in the Mediterranean, had likewise been sought by Americans as well as by English and European sufferers; and yet the advantages of our own sea-coast had been ignored. How or by whom the discovery was made that we had, almost at our own doors, resorts of equal value, it is difficult now to ascertain. Suffice it to say, that a new departure was taken; and there is now abundant opportunity, both in means of access and in accommodation, for those who wish to enjoy the equable and genial climate of the sea-shore during the winter season.

It would scarcely be just to ignore the fact, that the first place on the coast of the United States to be thus made available as a winter sanitarium was Atlantic City. One house here was kept open, as an experiment, some twelve years ago, and for a year or two it seemed as if this were scarcely worth while. But the attention of some of the physicians in Philadelphia was drawn to the matter, and they found that certain classes of patients were benefited by the change to the sea-side during the winter. The results of their experience became more and more widely known; the idea grew in favor with the public as well as with the medical profession, until at present the winter business at several places on the coast of New Jersey is very large.

At Atlantic City, Cape May, and Long Branch

there are houses kept open all the year round, with every convenience in winter, just as at the height of the summer season. It is curious to see, at the first named place especially, on a fine day in February or March, the great number of people enjoying themselves on the beach, and to recognize perhaps twenty persons in a walk, where ten years ago one might not at that season have met a single soul.

Another place — Old Point Comfort, at the mouth of the Chesapeake Bay, easily accessible by steamboat from Baltimore — has just been fitted up as a winter sanitarium, and presents very great advantages. There is one large hotel there, and several points of interest in the neighborhood.

There can scarcely be a doubt that this idea of going to the sea-side in winter is destined to become more than a mere passing fashion; it will take its place among the established customs of our social life, if, indeed, it may not be so regarded already. It is by no means confined to invalids, but many persons avail themselves of it as a means of rest and relaxation. Nor is it by any means an unusual thing for parties of young people to be made up to go to the sea-shore for a few days in winter, as a matter of pleasure.

For obvious reasons, the winter tide of visitors to the sea-shore does not usually set in until about the first of February. Earlier than this, business and

fashion make their demands on the time of city people, and the comforts of the in-door life at home are prized beyond the possible pleasure of an occasional walk on the beach or the piazza at the sea-shore. Then, again, the short days and long evenings are far more easily passed amid the resources and occupations of the town, while the benefits to be obtained from the sea-air are at this season much less, and much less available, than later. Another very important point is that towards the end of the winter there are a great many persons convalescent from the diseases incident to the season, who form, as it were, a nucleus for the migratory crowd.

Hence, as the days grow longer, and the demand for change of air and renovation of bodily powers is felt, whether as the result of illness or of devotion to business or pleasure,— perhaps, also, when the approach of the Lenten season checks the gayeties of a large proportion of society, — the movement of the invalid and the weary, with their friends, becomes suddenly augmented, to continue until nearly the time for summer travel to begin.

It need hardly be said that among the objects of a resort to the seaside in winter surf-bathing finds no place, for it is out of the question, by reason of the coldness of the water as well as of the air, except for persons of so exceptionally rugged a constitution that their example would be no guide for ordinary people.

In-door baths may be taken with great advantage in ways to be presently pointed out.

The remarks made as to the difference between the sea-air and that of inland places apply, in the main, in winter as well as in summer; but during the former season a modifying influence is exerted by the great mass of the ocean upon the temperature of the air along its shores, so that the thermometer generally stands some 10° higher, and the atmosphere is less harsh, than in the interior. Hence, except when there is an easterly storm, or a strong gale from the west, invalids can get their daily walk on the beach or piazza; and sometimes, even when the west wind is blowing strongly, one may sit very comfortably in a sheltered place, and enjoy the sunshine and fresh air, without fear of harm.

It is this constant temptation into the open air, without the necessity of an errand to call one forth, or of making one's self presentable to the world by an elaborate street toilet, which constitutes one of the great charms, as well as one of the chief benefits, of a visit to the sea-side in winter.

Perhaps it may be well to say just here that it is often a good plan to modify exercise for invalids by letting it be taken, as food has to be given in so many cases, in small doses frequently repeated. Thus, the patient may go out after breakfast and walk perhaps a quarter- or half-mile, return, lie down

and rest, lunch, and take another short stroll before dinner. After a sufficient time for digestion, another walk may be taken, not long enough to induce fatigue, and still another in the evening just after tea. In this way the sum total of exercise for the day may be made much larger, without risk of exhaustion, than if greater things were attempted at one effort. Especially is this important for those who have already suffered from overstraining of either the mental or the bodily energies, and to whom the first stimulus of the salt air gives a deceptive sense of vigor.

