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ALPINE HEIGHTS AND CHANGE OF CLIMATE

IN THE

PREVENTION AND TREATMENT

OF

PULMONARY CONSUMPTION.

BY

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PREFACE.

Since the following few remarks upon the origin of Consumption were written, there have appeared in the "British Medical Journal," of February, 1869, one or two letters from the pens of Dr. McCormac and Dr. A. Leared on the interesting question, as to whether the causation of consumption is to be sought in re-breathed air, as is asserted by Dr. McCormac, or not. For my own part, I believe that in-door life, with bad ventilation, and in fact town life altogether, with its thousand unhygienic habits and occupations, is the main cause of the disease; and that re-breathed air is only one of the lowering agents which affect the townsman. At the same time, I am tempted to say, that I am a believer in phthisis sometimes being communicated by means of the breath of diseased persons, since several cases of that fatal affection have seemed to me to have arisen from the cohabitation of a healthy man or woman with a consumptive partner. And, thus, I am so far a convert to the views of Dr. McCormac, that I believe it is our duty to prevent persons who are healthy from sleeping in the same bed with those who are affected with this disease. Of course, we know that M. Villemin of Paris believes that almost all cases of phthisis are caused by contagion. The remarks which follow will show clearly that I am by no means of that opinion; but I rather incline to the views, as to the causation of consumption, taken by Drs. McCormac, Parkes, &c., than to the one adopted (if I clearly understand it) by Dr. Leared. Still, I believe that many causes lead to consumption.

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AN EXAMINATION OF THE EFFECT OF RESIDENCE IN ALPINE REGIONS, AND OF DIFFERENT CLIMATES IN THE PREVENTION OR CURE OF CONSUMPTION.

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Before entering on the question of the treatment of consumption, we must of course endeavour to define what we mean by the term. Whether or not the word "fibroid," used by Dr. Andrew Clark, be a good one, it seems at present fully made out that consumption is a generic name, and that there are several species of that fatal disease. For example, I myself have, in more than one case, observed the occurrence of the disease as one of the *sequelæ*, as it would be termed by Mr. Hutchinson, *i.e.*, one of the tertiary forms of syphilis, and in one case rapid and marked alleviation of the symptoms was caused by the administration of large doses of iodide of potassium. The consumption of drunkards is another variety of chronic pneumonia, well described by Huss and Richardson, examples of which I am constantly in the habit of thinking I perceive among the patients of the Metropolitan Free Hospital, many of whom are exceedingly addicted to spirits. As to the chronic pneumonia of the Sheffield grinders, of masons, and of cotton beaters, they are all as yet confounded under the common name of consumption, and it remains for a future generation to give them well-defined names, and thus render prognosis more certain. All of these forms differ materially from the ordinary cases of consumption, so frequently hereditary, and so often remarked among the debilitated populations of our large modern cities. Every medical man of much experience must have witnessed cases of recovery occasionally among persons suffering from the former varieties of the disease; and two examples of the kind have recently come before my notice in the Hampstead Consumption Hospital, which were certainly very striking. With regard, however, to the last-named variety of consumption, namely, that wherein tubercles are well marked, it must, I fear, be admitted that the treatment of such cases is as yet most uncertain in its

aims, and most disheartening in its results, some admirable observers, indeed, among others M. Villemin, asserting that the disease is uniformly fatal. This assertion, I believe, must be received with some qualifications, and I have myself certainly known of cases where I considered that the patient was decidedly tubercular, where years have passed away, and the patient has regained a certain degree of health and strength, and was likely to live some considerable number of years. In two cases at Hampstead, within the last two years, where patients carried out my advice to them to be out of doors all day in the open air, except at meal times, and to walk as much as possible without fatigue, an immense improvement took place, and they were enabled to resume their employments; that is, one was a labourer, and the other, at my advice, went to work in the country.

