the left in preference to the right. This view receives color from the fact that even among savage and uncivilized peoples the right is preferred. Among them, as among ourselves, the proportion of left-handed men is small. The Benjamites were considered odd by the children of Israel for their peculiarity of being left-handed. Either in ancient or modern times the proportion of left-handed men was always small.

Why does a man lost on a plain, where there are no guides for his course, make a circle in his efforts to go forward, turning always to the left? It may be said because the left being the less used side, and, therefore, less developed and weaker, must give way to the superior energy of the right; but this reason does not hold good, because we walk with our feet and not with our hands, and the feet are educated alike. We are ambidexters as regard our feet. In military evolutions we are taught to put the left foot first—to start off with the left foot; but in the dance we are instructed to start off with the right. Beside, we know of a person left-handed from his infancy, who, being lost in a snowstorm on Seekonk Plains, near Pawtucket, Mass., wandered in concentric circles, or spirals, for more than two hours, before being relieved, turning always to the left. Ambidexters, or those who can use equally well either hand, generally prefer to employ the right even when using an instrument not specially designed for the right hand. Those who like gymnasts, or pugilists, have to use the left with equal facility with the right hand, are compelled to submit to a severe course of discipline to attain equal force and dexterity with the left that they possessed with the right. The word just used—dexterity—perhaps, may be a clue to the question underlying these suggestions. Dexter, the right, sinister, the left. May there not be some meaning in these Latin terms and their derivations, physical, moral, and generally philosophical, beyond their application to manual operations? To be sure the Latin *rectus* may be offset against the other term, but the practice of the Romans, as well as our own justifies their interchange.

In some sense all mechanics and laborers are ambidexters. The wood-chopper should wield his axe with the right hand near the blade, as well as with it at the handle end; so the dresser of timber or the ship-carpenter, the adze; so the blacksmith's striker with the sledge, the farmer with the hoe, rake, or flail, and the housewife with her broom; but each and all prefer to give the dexter hand the precedence. Our guardian angel is the "angel over the *right* shoulder;" the sheep go to the *right*, the goats to the *left*; we give the *right* hand of fellowship, and of friendship, and in the latter case if circumstances demand the proffer of the *left*, the act is always accompanied wtih the palliating excuse "nearer the heart." Possibly this phrase has a physiological significance; muscular action or violent exertion should be kept as far from the delicate and active seat of life as possible for fear of too great a stress upon that organ.

Is there not something in this universal instinct—apart from custom—that demands investigation at the hands of our scientists, our social philosophers, and our moralists? It is not accident, circumstance, convenience, nor even tradition that compels us to prefer the right; what is it?

GLASS BLOWING.---HOW BOTTLES ARE MADE.

In a former article we treated of the composition of glass, and the construction of the furnaces in which the materials are melted preparatory to the operations by which the fused glass is made to assume the various familiar forms of glassware. The arrangement of these furnaces varies considerably, but a common form is that of a truncated cone with a chimney at the apex. Around and upon the interior of the base, the pots are placed, so that the workmen are distributed entirely around the furnace. The implements used in glass-blowing are of the simplest description and few in number. On this account a great degree of manual dexterity is required. During our recent sojourn at Pittsburgh, we took especial notice of the glass manufacture, of which nearly all branches are represented there, and with the readers permission we will step into some of the numerous establishments and witness, first the

MANUFACTURE OF BOTTLES.

