THE CLIMATIC TREATMENT OF TUBERCULOSIS OF THE UPPER AIR TRACT.*

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It is an old and common experience that the majority of pathological conditions are beneficially influenced by pure, fresh air. More difficult, however, is the answer to the question, "In what affections can a marked relief or cure be expected by a change of atmospheric surroundings?" The disease of interest to us in this discussion is tuberculosis of the upper air tract. Since we cannot separate those parts from the rest of the body, we should not ignore the condition of the lungs, which as a rule, are also affected. On the other hand, it is my conviction, based on a considerable experience, that the diseases under consideration require a special climate in some instances.

First of all, it must be borne in mind that tuberculous cases are being cured in all parts of the world, i. e., in every possible climate. Still the difference, for example, between a high altitude and the sea shore is so great, in a physiological sense, that in pathological conditions a beneficial or a deleterious influence might be expected from either of these localities; and, as a matter of fact, such influence for better or worse does exist under different climatic conditions, for you will all agree that some of your patients have done well in southwesterly altitudes, while they become worse when they return to their homes in the east. Why is it that these relapses occur so frequently? Is it because these people resume their old occupations? No! Some of them—women—have no vocation, while others follow their business in the west for many years without detriment. This is undoubtedly due to the influence of the climate, and in the following pages it shall be my aim to discuss briefly the treatment of tuberculosis of the upper air tract from a climatological view point.

For the sake of convenience, I have thought it best to divide the subject into four parts: (a) Aerotherapy, (b) Heliotherapy, (c) Altotherapy, (d) Thalassotherapy.

(a) *Aerotherapy* is the treatment with fresh, pure air, which *a priori* we should be able to utilize everywhere, and in fact we do make use of it all over the world. What diet means in catarrh of the intestinal tract, aerotherapy means in catarrh of the air pas-

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sages (Nothnagel), or, we may add, in tuberculosis of the air passages. If we take a patient away from his sweat-shop, direct him to do half a day's work if he cannot give up work entirely, and let him spend as much time as possible in some park in the open air or, in smaller towns, in the fields, such a patient has actually changed his climatic surroundings. If necessary, his throat and nose can be treated at the same time, and in a number of cases we will be rewarded by a cure.

If the patient is somewhat better off and can stay away from business for several months, so much the better for him. We can then place him in a sanatorium nearby, or he can present himself at regular intervals for treatment. By far the great majority of all consumptives must be treated in that way, and I am sure there is not one physician in the United States who has not obtained cures in that manner.

The details of using air as a therapeutic means in tuberculosis are so well known that I need not dwell on this topic any further. However, let me ask you not to go into fads. The following case may illustrate what I mean:

A well-nourished gentleman commenced to cough, and a diagnosis of incipient tuberculosis was made. Consequently he was ordered by his physician to stay in bed on a strict diet, to be massaged three times a day, and directed to have a tent built on his house opposite Central Park, in order to obtain more fresh air. These orders were carried out strictly for a week, when this gentleman and his wife were so exhausted from excitement, worry and lack of sleep that they told me they could not stand it any longer. On my examination the condition of the lungs gave a reasonable doubt as to the correctness of the diagnosis, but there were present marked pharyngitis and laryngitis. I told the gentleman to eat whatever he wanted, to be out all day long, and to have his throat treated. After eight weeks he had gained ten pounds in weight, and, having settled his business affairs, I sent him to the mountains. His cough had left him long before. I am convinced that this patient would have gone rapidly into consumption if the former method of treatment had been continued.

It is very true that a consumptive cannot get too much fresh air, but to *suddenly* transplant a person susceptible to drafts from a hot room in New York City to cold winter air day and night is irrational, to say the least. On the other hand, even in the best of climates patients often do not get enough air. Some people think that when

they live in the open air while taking the rest cure, they have done enough. As you know, however, the gaseous exchanges are only partly carried on by the lungs, and a great deal is done by the skin. Hence we ought to expose the skin as freely as possible to the air since parts of the lungs are out of function anyhow. A sojourn out-doors brings one in contact with the movable air, which is an essential factor in stimulating the skin, and through it the organism, to renewed activity. This is also the reason why we should accustom our consumptives slowly to wearing as few garments as possible, and finally to take air baths with the naked body. With this we have reached the second part of our discussion.

(b) *Heliotherapy*. The therapeutic use of the rays of the sun is older than medicine, but their action on the human organism has been explained scientifically only in late years. I need but mention the names of N. R. Finsen, W. Gebhardt, Möller, and Schönenberger, and they will bring to your memory a great deal that has been achieved in that field.

