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Baden Powell
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ESSAY I.

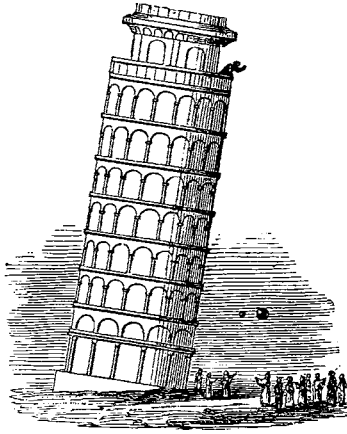


ON THE SPIRIT OF
THE INDUCTIVE PHILOSOPHY.

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§ I. — THE INDUCTIVE PRINCIPLE.



GALILEO, 1590.

“Opinionum commenta delet dies,
 Naturæ judicia confirmat.” — Cic.

THE characteristic nature, genius, and grounds of the inductive philosophy have been much discussed of late years, and under considerable varieties of aspect, by different parties. Whilst some have carried out their view of its principles into metaphysical abstractions often hardly intelligible, others have sought to narrow them to the results of mere sen-

Introductory re-
marks.

sible experience; and whilst the one would connect its aims with a higher intellectual philosophy, even verging on the mystical, the other school would lower its objects to the mere empire over matter, and the attainment of utilitarian ends.

Distinction
of sensa-
tions and
ideas.

More precisely, an inquiry into the essential grounds and principles of induction involves the general question of what has been termed “the fundamental antithesis”* of sensations and ideas, facts and theories; in a word, of two essentially distinct and independent sources of all knowledge, the external and the internal—observation by the senses, and ideas originating in the mind itself; while it is only by the application of the latter to reduce to system the materials supplied by the former, that any real philosophical theory can be constructed, the crude results of observation be converted into an inductive theory, or sense elaborated into science.

Thus ideal conceptions, the pure offspring of mind, the mere creatures of intellect, seem to exercise a sort of plastic power over the mass of

* See Dr. Whewell's two able memoirs “On the Fundamental Antithesis of Philosophy.” Cambridge Phil. Society Transactions, 1848.

material results, giving them a fresh character and scientific significance; and thus we are enabled to make that ascent from facts to laws, from laws to causes, which is the aim and boast of the inductive philosophy. Such views, carried out in some instances to speculations of a kind still more remote and hardly comprehensible, have been adopted by many at the present day: while, on the other hand, the “positive philosophy” is characterised by a tendency to the contrary extreme of discarding all reference to those higher intellectual principles, reducing all science to the naked results of observation and calculation, and all idea of causation to that of mere invariable sequence of phenomena.

In looking more precisely to the meaning of the term *experience*, if we understand it literally as the mere collection of facts, such as sense and observation *directly* furnish, and the rejection of everything which is not, in this restricted sense, properly learnt by it, then, indeed, there is an end put to all really scientific or philosophical investigation; and beyond the narrow circle of those facts we can never enlarge our conceptions or raise our contemplations.

Meaning of
the term
“expe-
rience.”

The slightest consideration, however, will show

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bearing on the manifestation of the existence of certain relations among them, connecting them together by *analogy*. If the individual facts be thus connected, or of the *right sort*, a comparatively *small number* of them will be convincing, when in other cases the most laborious accumulation will be fruitless and unsatisfactory, as wanting in a real connection of analogy. When, however, that essential condition is secured, it then infallibly happens (as has been well said) that a “vague and local idea . . . passes through the mint of a very few decisive experiments into the treasury of accepted truths.”*

In arriving at any general inductive conclusion, then, *something* is clearly superadded to the mere mass of facts; the question, is *what* is it? In the simplest case, that of knowledge acquired by the senses, something more than mere sensation is implied: besides sensations conveyed *to* the mind, there must be corresponding ideas excited or formed *in* it. All observation which involves *mind* involves *theory*: the *facts* of sense must be *idealised*. Of

What it is which is superadded to sensible facts.