Partly, however, from the weakness of most of the patients, and partly from their own want of energy, it is very difficult to get them to remain long enough in the open air, even in such agreeable localities as Hampstead, although that spot is undoubtedly one of the most healthy and invigorating of any in the neighbourhood of London, and probably one of the best fitted for carrying out the hygienic treatment of pulmonary consumption. I confess myself to have but little faith in the pharmacopœia in treating phthisis, and this I say because I differ greatly in this opinion from some gentlemen of great experience. For example, Dr. Timms, in his work "On the Successful Treatment of Consumption," strongly advocates the administration of several powerful remedies, among others bichloride of mercury, as well as many other articles of the pharmacopœia, as frequently causing rapid amelioration of symptoms, and even eventual cure of the disease in many cases. His experience has certainly been very large, and he gives fully detailed cases; notwithstanding which evidence I remain sceptical as to the advantages to be derived from the pharmacopœia in cases of consumption. No doubt the oil of the cod-fish is contained in the codex; but as we know that, on an average, one ounce of fat is, or ought to be, consumed daily by each of us, it seems but reasonable to suppose that this oil acts merely as butter, fat, &c. The perchloride of iron has been very greatly praised, especially by Dr. Cotton and by Dr. Jones, of the Metropolitan Free Hospital, as a curative agent in consumption; and I doubt not that it is advantageous in cases accompanied by great anæmia; but I cannot say that a trial of it, which I made for some months, led to any very striking results. It seems to me, too, that a large number of physicians at the present day are inclined to doubt the efficacy of any peculiar drug in the arrest of this fatal disease. Not that we cannot imagine that such a drug might be discovered. For my own part, since I have repeated the experiments of the great French discoverer, M. Villemin, of inoculating tubercle and

sputum of the tuberculous upon rabbits with such astonishing results, I have often thought with him that there seemed to be something almost specific in the way in which tubercle, when it has once become deposited in the lungs, continues to ravage in all directions, apparently to a great extent by its poisonous properties in the economy; and when we have before us the remarkable example of iodide of potassium, with its power of arresting the spread of syphilitic ulcers even in the lungs, is it forbidden entirely to look forward to the time when perchance some salt or other remedy may be found able to arrest the progress of *some forms* of cancerous or tuberculous ulcerations ?

In default of all such actively curative agents, our present remedies are, I believe, entirely those which are placed within the domain of hygiene, and it is now my task to examine the evidence for the advantage said to be derived from change of climate, and especially from a residence in Alpine climates in the treatment of consumption. The remark has been long made by physicians and travellers, that consumption is much rarer in localities situated far above the level of the sea. Thus, Von Humboldt, in his "Notes of a Traveller," published as long ago as 1853, mentions that the town of Quito, 9,000 feet above the sea, as also that of Santa Fé de Bogota, somewhat of a like elevation, were both of them free from consumption. Holton, an American traveller, in a work entitled "New Granada," published in New York in 1857, asserts that the hospitals of Bogota do not contain a single consumptive patient. Dr. Smith (Travels in Chili and Peru), who lived nine years in Peru, informs us that the Peruvians are so persuaded as to the immunity of elevated regions from tuberculosis, that they send their patients into localities situated among the Sierras, upwards of 10,000 feet above the sea. A German doctor, Tschudi,* observes that phthisis, which is common in the low country and on the sea-shore, becomes very rare in proportion as we ascend the mountains, and that at 13,000 feet it is completely absent. Some physicians who have visited the highlands of Mexico, are quite as unanimous as to the rarity of consumption in certain altitudes, and that it is very rare at Mexico itself. Mr. Newton, writing on the "Medical Topography of Mexico" in 1848, states that consumption is very rare in that town, which is situated about 7,000 feet above the sea. A French physician, indeed, M. Jourdanet, seems quite enthusiastic as to the value of high climates in this disease. Writing in 1864 on "Mexico, its Climate, Hygiene, and Diseases," he says, "Le jour où les hommes le voudront, le ciel de l'Anahuac éteindra la tuberculisation du poumon." Although several of these works just cited are at variance with the results arrived at by

* "Ueber die geographische Verbreitung der Krankheit in Peru" (Oesterr. Medic. Wochschaft, 1846).

other observers, and especially with those of Dr. Pravaz, who, in an "Essay on the Employment of Compressed Air,"* written in 1850, vaunts the advantages derived from compressed air, this question requires to be studied carefully. It must be remembered that consumption is still the greatest plague of the human race. In Europe with 266,000,000 of inhabitants, there is said to be annually a mortality of 931,000 from this cause, which gives about 3·60 deaths per thousand inhabitants annually. In France 150,000 are said annually to perish from phthisis; and perhaps about from 75,000 to 80,000 in this kingdom. Of course, it would be more important for us to know in the future, not whether consumptive persons are to be found in elevated regions, since such climates may perchance cut off all the weaker ones early; but whether or not these persons who have tubercles already are benefitted by being conveyed to such elevated situations. If so, the inhabitants of these islands might utilize the regions of the Himalayas, and other high mountain ranges, to the benefit of our numerous population of consumptives.