Sheltered spots may often be found on the beach, where the patient may lie down on the sand and enjoy the luxury of a sun-bath. It is always better to have a large shawl or rug to spread down, so as to avoid the loss of body-heat. The surface of the sand may feel quite warm, and yet, after lying upon it for a little while, the clothing which has been between it and the body will be found quite damp and cool.

The first effects of the sea-air upon visitors are very much the same in winter as in summer. The same sense of invigoration, of increased appetite, and of drowsiness are experienced by almost every one. Persons who before leaving home felt constantly wearied, with a distaste for food, and with an inability to sleep well, whether from fatigue, from over-excitement by business or by pleasure, or from the effects of illness, will often find themselves enjoying

a walk, eating heartily, and ready for bed at an early hour. It is well in many instances to give a caution as to the over-doing of the exercise, as well as in regard to the indulgence of the appetite. The matter of sleep may generally be left to nature.

Upon the function of the bowels, the sea-air in winter often has a restraining effect, inducing constipation, which may be very obstinate. This is owing generally to the stimulation of the skin; and if diet does not suffice to overcome it, it should be corrected by suitable remedies. For this purpose the mineral waters, Hunyadi, Vichy, Friedrichshall, or Congress, are less applicable than in hot weather; and the compound rhubarb pill, the Lady-Webster pill, or the compound licorice powder will be found to answer better. Diarrhœa is much less frequently met with, and may be checked in most cases by limitation of the diet for a day or two. Should either of these conditions be the result of previous disease, special treatment may be called for, such as could only be indicated by medical counsel at the time.

The cases which are benefited by residence at the sea-shore in winter are very numerous.

Business men, in times either of great activity or of stagnation, are apt to be anxious and fatigued, and to fall into a condition of debility, with excitement and sleeplessness. Together with this there often occur derangements of digestion, and a long train of

other symptoms of greater or less gravity, which may lay the foundation for permanent ill-health. Among over-worked professional men, the same thing may often be observed. Occasionally, a very similar condition is met with in the young, either from excessive stimulation of the brain by school-work, or as the result of nervous disturbance of various origin. Of all the cases which are sent to the sea-shore in the winter season, there are none in which the benefits of such a change of residence are more marked.

Many other forms of nervous excitement are encountered in city practice, which are likely to be controlled by the hygienic influences of sea-air. There can be no doubt that paroxysms of insanity may sometimes be warded off by this means alone.

It is not difficult to see why these patients find advantage from going to the coast. They are taken away from their accustomed surroundings, with all the routine of their daily life; and mere change of scene is often beneficial. They are placed in an atmosphere which is in itself a tonic, and freed from many causes of mental excitement and nervous tension. They lead a quieter life — one of wholesome monotony and simplicity. While digestion and nutrition are favored, the drain upon the powers is diminished or wholly checked. We may not unfrequently observe a very marked increase in bodily weight in a short time in cases of this kind.

There are other and more chronic forms of nervous disorder which are also greatly benefited by going to the sea-shore in winter. Among these may be mentioned some cases of paralysis, and of general debility from want of nerve-power. These conditions sometimes arise as the sequels of acute diseases, and especially of fevers, either in adults or in children. In many instances patients of this class may derive much advantage from the hot salt-baths, in addition to the general hygienic influences of the air, and of the exercise which it makes possible as well as pleasant. But of course this must be a matter to be decided in each case by competent medical authority.

Convalescents from acute diseases, bronchitis, pneumonia, typhoid, and other fevers, may almost always be found among the visitors to the sea-shore in the latter part of the cold season. A good deal of judgment must be exercised in each case as to the exact stage at which such patients should be sent from home. It need hardly be said that a premature move of this kind might be fraught with danger.

Children recovering from lung troubles, as bronchitis, whooping-cough, etc., may be sent to Atlantic City or Cape May in the latter part of the winter, or in the early spring, and avoid much of the inclement weather which at home would confine them to the house, and prevent or retard their full convalescence.

For many consumptives, as well as for those who

labor under chronic bronchitis, the sea-shore affords a most valuable winter resort. The moisture and purity of the air, with the greater equability of temperature, enable them to breathe more easily; and it is sometimes surprising to note the diminution in the severity and frequency of the cough, as compared with that previously experienced. A like beneficial effect is produced upon many asthmatics, who, indeed, are very often the subjects of chronic bronchitis with a superadded nervous irritability.

From what has already been said in regard to the general subject of the effects of sea-air, it would naturally follow that dyspeptics would find their symptoms greatly relieved by it at any season, but especially in winter, when exercise can be freely taken. And experience constantly proves the truth of this inference. In very many cases, indeed, dyspepsia is the legitimate result of injurious habits of life, the penance for sins of omission and of commission against the nervous system and the stomach. A "season" of dinners and late hours, with the irregularities and imprudences, the excitements and fatigues, of fashionable society, will often wear out the patience of even a healthy physical organism; and a return to simpler habits, with active open-air exercise and abundant sleep, is needed to repair the damage thus sustained.

