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WINTER HEALTH-RESORTS.

THE CLIMATE OF ATLANTIC CITY, AND ITS EFFECTS ON PULMONARY DISEASES.

BY BOARDMAN REED, M.D.,

ATLANTIC CITY, N.J.

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WHERE shall we send our invalids for a change of air in winter? This is a practical question which is becoming, year by year, more important to busy physicians, particularly in the great cities of the North. There are certain chronic diseases for which a pure and invigorating air, and especially a climate which will tempt the patients out of doors, are highly desirable. For many cases a change to such an air offers the best hope of cure, or even of amelioration.

Florida has been much in vogue lately as a winter-resort, and undoubtedly suits numerous patients well; but it is too far away, involving a long and tiresome journey. The distance from home and friends, and the impossibility of conferring in an emergency with the usual medical attendant, are serious inconveniences. The prevalence of malaria there is a source of danger, and the very warm and enervating character of the Southern climate unfits it for a large class of diseases altogether.

Colorado and Minnesota are even farther away, and their climates, however tonic and useful, are so cold that invalids there can live very little out of doors during the winter; and if they are to be kept prisoners in close heated rooms it might almost as well be in their own homes.

Northern Africa and Southern Europe, especially Pau, Nice, Mentone, and other places along the northern shore of the Mediterranean, are just now in great repute. Invalids are flocking thither every

winter, and, the impartial chroniclers tell us, are leaving their bones in the cemeteries there in sadly large numbers.

Dr. Madden, in his "Health-Resorts of Europe and Africa," says, "With one exception the most frequented winter health-resort in Europe is Pau;" then proceeds to denounce the climate as "essentially cold, variable, damp, and dreary during the winter." During one December while he was there he states that "the thermometer fell eleven times to zero."

Dr. John Parkin, in his work on "Climate and Phthisis," is equally emphatic in condemning that climate, saying, among other things, that "of a number of patients I have known who passed a winter in Pau, not one received any benefit,—the majority died soon after their return."

As to Nice and Mentone, Dr. Madden quotes several medical travellers and former resident physicians to the effect that these places are exposed to very sudden changes of temperature, and that the native residents are very subject to pulmonary complaints, which with them are apt to run a rapid course. Dr. Parkin, in the work already quoted, is particularly severe upon the climate of those places, stating that though it is usually very warm there in the sun, insomuch that umbrellas are indispensable, it is apt to be cold in the shade, necessitating the heaviest wraps. Crossing the street is like passing from summer to winter. The same author shows that, from the location of these towns in the neighborhood of mountains, some of whose

tops are always covered with snow in winter, they must be continually subject to cold, raw winds, which are all the more intolerable and dangerous because of the heated air which they displace.

Says Dr. Parkin, "During January and February, then, there would be two cold winds prevailing at Mentone, as is frequently the case at Nice. It is not surprising, therefore, that I should have left the latter town in the month of March in a snow-storm, or that snow should have fallen heavily all the way to Genoa."

Dr. J. H. Bennett, of Mentone, the chief eulogist of that climate, insists very strenuously upon certain precautions against taking cold. "Without them," he says, "it is unsafe and treacherous. This is evidenced by the great mortality of the natives of the Nice and Mentone districts by pneumonia and pleurisy, two of the commonest maladies."

Dr. Parkin's conclusion is that the *Riviera* is "one of the most unfavorable and dangerous climates for chronic diseases of the respiratory organs, and especially for phthisis." As to Africa, he cites army reports showing that "of the British troops passing through Egypt during 1872 *en route* for India, 29.9 per 1000 were attacked with phthisis and 2.3 per 1000 died." He adds, "When it is remembered that these patients manifested no symptoms of the disease when they left England, otherwise they would have been detained, this result speaks trumpet-tongued as regards the influence of such a climate in the development of phthisis."

If these are the most desirable winter-resorts in the Old World, American invalids, especially those suffering from chronic pulmonary affections, would do well to remain on this side of the ocean.

Atlantic City, New Jersey, a place most favorably located as regards convenience of access, being less than two hours' ride from Philadelphia by any one of three railroads, and only four hours from New York by the Pennsylvania Railroad and its West Jersey branch line, possesses certain physical advantages which are well worth considering. It has been twenty years or more since physicians began sending patients here in winter. First only now and then a courageous invalid ventured here at this season, but their numbers steadily increased. The experiment proved so successful in hastening the convalescence from

acute disease, in improving a large class of chronic affections, and especially in arresting numerous cases of incipient as well as confirmed consumption, that within the last three years the travel to the place in winter has reached very considerable proportions, and the numerous thoroughly heated winter hotels—some of which are as sumptuously furnished and as luxuriously conducted as the leading houses at the summer-resorts—are crowded with invalids, convalescents, and wearied society people through all the months from January on.

