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CLIMATIC TREATMENT OF PHTHISIS.[1]

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That change of climate is one of the best—and sometimes the only—means of successfully treating phthisis is so universally admitted that it seems almost unnecessary to make mention of it. There are, nevertheless, certain details regarding it, which it may be not without interest to pass in review. For centuries this method has been in repute. The Romans used to send persons with ulcerated lungs to Libra that they might there inhale the balsamic odors from the pines; and Galen advised that phthisical patients be sent to localities in which the air was dry.

Even those who write upon the Home Treatment of consumption, admit the value of climatic treatment where it can be carried out. It goes of course without saying that the vast majority of phthisical patients, owing to pecuniary or other disability, cannot be sent away from home. The all-im-

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portant subject of the means to be employed for the recovery of health in these, I cannot now treat, but must confine myself strictly to the subject of the influence of climate upon the disease.

I am myself so thoroughly convinced of the value of climato-therapy in phthisis, that were I assured that I had incipient phthisis, however slight, neither inhalations of oxygen, nor the use of compressed or rarified air, nor the breathing of hot air, nor enemata of foul air, nor trial of Koch's inoculations, nor pulmonary gymnastics, nor the ingestion of cod-liver oil, iron, arsenic, digitalis, creasote or any other drug should prevent me—if in any way I could compass it—from leaving a climate such as this for some more propitious one. And yet there are the sceptical—there always are, of every good thing. Let me, however, give you as samples, the histories in brief of two cases which were sent to parts of the world far removed from here and from each other:—the Austrian Tyrol and Colorado. They occur to me because I have heard from each of them within a short time. The first patient developed apical phthisis some five or six years ago. Being a man of means he traveled, chiefly to various parts of the eastern United States, remaining in each place but a short time and returning again home. While away he improved, but always lost again on coming back. Finally his cough grew worse, there was slight hemoptysis, and examination showed decided depressions at the left apex with dulness on percussion, bronchial breathing and râles. I sent him to Meran in the Austrian Tyrol, where he

remained for over a year. On his return I was astonished to discover that the dulness on percussion, the depression and bronchial breathing had entirely disappeared ; leaving nothing but a few râles. An improvement such as this had not been effected by all the medicinal and hygienic treatment to which he had been previously subjected. I told him, however, that he had returned too soon, and the event proved the truth of this. He was shortly after returning, debilitated by a very severe attack of herpes zoster, and the subjective and objective symptoms of the phthisical affection returned in full force by the end of a year. He has again gone to Meran, where he now is, and is doing remarkably well. He has no cough at all, and only slight expectoration on rising in the morning. Can he be induced to remain sufficiently long, I have no doubt of his complete recovery.

The other patient is himself a physician from a neighboring city. He called upon me last July on account of obstinate cough, with loss of weight and strength, which drugs, rest and a temporary mountain sojourn had failed to relieve. He suspected phthisis, and wished to have a diagnosis made. Neither bronchial breathing nor impairment of percussion resonance could be detected, but there were a large number of râles at the left apex, and a few on the other side. Tubercle bacilli were present in the sputum. I told him there was no doubt he had incipient phthisis, and advised him by all means to go to Colorado and begin the practice of his profession there as soon as he felt able. He did so, and wrote me the

other day, saying that he had gained 22 lbs., but asked my advice about coming on to take the Koch treatment, as he did not believe that he was yet quite cured. My answer can be readily imagined. But cases like these are known in numbers to all of you. Only recently one of the members of this Society told me that, visiting in Denver recently, he sat down to dinner with, I think, fifty men, all of them as hale and hearty as one could wish to see, though all or nearly all of them had gone West on account of trouble with the lungs.

Now as to the way in which climate can act in curing phthisis. If it is the fact, as most of us certainly firmly believe, that phthisis is the direct result of the growth of the tubercle bacilli in the lungs, the question naturally arises how climate can in any way affect the growth of these organisms after they have once found a nidus in the system. This question cannot be answered with positiveness. One matter bearing upon it is, however, nearly certain. It would seem probable that the only reason that all of us do not take the disease is that, either from the good condition of the general health, or from some peculiar, unsuitable state of the respiratory tract, the bacilli which we all probably inhale at times, do not find in certain individuals the conditions suited for their development. Given, then, a patient with pulmonary phthisis, our efforts must be to render the lungs again of such a quality that bacilli already present can no longer thrive and multiply. It seems beyond question that certain climates have the power of accomplishing this desideratum

in some way unknown to us, but certainly more effectively than any other known agent. What peculiar climatic features they are which have this power is, as yet, not determined with definiteness. The most generally accepted view is that high altitudes, as a rule, are inimical to the development of phthisis, and conducive to the recovery of those already affected; while a low elevation above tide-water, especially if combined with dampness, continued high temperature, or frequent changes of temperature, favors its development. Particularly are writers almost at one in reference to the favorable action of high altitudes. Phthisis is of rare occurrence, for example, in the high mountain cities of Mexico, in spite of the unfavorable influence exercised by the bad hygiene and the employment of the inhabitants largely in mines.