Of the maladies which affect other organs,—the

liver, the kidneys, the bladder, the uterus and ovaries in the female,—we need not speak here at any length, as the circumstances which indicate the propriety of a resort to the sea-side for their relief can only be judged of by the physician in attendance. Suffice it to say that many such cases are met with in which, at certain stages of the disease, a great degree of comfort, if not an actually curative effect, may be looked for from the change to the pure and bracing air of the coast.

There are cases of rheumatism, gout, and sciatica, in which much may be expected from the sea-air, and more, perhaps, from the hot salt-baths, judiciously administered. But here a good deal of discrimination is needful; in some instances the dampness from the ocean, and the stimulus of the salt in the atmosphere, are by no means well borne.

One of the most fruitful sources of disease known to modern medical science is malaria, or marsh-poison; and although its effects are less apt to show themselves in winter than at other seasons, they do sometimes crop out even then, perhaps under the favoring influence of some other ailment. Where this is the case, as a general rule, the effect of sea-air is less decidedly beneficial than under other circumstances; or at least the choice of places is to be made with discretion. Most of the winter resorts on our coast are low-lying, and in the neighborhood of many of them there are

wide reaches of marshy ground, the emanations from which would be apt, especially in some states of the wind, to counteract the tonic influence of the general atmosphere upon those already poisoned by malaria. It is to be hoped that somewhere on the rocky coast of New England there may be found sheltered spots where, except during the prevalence of storms, invalids of this class can go without any such drawback.

Besides the disorders now referred to, there are many surgical complaints which admit of benefit from a resort to sea-air, especially in their later or convalescent stages. Thus persons with old fractures, sprains, and bruises, may often have their complete recovery hastened by the conditions met with at the sea-side, and especially by the hot salt-baths. Patients who are climbing back to health after serious operations; those who have tumors not admitting of active treatment; those suffering from scrofula in many of its forms, or from syphilis; and a large class of joint diseases, may be sent to the sea-shore during the winter, to their manifest advantage. Here, even more obviously than in speaking of such cases as come within the physician's province, we can use only very vague and general expressions. It is to be regretted that the value of this resource has hitherto been so little appreciated by those engaged more particularly in the practice of surgery.

By way of close to this discussion of the merits of the sea-shore as a winter sanitarium, one important point may be fitly urged. To send an invalid to Atlantic City, to Cape May, or to Long Branch, from any of our Eastern cities, is a very different thing from ordering him to the South, to California, or to Minnesota. In the former case, by a short and easy journey, he goes to a familiar place, where he is sure of comfortable quarters, can be readily reached by his friends or by his physician, and can have daily supplies of books, newspapers, and other things more or less indispensable under such circumstances. If he should become dissatisfied, or should there be signs of the approach of a long storm,—should any aggravation of symptoms or any other reason make it desirable for him to return home, the same short and easy journey places him in a few hours at his own fireside again.

On the other hand, a sick man sent to the South or to Minnesota has a long, expensive, and wearisome journey before he reaches his sanitarium. When there, he is generally a stranger in a strange land. His home and all the nameless associations of his daily life, his paper to which he is accustomed, the gossip of his "set,"—a great many things which, when at hand, seemed mere trifles, but the want of which is sadly felt,—have been left far behind, and can only be reached again by retracing the weary

travel of the outward trip. The expenditure of time, money, effort, and inconvenience may be repaid in improvement in health; but if not, the fruitless sacrifice is infinitely greater than that required to test the efficacy of a sea-side residence towards accomplishing the same end. In the one case, the experiment is in every way formidable; in the other, it is easily tried, and, even if unsuccessful, involves no great loss.

CHAPTER X.

EXCURSIONS TO THE SEA-SHORE.

WITHIN the memory of a great many persons still young, a trip from an inland town to the sea-shore was quite a different thing from what it is now. To take the single instance of Philadelphia: twenty-five years ago, one could only reach Cape May by a nine hours' journey by steamboat, while to go to Long Branch, Deal or Squan Beach a tedious railroad ride, followed by eighteen miles of staging, was necessary. At present, fast trains are run to Atlantic City in an hour and a half (seventy minutes will, it is said, be made by the new line); to Cape May in two hours; and to Long Branch in two hours and a half. One can go to Cape May and back by steamer in one day, the time being about five hours and a half each way. Without going into detail, it may be mentioned that the sea-shore may be reached from New York, either by rail or by steamer, in a very short time, and that many trips are made daily; and the same may be said of Boston.

