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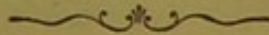
S^T MORITZ

AS A HEALTH RESORT

BY

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J. A. CHURCHILL

New Burlington street.

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1871.

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WHITFIELD HEWLETT, M.D.

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CHAPTER I.

The Engadine.

Much has been written about the Engadine, its climate, its air, its waters and its baths, until at the present time there seems to be a danger of the Engadine, and especially of St Moritz, being overrated on the one hand, and not sufficiently appreciated on the other.

It will be my object in the following pages to describe St Moritz as it is, its merits no less than its drawbacks, the relative value of its atmosphere, and its waters, the class of case for which it is, and for which it is not suited, and to suggest the steps which ought to be taken by the communal Authorities no less than by the landlords to improve a state of things that is in many respects most defective.

The valley of the Engadine is situated in the Canton Grisons, the most eastern Canton of Switzerland. Commencing on the Italian side at Maloja, a small hamlet situated at the upper extremity of the val Bregaglia, it extends from S. W. to N. E., and terminates at Martinsbrück on the frontier of the Tyrol. Its breadth varies from half a league in the lower Engadine to more than a league in some parts of the upper Engadine. At once the largest and highest valley in the Alps, it is

girt by mountains on the N. W., and S. E., which in beauty, grandeur, and height can compare with the better known mountains of the Oberland.

The Rhœtian Alps which shut it in on the N. E. attain an altitude varying from 9000-11000 feet, while to the South East, the Bernina rears its snowy crest to a height of 13,500 feet above the sea.

The climate, and products, no less than the character and habits of the Engadiners, divide the valley, naturally, into two parts called respectively "the upper, and the lower Engadine."

The former, with which alone we are at present concerned, extends from Maloja on the South West to Cappella on the North East. Through it runs the sparkling Inn, which, fed by the beautiful lakes of Sils, Silva Plana, and St Moritz, rushes on until it reaches Innsbruck the capital of the Tyrol.

The climate is severe, the culture of corn, and indeed of almost every crop is unknown, occasionally meagre fields of potatoes, oats, and rice are met with. The snow line does not extend below 9450', as compared with a snow line of 6900' on Mont Blanc, 8400' on the Pyrenees, and 9200' on Monte Rosa.

There are five villages in the upper Engadine which deserve notice: St Moritz, Silva Plana, Campfer, Samaden, and Pontresina; of these St Moritz is the highest, and the most important. The ever increasing reputation of its water, its air, and its scenery has brought the whole Engadine into notice, and has reflected fame upon the villages that cluster round it.

Silva Plana, situated at the foot of the Julier Alp, 5560 feet above the sea, is the first village of the Engadine that greets the traveller on his descent from the Julier pass. Well sheltered from the N. and N. E.

winds by the uprising mountain, with a number of charming walks and views, Silva Plana is a most delightful residence for those who do not wish to drink the waters, or take the baths of St Moritz which are four miles distant.

The hotel (Poste) is quiet, homelike, and has the advantage of being managed by a lady who speaks English, and is most kind in attending to the wants of her guests. From Silva Plana the road gradually ascends for about two miles to the hamlet of *Campfer*, where there is a first rate hotel, the Julier.

Situated 5649 feet above the sea, well sheltered from the North and North Easterly winds, within easy reach of the Kurhaus, either on foot through a picturesque pine wood, or by omnibus which plies to and fro several times in the morning, Campfer is about the same distance from the Kurhaus on its southern side, as St Moritz is on its northern.

In my opinion, it ranks next to the village of St Moritz as a desirable residence for those who come to the Engadine to derive full benefit from the air, and water.

Samaden. — Issuing from the northern extremity of the lake of St Moritz, the river Inn falls by a series of cascades through a rocky forest, the Eastern shield of the village, to the level of the valley which is here widened by its junction with the val Pontresina.

Below St Moritz the valley is damp and swampy, and composed of boggy peat which is used for firewood.

On the morning of August 20th, en route to the Piz Languard, I noticed that the villages of Celerina and Samaden were quite hidden beneath a thick cloud of white mist.

The white spire of the church of Samaden alone rose above the vapoury cloud to show of life below it.

The vapour hugs the low land here, and follows the course of the Inn.

Samaden is well protected from the North, but not so from the East. Its comparatively low situation, its proximity to the river which often overflows its banks, the swampy soil of the country round it, and its exposure to the East and South winds which sweep the valley, render it undesirable as a residence for the invalid in summer.

Though ague is very rare amongst the natives, one case came under my notice this summer. A delicate gentleman slept at Samaden with his window open which faced the marshy valley. Some days afterwards he was seized with symptoms of malaria poison, quick pulse, high skin temperature etc. The weather just before had been intensely hot, and, probably, the drying of the swampy soil under intense solar heat had generated the fever. He soon got better under the free exhibition of quinine.

Pontresina, situated in a valley running at right angles to the Inn is fully exposed to the Northerly winds, and is unsuited to the delicate.

It is a delightful place for the strong and active, as it abounds in walks, and glacier excursions.

Under the head of S^t Moritz is included the Dorf, or village S^t Moritz, and the vast establishment, or Kurhaus, situated round the source of the iron springs. The village, 300 feet above the level of the Inn, and 6400 feet above the sea, is situated along the slopes of the Piz nair range, which completely shelter it from the N. and N. W. winds, while some gently rising ground to the East, and a thick larch wood which clothes the hill as it falls to the level of the Inn, break the force of the keen East winds that sweep the valley in which Samaden lies.

The Kurhaus, situated 300 feet below the Dorf in the middle of a marshy valley, evidently an old moraine, is but ill adapted from its position for sanitary purposes.

