

## INFLUENCE OF SEA-AIR AND SEA-WATER BATHS ON DISEASE.\*

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The purest air in nature is that found on the high sea after traversing hundreds and thousands of miles of pure sea-water, uncontaminated by smoke, dust, and the exhalations of cities. Saline mists and fogs clarify, purify, ozonize, and vitalize the air. Sea-air is tempered by its surroundings; in summer it is cooled by radiation from the lower water-temperature and in winter warmed by the higher water-temperature. Moisture is also taken up by it and a doubtful infinitesimal per cent. of salt. The so-called trace of iodine is very questionable and can not be positively demonstrated. Sea-air is classed as an alterative by some, but not on account of its supposed iodine.

Outside of an island in mid-ocean, Atlantic City is probably situated in the best location for pure sea-air; better than any point on the eastern coast of the United States. Its geographical location is on an island of pure sand, five miles from the mainland, and twenty miles seaward of the head of tide-water; at a point of a bend in the coast line, thirty miles northeast from Cape May and seventy miles from New York bay, where the fresh waters mingle with the ocean. It is surrounded by a body of salt water, uncontaminated by fresh water streams, and entirely free from malarial or any other paludal poisons. The salt meadows between the island and the shore are overflowed by tide-water twice in twenty-four hours. The gulf stream is about 125 miles from the shore and tempers the surrounding sea-water and the air so that in winter it is from 10 to 20 degrees warmer and in summer from 10 to 20 degrees cooler than interior cities. High winds are less frequent than at other points. Sea-air mixed with sea-fog is not injurious to most cases, as it contains no noxious elements, is non-irritant, and quite equable in temperature. The two great effects of sea-air are upon the nervous system and digestion.

Coming from the dense air of cities and the rare air of high altitudes, respiration and heart action are slowed, at once reducing the consuming energy of the body and lessening waste. Sea air is dense and ozone-laden and, therefore, it increases the oxidizing power of the blood and is Nature's best remedy for anemia. It assists in fighting the malarial parasite, and will, in time, eliminate the poison from the system. Malarious subjects come to the shore and often overload the stomach, overheat themselves, sit in the cold, indulge in promiscuous sea-bathing, thus bringing on acute paroxysms, and then blame Atlantic City. If care be exercised, the usual chill may often be avoided. Night air here is not injurious to these cases. Patients with heart disease do well here, as less work is thrown on that organ and oxidation is carried on better than in higher altitudes. Cardiac dropsy sometimes improves for this reason.

Convalescents from disease and those who have been debilitated, over-worked, and confined to rooms and offices, invariably improve, if they live hygienically, and follow proper dietetic rules. The effects of sea-air are stimulant at first, and add vigor and tone. Appetite is

increased decidedly and a drowsy feeling is almost sure to follow its satisfaction with a refreshing night's sleep. Many business men come to Atlantic City periodically to get a full night's rest and sleep. Strumous and tubercular children and adults will improve rapidly if they live in the sea-air and follow proper dietetic rules. Many such cases have been apparently cured here with little medicine. Tuberculosis in its early stages is amenable to treatment in sea-air and sunlight. Such cases should invariably act under physicians' advice. Consumption in its later stages is best at home, as it will not improve here. Many cases of bronchitis are permanently cured by sea-air. There is less danger of pulmonary hemorrhage in sea-air at sea-level than in high altitudes, owing to the 15 pounds pressure to the square inch here and the density of the air; in higher altitudes the internal blood-pressure is not so readily equalized at first and often gives rise to hemorrhage. Many cases of asthma and emphysema do well here, while others are made worse. Trial only can demonstrate. Hay-fever almost invariably disappears in sea-air, but when the wind comes from the land it may be aggravated.

It is a mistaken idea to think that one can not catch cold at the seashore, but one coming here with an acute cold will throw it off more rapidly than in the interior. Some people cure their colds by sailing every day and living on the board walk. Hot and close rooms are to be avoided at the seashore, as they are productive of colds and depression. Laryngitis and acute catarrhal troubles do well at the shore if properly managed; but do poorly, if smoking, late hours, and carousing are encouraged. Acute lobar pneumonia is rarely seen in Atlantic City, and when it is it usually runs a very mild course. Cases of Bright's disease and diabetics in the early stages do well. Contrary to the writings of some, many cases of eczema and skin troubles improve perceptibly and are cured in sea-air. This is particularly noticeable in young strumous children. Digestive troubles are very amenable to treatment if proper rules are followed.

Neurasthenics do particularly well in Atlantic City in the fall, winter, and spring months, but not in July and August, when the large crowds are here, unless they go to parts of the island that are isolated. Insomnia soon leaves and nerve tone rapidly improves. Melancholia and insanity are usually aggravated by sea-air. Hysteria may or may not be improved, according to the cause. Neurasthenics may find the first few nights here unpleasant and restless, but these soon give way to sound sleep. These cases should be closely watched to prevent abuse of surf, hot, and cold sea-water baths.

Sea-water is a physical and chemical mixture and varies in the quantity of constituents in various localities. Its strength is affected by admixture with fresh water; the depth from which it is taken; the air, temperature, and ocean currents. Chemists say that it contains about 3.5 per cent. solids and 96.5 per cent. of water. The main solid constituents are sodium chlorid (2.7 per cent.), magnesium chlorid (0.3 per cent.), magnesium sulphate (0.2 per cent.), calcium sulphate, calcium carbonate, potassium chlorid, magnesium bromid, traces of carbon dioxide, iodine, etc. One chemist figures 31½ grains of bromine in 100 pounds of sea water. Salt baths are necessarily medicated baths and must be taken under limitations by the sick and well.