While the direct rays of the sun have been chiefly employed in order to promote perspiration, nowadays a combination of the *diffuse* sun-rays, with exposure of the naked body to the air is being utilized with success. By exposing the whole body to the air, not only is the exchange of gases through the skin accelerated, but at the same time, through the action of the sun, the metabolism is increased, and finally a beneficial influence is exercised upon the nervous system.

Says Prof. Rieder of München: "The question has been brought up whether it would not be preferable to let the patients go around naked in glass houses, instead of subjecting them to the fresh-air cure, as is customary in sanatoria. This question has been answered in the affirmative by others, and I am personally very much in favor of such a combination, only I should advise that this cure should be carried out in the open air instead of in glass houses, as Rieder suggests¹.

That we can also use the direct rays of the sun for this treatment, I have mentioned on various occasions. Permit me only to repeat that one of the first directions I give to my patients is to stay in the sun as long as they possibly can—that is, in winter. In summer they are advised to rise with the sun and expose themselves to its rays. In warm climates, as well as in our own, this has to be done later in the day with more care and judgment. But even in the hot

¹ Handbuch der physikalischen Therapie von Goldscheider & Jacob, Bd. ii, p. 502, etc.

regions of Colorado, New Mexico, and Arizona I have had patients working on ranches for many hours every day and they fared well. But not everybody can stand this, and we have to discriminate here as in everything else in medicine. We should remember that exposure to the sun does not act therapeutically through its intensity, but rather through its continuity. Too much exposure has a weakening, deleterious effect, and spoils the appetite, but taken in the right way it has done good in a general way. As to treatment of the upper air tract, I have noted *some* good effects in so far as relief of pain is concerned. As a substitute for the sun the arc light has been used, and while it is not a panacea it is nevertheless a good adjuvant to our armamentarium in such treatment.

(c) *Allotherapy*. I have coined this word myself, at least I do not remember having read it anywhere, to indicate treatment in high altitudes. This treatment is of great, if not of paramount, importance to our tuberculous patients. There are four features which characterize high altitudes.

1. The pressure of the air. This being highest at the level of the sea gradually diminishes with the altitude, and with it likewise the density of the air. ,

2. The intensity of radiation of the sun. This (i. e., the rays of heat), on the contrary, increases with the altitude and independently of the heat of the ground.

3. The rays of light. Their intensity is also increased and, according to Prof. A. Loewy of Berlin, it is especially the chemical short-waved rays, the blue and violet, which are present in high altitudes and make themselves felt more strongly than at the level of the sea.

4. The temperature of the air. This diminishes with the elevation. Of course that varies with the geographical latitude, and is due partly, as we know, to the decreasing density and diminished humidity of the atmosphere.

Now these atmospheric conditions prevailing in high altitudes have a more than merely perceptible effect on the human body under normal conditions. Can we believe that they are negligible in pathological processes? We know that good work is done in sanatoria situated at the sea level, but does this imply that climate as a factor in the treatment of tuberculosis can be ignored entirely? If our home sanatoria were less careful in selecting by preference incipient cases or such where the diagnosis is still in doubt, one would see how quickly the mortality would rise. I, myself, have

advocated the erection of sanatoria in and near New York, and I know that for cases with slight local lesions, cases which are quite well-nourished, they fill a great need. On the other hand, cases with marked anaemia, febrile temperatures, and irritations of the mucous membranes do much better in the mountains. This is also the experience of A. Fraenkel of Berlin².

Patients with much expectoration from the lower or upper air tract should be sent to a dry climate; while others, with a dry hacking cough, do better in a moist climate.

In most of the text books, it is stated that tuberculosis of the larynx or pharynx is a contra-indication to a sojourn in high altitudes, as it is a complication of pulmonary tuberculosis that retards or prevents the cure of the latter in these altitudes. Such and similar statements go from one text book to another and are accepted as truth. They are certainly not in accordance with my experience. Among my patients there are some now living in New York City in good health and following their occupation for the last five and even ten years, who have been suffering from pulmonary and laryngeal tuberculosis (one with deep ulcerations in the lung). They were sent by me to Denver, Colorado Springs, parts of Arizona, and New Mexico, and were perfectly cured there in spite of their laryngeal affection.

The trouble is that a great many of these cases represent an advanced stage of the disease, with a derangement of one of the vital functions of the body, namely, digestion. I say digestion purposely. The tuberculous involvement of the larynx only in extremely rare cases interferes with breathing, i. e., with the respiratory tract; but too often when dysphagia is present it interferes with nutrition. Now to send to a high altitude a patient who has been debilitated by lack of food, whose heart is fluttering with every movement, and who has not sufficient vitality to become acclimated to the new surroundings—that is like stretching a piece of rubber to see whether or not it will break.

