little was the foremost champion of inductive thought able to discern the tendencies of his age: a warning to those who attempt to recognise the aims of contemporary thought.[1]

It is not, then, to the philosophical writers that I shall apply in order to trace the leading directions of scientific

definitions of horse-power and work (1826), which Whewell does not mention.

The mechanical theory of gases—not to mention the older speculations of Daniel Bernoulli—dates from Avogadro's and Ampère's hypothesis, published in 1811, "that all gaseous bodies, under the same physical conditions, contain the same number of units," from Herapath (1821) and Joule (1851).

On Whewell's position with regard to the question of the origin and variation of species, then already ventilated by Lyell, see 'History of Induct. Sci.,' vol. iii. p. 489, &c. (3rd ed.), and Huxley's remarks in the 'Life of Charles Darwin,' vol. ii. p. 192, &c. Wallace's essay 'On the Law which has regulated the Introduction of New Species' was published in 1858 along with Darwin's preliminary statement of his views.

We might form a whole catalogue of scientific terms, some of them by no means of recent origin, which are wanting in Whewell's books, but which now govern scientific progress: such are energy, work, action and efficiency, absolute measurement, to mention only physical terms. The general ideas upon which he himself lays some stress, such as those of polarity and symmetry, appear on the other hand to be vague generalisations, which have frequently led people astray.

[1] "It is a remarkable evidence of the greatness of the progress which has been effected in our time, that even the second edition of the 'History of the Inductive Sciences,' which was published in 1846, contains no allusion to the publication in 1843 of the first of the series of experiments by which the mechanical equivalent of heat was correctly ascertained. Such a failure on the part of a contemporary, of great acquirements and remarkable intellectual powers, to read the signs of the times, is a lesson and a warning worthy of being deeply pondered by any one who attempts to prognosticate the course of scientific progress" (Huxley in Ward's 'Reign of Queen Victoria,' vol. ii. p. 355). The same writer has pointed out how Auguste Comte was still more unfortunate in his opinions on contemporary science. "What struck me was his want of apprehension of the great features of science; his strange mistakes as to the merits of his scientific contemporaries; and his ludicrously erroneous notions about the part which some of the scientific doctrines current in his time were destined to play in the future" ("Scientific Aspects of Positivism," 'Lay Sermons,' 1891, p. 130). He then goes on to show how Comte treated the undulatory theory with contempt, extolled Gall, depreciated Cuvier, and spoke of the "abuse of microscopic investigations" (ibid., p. 134).