Actual experience has demonstrated that sea air is as valuable in winter as in summer. It also bears out the statistics which prove that the climate of Atlantic City is superior to that of most sea-coast towns, being drier, more equable, and, considering the latitude, unusually mild.

The city—for it is in fact as well as in name a city, having a permanent population of six thousand, and being supplied with gas, street-cars, etc.—is situated in latitude 39° 22', on an island ten miles long and averaging about half a mile wide. This is separated from the mainland at either end by broad bays or inlets, which are connected by a narrow arm of the sea called "The Thoroughfare." There is no body of fresh water nearer than the Delaware River, distant about sixty miles, and the salt-water bays to the landward side are nearly always open, ice seldom forming, except for a short time occasionally in the severest winters.

Another peculiarity of the location is that all the winds from the landward must pass for long distances—hundreds of miles in some directions—over a very dry and porous sandy soil upon which snow rarely lies for any time. These winds, including those from the north, northwest, west, and southwest, are therefore to some extent both dried and warmed in their passage.

Though the coast of Southern New Jersey has a general direction from northeast to southwest, the beach at Atlantic City trends more to the westward, so that it faces almost directly southward. Therefore south as well as east winds are sea-breezes here, and both blow across the Gulf Stream, which, by the way, exercises considerable influence upon the climate of this part of the coast.

Mr. C. P. Patterson, Superintendent of the United States Coast and Geodetic Sur-

vey Office at Washington, has kindly furnished me with a large map indicating accurately the course of the Gulf Stream, and with some interesting facts concerning it.

This map shows at a glance that the heated waters of the tropics, pouring through the space between Cuba and Florida, flow in a northeasterly direction along the coast of Georgia and the Carolinas, diffusing themselves as they go, until from a compact stream less than fifty miles wide, they have become opposite Chesapeake Bay a broad expanse upwards of four hundred miles in width. This really includes numerous parallel or slightly diverging currents of very warm water with overflow currents of a somewhat lower temperature. One of these overflow currents approaches within sixty-five miles of Atlantic City, while it is one hundred and ten miles from Sandy Hook. The principal current is farther away, being one hundred and thirty-five miles from Atlantic City, one hundred and eighty-five miles from Sandy Hook, and about the same distance from Long Branch and Montauk Point.

But the exceptional mildness of this climate may be attributed to the peculiar course of the Gulf Stream in this vicinity as much as to its proximity. The innermost current, according to the map received from the Coast Survey Office, has a direction opposite Atlantic City of east-northeast, but turns more and more to the eastward till in latitude 40° —that of Philadelphia—it bears nearly due east. The main current turns more abruptly, and a

little north of latitude 38° , some distance to the southward of Atlantic City, has a course directly eastward. Our south, southeast, and east winds, then, must all pass for three hundred to five hundred miles at least over more or less heated water which has come directly from the Gulf of Mexico. Our only ocean breezes not affected in this way are those from the northeast, and experience shows that these are the only winds which are generally unpleasant here. But for places farther up the coast, particularly those north of latitude 40° , the case is different. Neither their northeast nor east winds can be appreciably modified by the Gulf Stream. Their south and southeast winds may be favorably influenced to some extent, but less than are the same winds at Atlantic City, since they pass over a much larger surface of cold water after crossing the Gulf Stream. It may be added that some small maps issued by the Signal Service Office represent the Gulf Stream as occupying different positions in winter and summer, but on this point Mr. Patterson writes, "I greatly doubt if there can be any material change of the stream from season to season; at least there has been no reliable evidence obtained on that subject."

To Sergeant E. W. McGann, who has charge of the United States Signal Station at Atlantic City, I am indebted for meteorological statistics and official records, from which the following information, bearing directly upon the subject of the climate of the place, has been condensed and tabulated:

TEMPERATURE, HUMIDITY, BAROMETRICAL PRESSURE, AND RAIN-FALL AT ATLANTIC CITY, NEW JERSEY.

Months, 1880.	Mean temperature.	Range of temperature.		Mean humidity.	Mean barometer.	Rain-fall, in inches.
		Max.	Min.			
January.....	41.1	64	13	79.3	30.189	1.70
February.....	38.2	71	11	74.4	30.129	2.85
March.....	40.1	72	18	71.9	30.061	5.97
Mean for three months..	39.8	75.2	30.126	10.52

The mean temperature for January, February, March, and December, the four coldest months of the year, was, in 1879, 34.7° ; in 1878, 36.8° ; and in 1877, 35.9° .