On the other hand, there are quite a number of those afflicted with laryngeal tuberculosis who have enough vitality and energy to become accustomed to new surroundings, whose hearts will do the somewhat increased work without any damage, and whose dysphagia can be kept under control. Many of these will derive a great deal of benefit from a stay in high altitudes.

Persons suffering from dysphagia should be sent to some place where there is a laryngologist who knows how to handle such cases.

² Lungenkrankheiten, Berlin, 1904.

It is not at all to the credit of some sanatoria that they neglect the treatment of the larynx almost entirely, and it is not a rare exception for a patient to complain of pain in his throat and be told that he has a cold. It is true that we cannot cure all these cases, but it is only a short time ago, while I was preparing this article, that a patient came back from a well-equipped sanatorium in the mountains because no attention had been paid to his throat. He had ulcerations on the epiglottis and on one vocal cord, besides infiltrations of the other cord, and interarytenoid spaces. By local applications these ulcerations soon healed, fortunately, and the patient could take his food without the slightest difficulty. Then I sent him back to the mountains. The infiltrations are there yet and he is hoarse, but that does not bother him. He has better chances for a cure now than before.

Cases of tuberculosis of the upper air tract in many instances not only require high altitudes but often also a mild climate. This is another fact that apparently has been forgotten of late. A wind blowing at the rate of 40 or more miles an hour is not good for many of our patients with involvement of the upper air passages. They have been compelled to return from some well-known sanatoria in the Catskills and Adirondacks and have done better in some of our southwestern states. It is remarkable how much cold and how much wind some patients can stand, but there is quite a proportion who cannot stand this, and they do better elsewhere.

Robert Levy of Denver³, who has an exceptionally large experience in this field, attributes much therapeutic effect to the climate of Denver. In his statement others apparently agree with him, as for example, George L. Richards of Fall River, Solly of Colorado Springs and William Duffield of Phoenix, Arizona. I have reported my observations on the climate of the southwest some years ago⁴, and still hold the same views, believing that some persons will do well out west who have no chance of living in our New York climate.

(d) *Thalassotherapy*. This is the treatment of patients by means of sea baths and sea air. The first will not be discussed here, since enough has been written on that subject in general. I would only add that tuberculosis in my experience is no contra-indication to sea bathing. The same holds good for tuberculosis of the upper air tract, with but one exception, viz., when the salt water produces an irritating cough. In such an event it should not be allowed: but I must say that these cases are rare and that many patients take sea baths with good results when they are careful not

³ THE LARYNGOSCOPE, p. 763, 1902 and *Journ. Am. Med. Assn.*, p. 707, Sept. 16, 1899.

to swallow too much water. Bathing and swimming have to be regulated as any other exercise on land. Too much of it may do harm, while if moderately taken and increased slowly it may do and has done a great deal of good. After the bath the patient should react quickly and soon feel warm. If he is blue after coming out and a comfortable feeling does not set in promptly, sea baths should be prohibited or postponed until he is stronger.

The treatment of inhaling sea air. This is one part of our therapeutics that has been neglected in the United States until almost this day. When years ago I sent patients with tuberculosis *in winter* to Coney Island and neighboring places, one of our best-known laryngologists made fun of it. Nowadays we have already advanced so far that we have a sanatorium for sick babies there, and it is doing good work.

And why not? I ask. This section, i. e., the southwest shore of Long Island, is to some extent protected against the cold north winds of the winter. If the sun is out with a south wind it is much warmer there than in the city, and the patient is able to obtain the great benefit of the sun, and absolutely pure sea air. Is that not doing a great deal to stimulate the organism to renewed vitality?

Another point is sea voyages. It is more than strange that we who are surrounded by water have not thought more of sea voyages as a means of restoring health. But it is perhaps that the nearest and most natural is overlooked. *Lucas a non lucendo*. The English have a large experience in that respect, and lately such a place has been proposed in Germany also by Nisser, v. Leyden, v. Bergman and Sobotta. I believe that such floating sanatoria would be of great benefit to our consumptives in this country, provided that vessels are built with all the conveniences and sanitary arrangements necessary for the care of such patients. A great deal of good could be done to quite a number of sufferers, provided they are selected with proper care. Such floating sanatoria could be used easily in the vicinity of New York during the summer months.

In conclusion, I would emphasize strongly the necessity of giving our tuberculous patients the benefit not only of medicinal and surgical but also of climatic treatment. If after thorough trial a patient does not do well in one climate, he should be sent to another. But do not let us become pessimistic after having tried one specific kind of climate or treatment without success. Whatever be the method of treatment, the physician must always maintain a spirit of optimism which will be an inspiration to himself and the patient.

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