I have ventured to choose this subject for my Essay for promotion, as it is a disease which I have had to fight in Proprìà Personà, and have consequently obtained a certain practical experience of its modern treatment.

As this treatment is a comparatively new one, naturally much has been written on it recently, especially on its most salient factors, “fresh air and feeding”; and so I shall not linger long on these two subjects, but will devote the bulk of my remarks to other, perhaps minor, matters, which are not so generally brought to the front, and are perhaps in danger of being overlooked, details for the most part, but it is by attention to detail that the success or failure of this treatment depends.

**Fresh Air.**

It is needless for me to state that this is all important. However, it brings in one practical point; inside any building the maximum purity of the internal air can only equal that of the external air; therefore a consumptive must reside in a locality where the air is of maximum purity, and not liable to contamination; as it would be, for instance, in the vicinity of a manufacturing town.

In winter the dwelling should be warmed either by hot-water pipes or by closed stoves; open coal-burning grates should be tabooed, on account of the unavoidable dust occasioned—this being a point of considerable importance.

**Feeding.**

If one should enquire the rationale of the system of feeding as now practised in our sanatoria, he would, I think, always be answered, “that it not only repairs the ravages of this most wasting disease, but that it builds up the system to such a condition that it can resist, and later wage war on, and finally destroy, the tubercle bacillus and its toxins. Reduced to scientific terms, this must mean that it is held that by means of feeding (1) either substances are produced or multiplied in the
body which are antagonistic to the growth of the bacilli, or (2) that (according to Metschnikoff's phagocytosis theory) this condition is produced by the multiplication of the phagocytes, whose "métier" it is to prey on the bacilli.

The substances produced or multiplied (as in the first hypothesis) would, I take it, be of the nature of alexins and nucleins. This latter substance is a complex organic compound obtained from different varieties of animal cells, such as from the testes, the thyroid, &c.; it is also found in milk, eggs, &c., also in the blood serum, where it is probably due to the disintegration of the leucocytes. That this substance possesses bacteriocidal properties has been amply proved, and it seems reasonable to suppose that by a proper dietary its proportion in the body might be increased to such an extent as to enable it to successfully combat the tubercle bacillus. But I am not aware that such a dietary has ever been formulated, or carried into practice, excepting perhaps as regards milk (which is, of course, a large constituent of a consumption diet), though whether this is given for this specific purpose, apart from its other valuable properties, I am unable to say.

Whatever may be the scientific reason, there can be no doubt as to the benefits derived from feeding, or rather overfeeding, for as a rule the progress of the patient, even as regards the physical condition of his lungs, proceeds pari passu with the increase of his weight. This increase of weight, however, must be kept within limits, and a condition at all bordering on the "plethoric" must be carefully guarded against, and, in my own experience, I have seen much harm result from the reckless piling up of superfluous fat. Apart from immediate danger of haemorrhage, the difficulty of keeping a patient who is loaded down with an excessive weight of adipose tissue in anything approaching a good condition of general health, which is the desideratum of open-air treatment, need only be mentioned to be appreciated.

DIGESTION.

Now, how do the digestive organs stand this system of feeding? We all can call to mind instances of a phthisical patient, one who has never left the family circle, whose appetite requires to be titivated by dainty dishes (so his female relatives
tell us); he cannot eat this, and he cannot eat that. Now, can such a patient put up with the system of feeding as in vogue at our sanatoria? Where certain food is placed before one, which one must eat willy-nilly, well, the answer is, almost invariably, yes. The digestive organs can and do adapt themselves to the food they receive, and in a little while become able to receive and assimilate (for it is assimilated) larger quantities of food than they have hitherto been able to deal with. And if this be doubted one need only refer to the medical officers who are in charge of the different sanatoria throughout the country. I do not mean to say that success will crown the first attempts of the patient, but he will find, to his astonishment, that he is able, after the first week or so, to deal with quantities of food which previously he would have considered out of the question.

CLIMATE.

This is a very practical subject, and the question has to be answered daily, “Shall I send my patient to winter abroad, or let him be treated at home?”

Now I shall premise, that for the purposes of my essay, viz., the cure of consumption, I am only dealing with those cases which have a reasonable chance of becoming “cured,” not with those chronic cases, where the question is of quite a different nature, i.e., “Where shall I send my patient so that he may survive the winter?”

I think it is now acknowledged generally, that a particular climate is not an essential factor for successful treatment—I mean that cases have been found to recover in all or any climate. This subject is an extremely difficult one to handle, as it is so difficult to treat it on its own merits alone, to disassociate it from other subjects, with which it is closely connected, these subjects being (1) the question of medical supervision; (2) of food; (3) of difficulties connected with transit. I think it would clear the ground best if I dealt with these three subjects in the first case now.