At early morning the whole of the Kurhaus may be seen covered with mist, the offspring of the neighbouring lake and river. The hotel itself is built upon piles of wood sunk into the humid soil, and the grass in the neighbourhood is of the peculiar yellowish colour so familiar to the inhabitants of boggy soils. The mountains, uprising on either side, narrow the breadth of the valley, and create a draught through the gorge; while for the same reasons the sun falls at an early hour off the hotel. These conditions seem to me to render the Kurhaus far less desirable as a residence than the village.

There are only three hotels to be recommended in the village: the hotel Kulm; the pension Suisse, and the Poste. The others are not adapted to the wants of English travellers.

There are numerous private apartments to be had at high prices, and, as a rule, without pension.

The food. — We refer to the reports about "Starvation at St Moritz, and the impossibility of obtaining good food" only to contradict them. They who cannot dispense with the luxuries of a French cuisine had, as a rule, better keep away from an alpine village. The food at the Kulm is plain, simple, and good.

It is amusing to see how after the first few days the fastidious appetite yields to the keen hunger of the mountain air. The fleshpots of Paris and London are forgotten, and the bon vivant awakens to the consciousness that café au lait without chicory, delicious butter, pure milk, a first rate steak, good mutton are on the whole more agreeable to that long suffering and much

abused organ, the modern stomach, than are the recherché dishes of an elaborate cuisine.

Heating. — One thing, however, most essential to the comfort and health of the traveller is, we must confess, conspicuous only by its absence, we mean a proper system of warming the rooms. In a climate where snow may fall during any month of the year, and the thermometer register, as on Aug. 27th, only one degree above freezing, it is needless to say the changes of temperature are very great. The landlords must provide a certain number of rooms with fire places and chimneys, or it will be impossible for delicate travellers to bear the vicissitudes of this alpine climate.

Drainage. — Though enjoying the greatest facilities for a good drainage, St Moritz is one of the most badly drained villages we know. We cannot too strongly urge the importance of a thoroughly well organised system of drainage, and recommend visitors, before engaging rooms, to make sure there is no cow-house or stable underneath the house, or immediately in the vicinity. These evils remedied, St Moritz need fear no competitor in the Alps.

It is impossible to imagine any spot that can offer a more varied combination of natural beauty, for here the softer loveliness of Italy blends with the sterner beauty of a colder climate, and in the silent majesty of the rugged peaks, in the icy grandeur of the eternal snows, in the pine clad slopes reflected in waters of ever changing hue, presents a picture of which the eye never wearies, and from the enjoyment of which the whole man returns refreshed, and invigorated.

CHAPTER II.

S^t Moritz.

In determining the selection of a spa, it is necessary to bear in mind that its value is enhanced or diminished by the climatic conditions which surround it. The ingredients in a particular water may be calculated to benefit a particular case, but the benefit may be more than obviated by the hygienic conditions to which the patient is necessarily subjected while drinking it.

To the indiscriminate choice of waters without due regard to climate, must be ascribed the fact that many return home worse rather than better. I draw attention to this point, not from any wish to depreciate the waters and baths of S^t Moritz, of the immense value of which I am thoroughly convinced, but rather to insist that other factors, viz the air, the mode of life etc., play a most important part in the results that follow a residence there.

THE AIR AND CLIMATE OF S^t MORITZ.

The effects of the air of high altitudes seem to depend upon and vary with: 1 The amount of atmospheric pressure; 2 the movement of the air, and the variations

of temperature; 3 the humidity; 4 the amount of ozone; 5 the intensity of the solar rays; 6 the soil.

It is well known that the pressure of the atmosphere diminishes, though not regularly, as the altitude increases. The experiments of Biot, and Gay Lussac show that the physiological effects of diminished pressure, beginning from about an altitude of 2800 feet, and varying with the height, are quickened pulse, quickened respiration, and increased evaporation from the skin and mucous membranes. Nose bleeding is not infrequent from the increased pressure of blood in the capillaries of the mucous membrane. The change of tissue is accelerated, the processes of digestion, and absorption are stimulated, and the nervous and muscular systems invigorated and strengthened. It is probable that dryness of the air, and increased intensity of solar rays, are also intimately connected with these effects.

During the summer months at S^t Moritz there is considerable movement of air with considerable ranges of temperature, warm days, and cool fresh evenings, the effect of which upon the cutaneous vessels and nerves is such, that internal congestions may easily occur if the traveller be unprovided with appropriate clothing.

The humidity. — If an atmosphere be saturated with moisture, evaporation from the skin and lungs is prevented, and the temperature of the body is increased. Hence the oppression caused by the moist hot Scirocco. Free action of the skin is most necessary to the preservation of a normal condition of the internal organs. The dryness of the air at S^t Moritz promotes evaporation from the skin and lungs, and is a most important factor in its climatic conditions. The presence of lakes prevents the air from becoming too dry and stimulating.

Ozone. — The amount of ozone is much greater than in the valleys. Whatever may be its precise action, ozone seems to stand in some important relation to the salubrity of a place.

The climate of St Moritz is severe. The first snow falls, as a rule, early in November, and May has come ere the last vestiges of ice have disappeared from lake and field.

Snow has been known to fall, though this is exceptional, during the summer months. The winter, though intensely cold, is bearable from the comparative stillness of the air, and, as described to me by invalids who have braved it, is by no means unpleasant.

The landlady of one hotel told me there were only four days last winter in which she was unable to go out. A gentleman, who had spent many winters there, said that he felt the winds of last August much more trying than the December cold. He was then wearing a great coat which, he added, he never needed in winter.

