THE CROONIAN LECTURES ON THE HYGIENIC AND CLIMATIC TREAT- MENT OF CHRONIC PULMONARY PHTHISIS.

Delivered at the Royal College of Physicians, London, March 1885.

By HERMANN WEBER, M.D.,
Physician to the German Hospital.

LECTURE II.

Curative Treatment.—Relation of Doctor and Patient.—I. Diet: Defective Digestion; Raulin's Researches on Mineral Substances; Milk; Times of Meals (Cures of Phthisis); Alcohol.—II. Air and Ventilation: Open-air Treatment; Defective Arrangements for the Treatment of Phthisis in General Hospitals; Brompton and Ventnor Hospitals; Necessity for Numerous Small Hospitals for Phthisis in the Country.—III. Exercise.—IV. Management of Skin; Clothing.

The Curative Treatment of Phthisis.—The main points which we ought to aim at are: improvement of the general nutrition of the body, or, to use Dr. Beale's expression, of the "bioplasm," restoration of healthy respiration and of circulation in the lungs, limitation of the existing disease, and prevention of fresh outbreaks or fresh infection.

The principal means to obtain these ends are: adequate supply of food, abundance of pure air by night and day, regulated exercise, strengthening of the skin, healthful occupation of the mind. We might, perhaps, say, in other words, that we must aim at improvement of the tissue-change, by increased supply of air and nutritive material to the cells and tissues, and by perfecting the elimination of used-up material; but we must, at the same time, keep off impure air from the diseased spots, and bring to them as much pure air as possible. I shall discuss the hygienic treatment under the following heads: I. Food; II. Air and Ventilation; III. Exercise and Rest; IV. Bathing and Management of the Skin; V. Climate.

Allow me, however, sir, before I enter into these points, to say a few words on the relation of the physician to the consumptive patient. Shall the physician frankly tell the latter that his disease is phthisis? It is still the opinion of many eminent medical men that we should, as a rule, not do so. As long as phthisis was considered an incurable disease, there may have been some reason for such concealment; but now, as we know, and can tell our patients, that phthisis is a curable disease, I think the patient ought to be informed of his condition, more or less, according to the individuality; and, as far as my experience goes, this has a salutary effect. The patient is more ready to co-operate with the physician, and to bring the great and long continued sacrifices, for he becomes aware of his own large share of responsibility. I have already alluded to the circumstance that intelligence on the part of the patient and his friends is a great help towards recovery in phthisis; and that want of judgment or insight into the nature of the illness, and of the manifold dangers, and into the means of cure, renders the prognosis less hopeful, unless we are able to place the patient under the strictest superintendence of a judicious physician, or, still better, in a health-establishment, under the control of a resident medical man and his assistants, or in a well arranged special hospital. Every consumptive patient ought to be under the constant guidance of his doctor.

I. *Diet.*—All those who have been successful in the treatment of phthisis have paid much attention to the question of food. Sir Risdon Bennett and many other physicians have shown that by "feeding" alone great service can be done. If the popular idea were correct, that the appetite and digestion of consumptive patients are specially good, it would be more easy to cure phthisis; but the rule is rather the reverse. The poorer the blood and nutrition of cells and tissues, the greater therefore the want, the less is often their desire for food. The appetite is not rarely capricious, and the digestion is apt to be disturbed. It happens, also, that patients object to the diet ordered; and it is, therefore, sometimes necessary to tell them plainly that, without their cordial and constant assistance in this matter, they have no chance of recovery. At the same time, however, the fancies of the patient ought not to be disregarded. The food which he desires, if it is in any way permissible, ought to be procured for him. It ought

to be varied as far as possible, and the cooking and serving of meals ought to be nice. The example of others is mostly very useful; and this is one point in favour of special establishments and health-resorts for phthisis, as at Goerbersdorf, under Dr. Brehmer; at Falkenstein, under Dr. Dettweiler. I have also seen, at Davos and St. Moritz, patients, in company with other patients, eat and drink, with regard to quantity and quality, what they would never eat in their own homes alone or with members of their families. Though it is impossible to lay down fixed rules for all cases, one rule is almost general; namely, that those suffering from active consumption ought to take the amount of food required in frequent small meals, and not in only two large meals, as in French, or three meals, as in German and Swiss, hotels. This is one of the reasons why ordinary hotels are in general not adapted to the treatment of active phthisis. In addition to breakfast, lunch, and dinner, there ought to be four supplementary meals, namely, early in the morning, between breakfast and lunch, between lunch and dinner, and at bedtime.