The disease is almost unknown in the high plateaus of South America, and rare in the high portion of the western United States. Switzerland is, on the whole, remarkably free from it, and it is very rare in the highlands of upper Egypt. In the western Highlands of Scotland, too, it is uncommon as compared with other parts of the British Isles.

It is not yet definitely understood whether the immunity of the dwellers in high altitudes is due to the low barometric pressure or to the purity of the air. The view has not found favor that it is in any way connected with the greater depth of the respiratory act; nor does the statement that microbes live with greater difficulty at a high elevation satisfactorily explain it. That

the influence of high elevation is not due, at least entirely, to the low barometric pressure seems probable; since, as is well known, prolonged sea voyages are often of great benefit to phthisical patients. Moreover, some islands, as Iceland and the Hebrides and Shetland Islands, are singularly free from the disease; and the Kirghis enjoy an absolute immunity, although they inhabit steppes only 100 feet above sea level,

It has been long assumed that odors of turpentine and allied substances coming from pine forests were of value in the treatment of phthisis, and it has been claimed that to this factor sojourn in the Adirondacks owes the undoubted advantages often exercised by it in many cases of phthisis. There are clearly, however, other important factors; since otherwise all regions filled with these woods should exert the same favorable influence. Yet there are many such districts—as Maine—where the mortality from phthisis is high. One might argue that the mortality in such places was the result of too great a degree of dampness; but in answer it may be noted that many islands, as already stated, where the air is, to an extent, damp, suffer but little, if at all, from phthisis. In fact, the prevalence of the disease does not seem to be connected with any geographical position or condition of temperature.

Our knowledge in this regard may be summed up by saying that change of climate is very often of the greatest benefit to phthisical patients, and that, as a rule, this benefit seems to be intimately associated with elevation above tide-water, though there are many localities with no considerable alti-

tude where a good effect is often exerted upon the disease.

It will repeatedly be observed that the relation of a patient to a certain climate is very much like that which exists, or should exist, between a man and his wife. Just as one man finds in his wife's character and disposition that which entirely satisfies his moral nature, while his neighbors, perhaps, can see no good in her at all; so one phthisical patient may thrive in a certain locality, while the next patient, with lungs in apparently the same condition, is never comfortable there, and suffers a continual deterioration in health.

It is this fact which renders the matter of choice of climate so exceedingly difficult. It is impossible entirely to determine the nature of what might be called *climatic idiosyncrasies* in patients. We are, therefore, obliged, in the choice of a climate for a patient, to follow certain general rules. First is to be investigated the individual susceptibility to cold and heat respectively. We must carefully inquire whether the patient is always chilly in winter, or whether he is exhausted and depressed in summer. It seems to me to be folly as well as cruelty to compel an anemic, emaciated individual, who is always chilly and whose circulation is feeble at the best of times, to spend a winter in a cold, bleak, windy, northern elevation. While the Adirondacks in winter are certainly of benefit to many, it would seem almost proved that they cannot but disagree with others; in fact, experience proves that they do. On the other hand, there are many patients to whom even the

early spring warmth of Florida is invariably depressing, and who reap no benefit from sojourning there. It is, after all, hygiene throughout which we must keep in mind, and not merely the effect of a certain climate upon the lung alone, as though it did not belong to the body.

Another factor of some importance in selecting a locality is a knowledge of the *diurnal* range of temperature. The annual average temperature, and the average for each month, can usually be ascertained without difficulty for the more frequented health resorts, but the daily variation is not so easily to be learned; and yet it is on just this factor that the comfort of the patient may depend. A perfectly equable temperature is certainly of great advantage. Unfortunately it is not so apt to be found with dry air and elevation above the sea as it is at lower regions. Although elevation is, as a rule, much the most important, yet in some cases it will appear best to select the sea on account of the smaller diurnal temperature range.