(1) As regards medical supervision, all will agree as to its paramount importance, a supervision continued until the patient is convalescent, and has learnt to lead a “rational life,” in all its minutiae. Little success can be hoped for from an occa-
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sional visit from a medical man. This constant medical supervi-
sion constitutes the great benefit of going to a sanatorium,
and all cases should, without exception, begin their treatment
there, wherever else they may go to afterwards simply for the
purpose of learning what is the proper life for them to lead.

Now, how does this all affect the question of climate? Any-
one travelling abroad will meet many a case of phthisis
which has been sent out from home to "winter abroad." Many of
these unfortunates have been sent out without their eyes having
been opened as to the gravity of their condition; often they
never see a doctor at all, or at most for only a couple of
times. An attempt generally is made to lead an open-air life,
by sitting out in the sun, &c., for some hours of the day; still
the long hours spent indoors in that awful atmosphere which
pervades all Swiss hotels, quickly neutralises all the benefit
obtained out of doors; skating, lugeing, dancing, theatricals, &c.,
are much in vogue, and in all of these amusements most of the
phthisical patients join. What I wish to lay stress on is, the
want of efficient medical supervision over patients, which is so
apparent abroad. But it may be urged, that the medical
supervision may be absolute, and just as efficient as at home.
Granted, but such is the exception and not the rule, and in
hotels, where practically all our patients reside, the temptation
to do what one should not is always present under one's eye,
and it requires a very level head to invariably turn away from
it. As regards the Swiss sanatoria, a patient should not be
sent there without the strictest investigations, as in most cases
the name is only a synonym for hotel.

(2) Now, as regards food—this is another vital point. The
feeding in Switzerland is generally very indifferent. Meat is
tough and without nutriment. Vegetables are, as a rule,
scanty, and the main constituents of a phthisical diet, milk and
eggs, are indifferent or worse. This factor is generally over-
looked by those who send their patients abroad, though why so
important a subject should be so I cannot easily imagine.

(3) The journey from home must also be considered. The
fatigue entailed is very considerable, and there can be no doubt
that often serious mischief results directly due to this cause.
Again, many health resorts in Switzerland can only be got at by
long sleigh journeys, such, for instance, at St. Moritz,* which is eight hours' sleigh from Davos; this, in my opinion, absolutely prohibits such places being chosen. I could easily bring forward cases to prove that this is no imaginary danger, but has even proved to be a fatal experiment.

Having now cleared the ground, let us consider the question of climate on its own merits. No one, I think, would be rash enough to say that our climate, all the year round, is a satisfactory one for the cure of phthisis. But all its advocates would point to their statistics, and reply, "Be it as you say or no, look at our results," and there can be no doubt that these results are convincing. Personally, I think that they are obtained by attention to those subjects I have just quitted, rather than to the effects of our climate.

To take our summer first. Provided one avoids a relaxing part of the country, or a locality shut in by surrounding hills, but chooses a residence preferably on the slope of some high ground, sufficiently sheltered from the prevailing winds, then I think that our home climate could not be readily exchanged for a better, and, when the very many advantages of living at home are added, the case for our home summer climate is overwhelming.

Now take the case of our winter climate, considered solely on its own merits. Well, I confess the brief is a hopeless one, and I can only throw it up. However, when we remember that remaining at home implies better food, and probably more careful medical supervision, then, I think, the case becomes a better one, and perhaps even a strong one.

I have it from the doctors of two distinct sanatoria at home that their cases do better in winter than in summer. I am inclined, however, to accept this statement cum grano salis, but at all events it shows that a case can be made out for our winter climate. One of the most serious defects of our winter climate is the prevalence of high winds; these constitute a positive danger to the patient, and nothing induces a haemorrhage more readily than battling with a strong wind. A sheltered site, therefore, and sheltered walks, are imperative.

* I understand that a railway is being laid to St. Moritz, and will probably be completed by next winter.
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It is a matter of experience that the vicissitudes of our winter climate do not exert an injurious effect on the patients, nor is it found that they are more liable to catch a “catarrh.” However, it must be admitted that the patients have by no means a rosy time during the winter, and one who has gone through the open-air treatment at home for one winter has little wish to repeat his experiences.

It is claimed that the great advantage of being “cured” in our own country is that when one is “cured” there, one can then pass the remainder of one’s days at home, that it will not be necessary to fly the country every year with the approach of winter. This statement seems credible, and my own small experience bears it out. If true, it is certainly a very strong inducement to be treated at home. It is also stated that “cures,” so called, effected at the Swiss high altitude resorts, though speedy, are not so resistant, and have a great tendency to recrudescence with the onset of winter. To my own knowledge many such instances have occurred.

FOREIGN WINTER RESORTS.