The intensity of the cold in winter, the movement of air in summer, and the proximity of several glaciers undoubtedly make the climate rough and severe, and apparently unfavorable to the development, and preservation of animal and vegetable life; but experience does not show this to be the case. The flora of the Engadine is unsurpassed in beauty and richness, while the *pinus cembra*, and the larch flourish to a height of 7000 feet. Man, again, lives to the age of eighty, or more. Tuberculosis is unknown save as an imported disease. Fever and malaria are conspicuous by their absence. Sons of the soil, who fall sick in foreign countries, return to their native valleys, so great is their faith, founded on experience, in the efficacy of the

mountain air. It is difficult to say whether these effects are principally due to the wonderfully dry and invigorating atmosphere, or to the absence of those elements which are tending, year by year more and more, in the crowded city to shorten life, and invite disease; but the effects themselves cannot be doubted.

THE BATHS AND WATERS OF S^t MORITZ.

There are two springs. The old spring is chiefly used for the baths, and the new spring, Paracelsus, for drinking. The spec gr. of Paracelsus is 1,00239, and its temperature 40° F. It contains more iron than the old spring.

In 1000 grammes

Carbonate lime	0,8911	grammes
» magnesia.	0,1583	»
» oxide of iron.	0,0329	»
» manganese.	0,0043	»
» soda	0,2074	»
Chloride of sodium	0,0404	»
Sulphate of soda.	0,3481	»
» potash.	0,0205	»
Silicates.	0,0495	»
Phosphates	0,0006	»
Aluminates	0,0004	»
Bromine, iodine, fluorine.	Traces	
Fixed ingredients	1,7535	»
Free and half free carbonic acid at } 760 ^{mm} and 52° Fahr.	1564,2	C. C.
Free carbonic acid.	1273,7	C. C.

The amount of iron, it will be seen, is very small, and yet its effects cannot be doubted. It owes its efficiency, probably, to its combination with carbonic acid, which presents it to the lacteals in a form in which it can be quickly absorbed into the system, without inducing the derangement which pharmaceutical iron so often causes, and in this fact consists the great value of the St Moritz waters.

It is quite true, as has been objected, that as much iron may be given in one dose of pharmaceutical iron as is contained in many pints of the water, but this seems to me beside the question.

Half a grain, or a grain of iron daily absorbed into the blood, and with a minimum effort on the part of the digestive organs will very shortly produce effects, where ten times the amount of pharmaceutical iron had failed, and this is proved not only by the favorable results that follow its use, but by the serious symptoms caused by its misuse.

The carbonic acid prepares the way for the reception of the iron by stimulating the motor and sensory nerves of the stomach, increasing the secretion of the gastric juice, and aiding digestion. Carbonic acid absorbed into the blood, sometimes produces hilarity, excitement, peculiar intoxication, giddiness and fainting so that care is needed in drinking the water. One lady told me that the first half glass of water had the same effect upon her as champagne. The alkaline salts, by neutralising the free acids in the stomach, augmenting the secretion of gastric juice, and modifying the secretions of the stomach and intestine, assist the general tonic action of the water. The magnesia and soda counteract to some extent the astringent effect of the iron and lime. The secretions of the liver, kidneys, pancreas,

are increased ; the reaction of the urine becomes less acid. The more iron is introduced into the system, the more oxygen is attracted from the air, and the greater becomes the metamorphosis of tissue, with the giving up of effete material, and the formation of new.

The Baths. — The Bath-house is most defective. The baths themselves, which resemble very much wooden coffins, are unnecessarily uncomfortable and dirty, and the atmosphere most oppressive from the want of proper ventilation. The example of the new Bath-house at Bormio might with advantage be followed at S^t Moritz. The baths derive their chief value from the presence of carbonic acid and iron.

After immersion for a short while, the skin becomes of a bright rose color, and covered with a thousand bubbles of sparkling gas. A pleasant sense of warmth and titillation is experienced from the gas acting as a stimulant and excitant of the peripheral nerves. The capillaries of the skin become injected; the epidermis swells; the pores open; effete matter is removed, and the internal organs are relieved of a certain amount of blood; morbid perspirations are altered, and the skin is said to lose its sensibility to atmospheric changes. The pressure of the water and gas exerts an invigorating effect upon the muscles, especially upon those of respiration; the chest expands more freely; metamorphosis of tissue is encouraged, the muscular tissue is improved; and from the reflection of the peripheral nerve excitation the internal organs are stimulated, and their circulation becomes more normal; exudations become absorbed, and the processes of chylication and sanguification encouraged.

The baths are heated by the introduction of steam. Up to a temperature of 77° Fahr. the water retains

most of its carbonic acid and iron. With a higher heat the gas escapes, the water becomes of a rusty color from the deposit of oxide of iron, and the bath loses, in consequence, its special qualities.

RULES FOR TAKING THE WATER AND THE BATHS.

It is generally advised that the water be drunk before breakfast. However suitable this may be to the habits of the German or Italian, I am persuaded that for Englishmen it is not a good plan. Some may do it with impunity. The majority experience lassitude and fatigue, and their cure is retarded. It is better to make a light and early breakfast of café au lait, bread, or toast with a small amount of butter, and then in the course of an hour to walk, or drive to the waters. The slight breakfast may be followed on returning by déjeuner à la fourchette, meat etc., about 11 o'clock, and dinner at six o'clock.

If early dinner be preferred, it is better to make a larger breakfast early, and to allow two hours or so to elapse before drinking the waters.