As a result of this development of travelling facili-

ties came the cheap excursion system, by which during the summer season very large bodies of people, men, women, and children, are daily carried to and fro, having the opportunity to spend several hours on the beach. On some of these excursions the number of passengers amounts to several thousand. It is not at all uncommon for trains of thirty-five cars or more, closely packed, to run from Philadelphia to Atlantic City. Where the distances are shorter, and many trips a day are made, as from New York to Coney Island or Manhattan Beach, the people are of course distributed among the various trains, some of which are, however, densely crowded.

The people who participate in these excursions belong mainly to the working-classes; among them are a great many rough characters, and there is occasionally a good deal of drunkenness and rowdyism manifested in their behavior. Yet, on the whole, it is surprising that there is not even more disorder, and that the accidents which have occurred have been so few, and those for the most part of so little gravity.

And notwithstanding the unattractive character of trips of this kind to those who are accustomed to better things, there can be no doubt that the glimpse of the sea, the breath of fresh air, and the brief change from the hot city, thus obtained, afford both pleasure and benefit to many who would otherwise have no break in the discomfort of the long summer. When

we consider what the homes are, and what the lives, from which many of these people obtain in this way a brief respite, our wonder at the popularity of these cheap sea-side excursions may well be much diminished.

As might naturally be expected, the great majority of the excursionists are not only unaccustomed to the sea-shore, and unaware of the things to be done and avoided, but they belong to a class in which dense ignorance prevails as to hygiene generally,—a class whose ideas are wont to run in very narrow grooves. Within the limit of their knowledge and experience, they may show no lack of acuteness, but outside of that they are very children.

Such persons are apt, on reaching the sea-shore, say at 10 A. M., after a hurried breakfast and a journey of three or four hours, to take a hearty meal, perhaps of an unwholesome character, and badly cooked. They then want to go into the surf; they hire bathing-suits, and take a bath without prudence as to its mode or its length, but they stay in as long as they can, to get the worth of their money. They then come out, dress, and occupy themselves with the various amusements provided at such places. Many of them indulge freely in ale, beer, spirituous liquors, or "mixed drinks." They expose themselves recklessly to the sun, and often a second bath is taken after dinner. As the result of all this, the return trains carry

a great many aching heads and sick stomachs, and some of the excursionists are laid up for several days afterwards.

Such effects, however, are less frequently observed than might reasonably be supposed. There seems to be a sort of tolerance in the systems of the lower classes to all sorts of imprudence. Nature seems to wink at their sins of ignorance against her. They are not aware that they are doing anything out of the way, and do not look for any ill consequences. Again, the continual disregard of hygienic rules among these people, kills off a vast number of the more weakly in very early life, and those who survive have rugged constitutions, not so easily disturbed by errors of diet, etc., as those of the more tenderly nurtured.

But the greatest number of drowning accidents occurs among these people; they know nothing of the beaches, and venture far more than those who do; often they cannot swim, and are helpless when in danger. One reason of this is, the want of the habit of self-possession, and of thinking for themselves, which is the result of higher mental training.

It would be an excellent thing to have posted up conspicuously, at all the places resorted to by excursionists, some plain rules and suggestions as to what they should do and avoid. By this means some good might be done in the way of preventing the impru-

dences which are so often the result of pure ignorance. Of course, there are many heedless persons who would pay no regard to any cautions, and many who get into trouble through the abuse of drink; but an effort would be made in the right direction, and some saving of health and life might be effected.

Besides those already mentioned, there is another class of excursionists, the "Saturday and Monday" men. These go down by the extra trains on Saturday afternoons, to return to the city on Monday morning. They are generally business or professional men, some of whom have families whom they go to join, while others go either for pure relaxation and respite from the heat of the cities, or for the purpose of a frolic.

Such a trip, brief as it is, may be productive of great good, and the refreshment obtained braces up many a weary frame for the occupations of the succeeding week. But there is a strong temptation to late hours on Saturday night; and although, to the great credit of the managers of these places, there is generally an entire closing of the bar-rooms on Sundays, there is apt to be a good deal of private indulgence. Monday morning almost always sees a good many sleepy and "seedy" passengers going back to their work. Volumes of sermons on this subject would be thrown away, and it can hardly be expected that the few remarks for which we have space here,

will have any influence in counteracting an evil which has its origin, not in any outside circumstances, but in the weakness of human nature. "The morning's reflection upon the evening's amusement" always comes twenty-four hours too late—the morning after, instead of the morning before. And the abuse of a good thing by some of those who have it, is not an argument against its being afforded to those who know how to enjoy it rationally.

An occasional Sunday at the sea-shore, with a dip in the salt water, a walk on the sand, and other quiet pleasures suggested by the mere mention of it, make a most agreeable and wholesome break in the monotony of what many are compelled to endure,—a summer in town.

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THE END.

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