As regards foreign winter resorts, I think that we may at once rule out such places as the Canary Isles, Madeira, Riviera, &c., as being only suited to chronic cases who have abandoned all hope of cure, and whose object is to get through the winter as easily and comfortably as possible. No one now, I think, would advise a sea voyage (which used to be so commonly recommended), on account of its obvious disadvantage, including, especially, the difficulty of taking exercise. Nor do I think there is any great advantage in seeking treatment at the German sanatoria, such as Nordrach of Falkenstein, where the diet would be found to be very uncongenial, and the climate not very different from our own.

South Africa used to be a favourite rest-house for the consumptive, but now, with our increased knowledge and facilities of treatment, it can scarcely hold its place. Its great drawback is, of course, dust. However, for those who have overcome the disease, or where it has become quiescent, who are what is generally known as “cured,” for all such my unhesitating advice would be, “Go to South Africa” and live your life there.
EGYPT.

As regards this country, the winter climate is simply perfect and leaves little or nothing to be desired. Its disadvantage, however, is that it is so much a society place; this makes it difficult even for the strong-willed to lead a proper life, and for the weak-kneed practically impossible. At Helouan one would probably have the best chance of success, or perhaps at Luxor, where a new and excellent hotel has just been opened, "The Savoy." "Menai House," Pyramids, is mainly run as a "so-called" sanatorium, and equipped with sun-traps, &c., but all things considered, I should hesitate to recommend it.

The disadvantage of Egypt is its expense, hotel living will alone amount to £1 a day, and in addition one has a long and expensive journey to and fro. All things considered, I would not recommend Egypt as a winter residence for a patient whose disease has not yet been arrested; it being so, however, I would accord Egypt a second place as a winter resort.

The winter climate of North California resembles that of Egypt, and in addition it does not suffer from dust to anything like the same extent. It is an ideal climate. However, the long journey there precludes it from being seriously considered by us in this country.

SWITZERLAND.

This now brings us to Switzerland, and, for the purposes of this essay, we have only to deal with places above the level of the winter snow-line, say, not below from 4,000 to 5,000 feet above the sea-level. These places should, I consider, only be visited as winter resorts, for whatever may be their advantages for a winter sojourn, I cannot see that they possess any for a summer residence, but, on the contrary, many and very grave disadvantages.

I venture to make this statement, although I have been informed by doctors resident at high altitude resorts that their patients do very well there during the summer. I must, however, query, "Would they not do better at home?" So I now find myself reduced to a discussion as to the relative advantages and disadvantages of wintering in Switzerland.

We have all either experienced or read of the typical winter day at a high altitude Swiss resort. I will content myself by
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saying that all the praise that has been lavished on this subject falls far short of doing it justice. The mere beauty of the scene is enchanting, enthralling. The sun blazes down on one from a cloudless sky, driving one perchance to seek a momentary shelter from its rays, but not for long, however, for in the shade it is freezing hard. At night the cold is intense, every star is brilliant, and the mercury marks anything from 10° C. to 20° C. Not a breath of wind is astir, not a movement in the air to remind us of the cruel wind we have left at home. Awakening in the morning is a pure delight, after a night's rest, such as it is not possible to get elsewhere. You feel fit and eager to begin the day, nor does the feeling wear off as the day draws to a close, and you lay your head on the pillow again certain of another good night, and confident that a big stride has been made towards recovery. If this was all the story, if all other points were satisfactory, why, it were madness to stay at home for a winter, to run the risks and endure the hardships of open-air treatment at home.

But, alas, it is not so. Last winter I was in Davos for two months, February and March, fifty-six days in all, and of these eighteen alone were such days as I have described, on fourteen days we had sunshine in the forenoon only, ten days were overcast all the time, on seven days we had snow all day, and on seven days snow for half the day. I was told that I had hit on an exceptionally bad winter. Well, perhaps so.

I have already discussed the subjects of food and medical supervision; as regards the latter, if I might dare to make such a remark, I cannot help thinking that sufficient care is not exercised by physicians at home before sending their patients abroad. In some cases it would seem that the ungafted statement, "Go, winter abroad," was considered advice enough, in so many instances did it appear that the patient considered himself to be there to play, and not to work at effecting his recovery. I am confident that advice given to a patient before leaving home by his tried and trusted physician would have much permanent effect, and perchance save many a life cast pitiable away either through ignorance or want of self-control on the part of the patient.
EFFECTS OF HIGH ALTITUDE.

The effect on the heart is very pronounced, and the pulse will be found to beat some fifteen to twenty beats faster than its normal; on even slight exertion the pulse will be found to be 100 or more, and this will be especially the case for the first few days after the arrival.

No case where the heart is at all affected should be sent to a high altitude. Such cases will find all their symptoms exaggerated, they will suffer from dizziness and fainting fits, nervousness and want of sleep, accompanied by derangement of the whole system, including their digestive organs, a complication most unfavourable for recovery.