In ascending mountainous districts the air becomes rarefied, and an ascent of about 900 feet takes off about half-a-pound of weight upon the surface. The physiological effects begin to be perceived when we ascend from 2000 to 3000 feet above sea level, in acceleration of the pulse and respiration, with increased evaporation from the surface and of watery vapour from the lungs. The digestion is benefitted, and the vigour of the nerves and muscles is said to be increased, in altitudes which are not excessive, such as from 4000 to 6000 feet. Jourdanet, it must be said, in his above cited work, says of Mexico, that "those who live in these elevated altitudes are feebler, more sickly, and seldom reach the natural term of existence." This assertion, however, has been denied by Coindet, a physician of Mexico. Every physician knows that a residence among mountains is most desirable in the treatment of diseases of debility. In fact, mountain air and sea breezes are proverbial in their influence upon the sickly and enfeebled dwellers in towns. Neuralgia, scrofula, and consumption have long been known, according to Parkes, in his work "On Hygiene," to be rare among the dwellers in high lands, and the curative effects of such places on such diseases is also marked; but it is possible, he adds, that the open-air life which is led has an influence, "as it is now known that great elevation is not necessary for the cure of phthisis." Phthisis is spread, then, over the whole globe, and yet is certainly rare on great heights. In

* Of the importance of the compressed-air bath, of three or four atmospheres, in the treatment of *asthma*, that is, in emphysema and bronchitis, I am fully aware. There is such a bath at Ben Rhydding Hydropathic Establishment, and a relative of mine derived immense benefit from a stay in it; but I cannot believe that it can be a curative agent in pulmonary consumption.

Germany, whilst the disease is very frequent among the low-lying manufacturing towns, it is rarely met with in the mountains, as, for example, in the Hartz mountains and Thuringer Wald. Dr. Brockmann, ("Hirsch, Handbuch der Historisch-Geographischen Pathologie,") out of 80,000 patients treated by him in the Upper Hartz mountains, at a height of 2500 feet above the sea, had only twenty-three cases of phthisis, and nine of them had come with phthisis from afar. Müller (Hirsch, loco citato) states, that in Hesse, and in the Palatinate, where consumption is common, it is very rare indeed in the heights of the Taunus mountains. The same immunity is claimed by other observers in the mountains of Hungary, in the Carpathians, and in the valley of the Engadine. A distinguished observer, Lombard, in a work entitled "Climates and Mountains," (Paris, 1858,) says that—"If the low valleys and the middle altitudes of the Alps present a great number of phthisical patients, this kind of disease becomes rarer as we ascend the mountains, so that at 1000 to 1200 metres we only meet with some isolated cases, and between 1200 and 1500 metres it completely disappears." The observations of Schnepp ("Influence des Lieux sur la Fréquence de la Phthisie, Communication à l'Academie des Sciences") in the Lower Pyrenees, prove the rarity of consumption in these districts. Hirsch states also that on the high plains of Abyssinia tuberculosis is unknown, and further that two observers, Wagner and Polack, have asserted that in the high plains of Armenia, phthisis is only observed in individuals coming there from more southern countries. The same observer, Hirsch, informs his readers, we know not with what truth, that in India, where consumption is very common, it is very rare, and even unknown, on the high plains of the Ghauts and Neilghery hills, at heights of from 4000 to 7000 feet, as also in the mountainous regions of Java; and that sanitaria have been established for twenty-five years in Ceylon, Hindostan, and the Himalayas, at heights varying from 2000 to 3000 metres, *i.e.*, from 7000 to 10,000 feet. In the sanatorium of Sckin, he informs us, that Dr. Hooker had never met with phthisis. Guilbert, in a work published in 1862, in Paris, entitled, "Phthisis in Peru and Bolivia," mentions that this is the dominating disease of that country; but that there are in the Cordilleras, or Rocky mountains, towns of 10,000, 20,000 and 40,000 inhabitants, where no cases of consumption are met with, except among Creoles who have been sent thither for their health. Nicol, in ten years of practice, did not meet with a single case of consumption at La Paz, a town of 40,000 inhabitants, situated at 12,000 feet above sea level. Hirsch attributes this rarity of consumption in elevated localities to a special modification of the organs of circulation and respiration.

