

obviously essential to their well-being, than the annual series of changes. But there are abundance of facts which serve to show that such an alternation is part of the vegetable economy.

In the same manner in which Linnæus proposed a Calendar of Flora, he also proposed a *Dial of Flora*, or Flower-Clock; and this was to consist, as will readily be supposed, of plants, which mark certain hours of the day, by opening and shutting their flowers. Thus the day-lily (*hemerocallis fulva*) opens at five in the morning; the *leontodon taraxacum*, or common dandelion, at five or six; the *hieracium latifolium* (hawkweed), at seven; the *hieracium pilosella*, at eight; the *calendula arvensis*, or marigold, at nine; the *mesembryanthemum neapolitanum*, at ten or eleven; and the closing of these and other flowers in the latter part of the day offers a similar system of hour marks.

Some of these plants are thus expanded in consequence of the stimulating action of the light and heat of the day, as appears by their changing their time, when these influences are changed; but others appear to be constant to the same hours, and independent of the impulse of such external circumstances. Other flowers by their opening and shutting prognosticate the weather. Plants of the latter kind are called by Linnæus *meteoric* flowers, as being regulated by atmospheric causes: those which change their hour of opening and shutting with the length of the day, he terms *tropical*; and the hours which they measure are, he observes, like Turkish hours, of varying length at different seasons. But there are other plants which he terms *equinoctial*; their vegetable days, like the days of the equator, being always of equal length; and these open, and generally close, at a fixed and positive hour of the day. Such plants clearly prove that the periodical character, and the period of the motions above described, do not depend altogether on external circumstances.

Some curious experiments on this subject were