

CORPULENCE.

Nothing is more common than to hear stout people wish they were thinner, while not a few spare people wish for more adipose tissue. Much of this arises from man's nature not to be satisfied with things as they are; but some of this complaint rests on better grounds. There are certain disadvantages connected with carrying around an excessive quantity of useless fat. It is evident that the labor expended in carrying three hundred pounds of human flesh about from place to place, or lifting it up a flight of stairs, is twice that required to handle 150 pounds. The exertion being greater, the muscles should be stronger, but, unfortunately, they are usually weaker. All this weight must be borne by the same pair of feet, which frequently suffer from the strain, or are crushed by the superincumbent weight. An accumulation of fat about the trunk impedes respiration, and makes exercise almost impossible. For these and similar reasons that will readily occur to the reader, corpulent people are generally anxious to get rid of the excess. This is particularly the case with ladies of fashion, for "too much fat spoils the figure."

In the case of our domestic animals, we have it largely within our own control to say whether they shall be fat or thin. Every farmer knows how to fatten his cattle, and a fat horse is considered an index to the liberality of his feeder. Leaving out of account a few unhealthy individuals, most animals fatten when allowed to eat their fill and take their ease, but soon lose flesh when the feed is limited or bad.

In the human species, the rule fails as often as it holds good. Most lean men are notoriously large eaters, and some are, in addition, excessively lazy. Apparently all the conditions favorable to fattening are present, yet the individual remains spare and thin. Others attain great size on a limited diet of the poorest food. Nothing is more common than to see two individuals, a husband and wife, two brothers, or two sisters, living and working side by side, eating the same food, and drinking the same beverages, apparently taking an equal amount of exercise, yet one will weigh nearly twice as much as the other. The only explanation that has been offered for such cases, if both are in health, is that one is predisposed to *embonpoint*, the other not. No doubt the natural disposition, too, has a great influence; worry, rather than work, consumes the flesh, so that men who take the world easy frequently stay fat on the most limited diet.

The predisposing causes of corpulency, according to Immermann, are as follows: 1. *Heredity*, although it may not show itself until middle life. 2. *Period of life*. Nursing babies and persons over forty are most inclined to be fat. 3. *Sex*; the female is more inclined to be stout than the male. 4. *Physiological constitution*; full-blooded people throw up more fat than most thin-blooded ones, but there is a sort of anæmic condition that also favors corpulence. 5. *Temperament*. 6. *Genital anomalies*; we know that wethers, oxen, and capons, as well as eunuchs, are usually fat. Although the above mentioned causes, which are beyond the control of the individual, favor corpulence, they do not produce it.

That a large number of corpulent persons are anxious to exchange their estate is shown by the large sale that "anti-fat" nostrums have, although their dangerous character is evident from the fact that at least one death has been traced to their use. It is not stated whether the victim, who had taken eighteen bottles of the medicine, had acquired the desired degree of tenuity before her death, but we infer that she had not, as she is spoken of as being "very stout." We conclude that "anti-fat" is not what it pretends to be, notwithstanding its dangerous character, and some authorities say that its chief ingredient is *fucus vesiculosus*, or tangle, a kind of seaweed, also used in some places to fatten hogs. If it really possesses any virtue, which is exceedingly doubtful, it is due to the iodine which it contains.

Many of the persons who complain of their flesh could relieve themselves of part of it by two simple expedients, viz., eating less and taking more exercise. This, however, requires too great a sacrifice on their part; they are like the people who want to get rich or learned without exercising the amount of self-denial necessary to accomplish the desired end.

In early Greece gymnastic exercises had for their express object the prevention of corpulence. A huge padding of fat not only shocked the highly developed æsthetic sensibility of this richly gifted people, but was most justly regarded by them as a hinderance to corporeal robustness.

It is well known that work horses are seldom fat, and persons of active habits avoid excess of flesh. But not only does a quiet life favor corpulence, but corpulence favors quiet, for the fat man finds it impossible to take much exercise.