The writer, who in this country, seems to have paid most attention to this truly important branch of hygienic therapeutics, is

Dr. H. Weber, of London. According to that gentleman, in his work "On the Swiss Alps," (1864,) tubercular consumption occurs not unfrequently in the lower mountainous or sub-Alpine districts. Of this fact I can assert the truth, having myself resided for some time in the canton of Grisons, where consumption is by no means uncommon. In the Alpine region Dr. Weber believes it is nearly absent. "It is," he says, "of very rare occurence among the monks of St. Bernard, and among the inhabitants of the Upper Engadine." When residing in Coire in the Grisons, in the neighbourhood of the Engadine, I have heard this asserted." What is more important, too, we hear from Dr. Weber of inhabitants of the Engadine who have left their homes, contracted phthisis, but who, returning to their native valley, were cured of their disease in many cases. That gentleman gives some detailed cases of this kind in the "British Medical Journal," of 1867. In the tropical zone, consumption, according to these authors, may be regarded as rare above 7000 feet; in the warmer temperate zone above 3500 to 5000 feet; in the colder temperate zone above 1300 to 3000 feet elevation; and, in Switzerland, from 46° to 48° north latitude, the frequency of its occurrence diminishes over 3000 feet, whilst in the Hartz mountains it diminishes at from 1200 to 1400 feet above the level of the sea, at a latitude of from 50° to 52° north. There is a remark which, we fear, invalidates the force of much of the evidence adduced by Weber and others; and that is, it appears that in many places the Swiss women who live in the lower heights suffer greatly from consumption. They are, it appears, employed in-doors in making some manufactures in *small ill-ventilated rooms.* The men, who lead an open-air life, are said to be exempt. Does it not seem very likely after all that it is not elevation and rarefaction of the air at all that prevents or cures consumption, but simply plenty of fresh air and exercise?

And this brings me to the second head of my inquiry, namely, Is there any climate in particular which we should recommend for the treatment of consumption? Few nations have a right to speak so confidently as to the question of climate as the inhabitants of this kingdom. We have an experiment continually going on in different points of the surface of the globe, as to the effect of tropical and very cold climates on the occurrence of phthisis. In the "Army Medical Report" for 1866 we find the following facts, which seem to indicate that consumption is pretty general in all countries. Among the troops situated at home, in 1000 men, there were in the years between 1860-65, on an average 17·8 admissions for tubercular diseases, and 3·17 in 1000 deaths. In Gibraltar, the average annual admissions for tubercular diseases were 7·4 per 1000, and there were 1·15 deaths annually. In Malta, there were annually 10·4 admissions, and 1·76 deaths from phthisis. In Canada, the admissions were only 8·6 per 1000 annually, and

the deaths 1·71. In Bermuda, the annual admissions per 1000 for phthisis were 10·5, and there were 2·60 deaths per annum per 1000 living. In the West Indies, in the Windward and Leeward command, the average annual admissions per thousand men for phthisis were ten, and there were 1·57 deaths per 1000 from 1859 to 1865 among the white troops; whilst among the black troops the admissions actually amounted to 18·2, and the deaths to 6·52 in 1000 annually. In Jamaica, the average annual admission for phthisis was 10·1, and the deaths 1·75 in 1000; whilst among the black troops no less than 17·5 were admitted, and 5·43 per 1000 died tubercular. In Sierra Leone, at present, there appear only to be black troops. The admission of these black troops into hospital per 1000 was 16·2, and no less than 7·05 per 1000 annually died at Sierra Leone of tuberculosis. The same tale holds good for Gambia and the Gold Coast. St. Helena seems very healthy altogether, and has only an annual admission of 6·2, and a death rate of 1·82 from phthisis; and the Cape of Good Hope has about 9 admissions and 1·35 deaths annually per 1000 troops. In the island of Mauritius the average annual admission per 1000 troops for phthisis has been 10·7, with 2·19 deaths of late years. In Ceylon there has been a great deal of this fatal disease; no less than an average of 16·8 admissions annually per 1000 men into hospital, and 3·52 deaths among the white troops; whilst among the black troops there seem only to have been 2·9 admissions and 1·26 deaths annually per 1000 from phthisis in the years between 1859 and 1865. In Australia and Tasmania the average annual admissions rise to 16·2 per 1000, with 5·29 deaths; and in New Zealand it falls to 8·7 admissions and 1·90 deaths per thousand annually. In China the admissions are 9·8, and the deaths from consumption 2·24 per 1,000 of the white troops; whilst among the native or Asiatic troops there are only 3·2 admissions and 1·08 deaths annually per thousand from this disease. In Japan, in 1866, there were 15·8 admissions into hospital per 1,000, with 2·25 deaths from consumption. In 1866 the average number of European non-commissioned officers and men serving in the Indian commands was 58,901. In the Bengal Presidency, the average admissions per 1000 of the troops for phthisis was 11·00, and there were 2·49 deaths per 1,000. In the Madras Presidency phthisis seems to have been rather more common, since the average admissions amount to 16·7 and the deaths to 2·00 per 1000 annually. In the Bombay Presidency, again, the annual admissions sink to 10·1 and the deaths to 1·88 per 1000 annually. What can we conclude from these statistics? Simply, I believe, that some local circumstances, and above all, I am inclined to think, the bad ventilation of the barracks inhabited by the troops, are the constant cause of the occurrence of tubercular phthisis, and that climate has little or nothing to do with its