Before we commence the description of glass-blowing, however, it will be proper to state the general principles upon which glass-blowing depends. If iron, or lead, or clay, in a plastic state, were the material desired to be worked, we should find the application of this method entirely impossible. What is it then about glass that makes it advantageous to work it in this manner? Why can it not be cast in the shapes required like iron? or why can not iron be blown like glass? A comparison of the properties of the two substances will elucidate the whole matter. Iron is one of the best conductors of heat, while glass is one of the worst. A body of iron unless very large, will when heated or cooled in one part rapidly become heated or cooled in all its parts. Glass on the contrary may be heated at any one point to redness, while parts very near to the heated portion remain cool. To illustrate this, suppose it to be required to blow a bulb upon one side of a straight glass tube. By directing a sharp pointed flame against the side of the tube at the proper point, a well defined disk of redness will be produced. The borders of the spot will show but little shading out of color, and the rod may be held in the fingers at only a very short distance from the heated disk. The spot thus heated has become plastic; and if one end of the tube be now closed with the finger and the other placed in the mouth, and a strong blast of air forced into it, the internal pressure upon the yielding spot will immediately expand it into a bulb. If now it were required to produce a depression in the bulb itself, it would only be necessary to reheat the center of the bulb, and exhaust the air from the tube when the external pressure of the atmosphere would press it inward. An iron tube could not be thus manipulated it would be impossible to heat it upon one side without heating the other, and the heat would also extend along the tube on either side of the point to which the heat should be directly applied. Beside this, the iron would never assume that doughy plasticity possessed by properly tempered and heated glass. The limit between the temperature when it becomes plastic and that at which it melts and runs down is very much narrower than that of glass. Beside the same conductive power which prevents heating in a given spot without also heating others, tends to cool down very rapidly any portion which is heated above the rest, while the reverse is true of glass. Again, air is a very bad conductor of heat—even worse than glass—and its low conducting power aids very materially in the process of glass-blowing. These facts borne in mind will enable the reader to perceive the rationale of the several manipulations we are about to describe.

The chief instrument used in the blowing of bottles, as well as all other glass-blowing, except fancy glass ornaments and toys, to be described subsequently, is what is technically known as the "pipe." It is a wrought-iron tube, from four to five feet long with a small knob at one end and a wooden handle at the other, terminating in a mouth-piece through which the air is forced; the bore extending entirely through the instrument. The end upon which the knob is fixed is used to collect a mass of the fused glass, to be fashioned into a bottle. With this simple instrument the workman approaches the "working hole" of the furnace, plunges the end into the fused glass, and rolling it around collects a ball of the material, and, immediately withdrawing it, blows a slight blast through the tube which expands a small hollow in the mass. After the ball has cooled a little, he plunges it in a second time, thus accumulating more material, and repeats this process until sufficient material has been taken up. As soon as the ball is large enough it is brought into one of the hollows of the "marver"—a wooden block in which hemispherical concavities have been excavated, the hollows being kept moistened with water. The mass is rotated in one or more of these cavities while a gentle blast is forced through the tube to keep open the internal opening. After a little the plastic mass assumes the form of a pear. This pear is now subjected, after reheating in the working hole to a complex manipulation. It is elongated by the swinging of the pipe to-and-fro like a pendulum, the centrifugal force thus generated, stretching it out longitudinally and, at the same time, it is kept round by turning the tube on its major axis, and expanded by a stronger blast than heretofore. By these means combined the metal assumes the form of an egg with a long tubular neck extending from the smaller end. As soon as this stage in the process is reached, the vessel is inserted into the mold—a block of iron containing a cylindrical hole the size of the desired bottle—and expanded to fit it by a strong blast, at the same time its neck is elongated by a succession of jerks, the inertia of the body of the bottle being sufficient for the latter purpose. By this time the yet unfinished bottle is so cool that a reheating is necessary. This time however, the bottom only is heated in order to give it the requisite concavity. As soon as it acquires enough plasticity, an assistant—usually a boy—who has in the meantime attached a small mass of fused glass to a rod of iron called a "punty," places this instrument with its little ball of glass as near the center of the bottom as possible and presses it inwards. As soon as the bottom becomes cool, the bottle is detached from the pipe by dropping a little cold water upon the neck as near the pipe as possible. This cracks it short off, and the bottle is now supported by the punty attached to the bottom. The neck is now reheated and a thread of hot glass wound around it at the top to form the rim, and a finish is given to it by rotating it; the punty resting across the edge of a bench upon which the workman is seated, who, while rotating the bottle, applies an iron instrument to the yet plastic glass. A boy then siezes the punty and carrying the bottle to the annealing oven detaches it by a quick jerk. This completes the work on an ordinary champagne bottle.

