

through the loop, and is fixed in the corner of the membrane, to pull it backward and forward. If you wish to draw a thing towards any place with the least force, you must pull directly in the line between the thing and the place; but if you wish to draw it as quickly as possible, and with the most convenience, and do not regard the loss of force, you must pull it obliquely, by drawing it in two directions at once. Tie a string to a stone, and draw it towards you with one hand; then make a loop on another string, and running the first through it draw one string in one hand, not towards you, but sideways, till both strings are stretched in a straight line; you will see how much more easily the stone moves quickly than it did before, when pulled straight forward.—*Brougham's Miscellanies*.

ADULTERATION OF FLOUR.—It is well known that the flour of various kinds of grain is often adulterated with alum, plaster, and even arsenic, when a crime is contemplated. These frauds can always be discovered, but only by means of complicated operations. A chemist, of Charleville, M. Cailletet, has just discovered a method by which even the ten-thousandth part of any mineral substance may be detected in a few instants. Chloroform, that singular compound which has already rendered so many services to science, is again the chief agent here. Flour is insoluble in this substance, and much lighter, whereas all mineral substances are heavier; were water or any other liquid used instead of chloroform, the flour would either form into a paste or be decomposed. These facts being kept in mind, M. Cailletet's method will be easily intelligible. A small quantity of the flour to be tested is introduced into a glass tube closed at one end, about an inch in diameter by eight or ten in length. Chloroform is then poured into the tube, which, after being well corked and shaken, is left to stand for some time in a vertical position. The flour will soon rise to the surface, while all the mineral substances it contained fall to the bottom; the liquid may then be decanted, and the deposit subjected, if required, to a chemical analysis.

AFRICAN DESERT PLANTS: ADAPTATION OF STRUCTURE TO PURPOSE.—The quantity of grass which grows on this remarkable region is astonishing, even to those who are familiar with India. It usually rises in tufts with bare spaces between, or the intervals are occupied by creeping plants, which, having their roots buried far beneath the soil, feel little the effects of the scorching sun. The number of these which have tuberous roots is very great; and their structure is intended to supply nutriment and moisture when during the long droughts they can be obtained nowhere else. Here we have an example of a plant, not generally tuber-bearing, becoming so under circumstances where that appendage is necessary to act as a reservoir for preserving its life; and the same thing occurs in Angola to a species of grape-bearing vine, which is so furnished for the same purpose. The plant to which I at present refer is one of the Cucurbitaceæ, which bears a small scarlet-coloured eatable cucumber. Another plant named *Leroshua* is a blessing to the inhabitants of the Desert. We see a small plant with linear leaves, and a stalk not thicker than a crow's quill; on digging down a foot or 18 inches beneath, we come to a tuber, often as large as the head of a young child; when the rind is removed, we find it to be a mass of cellular tissue, filled with a fluid much like that in a young turnip. Owing to the depth beneath the soil at which it is found, it is generally deliciously cool and refreshing. Another kind, named *Mokuri*, is seen in other parts of the country, where long-continued heat parches the soil. This plant is a herbaceous creeper, and deposits underground a number of tubers, some as large as a man's head, at spots in a circle a yard or more horizontally from the stem. The natives strike the ground on the circumference of the circle with stones, till, by hearing a difference of sound, they know the water-bearing tuber to be beneath. They then dig down a foot or so and find it.—*Livingston's Missionary Travels*.