production. Moisture, doubtless, also is a cause, although a minor one.

One of the most striking points in the history of this melancholy scourge of humanity is seen in comparing the present mortality from it in Jamaica, with what the mortality used to be in the "good old times;" *i.e.*, the days before scientific investigations had been made as to the cause of phthisis. "It is not fifty years," says Parkes, ("Hygiene,") "since the usual time for the disappearance of a regiment of 1000 strong was five years." The statistics in the West Indies can now show a degree of salubrity almost equalling, in some cases surpassing, that of home service. Tulloch states that in a barrack at Tobago, in 1826, the superficial space per man was 22⅓ feet, and there were only 250 cubic feet per man. The air was fœtid in the highest degree. There was more consumption at that time in Jamaica among the troops, than at home, and far more than in Canada. In former days the immense mortality was attributed to climate; may we not say the same probably for consumption? It is not a disease of any particular climate, but rather is caused in all climates and all localities by life in-doors and unhealthy occupations. We are, inclined, in many respects, to agree with the learned Dr. McCormac in attributing the mass of cases of pulmonary consumption to the vitiation of the air caused by the different employments of townsmen. And perhaps the best evidence ever given for the truth of this assertion is to be found in the admirable address on "Public Health," delivered by the venerable Professor Christison, in Edinburgh, in 1863. Consumption, it appears, accounts for 11·5 per cent. of the total mortality of Scotland, or 2·37 deaths in 1000 annually occur from that disease. This proportion has been long known to fall short of the mean in country districts, and to exceed the average in towns; and the difference in favour of the country parts of Scotland seems conversely to increase in a greater ratio than the diminution of the general mortality, and, other things being equal, always in an increasing ratio, according to the degree of rurality of the country district. Taking the population of Scotland in 1855 at three millions, the total mortality in 1000 was 20·80. Dividing the mainland into large towns of 10,000 people and upwards; and the rural mainland, comprising all smaller towns, with the pure country; it appears that the mortality from all diseases for the rural mainland, in 1855, was 18·00 in 1000, and in the towns 25·80 in 1,000. But the mortality from consumption was, in the rural mainland 1·86 in 1000, and in the great towns 3·33 in 1000.

"In Glasgow, whose population in 1855 amounted to 365,000, and where all causes of town mortality greatly abound, so that the annual death rate is 28·90 per 1,000, that from consumption is as high as 3·85 in 1,000. Edinburgh and Leith, with a population of