* Rev. W. V. Harcourt's Letter, &c., Phil. Mag. 1846, p. 76.

the truth of this no reflecting person entertains a doubt: the sole question is, *how* it is effected, and *whence* these ideas are formed.

Supposed
 inherent
 faculty or
 principle.

According to one school, these phenomena are referred to a peculiar principle, supposed to be implanted in the mind, not to be further analysed: a special faculty, producing a distinct mode of conviction; a kind of assurance, prior to and independent of external sense, and derived from the interior resources of reason; an inherent intellectual element, which warrants us in extending our conclusions beyond the mere limits of observation, and in inferring intuitively and certainly the future or unknown from the past or known. Or, more precisely, certain fundamental conceptions are supposed primarily and originally formed within the mind itself, derived somehow from its interior resources, without any reference to external sensation; and the introduction of these conceptions (differently modified according to the nature of the respective subjects) impresses the proper form on the collected facts. And it is from the fundamental ideas thus entering into combination that the attributes of universality and necessity are acquired

by our conclusions and belief, and a certainly attained on *à priori* grounds which no mere observation could furnish.

Another school, discarding all reference to any intuitive or internally created ideas, analyses the intellectual process into its elements, and shows that through successive steps of abstraction, from the simple collection of facts, we advance to theories which are true just in proportion as we are guided by the right perception of analogy and the important rule of correcting one generalisation by another, and thus, that all knowledge is ultimately derived from observation.

Another view.
 Gradual process of abstraction and generalisation.

The theory of intuitive or internal principles undoubtedly appeals powerfully to the imagination. Nothing seems more natural or plausible than to refer everything to *ultimate principles* originating in the mind: it saves the labour of further analysis, and supplies a specious explanation of intellectual phenomena, which seems to gratify at once the desire of penetrating the secrets of our nature and the love of the mysterious, in appealing to great but hidden causes within us: a species of occult philosophy, which seems eminently to harmonise

Idea of intuitive principles natural.

with the mysticising tendencies of the age; but which, nevertheless, appears to be conceived in a spirit very opposite to that of the simple and *positive* character of the inductive method, and, though sanctioned by great names, seems rather to be a retrograde movement, and to evince a lingering attachment to the scholastic mysticism, or to be in some sense a revival of it.

Ought to be analysed up to simpler elements.

That we are *naturally prone* to entertain such notions may be very true; yet it may happen in this, as in many other instances of what we are *prone* to do, that we do *wrong*. But the more strict metaphysical inquirer will acknowledge that it is unphilosophical to imagine peculiar and unknown mental principles, if processes carried on through already acknowledged intellectual powers can be shown to suffice for explaining the facts.

In the present case, indeed, as in other inquiries, it may be perfectly allowable in the first instance to set down any outstanding class of phenomena as *provisionally* something *sui generis*, and of an elementary character, just as in chemistry we may regard any new substance as *elementary* while it is as yet *undecomposed*; but still it is the

aim of the chemist to decompose it if he can. In the same way there may be a multitude of ideas, impressions, intellectual sensations, and the like, which may at first seem like elementary principles; but which, nevertheless, it should be the aim of the metaphysical analyst to reduce into their component simpler elements if possible.

In such cases, the powers of imagination may be appealed to; and doubtless those powers are sufficiently prolific in suggesting theories. The minds of the ancient philosophers teemed with speculative schemes of nature, before any study of facts had furnished them with substantial materials. Humboldt has well observed, that “long before the discovery of the New World it was thought land could be seen in the west from the Canaries and the Azores. They were phantasms not produced by any extraordinary refraction of the rays of light, but merely by a longing for the distant, for that which lies beyond the present. The natural philosophy of the Greeks, and the physics of the middle ages and even of much later centuries, presented swarms of such fantastic forms to the imagination. The mental eye still essays to pass the horizon of limited know-

Power of
 imagina-
 tion.