gravity of the vegetable juices would accelerate the rising of the sap, and would, probably, hurry and overload the leaves and other organs, so as to interfere with their due operation. Some injurious change, at least, would take place.

Here, then, we have the forces of the minutest parts of vegetables adjusted to the magnitude of the whole mass of the earth on which they exist. There is no apparent connexion between the quantity of matter of the earth, and the force of imbibition of the roots of a vine, or the force of propulsion of the vessels of its branches. Yet, these things have such a proportion as the well being of the vine requires. How is this to be accounted for, but by supposing that the circumstances under which the vine was to grow, were attended to in devising its structure?

We have not here pretended to decide whether this force of propulsion of vegetables is mechanical or not, because the argument is the same for our purpose on either supposition. Some very curious experiments have recently been made, (by M. Dutrochet,) which are supposed to show that the force is mechanical; that when two different fluids are separated by a thin membrane, a force which M. Dutrochet calls *endosmose* urges one fluid through the membrane: and that the roots of plants are provided with small vesicles which act the part of such a membrane. M. Poisson has further attempted to show that this force of *endosmose* may be considered as a particular modification of capillary action. If these views be true, we have here two mechanical forces, capillary action and gravity, which are adjusted to each other in the manner precisely suited to the welfare of vegetables.

2. As another instance of adaptation between the force of gravity and forces which exist in the vegetable world, we may take the positions of flowers. Some flowers grow with the hollow of their cup upwards: others "hang the pensive head," and turn the opening downwards. Now of these "nodding