

used with advantage by Dr. Stern, of Philadelphia, and myself, in the cases of two patients treated at the Philadelphia Polyclinic, consists of a quart of milk, two tablespoonfuls of beef powder, three eggs, fifteen grains of scale pepsin, and thirty drops of dilute hydrochloric acid, warmed, and administered twice a day; the patient eating what he wished in the interval. In hospital service forced feeding is practised three times daily, but in private practice, we must be content with what is possible.

Meat powders may be purchased in the shops, or can be prepared at home by cutting boiled meat into little pieces, drying thoroughly by means of a water bath, and grinding in a coffee mill. Powder so prepared is said by Dujardin-Beaumetz to answer its purpose very well. The farinaceous powders used in France are prepared from cooked lentils, malted lentils, and maize. I have no personal experience with them, but they are said to be highly nutritious. About seven ounces of the alimentary powder, whether meat or farina, or both, are mixed with a quart of milk or water, the milk being added slowly to form a paste, which afterward dissolves readily in the additional liquid. When the long tube of Debove cannot be passed, or when patients will not allow it to be passed, it often suffices simply to pass the entrance of the œsophagus with a shorter tube, as recommended by Stoerk; or to make use of the special apparatus of Dujardin-Beaumetz or Bryson Delavan, which consists of a glass jar with two tubes; one of which, above the level of the fluid, communicates with a hand-bulb for supplying compressed air, the other, below the level of fluid, communicating with a short œsophageal sound of small calibre; an ordinary rubber catheter will answer at a pinch. When the bulb is compressed, fluid food is driven over. Efforts of swallowing on the part of the patient will facilitate the process.

From the reports made by reliable observers in France and elsewhere, as well as from a few cases under my personal observation, I feel no hesitancy in affirming that remarkable gains in weight may be obtained from forced feeding, and that very often there will be concomitant recession in febrile and other phthisical phenomena. Improvement in physical condition of the lungs has been reported, but I have never succeeded in keeping a patient under the treatment long enough to verify this by personal observation. American patients in private or dispensary practice are not as tractable as foreign ones, in these matters, and I have no opportunity of conducting the treatment of phthisis in hospital wards. To secure the benefits of superalimentation with the great run of patients, I have had to employ alimentary mixtures similar to those of the gavage process, by natural methods. The dietary advised is a largely nitrogenous one, of which beef, raw or rare, broiled or roast, forms the principal item; there being added sufficient milk, eggs,

fish, lamb, mutton, leguminous vegetables, and greens; fruits in season, large quantities of butter, with small quantities of bread, potatoes, and starchy foods in general. Alcohol is employed as a food when it is necessary to obtain force with the least expenditure of digestive energy.

Fried foods of all kinds, pastry and other indigestible matters, are of course prohibited. Patients are advised not to allow more than three hours to pass without taking food, except during sleep; to drink a glassful of cream or milk, or cream punch, milk punch, or egg nog, just before going to bed, and to have milk at hand to drink in case of waking during the night or early morning. Not more than three set meals daily are advised, but in the intervals milk, with or without alcohol, chicken soup, bouillon, rich broths, are administered; as a vehicle usually, for the beef-peptonoids of a well known firm of American manufacturing chemists. Of this preparation it is endeavored to give not less than two ounces daily, and the amount may be increased as circumstances require. Various preparations of meat juice purchased in the shops, or prepared at home, may be used in the same manner, according to indications. The aim of the treatment is to supply enough nutriment not alone to counter-balance current waste, but to make up previous excess of waste over repair, and the details must be elaborated in each case with regard to individual condition. Cod liver oil, we well know, is an advantageous addition to the dietary in some cases, but not so many as we have supposed. At least it is not indispensable. Oleaginous inunctions are often of considerable benefit.

When overfeeding by natural methods fails, or when the patient is unwilling or unable to swallow the necessary quantity and quality of food, resort should be had without hesitation to the œsophageal tube and forced feeding.

But having supplied the proper kind and amount of aliment, we must place our patient in a condition to digest and assimilate it. It is true, as already suggested, that we may make use in certain measure of predigested foods, and that we may assist digestion in other instances by the administration of the digestive ferments; but our endeavors must not cease there.

The problem before us naturally divides itself into three parts: First, the preparation of the digestive tract, to elaborate and to absorb the chylous fluids—primary assimilation. Second, the promotion of the complex process of the breaking down and displacement of imperfect tissues and effete products, and replacement by new and vigorous tissues, with evolution of forces required in the economy; *i. e.*, metabolism—secondary assimilation; and third, the promotion of the excretion of waste products.

The first desideratum is endeavored to be secured by methods which cleanse, disinfect, and stimulate the digestive canal; varied in detail according to circumstances. When we have reason to sud-