Before passing in review some of the principal articles of food, I wish to direct attention to the possibility that there may be important relations between the life of the tubercle-bacillus, and the quality of the food that we take, especially the saline materials, which enter into the composition of the blood, the cells, and tissues.

A short time ago, I had the pleasure of listening to a suggestive lecture delivered by Dr. Vivian Poore at the Society of Arts, in which he related the results of most instructive researches by M. Raulin on the growth of the *aspergillus niger*. A short account of these researches is given in Dr. Duclaux's handbook on *Fermentation*, prepared for the International Health Exhibition in 1884. After much trouble, Raulin found the following liquid the best nutritive medium of the *aspergillus*. It is known as "Raulin's liquid."

	Grammes.		Grammes.
Water	1500	Carbonate of magnesia	0.4
Sugar-candy	70	Sulphate of ammonia	0.25
Tartaric acid	4	Sulphate of zinc	0.07
Nitrate of ammonia	4	Sulphate of iron	0.07
Phosphate of ammonia ...	0.6	Silicate of potassium	0.07
Carbonate of potassium ...	0.6		

By sowing the spores on this fluid, two crops of *aspergillus* can be grown which weigh together 25 grammes; but if we prepare the fluid without the potassium, the gathering will dwindle to one gramme only; the crop has, therefore, fallen to $\frac{1}{25}$ of what it was. It will fall to $\frac{1}{100}$ if the phosphoric acid, and to $\frac{1}{100}$ if the ammonia, be withdrawn. The withdrawal of the zinc would reduce the crop to $\frac{1}{10}$ of what it was in the complete liquid; in other words, would bring it down from 25 grammes to 2 $\frac{1}{2}$ grammes. Duclaux points out that the zinc—in weight, only $\frac{1}{1000}$ of the fluid—increases the crop of the plant by 700 times its own weight; and he further states that, if $\frac{1}{1000000}$ of nitrate of silver be added to the nutritive fluid, the vegetation stops abruptly.

We learn from this that microbes require mineral food in the same way as plants and animals do; and if we knew exactly which mineral substances the tubercle-bacillus requires, and could, without harm to ourselves, deprive our blood, and cells, and tissues of these salts, by abstaining from food containing them, we should deprive the bacillus of the means of existence. The investigation of these matters, however, is very difficult. It is not easy to construct the best nutritive fluid for each microbe. It can only be obtained by a series of methodical researches. When the best artificial medium has been created, it must be first ascertained that the result of the sowing of the spores is always uniform, otherwise the result of the withdrawing of certain elements cannot be calculated. It is further evident that a study of agents impeding or destroying the growth may also become very important.

With regard to the different articles of food, Dr. Bidder, of Berlin, points out, from several papers by Dr. Bunge, of Dorpat, that the food of carnivorous animals contains a larger quantity of soda, and smaller of potash, than that of herbivorous animals; and he reminds us that carnivorous animals are, on the whole, less subject to tuberculosis than herbivorous animals. If it could be proved that the potash salts are more conducive to the growth of the tubercle-bacillus than soda salts, articles of food containing excessive proportions of potash ought to be taken only sparingly.

Milk is regarded by the majority of medical men as one of the best articles of food in the treatment of phthisis. It contains all that is required by the body, and the mineral matters in the best proportion. It is less irritating than other nourishing kinds of food, and is more easily digested. There are differences in the quality of milk of different animals and also of the same animal, according to the food consumed.