The prevailing winds in winter are those from the west and northwest, which are usually dry and bracing. The east and

south winds, which often blow for days at a time, are warmer and more humid. Northeast winds, which are unpleasant, usually prevail for two or three days at the time of the equinoctial storms, but are infrequent during the remainder of the year.

Observations taken at my office, in the

centre of the town, at 7 A.M., 12 M., and 6 and 10 P.M., show that in December, 1879, there were twenty-six days during which the thermometer did not fall below 32°,—the freezing-point; also that there were only two days in the same month when the thermometer did not indicate at noon a temperature above 40°; and that there were ten days upon which it was not below 50° at the same hour. During the January following (1880) there were twenty-four days during which the mercury never fell below the freezing-point at any hour, and only two days during which it went below 30°. It was only once in the same month lower than 40° at noon, and only three times lower than 45° at the same hour. On nineteen of the thirty-one days the thermometer stood at 50° or above at mid-day.

These mid-day temperatures are obviously more important than averages, for it is in the daytime that invalids take their airing out of doors.

The dryness of this climate, as compared with other sea-side resorts, is best shown by the statistics of the rain-fall, which is less here than at any other place on the coast, as appears from the table given below. The readings of the hygrometers at the different stations are not so significant, since at some of them, including Atlantic City, the instruments are located so near to the beach, and at so low an elevation above the sea-level (less than thirteen feet here), as to be affected by the spray, during strong winds off the water, and by occasional morning mists, which do not extend back into the town.

ANNUAL AMOUNT OF RAIN-FALL AT THE PRINCIPAL CITIES AND STATIONS ON THE ATLANTIC COAST.

Stations.	Year ended June 30, 1879.	Year ended June 30, 1878.
Atlantic City, N.J.....	40.60 inches.	42.90 inches.
Barnegat, N.J.....	49.38 "	54.35 "
Boston, Mass.....	62.96 "	54.50 "
Cape May, N.J.....	42.44 "	47.99 "
Charleston, S.C.....	64.33 "	68.62 "
Galveston, Texas.....	51.03 "	67.47 "
Jacksonville, Fla.....	51.62 "	52.11 "
Newport, R.I.....	52.20 "	55.84 "
New Orleans, La.....	58.29 "	73.31 "
New York, N.Y.....	43.68 "	42.68 "
Norfolk, Va.....	44.44 "	66.28 "
Portland, Me.....	41.10 "	45.61 "
Sandy Hook, N.J.....	60.37 "	54.86 "
Savannah, Ga.....	55.14 "	52.44 "
Wilmington, N.C.....	50.90 "	84.12 "

The mean barometer for the year ended June 30, 1879, was higher at the Atlantic

City station than at any other on the coast north of Chesapeake Bay, and, with one or two exceptions, the same may be said as to the preceding year. This is a matter of importance, since depressions of the barometer affect the majority of invalids far more decidedly and injuriously than low temperatures. An extra wrap out of doors or a fire in-doors will perfectly antidote any ordinary degree of cold, but it is far more difficult to render comfortable the invalid whose breathing is distressed or whose joints and nerves have been set to aching by a sudden fall in the atmospheric pressure. Barometrical changes are also connected intimately with variations in the electrical conditions of the atmosphere, and these again strongly impress the delicate nervous systems of the sick.

In the following table the figures represent the average atmospheric pressure for the years named *at the sea-level*, allowances having been made for differences in the elevation of the stations:

TABLE SHOWING MEAN BAROMETER AT VARIOUS STATIONS.

Stations.	Year ended June 30, 1879.	Year ended June 30, 1878.
Atlantic City.....	30.031	30.002
Barnegat.....	30.029	29.998
Boston.....	29.975	29.969
Cape May.....	30.029	30.007
Galveston.....	30.049	29.995
Jacksonville.....	30.079	30.030
Newport.....	29.993	29.980
New York.....	30.026	30.006
Portland, Me.....	29.944	29.952
Sandy Hook.....	30.014	30.000

After all, however, it is with climates as with medicines,—trustworthy evidence as to what they have accomplished is the most valuable. With regard to nervous, rheumatic, gouty, dyspeptic, and various other chronic ailments (including most of those peculiar to women), which are usually found to be benefited here in the summer, equal benefit may be expected in the winter. Convalescents from acute disease, or from surgical operations, nearly always improve remarkably upon being removed to this place from the large cities.