Before considering the diet most favorable to the cure of corpulence, we must ask whence comes human fat. The views of physiological chemists have undergone much change since the days of Liebig, who considered the carbohydrates (sugar and starch) to be the fat producers. The more recent physiological view regards the greater portion of the fat store as probably a product of the decomposition of the albumen in the food, but some of the fat eaten is deposited in the tissues directly. The magnitude of this store is primarily determined by the amount of food taken, because the store of fat at any time laid up in the animal body is derived from the nutriment assimilated by the organism. It does not follow from our first statement that

if a man lived entirely on albumen he would get fat, because a large portion of the albumen would be consumed in supporting life, and only the residue unconsumed could be laid up as reserve. But if farinaceous food and sugar (carbohydrates) be taken with the albumen, the former protect the latter from burning up, and thus favor the formation of fat, although we have no proof that they can themselves be converted into fat. To make a familiar comparison, a person who receives a very small salary and board will be able to put more money in the savings bank than one who receives a larger compensation for his services, but has to pay his own board. The food which the former receives from his employer cannot be deposited in the bank, but it enables him to preserve intact whatever cash he may get. This protecting influence of the carbohydrates led early chemists to mistake them for fat producers.

Both the quality and quantity of food taken are of importance in the treatment of corpulence. Starvation will reduce the flesh, but it should never be resorted to, as it produces weakness in every organ, and leads to the worst results. On the other hand, the quantity of food eaten should be as small as consistent with health and with satisfaction of the natural appetite. As regards the kind of food, the following should only be taken in small quantities: Bread, milk, eggs, potatoes, carrots, rice, buckwheat, sweet soups, sugar, mutton in any form, beef steak, salads with oil, desert dishes, and wine jelly. The following should be almost entirely avoided: Butter, cream, fats, sauces, pork, sweet pastry, confitures, creams, ices, chestnuts and other nuts. For beverages tea and coffee may be taken with little or no milk and sugar, but chocolate and cocoa are to be avoided. Beer and strong alcoholic liquors must be given up, but sour wines diluted with water are permissible.

The first person who ever followed out for a year the strict dietary laid down by his physician was William Banting, who reduced his weight 46 pounds (from 202 pounds to 156 pounds), and his circumference by 12½ inches in that time. This treatment, which was invented by Harvey, has since been known as "Bantingism." The details of his menu may be found in most medical books. Although frequently attempted, it has rarely been found so successful in other cases. There is no doubt, however, that any intelligent person who is willing to impose some restraint on his appetite, and avoid the forbidden foods and drinks mentioned above and take regular exercise, may materially reduce his own weight and bulk.

The waters of certain mineral springs, especially those of a cathartic nature, are sometimes employed with good results. It is generally more successful if taken at the spring, where the customs of the place favor exercise and plain diet. Waters that contain iodides are also recommended, but are of doubtful efficiency.

Another remedy, which seems less rational than any of the above, is recommended in the London journals, namely, the application of external pressure, whereby the dimensions of the body are gradually reduced to normal proportions. Several correspondents of these papers report that they have tried it with success, while no failures have yet been reported. One man, who had tried Bantingism without success, reports that "tight lacing" accomplished the desired result. Another gentleman reports that by the use of an ordinary lady's corset he reduced his circumference 8 inches (from 42 to 34 inches), with great improvement in bodily health. It is probable that tight lacing has a good effect on immoderate eaters, and thus favors leanness and (as some claim) cures dyspepsia, but we are unable to see how it can have any other good effect. Another remarkable fact is that men were the first to make the discovery that tight lacing will cure corpulence, while the other sex, who are supposed to have had more experience in the use of corsets, never found it out. While we do not wish to discredit the statements of so many witnesses, we cannot believe that tight lacing is a universal cure for corpulence, since it is well known that most corpulent women lace, some few of them excessively, and yet they are not cured of their chief infirmity thereby. Perhaps the effect is different on men, for, being unused to tight clothing, the corset proves a constant reminder of the necessity of exercising moderation in eating and drinking, while even the temporary reduction in size makes them more capable of taking active exercise. Since oxygen in the blood is essential to the consumption of the excess of carbon, whatever prevents free breathing should tend to increase corpulence; hence the corsets must not be worn too tight at first. With this restriction, the remedy is safe and worthy of a trial, when other means have failed, or wherever circumstances prevent the observance of Banting's rules. It is certainly safer than anti-fat nostrums.

Whatever course of treatment the man of Falstaffian proportions would adopt, failure is sure to result unless patience and perseverance are abundantly supplied.

In the case of anæmic corpulence, where the number of red blood corpuscles is insufficient to oxidize the elements of the food, the person will have a white, pasty, or doughy look. The cause being different, none of the above modes of treatment are applicable. The general health must be attended to, ferruginous tonics can be tried, and every means should be resorted to for oxygenating the blood. It is probable, even, that exposure to increased atmospheric pressure, as the workmen are in the Hudson River Tunnel, might be beneficial in such cases. Exercise, properly taken, is likewise beneficial. In general, however, such cases had better be referred to a competent physician.