Diet. — With regard to the diet it is not easy to lay down any but general rules. The experience of each is, as a rule, the best guide, and articles of food that have been found at home to disagree must be carefully avoided. The diet should be as simple and plain as possible, and not taken in excess. Strict injunctions are given with regard to butter; indeed at the Kurhaus hotel it is looked upon as forbidden diet, and charged extra, but surely nothing can be more unscientific than to condemn all to the same diet without re-

gard to age, sex, strength, habits, constitution. It is true many are better with only a minimum of butter, but there are others, on the contrary, who suffer, especially in a cold climate, from the want of it. It should, however, only be taken in small quantities before or after drinking the waters, and the same precaution may be given with regard to tea. Spirits should be avoided, unless ordered medicinally. Sherry, Marsala, or the wines of the Valtelline are most to be recommended.

The journey. — The conditions of life being so entirely different at London and at St Moritz, it seems hardly necessary to point out the importance of passing from one extreme to the other *gradually*, except that, with astonishing ignorance and thoughtlessness, invalids are whirled from one place to the other without the slightest preparation of the system for the physical and hygienic conditions which await them.

How is it to be wondered at that many suffer from the suddenly altered conditions of life! The passage of the invalid should be *gradual*. For a few days after his arrival, the traveller should remain quiet to recover from the effects of his long journey, and a dose of purgative medicine is advisable.

On the third or fourth morning he may begin to drink the waters. One glassful is sufficient for the first day or so, and the quantity must be gradually increased according to the circumstances of the case.

Delicate persons may begin with a less quantity, and the water may be slightly warmed, or mixed with whey, if it appear too strong for the stomach. An interval of at least $\frac{1}{4}$ of an hour should be allowed between each glass.

The baths are best taken about 10 or 11 o'clock, two or three hours after breakfast. The patient must

not begin with the water too cold. 87°-91° F. is about the right temperature.

Nor remain in the bath too long.

Nor take them too frequently; every third or second day is sufficient at the commencement.

The frequency of the bath must be increased, and its temperature decreased *gradually*.

These remarks apply *a fortiori*, to the weakly and delicate. After the bath the patient must be warmly clothed, and not exposed to sudden change of temperature, or to cold.

A grateful glow, a sense of warmth and titillation of the skin, a feeling of lightness and buoyancy may be regarded as evidence of the salutary effects of the course, while the absence of this reaction, a feeling of chilliness, lassitude, restlessness, insomnia, præcordial oppression, giddiness, nose bleeding, indicate the reverse, and should lead to an immediate cessation of the baths.

Both the water and the baths should be discontinued during menstruation.

It may appear somewhat superfluous to insist upon points apparently so self-evident, and details so minute, but experience shows that in every science success generally turns upon attention to trifles, and in none more so than in medicine.

Perhaps no one more systematically sets at defiance all ordinary rules of precaution than the Englishman. Implicitly and innocently believing all he has to do in the pursuit of health and strength is to drink so many glasses of water, and take so many baths, he begins immediately upon arrival to climb mountains, and walk over glaciers, and at the end of two or three weeks finding himself tired, and languid, he votes Paracelsus

a delusion, the Engadine a mistake, and everything wrong but himself.

Such cases are not uncommon, and the sooner the popular idea that the cure consists only in drinking, and in bathing, the fewer will be the number of those who return disappointed. The cure, the amount of water to be drunk, and the number of baths to be taken, vary with each case. Nothing can be more prejudicial than to hurry the processes of nature on the one hand, or to thwart them on the other. The cure must be approached gradually, continued circumspectly, and left off when the maximum good has been attained.

Mode of life. — This should be as regular and as simple as possible. The student of the midnight hour, the bon vivant, and the devotee of pleasure must each abandon his favourite pursuit, and lead the simple life we have already drawn. If the case be properly chosen, and the precautions to which I have alluded be followed, the experience of many will, I feel sure, harmonise with the grateful recollection of an invalid who said to me: "I date a new life from the day when I first set foot in the Engadine."

CHAPTER III.

The treatment of lung consumption by mountain air.

Of the many revolutions, which the science of medicine has developed during the last few years, not the least remarkable, nor the least important are the changes that have been introduced into the department of climatic hygiene.

Without underrating the importance of climate in many other diseases, it is from its relation to consumption, that the subject has derived, and still derives, its greatest interest for the public, and for science.

Change of climate! How often recommended as the "dernier ressort" of baffled art, the forlorn hope of a hopeless case, and how often proving but the death knell of those to whom the advice has been given! A sounder pathology, and a more intimate knowledge of so called consumption on the one hand, and climatic resorts on the other, have shed light upon a subject, the treatment of which has been too frequently empirical, indefinite, and unsatisfactory.

The treatment of lung consumption by the air of high altitudes is a complete revolution of the old fashioned practice, which saw in Madeira, the south of France,

or Italy, the "ultima Thule" of the consumptive invalid, but we cannot but think that, in sending consumptives to the regions where lung consumption is almost unknown, and the climatic conditions seem to be essentially opposed to the causes, which have been found to create, develop, or foster the disease, we may have hit upon the key to the successful treatment of a malady, which has hitherto baffled the resources of art.

In considering this subject, it is essential to bear in mind that chronic lung consumption, and chronic lung tuberculosis are entirely different diseases, the former generally standing to the latter in the relation of cause to effect.

According to Niemeyer lung consumption is essentially the product of an inflammation terminating in cheesy (käsige) infiltration.

Though it may be the result of any form of lung inflammation, as acute croupous inflammation or acute catarrhal inflammation, it is most frequently the result of chronic catarrhal inflammation.