by it, and other influences and conditions; but, when merely speaking of milk, we mean cow's milk. The dangerous substances which can be introduced by it, as the fever-poisons and the tubercle-bacillus, from cows affected by the disease, and principally those with diseased udders, are, so far as we know, destroyed by boiling. We ought, therefore, unless we are perfectly sure about the milk-supply, always to recommend the milk to be boiled. Patients often say that milk disagrees with them; but I have only rarely been obliged to acknowledge this statement as correct. In some cases, where there is a tendency to diarrhoea, or sickness, or acidity of the stomach, it is necessary to dilute it with one-sixth to one-third of lime-water, which often exercises a soothing influence on the mucous membrane of the intestinal canal, and may, besides, help to bring on the cretaceous change in caseous deposits. In other cases, especially where there is constipation, the addition of Apollinaris, or natural seltzer, or Bilin water, is useful; in others, that of barley-water; in others, a small quantity of coffee, or tea, or cocoa, renders the milk palatable to persons who have a dislike to the taste of pure milk. In many instances, the addition of rum or cognac provokes the digestibility of the milk, especially in persons accustomed to stimulating food, including much alcohol; but this addition ought to be made only under the guidance of the doctor. Where there is much pyrexia, this is a good way of administering alcohol. The quantity of milk suitable to different invalids varies very much, indeed, in the same person, at different periods of the disease, and also according to the amount and quality of other food consumed. I generally advise from one and a half to three pints in twenty-four hours; but many cases, especially those complicated with albuminuria, I restrict sometimes for weeks almost entirely to milk and milk-food.

I dare not discuss other articles of food in the same way as I have done with milk; everyone interested in dietetics will find valuable information in the works of Playfair, Frankland, Parkes, Pavy, and Bauer.

About diet in general, I will confine myself to some general rules: 1, to induce the individual to take as much nourishing food as his digestion permits, and to endeavour to increase the appetite and digestive powers by air and exercise, and sometimes by medicinal substances; 2, to give as much choice and variety as can be obtained; 3, to avoid articles of food, or of relish, of inferior nourishing value, if by these the appetite for more necessary articles is diminished, or the digestion of the latter disturbed. Such articles are, for instance, acids, salads, and especially uncooked acid fruits, sugar, and pastries—a list which might be largely increased. Potatoes ought to be taken only in very moderate quantities. They contain much potash in proportion to soda, and experience shows that the exclusive or even preponderating use of potatoes favours scrofula.

I have mentioned before that, in the majority of ordinary cases of phthisis, except the very chronic and arrested forms, it is better to take the desirable amount of food in frequent smaller meals than in two or three larger ones. I am in the habit of recommending a plan of the following kind, with many modifications according to circumstances.

At 7 o'clock, or earlier, while still in bed, a cup of milk, with a dessert- or tablespoonful of cognac, or with lime-water, or with a small quantity of tea or cocoa, and a small piece of bread and butter.

At half-past 8 or 9, after dressing, breakfast of milk, with some slightly stimulating addition, as tea, coffee, or cocoa, bread and butter, or bacon or ham, or fish.

At 11, a tumblerful of milk or koumis, or sometimes a cup of broth or beef-tea, or a sandwich and a glass of wine.

At 1 or 1.30, a substantial meal of meat or poultry, or fish, or game, with fresh vegetables, some light pudding or cooked fruit, and a glass of wine.

At 4 o'clock, a glass of milk, or koumis, or a cup of tea or coffee with much milk, and some bread and butter or plain biscuit.

At 7 P.M., another substantial meal, similar to that in the middle of the day.

At 9.30 or 10 P.M., on going to bed, a cup of milk, or bread and milk, or milk with some farinaceous food, as Hart's or Liebig's, or Nestlé's, or Mellin's. At this time, if there be night-sweats, the addition of a tablespoonful of brandy is very useful.

In cases of considerable pyrexia, it would be injudicious and impossible to give as much solid food as in chronic nonfebrile, or nearly nonfebrile, cases; but it is necessary to give as much easily digestible food as the patient can digest. Our aim ought to be somewhat to check the waste, and to replace by food the increased waste. Here alcohol is of great use. Milk is often not digested in its natural state, but it must be tried peptonised and diluted with pure water,

aërated water, and still better, with barley water, or thin gruel. Chicken-broth, veal-broth, beef-tea, and gelatinous substances are, in these conditions, most useful; while, in health, and in the non-febrile consumptive cases, they ought not to take the place of the more solid proteinaceous substances.