Still another matter is the nature of hotel accomodations and other creature comforts; and this has to be considered most carefully in reference to the individual. Though a strong man with beginning phthisis, which has had but little effect upon his general health, may do well if sent to a region where he will spend his days in the saddle and his nights in the open air; it is clear that, for women and many male patients, no such regimen can be prescribed.

Patients want to know all these and similar details before leaving home, and it is

well if the physician can help them in this respect. In many cases, however, circumstances prevent more than the pointing out of a general plan of action ; especially as the number of places recommended as health resorts in phthisis is so large.

Individuals, with beginning phthisis, who are unwilling to make a radical change, or in whose case the physician does not deem it expedient, might seek Florida in winter, returning northward in the spring by slow stages, stopping *en route* in Georgia and North Carolina. In the summer some mountain resort should be selected, preferably the Adirondacks. There are, nevertheless, weighty objections against this course. It is very difficult to return North without feeling the bad effect of the change of temperature ; while a still greater objection is that the length of time, during which this continuation of travel must be persisted in, is too great for the patience of the invalid, thus kept so near home and occupation, and yet debarred from them. I have, however, seen cases, presumably of phthisis in its earliest stages, apparently entirely cured by a short absence from home in some such manner as this. It might be well in some instances to begin treatment in this way ; but if the physical signs are well marked, only the shortest trial should be given to this plan, as valuable time may be lost thereby. These more advanced cases, if in fairly good condition, and offering good hope of final recovery, should at once be subjected to a radical change of climate—either for an indefinite period, or for life.

The question whether a station in the

mountains or at the sea level is to be selected must be decided to some extent in accordance with the idiosyncrasy of the patient, as far as this can be determined in advance. As a rule, a mountain resort is far preferable and should be chosen whenever practicable. Statistics certainly show that the results in the mountains are better.

Our own country offers several excellent localities for phthisical patients. Of all of them perhaps the high altitudes of Colorado are to be preferred, since here can be found comfortable accommodations combined with pure, dry air and high elevation. In the "Parks" of this State we find table-lands of 10,000 feet elevation above the sea, protected by surrounding mountain peaks, and with an annual range of temperature less than in the Eastern States of the same latitude. Sudden diurnal changes do occur, it is true, but to no greater extent than in all elevated regions. The rainfall is, also, very slight. It has been stated that the dust prevalent as a result of this is irritating to the respiratory tract; but this is denied by those who have accurate knowledge in the matter. In spite of the thousands of phthisical patients who frequent the State the death-rate from consumption is very low.

New Mexico and Arizona offer somewhat similar advantages in the way of climate; but the facilities for living are not so great. The summers, too, are apt to be very hot. There are localities in Texas, too, which are excellent.

Southern California presents many advantages, not the least of which is that patients can easily vary their elevation from

that of the sea level to a considerable mountain height, according to the different seasons of the year, and to what is found to best suit their health.

Florida is not so favorite a resort as formerly, and physicians preferring high altitude will not, of course, recommend it at all.

Phthisical patients in Europe can make choice from a large number of summer stations, all equally good, or can go from one to the other as fancy dictates. A winter one may be chosen in like manner. The passage from one to the other may be made gradually by means of intermediate stations whose climate is midway between that of the others.

Nowhere does the climatic idiosyncrasy come into play more than in the choice of quarters in Europe; what suits one patient for winter, for example, being entirely too rigorous for another. For summer time there is, as a rule, probably no better place than the high valleys of Switzerland, and prominent among these is the Engadine valley. This valley, however, is scarcely free from snow before the middle of June or the first of July, and becomes cold early in the fall; so that, as a pure summer resort, it is not long tenable. It is also subject in summer to cold and disagreeable winds. In spite of this it is unexcelled by other localities for the climatic treatment of phthisis. Davos-Platz also enjoys a similarly good reputation. The neighborhood of Zermatt also fills the requirements of elevation and coolness during the hotter summer months. There is no difficulty in choosing among a number of other places equally well adapted.

Lower valleys may be selected if the summer is unusually cool, but the higher elevations are much to be preferred, as far as freedom from phthisis is concerned. Farther east there are various resorts in the Dolomite region which are highly recommended. There are numerous other places throughout the mountains of Germany, but for American patients Switzerland and the Tyrol offer every advantage to be derived from climate, while they possess other desiderata not to be found elsewhere.