In these cases the exudation of young round cells which is poured out into the finest bronchial tubes and the air cells, is not reabsorbed, as it is in favourable cases of acute or chronic lung catarrh. The fatty metamorphosis, which the cells undergo before reabsorption, remains incomplete, and the cell elements become heaped together in the air vesicles, lose their rounded form, and shrivel up.

These microscopical changes correspond to the development of the grey, or reddish grey homogeneous thickening of the lung tissue which has the appearance of a dull yellowish cheesy mass, but this cheesy infiltration by no means leads to the destruction of the affected parts, or to the formation of cavities, unless the pressure

upon the walls of the air vesicles and their vessels is so great as to stop the supply of nutrition.

If the pressure be only moderate, the cheesy masses become thickened, the cells atrophy, their organic contents disappear, the lime salts are deposited until at length only a chalky substance remains, which may become encapsuled. The loss of lung substance is supplied by cellular tissue which forms a tough cicatricial mass, and thus a natural cure is produced.

It has been anatomically proved that chronic lung consumption may be cured, but as Niemeyer points out, the greatest peril of the consumptive consists in the fact, that the simple lung consumption may become the tuberculous lung consumption, for against lung consumption depending upon primary tuberculosis, no less than in the tuberculosis which becomes developed in the course of consumption, treatment is powerless.

According to Brehmer, it is rare for a person to die of lung consumption without some evidence of tubercle being found in the lungs, and also very uncommon for tuberculosis to occur in the lungs without the existence of cheesy infiltration in some of the tissues of the body.

Cheesy infiltration, then, of the lung tissue appears to be the product of an incomplete reabsorption of inflammatory exudation in the bronchial ramifications, and the air cells, though it is difficult to understand why the absorption remains incomplete; and, secondly, as a rule, tubercle forms only *after* previous cheesy infiltration of the lungs, or other organs.

The object of treatment must be :

I. To counteract that peculiar condition of constitution, which is found to precede the development of lung consumption.

II. To arrest the catarrhal inflammation of the lungs, which usually precedes the formation of cheesy matter.

III. To promote the absorption of the cheesy infiltration, and, above all, to prevent its conversion into tubercle.

Amongst the causes that lead to chronic lung consumption as above defined, and consequently to lung tuberculosis, may be enumerated the following :

I. *Hereditary tendency.* — Without entering into this subject, it may be said, generally, that the children of parents who are delicate and badly nourished, with a disposition to delicacy of chest, scrofula, or lung consumption, or who have suffered from any cachexia, are more likely to be affected with lung consumption and tuberculosis than those sprung from robust and healthy parents, and hence the importance of attending, hygienically and therapeutically, to the health of parents.

II. Deficient nourishment, that is, insufficient or inappropriate food, may be cited amongst the causes that predispose to the development of chronic lung consumption, but a far more powerful agent is a faulty assimilation, especially of fatty food. It is found that a large percentage of cases of lung consumption is attended by dyspepsia, and, especially, by a dislike to fatty food.

III. The records of convent life, schools, manufactories, and prisons bear overwhelming testimony to the terrible mortality caused by consumption amongst the inmates, a result due to the want of fresh pure air, of bodily movement, of proper exercise of the respiratory organs, and to the depressing effects produced upon the mind by confinement.

The consideration of these influences on the one hand, and of the physiological effect of the air of high altitudes on the other, will help us to understand why scrofulosis and tuberculosis are only known as exotics in the upper mountains, and, to some extent, the principles of treatment of chronic lung consumption by the air of elevated regions.

A residence in a mountain climate involves, firstly, the absence of, and the removal from the influences to which we have alluded as favouring the development of lung consumption; and secondly, high altitudes produce direct physiological effects upon the human organism, which tend to promote the absorption of the cheesy matter deposited in the lungs, and to correct the various functional disorders that interfere with the healthy nutrition of the tissues and the healthy assimilation of food, and are so frequently found to precede or coexist with lung consumption.

At an elevation of 3000 feet and upwards, the heart's action becomes quickened; more blood is conveyed to the lungs and other organs, and with it more pabulum to the tissues; the metamorphosis of tissue is increased, the desire for food becomes greater to supply the waste, the processes of digestion are stimulated, absorption and sanguification proceed more rapidly.

The action of the skin becomes increased from the rapid evaporation that takes place, effete matter is removed, and internal organs relieved.

To meet the greater demands made upon them, fuller and deeper inspirations are made by the respiratory organs: the apices, which from want of fresh air and proper movement had been more or less quiescent, again expand. More air enters the air cells, the passive pulmonary congestions subside, the stagnant secretions

blocking up the cells become absorbed, and the lung again recovers its normal conditions of nutrition, and functional activity.

Such are, briefly, the principles upon which a mountain treatment is to be recommended. The clinical records of Davos and St Moritz tend to show, that not only cases with a strong predisposition to lung consumption, but also cases where the lung is suffering from a deposit of cheesy matter may derive great benefit from a summer, and even a winter residence in the high mountains.

Of the benefit to be derived from mountain air in these cases we think there can be little doubt, but more details are wanting, ere we can speak definitely of the exact altitude, and climatic conditions required by particular cases.

A residence of nearly three months at St Moritz in 1870, gave me ample opportunities of observing for myself its summer climate: and the meteorological notes which I registered during that time, no less than the observation of cases under my own care, and of cases that had wintered there, and the facts brought to my notice through the kindness of Dr Berry, convinced me that the climate of St Moritz is unfit for patients suffering from developed tuberculosis, or where cheesy infiltration of the lung tissue has been followed by tubercle in the lungs, and that it must be tried with great caution even in all cases of chronic lung catarrh with cheesy infiltration of the lung.

