

mathematics, some obscurely initial or rudimental process of observation may have been necessary, ere the mind could arrive at its first conceptions, either of quantity or number. Certain it is, however, that, in all the sciences, however dependent on observation for the original data, we can, by reasoning on the data, establish an indefinite number of distinct and important and useful propositions—which, if soundly made out, observation will afterwards verify; but which, anterior to the application of this test, the mind, by its own excogitations, may have made the objects of its most legitimate conviction. It is thus that, on the one hand, we, by the inferences of a sound logic, can, on an infinity of subjects, discover what should for ever have remained unknown, had it been left to the findings of direct observation; and that, on the other hand, though observation could not have made the discovery, it never fails to attest it. Visionaries, on the one hand, may spurn at the ignoble patience and drudgery of observers; and ignorant practitioners, whether in the walks of business or legislation, may, on the other, raise their senseless and indiscriminate outcry against the reasoners—but he who knows to distinguish between an hypothesis based on imagination, and a theory based on experience, and perceives how helpless either reason or observation is, when not assisted by the other, will know how to assign the parts, and to estimate the prerogatives of both.

23. When the mind has retired from direct converse with the external world, and brought to its own inner chamber of thought the materials