

present degree of perfection. As laws acquire generality, the influence of individual observations becomes less, and a higher and higher degree of refinement in their performance, as well as a great multiplication in their number, becomes necessary to give them importance. In astronomy, for instance, the superior departments of theory are completely disjoined from the routine of practical observation.

(127.) To make a perfect observer, however, either in astronomy or in any other department of science, an extensive acquaintance is requisite, not only with the particular science to which his observations relate, but with every branch of knowledge which may enable him to appreciate and neutralize the effect of extraneous disturbing causes. Thus furnished, he will be prepared to seize on any of those minute indications, which (such is the subtlety of nature) often connect phenomena which seem quite remote from each other. He will have his eyes as it were opened, that they may be struck at once with any occurrence which, according to received theories, ought not to happen; for these are the facts which serve as clews to new discoveries. The deviation of the magnetic needle, by the influence of an electrified wire, must have happened a thousand times to a perceptible amount, under the eyes of persons engaged in galvanic experiments, with philosophical apparatus of all kinds standing around them; but it required the eye of a philosopher such as Oersted to seize the indication, refer it to its origin, and thereby connect two great branches of science. The grand discovery of Malus of the polarization of light by reflection, originated, in his casual remark of the disappearance of one of the images of a window in the Luxembourg palace, seen through a doubly refracting prism, one evening when strongly illuminated by the setting sun, as he carelessly turned it round in his hand.

(128.) To avail ourselves as far as possible of the advantages which a division of labor may afford for the collection of facts, by the industry and activity which the general diffusion of information, in the present age,