No form of sea-water baths is so generally used and abused as the surf bath. It combines the effects of cold and violent exercise. On entering a cold bath there is a

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shock, with contraction of the skin and muscles, pallor, quickened respiration and heart action, slight depression, shivering, and reduction of temperature. This lasts for a few seconds or minutes, when a reaction sets in. Respiration slows; the heart acts less vigorously; a general glow comes to the skin, and a sense of invigoration or stimulation follows. If continued beyond this point, depression again follows with weakened heart action, blueness of skin and lips, shivering and chilling, and a feeling of prostration and drowsiness. If still persisted in, coma, syncope, throbbing headache, apoplexy in the aged, congestion of the internal organs, subnormal temperature, or death from general depression will follow. All these symptoms are intensified in the presence of exercise and in moving sea-water. It is well known that moving water will abstract much more heat than still water.

Wave force and pressure varies with the depth of the water, direction of the wind, ebb and flow of tide, and the pressure of breakers. Exercise beyond the breakers where the waves regularly follow each other is not so violent. A slight jumping or rising motion is sufficient to float over the wave without much shock; but if one stands and receives its full impact the shock is terrific. This soon produces physical strain and soreness. Floating and swimming beyond the breakers is quite invigorating. Most force is expended by bathing in the breaking waves (breakers), and it is practically a series of blows that soon exhaust. Many prefer the washing effects of the broken wave and return flow to be obtained by lying just to the shore side of the breakers. This is the least exhausting form and best suited to children.

Many do not experience a reaction after entering the ocean and come out of the water with so much depression that days and sometimes weeks are required to recover. Such subjects should never take surf baths nor even cold tub baths. The proper time to leave the surf or cold bath is during the height of exhilaration or reaction, which comes on in from three to fifteen minutes in the strongest subjects. Leave the bath and immediately go to the bathroom and rub briskly with a coarse towel and then rest. Many lose the real benefit of the bath by exercising too freely afterward. Daily bathing is usually too depressing to the average person; every other day is best. If stimulants are necessary to bring about reaction it is harmful and should be avoided. It is my custom to begin, in many cases, with tepid or cool baths in the tub or pool and gradually accustom the patient to cold before permitting a surf bath. The temperature of sea-water at Atlantic City varies from 65 to 75 or 80 F. in summer, and from 45 to 60 in winter.

It is unwise for any one to enter the surf bath before his morning meal and never until three hours have elapsed after eating. Cold baths retard digestion. Never come from the water and go directly to meals until reaction has been thoroughly established. Great excitement of any kind is a contrary indication to entering the water; also immediately after exercising freely, or indulging in intoxicating drinks, as alcoholics prevent healthy reaction. Patients with bad varicosities are liable to rupture them in the surf. Children under three years and real old persons should never bathe in the surf or cold bath, as their resisting and reacting power is too low. Never force young children into the ocean, as it is productive of harm. Other contraindications to surf bathing are advanced heart disease, atheroma, bronchitis, menstruation, advanced Bright's disease, pregnancy after third month, rheumatism, acute gout and acute diseases.

Mild forms of neurasthenia, insomnia, anemia, indigestion, and debility by too close confinement are most benefited by surf or cold sea-water baths. Tepid and cool salt baths are best for convalescents, those whose reaction is very poor, and young children. Sea-water baths act upon metabolism much more than fresh water. Tissue oxidation is increased and elimination much improved. Weight at first decreases but later increases.

Warm salt baths at 85 to 97 F. are used to encourage slight perspiration, relax the skin, reduce internal congestions, and carry off a part of the body poisons through the skin. These baths should always be taken in a warm room and never prolonged over ten minutes. They should be followed by a good rub with alcohol or coconut-oil and a rest of at least one hour. Many prefer this bath at bedtime to induce sleep. Some aged neurasthenics and those with low resistive power do best with these baths. My policy is to give the salt bath only every other day. When continued too long there is headache, flushed and throbbing temples, great prostration, languor, and rapid elevation of temperature, and body oxidation is reduced. Warm baths are used in all cases where relaxation of the sudorific glands is required, and in reduction of many forms of pain. The hot sea-water bath is rarely of much use except in uremia and to produce profuse perspiration. The practice of so many people taking warm and hot sea-water baths indiscriminately is productive of much more work for the physician and harm to themselves. Untrained attendants will always put your patients into baths that are too hot and keep them there too long. It is always wise to lay down explicit rules for each case and enforce them. Never tell a patient to take warm or hot sea-water baths and then trust to his knowing how to take them.

#### THE IDENTIFICATION OF DEXTROSE IN HUMAN URINE.\*

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Dextrose, in insignificant traces a constituent of almost every normal urine, can be readily demonstrated in the renal excretion, provided it occurs in sufficient amounts. The moment, however, that urinary grape-sugar is detected by the more commonly employed methods, it indicates a deviation from the normal systemic state. Thus, in glycosuria, no specific pathologic element makes its appearance, but a regular constituent of excessively increased quantity. While, as a rule, glucose can be positively identified in urines containing 0.5 per cent. or more of it, great difficulty in this respect is often experienced when smaller amounts are present.

Glycosuria, a well-defined condition, resulting from or concurring with some systemic anomaly, is most always recognized by the painstaking physician; yet, certain systemic occurrences—physiologic or pathologic—may be erroneously diagnosed as glycosuria, when, as a matter of fact, grape-sugar in appreciable quantities was never discharged by the urine. Coinciding with pseudoglycosuria, there may be other symptoms apparently

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