Cases, where true tubercle exists in the lung, where the lung mischief has assumed a rapid course, where there is a very strongly marked family history of lung consumption, or lung tuberculosis, where the heart is very feeble, the powers of rallying small, the patient

very anæmic, and susceptible of changes of temperature, are not cases that should be sent to St Moritz.

For these a lower mountain climate should be found.

All cases where the lung is more or less involved, must be carefully watched during the first few weeks, after which time or earlier should no progress be made, or if there be not marked abatement of the cough and night-sweats, with a return of appetite, and increasing strength, it is better to descend to a milder and less elevated region.

The following case illustrates many of the points to which I have alluded.

A. B. æt. 18 came under my care at St Moritz July 20, 1870. When quite young he had hooping-cough, and since then has been more or less delicate, with constantly recurring cough. At the age of 14, an attack of scarlet fever left him very weak, and especially impaired his digestive organs; in 1867 he was attacked with cough and inflammation of the chest. The history of this seizure was a little obscure.

He remained very delicate till 1868, when he again became very unwell with chest symptoms, and loss of flesh. In the autumn of this year a celebrated Dublin physician thought so badly of him that he said a residence in Mentone was useless.

He went in spite of this, and improved very much all the winter till the spring of 1869, when he underwent a great shock which very much depressed him, and on returning home again caught cold. He recovered, however, in six weeks time, and remained fairly well till Sept. 1869, when he again relapsed. He again went to Mentone, where he continued very well, walking several miles every day till he left the end of March 1870.

Three weeks afterwards he again caught cold; became very much depressed by the moist heat of the lakes of Como, Thun, Lucerne, where he spent the early summer, and lost flesh and strength daily, until a sudden resolution, taken almost in despair, brought him into the Engadine July 18.

He caught cold en route, and when I first saw him, July 20, he was very much depressed mentally, and bodily. His pulse was rapid 120, and feeble; skin hot about 103°; his cough troublesome with much expectoration. He suffered much from night-sweats, flatulence and dyspepsia.

R. Apex. Expiration somewhat prolonged.

L. Apex increased vocal resonance; harsh expiration with fine crepitation from clavicle to 5-6 rib. Percussion note dull over this space, just below the centre of clavicle a gurgling crepitus was audible.

In a few days the bronchitis subsided; the pulse and temperature fell; the fine crepitation disappeared; the cough, expectoration and night-sweats diminished, the flatulence and dyspepsia, which had troubled him very much, yielded to treatment, and he gradually regained strength. On August 19, I made the following note.

L. Apex. Slight crepitus, with a good deal of vesicular breathing; increased vocal resonance; general condition much improved; appetite good; less flatulence; night-sweats much less. P. 92. skin temperature 98°; weight 114 lbs. He gradually improved after this, gaining flesh and strength, so as to be able to walk for some little distance; began to drink the iron waters, and on September 5, the day before he left, I again noted:

Aspect much healthier; face fatter; weight increased

by several lbs; no night-sweats; no flatulence; appetite good; very slight expectoration. P. 84, stronger.

The lung sounds much improved at left apex, though slight gurgling still audible beneath clavicle. This symptom had, I understood, often perplexed those who saw him. I came to the conclusion it was from a dilated bronchus.

I was anxious for him to remain during the winter in the Engadine, but family reasons prevented it.

This case, as a type of a large number of delicate chests, interested me very much. Without any very definite family history of lung consumption, it presented in its course the following features: Great delicacy of constitution subsequent to hooping-cough; great susceptibility to changes of temperature; frequent catarrh of the lungs, which on more than one occasion ran on into inflammation of the lung tissue; considerable rallying powers, and steady improvement at stations where he could be much out in the open air.

The lung catarrh becomes chronic, cheesy infiltration takes place from the accumulation of unabsorbed exudation in the cells, and from time to time increases, but, as yet, no tubercle has formed. In this condition he comes up to St Moritz bodily and mentally depressed, suffering from bronchites and dyspepsia; in a short while he improves in every way, the acute symptoms subside; the dyspepsia yields; his appetite returns; all the processes of nutrition are stimulated by the mountain air. He regains flesh and strength, and the lung symptoms very much improve.

Though his progress was most satisfactory, I felt that, at first, the sudden change had been a risk, and that it would have been better for him to have tried the mountain air at a lower elevation.

It is in this respect that Bormio commends itself to our notice as a climatic resort.

Too much stress cannot be laid upon the importance of judiciously selecting and preparing cases for the upper mountains, and of carefully watching them during the first days, and weeks of residence.

CHAPTER IV.

Indications for residence and treatment at S^t Moritz.

It remains to say a few words as to the various cases in which S^t Moritz is indicated, and contra-indicated.

The climate of S^t Moritz is contra-indicated in all forms of cancer; confirmed tuberculosis; lung consumption when tubercle has formed; chronic bronchitis and emphysema with enlarged right heart; threatened apoplexy; tendency to congestions of the head, lungs or internal organs; chronic desquamative nephritis, in cases of large white smooth kidney; in cases of serious organic disease of the heart with irregular feeble pulse; cold extremities, and feeble rallying powers etc., etc., and in persons of a very nervous or excitable temperament.

The waters are contra-indicated during menstruation; during pregnancy; and in cases of full blooded plethoric persons with a tendency to brain, or lung congestion.

The climate and waters of S^t Moritz are most especially indicated in that large class which suffers

from debility, anæmia, and functional disorders resulting from excessive wear and tear of mind and body.

In the present day periods of repose are more than ever needed, to counteract the mental and physical strain which the railroad of life imposes upon statesmen, officials, professional, and business men.