206,000, present a mortality not much inferior, viz., 23·80 in 1000; but there is a greater difference in the deaths from consumption, which are 2·83 in 1,000. Contrast, however, with even the latter proportions, the data derived from the very rural counties of Caithness, Sutherland, Ross, Cromarty, and Inverness, comprising a population of 240,000, and we find that the general mortality falls to 16·17 per 1,000, and that from consumption to 1·79. The consumptive mortality is already less than half that of Glasgow. But these Celtic mountainous counties are not so favourably circumstanced as other rural counties with respect to other sanitary influences, such as climate, food, and medical aid. Turn, then, to the agricultural lowlands of Scotland. In the fine agricultural counties of Roxburghshire, Peebles, Selkirk, and Haddingtonshire, if we exclude two small towns, Haddington and Hawick, (which, though under the town standard of the Register, 10,000, own to the high mortality of 1 in 40,) there is a population of 97,000, in which the total mortality sinks to 1 in 65, or 15·46 in 1,000, and the deaths from consumption to 1,38 in 1,000. In Fife, deducting 25,000 inhabitants of two unfavourably circumstanced towns, Dunfermline and Kirkaldy, the population amounts to 130,000; and here the general mortality is 17·50 in 1,000, and the deaths from consumption 1·25 in 1,000—only one-third of the proportion in Glasgow. In the county of Berwickshire we have the most perfect example in Scotland of a population combining the richest agriculture with freedom from the deteriorating influences of mining, manufactures, and large towns. None of its towns contain above 3,500 inhabitants; there is, I think, only one large factory in it—a paper manufactory—and there are no mines. Here, accordingly, the total deaths in 1,000 fall to 14·10, and the deaths from consumption to 1·04. The general mortality is half that of Glasgow, and the share contributed by consumption is nearly one-fourth of the proportion in that city. In a first-class town, such as Glasgow, tubercular diseases account for twenty per cent. of the mortality; in an agricultural county, such as Berwickshire, for eight per cent. only. In a given number of townspeople five die of tubercular diseases, for one in the same number of countrymen."

It has been the habit of legislators to look on epidemic disease as the chief cause of death in towns; but, henceforth, consumption must be looked upon as a more serious cause of destruction in towns, and Dr. Christison attributes the frequency of this curse of the race in towns, to the want of open-air exercise, in this respect quite adopting the opinions of Dr. McCormac, Dr. Parkes, and others. Looking to the immense extension of our large modern towns, and their depopulating effects on the rural districts, we have but little cause for congratulating ourselves on any marked improvement in hygiene. There appears to be a very great absence

of phthisis in the native population of the islands of Lewis. With a population of 8,400 there were only four deaths from consumption in three years, according to Dr. McRae; and in Mull, according to Dr. McColl, a gentleman who had practised there for thirty-three years, the disease is almost unknown in a population of 12,000, among persons who had not left the island and resided in the larger towns. This is no mere tradition, but certified by able medical observers. There is no doubt that many trades followed in towns account for much of the mortality from consumption. Such trades are those of the grinders, stonemasons, and cotton operatives, and those who inhale fine dust, such as coal-whippers and masons; but it is very difficult to account for the vast mass of phthisis seen in towns, on such simple principles as that of their employments. Thouvenin, indeed, in an article upon the influence of several trades on the health, has arrived at the conclusion that, except the operations of cotton-beating, and dividing and carding of silk cocoons, of white lead, of grinding, and one or two others, industrial pursuits in general do not exercise any directly injurious effects on the health of the workmen. That author traces the causes of the deterioration of the health of the working classes of towns, and their greater mortality, to defects in their dwellings, to their hereditary dispositions, to skin diseases, and to venereal and tubercular diseases; to the excess of their premature labour, and to the insufficiency and bad quality of their diet; to the irregularity of their lives, especially at an age when their physical development is incomplete; and, lastly, to drunkenness. This summary of causes is, however, only another word for poverty, without even excepting that of hereditary predisposition, since it has been shown by D'Espine, in the "Annales D'Hygiene" of 1830, that tubercular disease occasions 68 deaths in 1,000 among the rich, but more than 230 in 1,000 among the poor. I have found that in the healthy county of Hertfordshire, the annual mortality from consumption is 179 in 100,000 inhabitants; whilst in Liverpool it is 368 in the same number of inhabitants; 331 in 100,000 in Manchester; and as much as 402 in 100,000 annually in Merthyr Tydfil. In London the annual mortality from consumption is 277 in 100,000, or lower than that of Liverpool or Manchester; but nearly twice the mortality of Berwickshire. The annual mortality of all England from consumption is given by the Registrar-General's reports as 258 in 100,000, against 237 in Scotland. Another corroborative fact is mentioned by Dr. Livingstone in his "Travels in South Africa." He asserts that the natives there, although they seem often to be starved to death, yet do not suffer from consumption. This is a curious fact if it should be verified, and would tend to confirm the theory of Dr. McCormac, Parkes, and others. With respect to the greater frequency of death from consumption