The process we have described is varied in some particulars in making other kinds of bottles, for perfumers, druggists, etc. We have often heard people express wonder that letters panels, figures of animals and other ornaments could be blown in the sides of bottles, but it is the simplest thing imaginable. The letters or other designs are cut in the side of the mold, which for fine work is generally made in halves and so adjusted that it can be opened or closed by a foot lever. The molds for such work are also formed so that the top closes with the exception of an aperture for the neck. The glass having been blown into a pear-shaped ball of the right size is placed in the mold and a sharp blast forces it into every depression. At some future time we may describe the modes of making pressed glassware, and window glass.

EFFECTS OF IMPROPER DIET.

The *Radical* for January contains an able and somewhat humorous review of a new work on health, by R. D. Mussey, M. D., which, not without show of reason refers a vast number of the real and imaginary "ills to which flesh is heir," to improper diet. The following extract from this spicy review will be read with interest by gourmands and Grahamites, as well as the intermediate grades of eaters who do not believe either in stuffing or starvation:

Now it is triumphantly asserted, by those who do not know, that everything about man shows that he is cut out for a large feeder. Especially they insist upon the fact that his teeth and digestive apparatus show that he combines the capacities of the three classes of animals—the fruit, grass, and flesh eaters. He leads the animal world in his capacity for assimilating all kinds of food—which shows, they argue, that it was intended he should be a great feeder. A cow has no power to import molasses into her pasture, or to make a plum pudding. Yet man has, and he can do it safely. But the doctor denies both the fact and its conclusion. He quotes from Cuvier, who says that "the natural food of man is fruit, roots, and the succulent portion of vegetables. His weak jaws and small canine teeth would not allow him, in a state of nature, to live on herbage or flesh." He alludes to the three tests which should determine the food for man—first, the make of his teeth; second, the make of his digestive apparatus; third, the eating habits of the kinds of animals nearest man. And he contends that these three marks show that man was intended for a vegetable eater. First, the teeth. The fore ones in carnivorous animals always meet. In man they do not meet, but overlap, as in all fruit-eating creatures. Besides, they are not strong, as the lion's or wolf's: but weak, as with the fruit eaters. Second, the side teeth are not long and projecting, as with the carnivorous, who thus can seize their prey; but are short, as with the fruit eaters. Third, the back teeth of man have the grinding motion which the fruit and grass eaters have, but which the flesh eaters do not have. Then they meet squarely. But those of the carnivorous overlap, so as to act as shears in cutting the flesh. Then they are not notched, as the carnivorous orders require in order that they may hold their food while eating it. In fact, he remarks that all omniverous quadrupeds, like the bear, the raccoon, the opossum, the hog, have no lateral motion to their back teeth. But man, in common with the cow and fruit eaters, has this peculiarity. Second, the form of the digestive apparatus. This, with the grass eaters, is always long and complex. With the flesh eaters, always short and simple. With the fruit eaters, as to length, it is intermediate between the two classes; as to simplicity, not so simple as the flesh eaters, not so complex as the grass eaters. But man has precisely the peculiarity here of the fruit eaters. His intestines are not short, like the flesh eaters; nor complex, like the grass eaters; but intermediate—showing, therefore, that he was meant to eat the grains and fruits. It is true, as the doctor remarks, some cows and horses have been known to eat and relish oysters and fish. But this fact does not show an original intention. But if a complex diet brings disease, as it always does to these animals, if the distillery-fed cow has her teeth diseased and crumbling, like those of the over-fed urchin, we must reason in the same way as to man. Third, the eating habits of the animals next to man. Now what animals are most similar to him, in make, in teeth, in digestive apparatus? The gorilla, the ourang, the chimpanzee. Teeth and intestines are similar. But these are all, with our other monkey friends, *fruit* eaters. Flesh is detrimental to their health. Now if all these facts do not show, as the doctor is inclined to think they do, that men and women are meant to be grain eaters *exclusively*, they certainly do show that we were not meant to be Falstaffs with unbounded stomachs. They do show that we were intended for simple food, like corn, or the apple or the potato; and that such food is compatible with high health. As the rejoicing invalid said, "If man could only know the inspiration that will come from the feed of rye porridge and oatmeal tea, he would pay higher prices for that than for the gorgeous lunch." They do show that our vast varieties of food, though produced by that glory of man, woman, are slightly demoniac in their origin and results.