As to diseases of the respiratory organs, I have had personal knowledge of many patients suffering from various forms of such affections who have made trials of this climate in winter. The bronchial and laryngeal cases have, as a rule, im-

proved, some of them very decidedly, though there have been exceptions. The consumptives who were in the third stage, or in any stage with evidences of actively progressing disease of the lung and decided hectic, have only exceptionally been benefited. Those, however, in the pre-tubercular or incipient stage, and those even in the advanced stages where the destructive process has been advancing slowly, have often experienced very marked improvement. In a considerable proportion—about one-fourth—of the cases of these latter classes, the disease has been apparently arrested, and some of them seem to be cured.

Detailed reports of the cases I have treated at Atlantic City would fully bear out the foregoing general conclusions, but would unduly extend this paper and necessitate the exclusion of several reports I have received from prominent Philadelphia physicians concerning the effect of this climate upon their patients in winter especially. Some of these physicians have been sending patients hither for more than twenty years. Their testimony is more valuable than mine, and cannot be impugned on the ground of partiality.

It is a significant fact that pneumonia and bronchitis are of infrequent origin here, and when they do occur the patients *almost invariably recover*. Upon this point my experience as a resident physician enables me to speak very positively. I have not known an uncomplicated attack of either disease to prove fatal.

The reports from physicians above referred to were received in response to inquiries recently sent to them. Many others wrote brief apologies, not having the notes or the leisure to tabulate the results of their experience as I had requested. Only one physician objected to the climate either for bronchitis or early phthisis.

Dr. Laurence Turnbull writes, "The number of cases of phthisis that I have sent to Atlantic City have been few *in the last stages*, as I found they were not improved by a residence at the sea-shore, dry even as it is," adding that a few cases in those stages were aggravated, but goes on to say, "I have been much pleased with its influence on the first stages of phthisis, asthma, laryngitis, bronchitis, and nasal catarrh, when all ordinary means have failed in the city, by causing improvement in the appetite, assisting the digestion, and

giving a healthier tone to the skin. In convalescence from catarrhal pneumonia and typhoid fever the results have been most gratifying. In certain forms of *otitis media purulenta* I do *not* find the air of Atlantic very beneficial, and in many cases diseases of the ear are caused by exposure of that organ to the waves. In strumous diseases of eyes, joints, limbs, etc., I have found the change to Atlantic City, if persisted in for several seasons, of permanent benefit."

Dr. Thomas J. Yarrow writes, "It has not been my practice, as a rule, to advise patients suffering with tuberculous and other diseases of the respiratory passages to sojourn at the sea-side. Exceptionally, I have had them go to Atlantic City, and have known cases of incipient phthisis, chronic bronchitis, asthma, and laryngitis to improve in that location. My experience of late is inducing me to recommend a larger number of such cases to reside at Atlantic City."

Dr. Thomas G. Morton thus bears testimony: "I have been in the habit of sending to the shore at Atlantic City many patients, more especially surgical cases, but a large number also of those with lung affections, and especially those having a (hereditary) tubercular disposition, and I think especially such cases have been vastly benefited by the sojourn."

Dr. James Darrach, of Germantown, writes, "Have sent several cases of autumnal catarrh to Atlantic City, and think without exception they were benefited, two of them being certainly exempt from these attacks while at the shore. The only case of slow convalescence from pneumonia died at Atlantic City. This was about twenty-three years ago. A case of obstinate general bronchitis was cured in about ten days. A case of what I supposed to be tubercular laryngitis was very much benefited, and subsequently recovered. I have also had other cases of obstinate catarrh which returned well after a sojourn at Atlantic City."

Dr. Eugene P. Bernardy reports as follows: "With but one exception, all my cases of phthisis, both in the early and late stages, amounting to twelve in all, have been decidedly benefited by a sojourn at Atlantic City, and one case positively cured,—that is, as far as human ear can ascertain. Of the three cases of convalescence from pneumonia all were decidedly

benefited. In a child suffering from chronic pneumonia the lung in a few weeks was almost entirely cleared up. In bronchial affections (chronic) I have seen no permanent benefit in any of the six cases I have sent there: all benefited while at the sea-shore, but a few months after their return relapsed. The case of phthisis cured had been examined by myself and Dr. Hall in Philadelphia, and while at the sea-shore examined by Dr. L. Turnbull. We all diagnosed incipient phthisis. This was nearly six years ago. On her return she had gained forty pounds, and has remained well ever since."