The hurried breakfast, the morning and evening railroad journey, the anxieties of business, the crowded room, tell upon the strongest physique and try the most vigorous mind, deranging the functions of mind and body and becoming the fruitful source of sleeplessness, torpid liver, indigestion, irritable brain etc., etc.

The processes of absorption and sanguification are interfered with, the man becomes anæmic, his blood impoverished, and nutrition imperfectly performed.

For these cases, ere functional derangement lays the seeds of or passes into organic disease, a period of thorough rest is most absolutely necessary, and I know no place in which the tone and vigour of body and mind is so quickly restored, or in which functional disorders, resulting from an abuse of natural laws are so rapidly cured, as in the valley of the upper Engadine, where the natural beauties of the scenery combined with the stimulus of the clear bracing dry atmosphere rival in their effects the celebrated iron springs of S^t Moritz.

II. ANÆMIA.

The air and waters of S^t Moritz are most useful in cases of anæmia, or deficient amount of red corpuscles, following long continued losses, parturition, miscarriage, fever, malaria, long continued mental exertion,

a residence in impure air, or in low marshy places, but they are not to be recommended in the cases of anæmia resulting from carcinoma, amyloid degeneration, fatty degeneration etc., etc.

III. Chlorosis, or that peculiar form of anæmia which is generally associated with some derangement of the uterine system, derives much benefit from the air and water of S^t Moritz.

IV. Scrofulosis — the mountain air and iron water are most efficacious in counteracting the morbid condition of system characterised by glandular swellings, tendency to diseases of the bones, ophthalmia, catarrh of the mucous membranes, hydrocephalus, lung consumption.

This condition must be distinguished from tuberculosis, in which true tubercle has been deposited either in the lungs, or in some other organ, and for which S^t Moritz is not, I think, suited, or must at all events be tried with very great care and caution.

AFFECTIONS OF THE RESPIRATORY ORGANS.

I. The relaxed and congested condition of the mucous membrane of the larynx, attended with hoarseness and inability to use the vocal organs without fatigue, which so often follows a residence in a damp moist relaxing climate, or is induced by over singing, preaching, or a weakening illness, derives much benefit from this pure *dry* air, and the iron waters.

Cases of hysterical aphonia and some forms of chronic bronchial catarrh with profuse expectoration are also improved.

II. In cases where there is a great susceptibility to

changes of temperature and a tendency to frequent catarrh of the air passages, such as is often found to precede the development of chronic lung consumption, the mountain air seems to strengthen and harden.

III. CHRONIC LUNG CONSUMPTION.

We have already spoken of the importance of a mountain residence in the earlier stages of the disease before tubercle has been deposited.

THE ALIMENTARY CANAL.

Dyspepsia and indigestion arising from want of tone in the stomach, deficient gastric juice, general debility, undue mental exertion, irregular and high living, derive benefit from the air and the waters. The carbonic acid in the last is particularly suited to these cases.

In cases of hypercœmia, congestion of the liver with its attendant evils, a few weeks at S^t Moritz is most valuable as *a sequel* to a course of treatment at Homburg, Kissingen, Carlsbad.

Cases of constipation resulting from want of tone of the muscular coat of the bowel; cases of chronically enlarged spleen and liver after malaria; cases of diarrhœa occurring in scrofulous anœmic subjects, or where the mucous membrane of the intestine is relaxed and wanting in tone, may derive much benefit from both the air and waters.

The same may be said of functional disorders of the uterine system, disorders of menstruation; irregular excessive or scanty flow; catarrh of the uterus, leu-

corrhoëa, and other affections unconnected with organic disease. Also in *affections of the nervous system* as chorea, hysteria especially when combined with anæmia and uterine disturbance, but not in cases of hysteria occurring in full blooded plethoric individuals; in the nervous exhaustion that follows over exertion of the mind, over anxiety, fever etc. in melancholia, and some forms of neuralgia.

In all these cases the patient should watch carefully the first effects of the air and waters upon his system. Too much is frequently expected, and too much reliance apt to be placed in the baths and springs without due regard to the necessity of careful attention to proper clothing, careful diet, avoidance of over fatigue and excitement, but success in medicine, as in other things, generally depends upon attention to trifles.

CHAPTER V.

Appropriate halting places en route to S^t Moritz.

Travellers coming from Italy, the Riviera, Sicily, the lake of Geneva or the Italian lakes en route to the upper mountains may stop with advantage at the following places.

I. *Monte Generoso*, or the Righi of the Italian lakes, as it has been called, is situated 3700 feet above the sea level, and may be easily reached in two hours from Mendrisio; The season commences at the beginning of May, and does not terminate till the end of October. It possesses a very rich flora, a magnificent panorama, shady walks, a comfortable hotel, and enjoys all the freshness of a mountain air and yet at the same time the elastic softness of Italy, and is to be recommended highly as a preparation for the higher mountains, or for delicate constitutions for whom the Engadine would be too severe.

II. *Bormio*. — Within easy access of Como on the one side, and the Tyrol on the other, separated from the valley of the Engadine only by a long day's journey, Bormio is situated 4200 feet above the sea at the upper part of the valley of the Adda. The position of the

Kurhaus is excellent. Sheltered from the N. and N. E. by the majestic mountains of the Stelvio pass, it faces almost due South, and enjoys the advantage of nearly the whole day's sun.

The waters of Bormio are rich in salts of lime, and have been found useful in skin diseases, especially in 1. Psoriasis, prurigo, eczema, pityriasis; 2. swelling of the glandular system; 3. scrofulosis; 4. chronic swellings of the liver and spleen especially as the result of malaria. There is a most powerful iron spring at the neighbouring village of Santa Caterina.