We have hinted that often disease in its various forms could be traced to an unhappy digestion and the contents of the stomach. The doctor is sure of this cause, though not so wild as to think it the only one. Now all know the weak saws that a man will whine out when his lungs, nerves, or stomach, are in bad trim. "Oh! it is my poor constitution!" The poor constitution has to take it. "Confound these lungs! they were never good for anything. I inherited bad nerves from my good mother." (Not a very shining compliment). But the doctor would say, "Friend, your digestion may be at the bottom of part of the trouble." Don't be too fast. And to show this he proceeds to pile up a small mountain of cases, illustrating how diseases far off from the stomach can be reached at that pampered center. We will give a few of the cases. A lady teacher. For two months in constant nausea, utterly prostrated. A good emetic made her digestive apparatus give up the green leaves of some dandelions which she had eaten six weeks before. Presently got well. A fat old gentleman. Would have sharp cramps in his feet, and at times convulsions. The doctor would instantly relieve him by a little medicine administered to his sinning stomach. Dr. Wollaston, the English scientific man. Had once a most violent pain in his ankle. Presently he threw up a large ice cream, and the pain departed. A woman blind for three and a half months. Slight doses of guaiacum administered to the stomach brought back her sight in one week. A gentleman with terrific pains at the heart, an intermittent pulse, was sure his heart was diseased. His doctor, in one attack, sounded his stomach, found in it the greater part of a roast chicken. The chicken removed, heart all right. Then the common case of a cold. It is known that after eating there is always a secretion of mucus in the lungs and their tubes. And, with some not overhealthy, the secretion is apt to be very large. A very fat fowl, therefore, will often make a very foul throat. Cleanse the stomach, probably, and the cold will often and at once yield. A lady with disease of the liver. Often with most acute, fierce pains from the jaundice. Once, after a long cessation of pain, a single mouthful of her "pet ham" brought back the entire round of troubles. The ham subdued, she became all right. A lady who entirely lost her voice—of a very costive habit. A successful treatment of the digestive organs (reached through the kidneys, which were also sluggish), by a single dose of medicine, brought back almost instantly her voice. A young child, always ailing, weak, irritable, stupid, body covered with sores, with most voracious appetite. The greater the quantity of food, the greater the appetite. A diet exclusively of baked apples was commenced. Soon the passion, stupidity, voraciousness, sores, disappeared. A perfect recovery. A person fearfully afflicted with ulcers. No remedy. Cured through the stomach by a diet of bread and water. Asthma. A gentleman had a severe form of it. Seven bad attacks in six months. Dosed with morphine, etc. Cured perfectly by a spare bread-and-water diet, and in a short time. Dr. Gregory suffered from an attack of palsy. Several light shocks. Was of full habit. Turned about in his diet. Lived exclusively on bread, milk, vegetable diet, and in moderate quantities. Got well. Lived thirty years to be ninety-three. A case of epilepsy of fourteen years' standing. Violent medicines given, including arsenic. Treatment through the stomach. Milk and crackers. Recovery perfect.

Now we have reluctantly gone through with this dismal catalogue to show a great truth: that often, after raking heaven and earth to reduce a disease located far away from the unsuspected stomach, a proper treatment at that vital point will do the business. We could give many more such cases, for the doctor's book seems to sport with them. He runs them off as a Yankee does whittlings from a stick. But these are enough. We shall be glad if they teach sound sense. Tell us to seek causes where causes belong.

We concede that the teeth of man indicate that the