Dr. John H. Packard says, referring to Atlantic City, "I can only say that I frequently advise convalescents to go there, and that it is a very common thing with me to be asked by patients whether it would not do them good to spend a week or two there. I do not now recollect any case that has been wholly without benefit from that climate, and could adduce many that have gained great advantage from it."

Dr. D. Murray Cheston writes, "I cannot say how many cases of pulmonary or bronchial troubles I have sent there, but the general result has been most satisfactory. The cases were all sent in the late winter or early spring months, and have invariably returned improved."

Prof. J. M. Da Costa writes briefly, as follows: "I have sent too few patients with pulmonary disease to Atlantic City to have the data to answer your questions. Some who were in a run-down condition and affected with chronic bronchial catarrh did very well."

Dr. Ellwood Wilson writes that in the summer months he does not think patients with fully-developed phthisis improve by a protracted residence at Atlantic City, but adds, "During the winter months—say from October to July—I regard it as a very favorable locality for consumptive patients."

Dr. R. J. Levis writes that his practice (being almost exclusively surgical) "is not of a kind to furnish experience with regard to the beneficial influence of Atlantic City in pulmonary affections," but that he has "a good opinion of its dry and mild climate."

Dr. James J. Levick has not sent any cases of phthisis, but has sent "several cases of laryngeal and bronchial irritation and one or two cases of hay asthma, which

improved greatly while at Atlantic City." He adds, "The cases which have derived most benefit, however, and of which I have sent not a few in the late winter months, have been patients after typhoid fever,—patients whose nervous systems have been much disturbed, persons who have needed brain rest, etc."

Dr. Wm. H. Bennett, resident physician at the Children's Sea-shore House and Seaside House for Invalid Women at Atlantic City, contributes the following full report: "My experience of the effects of a sojourn at Atlantic City upon those suffering from pulmonary diseases has been confined to what I have seen among transient visitors during the summer months of the past seven years. I have had little or no experience of the effects either of a prolonged stay or of a stay in winter. I cannot give you exact figures, but the following is a fair statement of what I have observed. My patients were, with the exception of a majority of those suffering from phthisis, nearly all children. I have had not less than a hundred cases of acute bronchitis, nearly all of which ran a milder and shorter course than similar cases do in Philadelphia. The majority of these cases had during treatment the best possible hygienic surroundings, but a few which were much exposed during cool, rainy weather in leaky, damp apartments seemed to do equally well. A few, perhaps ten, cases of subacute bronchitis which had remained stationary in the city for some time rapidly recovered at the sea-shore. Three or four cases of chronic bronchitis, with emphysema and occasional severe attacks of asthma, greatly improved; but about an equal number showed no change. Two or three cases of tardy convalescence from pneumonia made much more rapid progress towards recovery after their removal to the sea-shore. Two cases of empyema with external fistulæ greatly improved. About twenty cases of phthisis have been under my care at Atlantic City. These have been in all stages of the disease. A very few, I recall but three, derived no benefit; all the others improved in general health. In some, even of the advanced cases, the improvement was marked. In many of the cases the cough became less troublesome and the breathing less labored. Nearly all slept better. Hectic frequently disappeared entirely, or was greatly lessened. These cases, with

two exceptions, remained too short a time to allow of any inference in regard to the effect of their stay upon the progress of the disease itself. One of these two exceptional cases remained three months. It was one of the few that did not improve at all, and the disease ran its usual course. The other spent most of the time during the last eighteen months of his life at Atlantic City, and his downward progress was undoubtedly much retarded by so doing. I am aware that the experience which I have thus detailed has been too meagre, except perhaps in the cases of acute bronchitis, to allow of any general conclusions. But, after comparing my own experience with that of others, I am convinced that the atmosphere of Atlantic City in summer (perhaps also in winter, but I do not know) will prove especially beneficial in the large majority of cases of diseases of the respiratory organs, and that

the very common opinion that the sea-coast is everywhere unsuitable for cases of phthisis has little foundation. So thoroughly am I convinced of this fact that I am striving to have special provision made in the Sea-side House for Invalid Women for consumptives, and in doing so I am but following in a small way the example set by the establishment of the magnificent Royal National Hospital for Consumption on the sea-coast of the Isle of Wight."

The good accomplished by this climate I attribute not to any specific influence of the air upon the lungs, but to its tonic and alterative properties, acting by the improvement of digestion and nutrition, the promotion of sleep, etc. Atlantic City is the most accessible to the New England and Middle States of any place having claims as a winter-resort and admitting of outdoor exercise for most invalids the whole winter through.