Some of Herbert Spencer's Impressions.

Discussing the conditions and causes of the immense developments of material civilization, which he has observed in this country, developments of which his previous studies had given him no adequate idea, Mr. Herbert Spencer properly gives a prominent place to the inventiveness which has been "so wisely fostered." "Among us in England," he said, "there are many foolish people who, while thinking that a man who toils with his hands has an equitable claim to the product, and, if he has special skill, may rightly have the advantage of it, also hold that if a man toils with his brain, perhaps for years, and, uniting genius with perseverance, evolves some valuable invention, the public may rightly claim the benefit. The Americans have been more far-seeing. The enormous museum of patents which I saw at Washington is significant of the attention paid to inventors' claims; and the nation profits immensely from having, in this direction (though not in all others), recognized property in mental products. Beyond question, in respect of mechanical appliances, the Americans are ahead of all nations."

Touching the probable issue of the gigantic social, political, and racial problems in process of evolution in the United States, Mr. Spencer said:

"No one can form anything more than vague and general conclusions respecting your future. The factors are too numerous, too vast, too far beyond measure in their quantities and intensities. The world has never before seen social phenomena at all comparable with those presented in the United States. A society spreading over enormous tracts, while still preserving its political continuity, is a new thing. This progressive incorporation of vast bodies of immigrants of various bloods has never occurred on such a scale before. Large empires composed of different peoples have, in previous cases, been formed by conquest and annexation. Then your immense plexus of railways and telegraphs tends to consolidate this vast aggregate of States in a way that no such aggregate has ever before been consolidated. And there are many minor co-operating causes unlike those hitherto known. No one can say how it is all going to work out. That there will come hereafter troubles of various kinds, and very grave ones, seems highly probable; but all nations have had, and will have, their troubles. Already you have triumphed over one great trouble, and may reasonably hope to triumph over others. It may, I think, be reasonably held that both because of its size and the heterogeneity of its components, the American nation will be a long time in evolving its ultimate form; but that its ultimate form will be high. One great result is, I think, tolerably clear. From biological truths it is to be inferred that the eventual mixture of the allied varieties of the Aryan race forming the population will produce a more powerful type of man than has hitherto existed, and a type of man more plastic, more adaptable, more capable of undergoing the modifications needful for complete social life. I think that whatever difficulties they may have to surmount, and whatever tribulations they may have to pass through, the Americans may reasonably look forward to a time when they will have produced a civilization grander than any the world has known."

Copying Paper.

The following is communicated to the *Polytech. Notizblatt* by E. Dieterich, in regard to the method he employs for making the copying paper which has obtained so good a reputation in Germany. The manufacture may be divided into two parts, viz., the production of the color and the application of the same to the paper. For blue paper, Dieterich uses exclusively the blue color known as "Paris blue," as covering better than any other mineral color. Ten kilogrammes of this color are coarsely powdered, and mixed with 20 kilogrammes of ordinary olive oil: 0.25 kilogramme of glycerine is then added. This mixture is, for a week, exposed in a drying room to a temperature of 40° to 50° C., and then ground as fine as possible in a paint mill. The glycerine softens the hard paint, and tends to make it more easily diffusible. Then Dieterich melted 0.5 kilogramme of yellow wax with 7.5 kilogrammes of ligroine, and added to this 3 kilogrammes of the blue mixture, mixing slowly at a temperature of 30° or 40° C. The mass is now of the consistency of honey. It is applied to the paper with a coarse brush, and afterward evenly divided and polished with a badger's hair brush. The sheets are then dried on a table heated by steam. This is done in a few minutes, and the paper is then ready for shipment. The quantities mentioned will be sufficient for about 1,000 sheets of 50 by 90 centimeters, being a day's work for two girls. For black paper aniline black is used in the same proportion. The operation must be carried on in well ventilated rooms protected from fire, on account of the combustibility of the material and the narcotic effects of the ligroine. The paper is used between two sheets of paper, the upper one receiving the original, the lower one the copy.

The Mirror Telegraph.

An interesting experiment in heliography, or signaling by sunshine, was successfully made in Egypt during the recent campaign. Colonel Keyser ascended one of the pyramids near Cairo, and by means of a heliographic mirror reflected a ray of sunlight to Alexandria, 120 miles away. At that great distance the signals, appearing like pin points of brightness, were easily ascertained to be a message from Sir Garnet Wolseley to the Khedive.