The selection of a mountain residence for the spring is often a matter of great difficulty. In the upper Engadine the spring months are most trying from the melting of the snow and ice, but at Bormio the snow melts earlier, and the spring is much milder, the season commencing early in April. Its pure invigorating air, its sheltered position and milder climate, its saline and ferruginous waters commend it most highly as a halting place en route to the Engadine, or as a residence for scrofulous and consumptive patients, who need the bracing effect of mountain air without the roughness and exciting keenness of the Engadine.

III. *Le Prese and Poschiavo.* — About 3200' are situated at the foot of the Bernina pass, about eight hours from S^t Moritz. The beautiful lake and a comfortable hotel make Le Prese a very pleasant residence in spring, early summer, and autumn, en route to or from S^t Moritz, but it is too hot and relaxing in the hot summer months for those who want bracing.

In some cases it is useful to break the course of waters at S^t Moritz by a few days residence at Le Prese. It possesses some sulphur waters, which are recommended in :

1. Scrofulous diseases, enlarged glands, ophthalmia, diseases of bones, and joints.

2. Diseases of the mucous membrane of the organs of respiration, lung catarrh; etc.

3. Diseases of the organs of digestion, hæmorrhoids, constipation;

4. Chronic skin diseases.

For those coming viâ Zurich direct from England, Chur, Thusis, Davos and Tarasp are all places where the traveller may break his journey, and especially Tarasp.

The villages of Tarasp and Schuls in the lower Engadine possess a much milder climate than S^t Moritz. The season commences earlier, and lasts longer. The mean temp. of the months of July and August, as observed by Dr Killias, was from 59° F. to 62° 6. F. with a diurnal range of 14-16° F. Tarasp possesses most useful and powerful saline springs which, to quote Dr Killias, "surpass all other known springs in the amount of fixed substances, and of carbonic acid, and are almost identical with those of Vichy as regards the quantities of soda salts they contain. As regards their alkaline sulphates they resemble most the waters of Carlsbad, and next to the Kissingen springs contain the largest amount of muriate of soda." They also contain iodide of sodium and iron. Thus at Tarasp two different actions are obtained, the iron acts as a tonic, and the saline ingredients acting as laxatives, solvents, and antacids promote secretions, and stimulate the liver and gastric glands.

Tarasp may thus be most highly recommended as a preparatory station for the upper valley, and as a residence for those who cannot stand a more bracing climate.

Tarasp does not, however, enjoy the same invigo-

rating life-giving air that St Moritz so wonderfully possesses, while the position of the Kurhaus is objectionable. The villages of Shuls and Vulpera afford a much better situation.

Davos, 4800 feet above the sea, is easily reached in a few hours from the Landquart station, and forms a good point d'arrêt before crossing the Albula, or Fluela pass. Dr Spengler states that tuberculosis is not found in Davos, and is easily cured when it occurs amongst the inhabitants who return from foreign countries suffering from it. Consumptive patients remain the winter there, and with good results. Six patients from Russia and Germany came under his care, with cavities in the lungs, severe and recurrent hæmorrhage.

After a few months the fever and night-sweats subsided, the sleep and appetite returned; weight increased; and there was no return of the lung hæmorrhage.

This last symptom according to Dr Spengler, is rare in high mountainous districts.

For the following meteorological observations I am indebted to the kindness of the station master at Bevers, a small village 4 miles N. E. of St Moritz, 1715 metres above the sea. The temperature has been reduced to the Fahrenheit scale. The rainfall is estimated in millimetres, and the snowfall in centimetres. The study of the Tables will give a very fair idea of the climate of St Moritz.

Yearly analysis of Temperature, rainfall, etc.

	1866	1867	1869
Temperature.			
Maximum in the year.....	76°.7 on July 15	75° on September 22	77°.6 on July 13
Minimum in the year.....	6°.7 on March 41	49.3 on January 5	23°.2 on January 24
Maximum difference of Temperature during the year.....	83°.4	34°.3	400°.8 degrees
Average Temperature of year.....	35°.7	35°.6	35°.3
Average daily change of Temperature in the year.....	49.2	48°	20°.7
Average clouds.....	5.275	5 3	5
Average height of Barometer.....	620.7	620.67	620.735
Total Rainfall.....	790.7 ^{mm}	956.7 ^{mm}	739.3 ^{mm}
Total Snowfall.....	397.6 ^{cm}	459.4 ^{cm}	362.4 ^{cm}
Average yearly rel. humidity.....	79.89	80.78	
Clear days.....	42	46	48
More than half clear days.....	154	153	163
Rainy days.....	153	160	127
Snow lay on ground.....		5 months 22 days	5 months 22 days

1868												
	January	Febr.	March	April	May	June	July	August	Septem.	October	Novem.	Decem.
Temperature (Average min.....)	44°.4	48°.8	47°.5	26°.4	31°	39°.5	41°.9	44° 8	39°.5	29° 3	21°	45°.5
" max.....	30°	35°.8	35°.9	43°.6	48°	62°	62°.9	58°.9	56°.6	53°.5	36°.7	29°.5

Date	Description	Amount
1890	Jan 1	100.00
1890	Feb 1	200.00
1890	Mar 1	300.00
1890	Apr 1	400.00
1890	May 1	500.00
1890	Jun 1	600.00
1890	Jul 1	700.00
1890	Aug 1	800.00
1890	Sep 1	900.00
1890	Oct 1	1000.00
1890	Nov 1	1100.00
1890	Dec 1	1200.00
1891	Jan 1	1300.00
1891	Feb 1	1400.00
1891	Mar 1	1500.00