

HOW WE STARVE BY OVEREATING.

Dr. Tanner's fast has given us new light on the important question, how long a robust man may starve himself without permanent injury, and, perhaps, with positive benefit. But the very common case of starving oneself by overeating is to most people (though few know or think it) of much greater personal interest. It is because the statement that we can, and too often do, starve ourselves by overeating seems so paradoxical, that I hope every reader of the *Press* will do himself and friends the justice of seeing if it is true. How often do kind friends persuade the tired mother to eat a little more; or the worried man of business to take an extra lunch or supper, when already the body is at its utmost strain and can no more digest an extra meal than it can undertake extra labor. No man in these busy days can afford to neglect the stern fact that digestion is labor, and in weak persons often just about all the labor they are capable of. This fact is daily recognized in hospitals, especially by the surgeon, who, dealing most with the accident cases, has comparatively healthy stomachs to deal with. Yet here, when all the strength has to be husbanded to meet the strain of a surgical operation, a surgeon dislikes to operate before he has put his patient through a course of simple diet, with rest. Generally too he gives him such medicines as will excite the bowels, kidneys, etc., to carry off those waste matters from his system which too often are simply due to gross feeding.

It would take too long, and probably also convey less of the real truth, were I to go into detail and show the nature and magnitude of the digestive processes. A glimpse of it may be gathered from the fact that our best authorities agree that the internal muscular labor of the body consumes about four-fifths of our daily strength and food; that is, that the churning, straining and pumping of the food and digestive fluids uses up most of our food to make the remaining fifth available for use in our daily labor. This is a big thing I hear some one exclaim. Yes, and the following may, perhaps, seem bigger: Thirty lbs., or nearly twice the weight of the whole blood in our bodies, is poured out daily from the blood vessels (and of course absorbed again when its work is done) into the alimentary canal for digesting purposes. Our two best authorities—Playfair and Letheby—differ but very slightly in their estimates. The average of both states that daily the blood secretes $3\frac{1}{2}$ lbs. of saliva, 14 of gastric juice, $8\frac{1}{2}$ of pancreatic fluid, $3\frac{1}{2}$ of bile and $\frac{1}{2}$ lb. (I believe much more) of intestinal fluid. By measure this comes to 21 $\frac{1}{2}$ English pints, or more than three American gallons; and all this has to pass through miles of little tubes too small for the naked eye to see. Evidently the 17 lbs. of blood with which physiology credits the average man has to be active all the day long. The blood much resembles a restaurant waiter, who is constantly passing from the kitchen (the stomach, etc.) to the dining hall (visceral veins—lymphatics) with viands of all kinds, and as constantly returning again with the dishes, the spoons and whatever the guests refuse.

These various digestive fluids are besides of different chemical composition. Each one, too, contains a special organized ferment, powerful to the digestion of some special part of our food. Now these ferments are in a sense like the seed of a plant, and their production must exhaust the organ producing them much as the seeding of a flower exhausts the plant producing it. No wonder then that indigestion is the rule and not the exception in this bustling busy age.

If a man must, then, overwork, let him beware of overeating. Many ignorantly overeat, deluded by the temporary pause that each meal gives to that feeling of continuous exhaustion, which is quite as often caused by excess of food as by excess of work. This temporary strength is probably due to the stimulation of that great epigastric nervous flexus which is close to the

stomach. It has charge of the digestive process, and by food it is excited, and receives an extra supply of blood, just as the eye is excited to action by light, or the ear by sound. This great flexus is the focus of sensation for the abdomen, and its exhaustion we call hunger; but I guess Americans oftener exhaust it by too big than by too little meals, and either cause, it is evident, may give a feeling of hunger. Most of us could easily pick out from among our acquaintances many more examples of weak people who eat much than of weak ones who eat little. The big eaters probably are weak because they habitually eat up to their fullest vital capacity, and are, in fact, like so many hogs—living to eat, instead of eating to live.

But overeating does not merely use up all the working strength in digestion. Unless limited very strictly to the point of complete digestion, much of the food may pass through only the first stages of digestion. It may be acidified in the stomach, but fail to get neutralized in the bowel, where fermentation of an unnatural kind will cause flatulence, and give rise to impure fluids. These absorbed into the blood give feebleness of constitution and liability to disease, and at the same time overload and overwork the liver, kidneys, lungs, skin, and all purifying organs. This habit is the commonest cause of many of our complaints.