among the poorer than among the richer classes, it would indeed be surprising were these results of statistical inquiry to prove otherwise. Among many of the poor female operatives in large towns wages often do not seem to exceed sixpence a day. And in the sixth report of the medical officers of the Privy Council for 1863, I find that the report by Dr. Edward Smith, on the "Food of the Labouring Classes," states that the food of the silk-workers costs 2s. 2½d. a week; that of needlewomen 2s. 7d.; of kid-glovers 2s. 9d.; shoemakers 2s. 7½d.; stocking-weavers 2s. 6½d. The able author of this paper adds, "No class under inquiry exhibited a high degree of health. The least healthy are the kid glovers, needlewomen, and Spitalfields weavers. The average quantity of food was too little for health and strength." Of the needlewomen, he says, "This is the lowest paid class included in my inquiries. Their ordinary hours of work are ten to twelve hours. The average income was only 3s. 11¼d. weekly per adult." Readers of the works of Mr. J. S. Mill, Joseph Garnier, &c., will see in these statistics the unfortunate effects of the tendency of our race to increase more rapidly than it can obtain food and necessaries. "Nature," says the Rev. Professor Malthus, the great and illustrious discoverer of the "principle of population," which discovery I consider to be by far the most important in hygienic science that has ever been made, "cannot be defeated in her purposes. The necessary mortality must come in some form or other; and the extirpation of one disease will only be the signal for the birth of another, perhaps more fatal. I believe that it is the intention of the Creator that the earth should be replenished; but certainly with a happy population, not an unhealthy, vicious, and miserable one." Misery and low wages cannot go on indefinitely. Consumption and fevers cut off the struggling operatives. Dr. Edward Smith, in a numerous set of inquiries put by him to 1,000 hospital patients affected with consumption, found that the *average* number of children which the parents of the unfortunate patients had produced was actually 7·5. No wonder that these poor people became consumptive in such unfortunate homes. We shall not be astonished after this that Mr. J. S. Mill says that "little improvement in morality can be expected, until the producing of large families is regarded with the same feelings as drunkenness, or any other physical excess."

The treatment, then, of consumption cannot be said to have made much advance since the days of Hippocrates. That wise physician recommended open-air exercise and milk diet in this disease; Aretaeus, sea voyages and good diet; Celsus and Galen recommended what I should now recommend, viz., country air, exercise, milk, and nourishing diet. Paracelsus, in the sixteenth century, and his numerous admirers since then, have tried mercury, antimony, &c., and done, of course, a great deal of harm by their

experiments, which, alas! as yet have brought, we fear, no fruits in the cure of consumption. Perhaps, indeed, the only important addition made in modern times to the diet of the phthisical was the introduction due in this country to Dr. Hughes Bennett, in 1853, of the oleum-morrhuæ,* and I cannot help believing that the hypophosphites, which I have often tried in vain, are utterly useless, and indeed inert. Besides which, this was the result of the Parisian Commission of the Academie de Médecine.

The effects of exercise, then, no doubt a highly complicated cause, and acting on both digestion and assimilation, and impure air, have been found, according to Parkes, &c., to be very potent agents in consumption; and, conversely, the conditions of prevention and treatment, which have seemed most useful, are nutritious food and proportionate great exercise in free and open air. "So important has the last condition proved to be, that it would appear that even considerable exposure to weather is better than keeping patients in close rooms, provided there be no bronchitis, or tendency to pneumonia or pleurisy." Persons who can afford to choose their climate, will find that from the commencement of October until the end of April, no climate can be more adapted for consumptive patients, with tendency to bronchitis, than that of Middle or Upper Egypt. Cairo and its neighbourhood is a delightful winter climate; its mean temperature in January is 59° Fahrenheit. After April, the patient, with power and means at disposal, should move northwards to Malaga or Mentone, which last-named place has been rendered classic ground by the writings of the eminent Dr. Henry Bennet. Dr. Prosser James has himself experienced much benefit from St. Remo, and greatly recommends it as a winter climate. To persons of the labouring classes, perhaps the best advice, when they can follow it, is to recommend emigration and then a country life. This, I feel convinced, would prove as efficacious as life in mountain districts, and my conclusion is that exercise and fresh air are at present the only means we have to contend against that greatest foe to human happiness, consumption; and that, whilst the evidence given for the residence of consumptives in Alpine districts seems very convincing, and requires further investigation, yet, that the main cause of the disease being in-door occupations and town life, the best prevention and cure of it is most naturally to be sought for in country life and out-door employments, with plenty of exercise and good nourishing food.

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* The cod-liver oil called Möller's is excellent, and I am informed by my respected friend, Professor Boeck, of Christiania, that it is quite a genuine manufacture.