The respirations are also affected, and become much deeper and quicker, especially at first. Both these conditions must be borne in mind and the patient enjoined to keep very quiet for the first few days, and to begin exercise very gradually.

Physicians opposed to high altitudes urge an increased tendency of haemorrhage; however, those on the spot deny such increased danger, and from my own observations I could find no such tendency, and I am much inclined to doubt if any such exists.

Should a patient, then, be sent abroad?

As regards the summer, as I have already stated, let him be kept at home.

As regards the winter, if he is willing to pass it in a good sanatorium at home, by all means let him do so; and I think that the chances are, that in the spring his health will be sounder than if he had gone abroad and taken all the risk attendant on such a course.

I say "in a sanatorium" advisedly, for cases where satisfactory treatment can be carried on in a patient’s home during the winter must be very exceptional. But if he will not go to a sanatorium at home, and presses to be sent abroad, may the physician’s consent be given? Well, I think it may, provided that he has been under treatment for a length of time sufficient for him to be thoroughly acquainted with its rationale, to have learnt the hard lesson of knowing what things must be left undone by him and what few things may be done, and more especially have learnt to read and act on the indications given him by his thermometer.
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All this knowledge, to my mind, can only be efficiently mastered at a sanatorium, where I think as a routine treatment every patient should be sent for a period of some months as soon as his disease is diagnosed.

EXERCISE.

Exercise is a subject on which there is some difference of opinion. I mean as regards the amount permitted. Its primary object is to bring the patient into a good state of general health and vigour, and afterwards to keep him in that condition; to assist all his different organs to do their allotted work, more especially his digestive organs. Nothing can attain this object as walking exercise can.

Most authorities push the amount of exercise, stopping short, of course, well within the limits of fatigue, as shown at once by an undue rise of temperature. Others reduce exercise to a minimum, only permitting their patients to take just sufficient to keep their organs in working order. This is practised at the Swiss high altitude resorts, where lying in long chairs is principally relied on, such resting being there technically termed "curing."

In our sanatoria the former plan is adopted. It is that introduced by Dr. Otto Walther, of Nordrach, and closely followed by us. He also advocated a modified hill-climbing, and has graduated paths, with a very gentle slope, cut in the hills behind his sanatorium. The results obtained by him seem to prove the benefit of this form of exercise. It has appeared to me that its success may depend on the complete aeration of the apices of the lungs, consequent on deep respiration. These diseased areas will then be flooded with their full complement of fresh air, and so accordingly benefit. For it is known that the air in the apices may be well nigh stagnant; and it is stated that it is by reason of this stagnation that the tubercle bacilli can make good their footing there, though not in other parts of the lung, where, of course, they must be much more frequently carried by the inspired air.

It is evident that no hard and fast law can be laid down as regards the amount of exercise permissible for every case. Each case must be a law unto itself. The unerring guide is the thermometer. The temperature should be taken immediately after the walk, and if it marks an undue rise, it is then con-
cluded that the fatigue has been too much for the patient, and that the length of the walk must be, for the present, curtailed.

The temperature chart attached will illustrate my meaning.

The second daily reading is the one in point, taken at 12 noon, immediately after the morning walk of about some four to five miles. The rise of temperature shown is "normal" for this patient, and probably exceeds little, if at all, the rise of temperature that would occur in a healthy man under the same conditions. The temperature taken some quarter of an hour later, after resting, will be found to have fallen to its usual height.

The following general rules refer to exercise. Until the patient has lost all trace of fever, no exercise is permissible. When he is free from fever, after passing through the successive stages of sitting up in his room or verandah, then sitting out of doors in the garden for a few days, he may then be permitted to crawl a few yards. If no undue rise of temperature results, the distance may be daily increased, though the rate of progress is for long kept extremely slow. Later, the length of walk will, of course, depend on his progress. A usual walk at a sanatorium is, say, from four to five miles, completed in about two and a half hours, with frequent rests during the walk.

Before the patient leaves the sanatorium, if he be a successful case, and about to resume his ordinary avocation, longer walks are allotted him, and the pace increased, so as to prepare him for the fatigues consequent on a return to ordinary life.

I have only to add that walking is the one and only form of exercise permissible for a consumptive. No form of arm exercise of any kind can be allowed, so much so, that the arms should be raised just as little as possible, the reason being to guard against any sudden strain on the chest wall, and consequently on the lungs and pleurisy, which would be extremely likely to rupture any pleuritic adhesion.

High winds are most dangerous for a consumptive, on account of the difficulty of drawing air down into the lungs, and the consequent violent straining on the chest. To take exercise in a high wind along an exposed walk is worse than folly, and is the most common of all causes of haemorrhage. It is for this reason that the importance of shelter, and sheltered walk, is paramount.

*(To be continued.)*

* To appear with the continuation of this paper.