ing, he must crawl over the opposite edge of the table and along its under surface.*

Since, then, our traveller, journeying continually in the same direction over the earth's surface, or deviating from that direction only to the right or left, has returned to the same regions of the earth again, he must have gone round it; and it must be a surface returning into itself, at least in the direction in which he travelled. And if from his starting-place he has travelled in every possible direction, and always thus arrived at the same place again, then must it, not in one or two directions only, but in every direction, be a surface returning into itself—such a surface as would not only partly but *completely* contain a solid. Moreover, if in the course of these numerous journeys he met with no obstacle which he could not overpass, then would he be assured that there was no solid mass on which it rested, no pedestal by which it was supported, nothing from which it was suspended.

But it will be asserted that these journeys are all hypothetical; and that no traveller has thus, setting out from one place, made journeys in all directions round the earth. True; but if all the journeys and voyages which have been made were collated and compared, it would be found that these supposed journeys have been made, if not by one, at any rate by a number of different persons; and we have the results of their experience, which is to us as certain evidence, and indeed more certain than that of a single traveller would have been.*

There is indeed scarcely a week in which this great fact is not put to the test of experiment. Never perhaps does a week pass in which there does not arrive, in some port of Europe or America, some vessel which, having sailed from that port continually on the same course, or deviated only to the right and left of that course, has, nevertheless, returned to that port again; which it could never have done if the earth's surface were other than that of a continuous solid; if it were a flat, or infinitely extended, or a terminated surface, not returning into itself:† or a small portion of the surface of an infinitely extended plane; or an island, floated in the abysses of space; or the summit of a mountain, whose base reposes in some fathomless region unknown to us. This earth of ours is a huge mass, self-poised, supported upon nothing, hung upon nothing—enveloped by the air which we breathe, and surrounded by the space of the heavens.

How many thoughts does the mind embrace in this idea! The surface of the earth being that of a solid mass, there must be some point on the opposite side of it now immediately beneath my feet. Yet have I reason to believe, indeed I know, that every thing goes on there as it does here; all heavy bodies tend to fall to the surface of the earth there as they do here, and yet falling there and here they must fall in opposite directions. Men move about there as freely as they do here; although their position is inverted in respect to mine, they have no tendency to fall off; on the contrary, they are pressed by their weight to the earth's surface there as I am here; so that, in fact, we are pressed by our weight in the direction of our feet towards one another; and were we to fall, each would fall towards the other. Since, then, weight is something which on opposite sides of the earth presses bodies towards its surface, it is evidently a power in the earth itself, of which I see the analogy in the attraction of a magnet, which all round, and on its opposite sides, in opposite directions, fixes small particles of iron upon its surface.

* This illustration will be complete, if we compare the case of a fly crawling over the surface of an orange with that of the fly crawling on the table.

* It is not strictly to all the points of the earth that our experience extends, for there are some which no human being has perhaps ever crossed, and many which have never been visited by any one whose authority we have for the fact asserted in the text; yet so few are these cases, when compared to those of which we have experienced, that, although they leave the matter under the *form* of a probability, it is one which is *practically* a certainty.

† A year or two ago it was announced that vessels set out every six weeks from the port of Liverpool, to make the voyage round the world. Their course is south-west until they reach Cape Horn; then still westerly until they make New Holland; then perhaps north-west, to some port of India; again south-west, to the Cape of Good Hope; and then north-west, home. Thus sailing continually to the west, they have returned to their port. Had the world not been round, they must continually have receded from it.

Milk.—In large towns, where the consumption of milk is very considerable, there is very little exposed to sale without previously receiving some fraudulent addition. In most cases, the substances which are added are by no means injurious to the health of the individuals who drink the milk; but they do not the less diminish those good qualities which render milk so extremely valuable as an aliment. The best milk is of a mean consistence. Its specific gravity is about 1.0324, that of water being 1.0000. It should have a dull white colour, and a soft, agreeable, sweetish taste. The adulterant which is most frequently added to milk, and which is the most difficult of detection, is water. Milk which has been diluted with water always presents a bluish colour, instead of that dull white which is the characteristic of pure milk. It has also a watery taste, and is found to yield, after three or four hours' exposure to the air, a much smaller proportion of cream than is produced by a similar quantity of pure milk.

Several attempts have been made to contrive *lactometers*, or instruments for ascertaining the comparative goodness of samples of milk. One of these lactometers was similar in principle to the hydrometer. It consists of a graduated glass tube and a bulb. When plunged into milk it took a higher or lower position, according to the assumed goodness of the milk. But this instrument was far from possessing a desirable degree of certainty in its indications. The difference of temperature in various cows, the greater or less abundance of the animal's food, and its age and state of health, have all great influence on the specific gravity of the milk produced. A *lactometer* of a better description consists of a glass tube about a foot long and half an inch in diameter; tubes of which size, supported by a foot, can be bought at the glass-houses for eighteen pence. If milk is poured into a tube of this kind, and permitted to repose there, the cream which it contains rises to the surface and forms a cake, the bulk of which, compared with the bulk of the milk, denotes the comparative goodness of the milk. The lactometer tube should be graduated into ten parts, and the two upper parts divided each into ten others. It is then easy to ascertain at a glance the *per centage* of cream contained in any sample of milk submitted to trial. For the sake of obtaining a *standard*, it should be ascertained by direct experiments, how many parts of cream are contained in 100 parts of genuine new milk.

The bluish colour and the thin appearance produced in milk by dilution with water, are sometimes hidden by the addition of flour and yoke of eggs, which not only correct the colour, but give more consistence to the mixture. The presence of the flour can be detected by means of iodine.

Cream.—Cream, being an article in considerable demand, and bearing a high price, is frequently adulterated with compounds containing starch and skimmed milk. Arrow-root is the substance which is best adapted and most employed for this purpose. It is mixed