

considerable portion. The vegetable clock-work is so set as to go for a year.

The length of the year or interval of recurrence of the seasons is determined by the time which the earth employs in performing its revolution round the sun: and we can very easily conceive the solar system so adjusted that the year should be longer or shorter than it actually is. We can imagine the earth to revolve round the sun at a distance greater or less than that which it at present has, all the forces of the system remaining unaltered. If the earth were removed towards the centre by about one-eighth of its distance, the year would be diminished by about a month; and in the same manner it would be increased by a month on increasing the distance by one-eighth. We can suppose the earth at a distance of eighty-four or a hundred and eight millions of miles, just as easily as at its present distance of ninety-six millions: we can suppose the earth with its present stock of animals and vegetables placed where Mars or where Venus is, and revolving in an orbit like one of theirs: on the former supposition our year would become twenty-three, on the latter seven of our present months. Or we can conceive the present distances of the parts of the system to continue what they are, and the size, or the density of the central mass, the sun, to be increased or diminished in any proportion; and in this way the time of the earth's revolution might have been increased or diminished in any degree; a greater velocity, and consequently a diminished period, being requisite in order to balance an augmented central attraction. In any of these ways the length of the earth's natural year might have been different from what it now is: in the last way without any necessary alteration, so far as we can see, of temperature.

Now, if any change of this kind were to take place, the working of the botanical world would be thrown into utter disorder, the functions of plants