In most cases of phthisis, it is desirable to introduce into the system a fair amount of fat, and this can often be done better in the shape of bacon, fresh butter, and milk and suet, than in the form of cod-liver oil, though the latter too is most useful. There are some popular "cures" of phthisis, into which milk, or different kinds of fat, assisted by open air, enter largely. You all know the milk-cure, in the various mountain districts, from the time of the Romans to the present day; the koumis cure in Tartary. I remember, also, the buttermilk-cure in some German villages, and have often heard that, in the American prairies, consumptive patients are cured by consuming large quantities of the bone-marrow of the buffalo. Many years ago, when assistant at a clinic at Bonn, two of my poor consumptive patients left me to be cured, in a neighbouring village, by taking three times a day, or more frequently, a large plateful of a kind of porridge prepared of dog's fat and rye-meal; and certainly their improvement was most remarkable; but they had exchanged, at the same time, their indoor town-work for outdoor country-work. All these cures have two points in common: first, food rich in fat and proteinaceous matter; and, secondly, outdoor life.

I cannot close the chapter on Food without entering into the debated question of alcohol. Much as I am convinced that, in health, alcohol is rarely necessary, in phthisis, especially in the febrile stages, experience has convinced me of its great usefulness, in the majority of cases, as long as the kidneys are sound. It acts as respiratory food (Binz), and limits the waste of tissue. Brehmer, Spengler, Unger, Rüdi, Volland, Dettweiler, use it largely; Austin Flint, too, is a strong advocate. The quantity and quality required vary very much in different cases; in some, as much as a bottle and even three pints of moderately strong wine, or ten to twelve ounces of cognac or whiskey, are taken in twenty-four hours with advantage; in others, scarcely one-sixth of this amount; and again, in others, alcohol must be altogether avoided. Alcohol seems to be specially useful in those cases where a pretty large quantity can be taken without unpleasant excitement or headache, but where, on the contrary, a sense of comfort and increased strength is produced by it; where appetite and digestion are improved, flatulence and indigestion removed, and pyrexia—where it exists—is diminished. Where, on the other hand, it causes throbbing in the arteries, headache, listlessness, flushing, or great excitement, or loss of appetite for ordinary food, it is either unsuitable, or can only be taken in small quantities. The medical man must decide by careful examinations whether, and in which quantity, alcoholic drinks are to be given. The quality, too, cannot always be known without trial. In Germany and Austria, the stronger Hungarian wines are much liked; in the Alps, the red wines of the Valteline; but Madeira, Marsala, sherry, Burgundy, good claret, and some pure Italian and Greek wines, are likewise useful in many cases; and not rarely beer, cognac, and whiskey, suitably diluted, are useful in cases of weakness. Very often Dr. Dettweiler's plan, to give the amount of alcohol required in very small and frequent doses, is of great value.

[To be continued.]

PROSECUTION UNDER THE DENTISTS' ACT.—In the Cupar Sheriff Court on March 6th, Alexander Ross French, formerly a confectioner in Dundee, and now residing in St. Andrew's, was charged with a contravention of the Dentists' Act, 1878. The libel set forth that the accused unlawfully used the title of "Dr." French, dental surgeon, by having the same on his door-plate, lamp, and signboard at his place of residence, and with unlawfully using the titles of "D.D.S.," resident surgeon, "Dr.," and "D.S." The accused pleaded not guilty. His defence was, that he had advertised that he was "not a registered dentist," and he contended that the titles used by him did not come under the jurisdiction of British law. After evidence, the charge was found proven, and the Sheriff imposed a fine of £10, with the alternative of seven days' imprisonment.

DR. H. TOMKINS, late resident medical officer at the Monsall Fever Hospital, in connection with the Royal Infirmary, Manchester, was entertained at dinner at the Albion Hotel, Piccadilly, on March 6th, by a few of his friends and old fellow-students, the occasion being his vacating the above appointment; Dr. V. A. Wartenberg presided.

DR. PAVY, having resigned as Medical Officer of Health and Public Analyst for the Parish of St. Luke, Middlesex, is to be presented with an illuminated testimonial on vellum, under the seal of the Vestry.