For early summer and early fall other localities than those mentioned are to be preferred. The choice of such a station is a rather more difficult matter. Some of the lower portions of Switzerland may be selected; as Interlaken, the neighborhood of Lucerne, and the shores of Lake Geneva. Probably the latter situation is the best. Vevey and Montreux form here excellent intermediary stations. Ischl and Reichenhall, in Austria, are also recommended, and the Black Forest, in Germany, presents many attractions. One station which offers in some respects peculiar advantages as an intermediary station is Meran, in the Austrian Tyrol. It is beautifully situated and sheltered from the winds; and patients are able to spend a great deal of the time in the open air.

Finally, as to the choice of a winter station. For weakly individuals who shun any degree of cold or variation of temperature it may not seem best to select an elevated station. For such the south of France, the south of Italy, Sicily or the Riviera, have long and justly been popular. Or the pa-

tients may pass from Europe into Egypt, Algiers or Morocco. But for uniformity of temperature and of barometric pressure there is probably no place known equal to the Canary Islands. Madeira, once so popular, has fallen off greatly in general favor. For a large number of phthisical persons a dryer, colder and more bracing climate at a greater elevation is more suitable, even in winter. For these Meran is eminently adapted, provided only a moderate degree of cold is desirable. The sunshine here is always quite warm, and patients are able to sit out of doors in it the greater part of the day.

Still more popular have the Engadine valley and Davos-Platz become, even as winter stations. The cold, it is true, is severe, but it is dry cold, and the unpleasant, raw winds of summer are absent at this period of the year; while the thermometer in the sunshine registers high, as is usual in all climates of high altitude.

It is to be borne in mind as an inviolable rule, that such a climate is to be selected either for summer or winter, as will allow the greatest amount of exercise in the open air with the least discomfort to the patient, and with the greatest advantage to the general health.

What has been said is but the briefest and a necessarily incomplete outline for governing the choice of climate for the patient. A few words must be added on what might be called the choice of the patient for the climate.

There has existed a wide-spread prejudice against high altitudes in cases of decided

tendency to hemoptysis. This prejudice is, in the opinion of the best authorities, unwarrantable. Patients with this tendency are perhaps even safer in the mountains than at the sea level. The cases most suited for climatic treatment of any kind—as, indeed, for any other method—are those with but slight infiltration, with but few symptoms of the disease, and with strength sufficient to permit of abundant exercise. These patients should, as a rule, be sent to high altitudes for summer, and very probably for winter also. Other cases with a greater extent of pulmonary lesion, and with a less degree of strength or of resistance to cold will probably need the lower, warmer winter resorts, followed by the intermediary stations, and these again by the highest elevations for the summer months. In a still more advanced stage of the disease, especially where there is much elevation of temperature with severe subjective symptoms, the patient is not in a condition to stand much traveling nor to take much exercise. In such cases cold situations are out of the question. A warm, equable climate is to be chosen, and the nearer home the better. If improvement take place a more mountainous locality should be sought as soon as possible. The existence of fever is not, however, *per se* a contra-indication to high altitudes. It has often been observed that patients lose all fever soon after reaching the mountain resorts. Nor is the presence of a cavity a contra-indication in the selection of high elevations, provided the lung is not evidently rapidly breaking down. Cases which are very far advanced

and evidently hopeless should not, of course, be sent away at all; for only a hastening of the final end of the disease can come to the patient, with disappointment to the family, and reproach to the physician. It should be further clearly explained to patients, in whatever stage the disease is, that change of climate is not an infallible cure, and, further, that with it must be conjoined all other necessary hygienic and dietetic measures, together with the employment of such medicinal agents as are indicated by the disease.

[The author would acknowledge his indebtedness to the writings of a number of authors, to whom no direct reference has been made in the text. Among these are the following: *Wanderings in Search of Health*, H. C. Taylor, 1890; *Phthisiology*, G. A. Evans, 1888; *Climate and Health Resorts*, Burney Yeo, 1890; *Treatment of Disease by Climate*, by Hermann Weber, in *Ziemssen's Hand-book of General Therapeutics; Etiology, Diagnosis and Treatment of Tuberculosis*, H. V. Ziemssen; Articles by Shattuck, Loomis, Solly, Westbrook, Platt, Gihon, Curtin, Knight, Bowditch, Bruen and others in the *Transactions of the American Climatological Association;* Ruehle, Article on "Consumption" in *Ziemssen's Hand-buch der spec. Path. u. Therapie.*]