To the man or woman who overeats and will not work I have nothing to say. He or she is a hog. But to the wearied mother who wants strength to get through her work I would say: Aim first at eating those foods which need least digestion—roast or broiled mutton, toasted bread (buttered when cold), boiled rice and milk, oatmeal mush, milk diet of all kinds. And here let me remark that milk will, as a rule, agree with any one, if well boiled, and then diluted one-half with weak tea or coffee, or any other fluid, to taste. Many people find that milk does not agree with them, but, boiled and diluted, it seems quite to lose its bilious nature. Eggs, too, are good; also simple soups, and ripe fruit, raw, or cooked with a little sugar. Apples, well washed and baked in the oven, no stomach will feel—it is the sugar of cooked fruit that so often disagrees. Do not attempt too many meals, or have them too near each other. New food introduced into a stomach just finished with and about to pass the last meal into the bowel, may disturb the process, and spoil both the new and the old. Yet something may be taken between meals, if it be nearly all fluid—say a little beef tea, made with cold water slowly heated up just to a boiling point, or a little gruel, made with rice, oatmeal, graham flour, etc. Stir up a tablespoonful of one of these with as much cold water as will thin them to the consistency of cream. Then pour on a pint of boiling water, stir well, and salt it to taste. This has the advantage of being quickly made. A baked apple, a pear, an egg beaten up with a little sugar and water, or any of these simple things, will not only give strength, with almost no labor in digestion, but, taken an hour before food, often give an appetite, and ensure the better digestion of the following meal.—*Sanitarian, M. D., in Scientific Press.*

THE EARTH AS A CONDUCTOR.—In a paper on the earth as a conductor of electricity, Prof. Trowbridge, of Harvard, arrives at these conclusions. 1. Disturbances in telephonic circuits usually attributed to effects of induction are in general due to contiguous grounds of battery circuits. A return wire is the only way to obviate these disturbances. 2. The well-defined equipotential surfaces in the neighborhood of battery grounds shows the theoretical possibility of telegraphing across large bodies of water without the employment of a cable; and leads us to extend greatly the practical limit set by Steinheil. 3. Earth circuits have an intermittent character, with periods of maxima and minima, which may occur several times a minute during the entire day. This intermittent character is seldom absent.

RAPID FOREST DESTRUCTION.—An intelligent correspondent of the Cincinnati *Gazette*, after an investigation in the pine regions of Michigan, reports the judgment that the mills in the Alpena district have only 15 years' supply left, and adds: These figures agree very closely with those given me a few weeks ago by the president of the largest logging company on the Mississippi river, operating in the Wisconsin pineries, a region that has been worked much less extensively than the Michigan pineries. They would last, he said, 30 or 40 years. The Minnesota pineries are not so large as either of the others, and will probably not survive them. In from 25 to 40 years the last tree will be cut, and the entire country from Maine to the Rocky mountains must learn to live with meager quantities of pine lumber brought at great expense from distant countries. The pineries cannot be replaced. A full grown tree represents hundreds and hundreds of years of growth. I saw small pines, no larger round than a man's arm, bearing the scars made by the axes of the United States engineers 35 years ago. What ages, then, must be required to produce a tree three or four ft. in diameter? When these forests reach the condition of the pineries of Maine and New York, and become extinct, no new ones will take their places. The American of the near future must learn to hew and build without pine, and marvel at the thoughtless recklessness of his ancestors.

GLUCOSE.—The manufacture of glucose in this country has grown to enormous proportions, there being at present no less than \$30,000,000 invested in it. The material here is made entirely from corn, and so successful has it been, that quite a *furor* exists in connection with it throughout the West, where a number of new factories are being set up. This industry originated in the year 1863, with Messrs. Gesaling & Bradley, who at that time improvised an experimental factory in Buffalo, to determine if grape sugar and syrup could not be made from corn. The product had been made for years in Europe from potatoes, and imported into this country at prices ranging from 8 to 12 cents per pound; but up to that time sugar from corn was not known as a commercial article. The experiment was successful, and from this beginning has gradually developed what is now an immense industry. At the present time, instead of importing from Europe an inferior article of grape sugar made from potatoes, at a cost of from 8 to 12 cents, as above noted, large quantities of corn sugar are exported at about three cents. A bushel of corn produces 30 pounds of glucose.

HORSE LEATHER.—By a recent Cabinet order, horse leather has been adopted as the material of which the boots issued to sailors of the German navy are in future to be made. Experiments with horse-leather boots have, it appears, been carried on for the past 18 months, and with such satisfactory results that the use of calf skin is to be altogether abandoned in making naval boots and shoes. The leather used is to be made of the skin of the quarters of the horse, the flesh being carefully scraped off, so as to render the leather soft and pliable, while still remaining, to a large extent, waterproof.

ALL the Paris papers agree in advocating a pacific foreign policy. Some journals demand the Chambers to be summoned for a special session; but it is impossible. They will not meet before the usual time. It is announced that as soon as the new Cabinet is definitely constituted, a circular of a very pacific character will be dispatched to the representatives of France abroad. It is announced that Gambetta will shortly deliver a pacific speech.