John Stuart Mill (1806-73) was the eldest son of the philosopher and economist James Mill. He was from the start subjected by his father to an exceptionally rigorous education. When only three he began to learn Greek, and this was followed by intensive instruction, first in Latin, mathematics, and history and then, from twelve onward, in logic and political economy. At fourteen he was sent to France, where he attended courses in chemistry, zoology, and higher mathematics; on his return he was introduced to the study of Roman law. While undergoing this comprehensive training he was at the same time imbued with the doctrines of the Benthamite philosophy to which his father subscribed; he was familiar at an early age with the leading representatives of the Utilitarian school, and at eighteen took on the task of editing Bentham's *Rationale of Evidence*. In 1823 Mill entered the Examiner's Office of the East India Company, remaining there for thirty-five years; the work involved did not, however, prevent him from engaging in a range of other activities. Thus he was a frequent contributor to the *Westminster Review*, was a vigorous propagandist—at the London Debating Society and elsewhere —on behalf of radical causes, and from 1834 to 1840 edited the *London Review*; during this period he also published some of his principal writings, including the *System of Logic* (1843) and the *Principles of Political Economy* (1848). In 1858 he retired from his administrative post (he had been appointed Chief of the Examiner's Office two years before) and spent much of the rest of his life in the south of France, at Avignon. Nevertheless, he was a Member of Parliament at Westminster from 1855 to 1868, where he spoke in favor of the 1867 Reform Bill and where he was also active as an advocate of Irish land reform and of women's suffrage. Nor were these years unproductive from a literary point of view. His essay *On Liberty* appeared in 1859, *Considerations on Representative Government* in 1861, *Utilitarianism* in 1863, and *An Examination of Sir William Hamilton's Philosophy and Auguste Comte and Positivism* in 1865.

Mill's attitude to the philosophical creed upheld by Bentham and his father was of a somewhat ambivalent character. Partly as a result of a psychological crisis which he suffered in 1826 and of his subsequent reading of Romantic thinkers and poets, he came to feel that the Benthamite outlook was unduly narrow and arid, and much of his own work—particularly in the fields of morals and politics—is expressive of the dissatisfaction he experienced at that time. Yet the moral he typically drew was that the principles of Benthamism required modification and supplementation, not that they should be rejected; moreover, he was at one with his predecessors in his opposition to all "intuitionist" or a priori modes of thinking, regarding these as dangerous in their practical implications as well as being indefensible theoretically. He was, however, acutely conscious that the crudities of traditional forms of empiricism exposed it to obvious objections, and believed that these could only be met by formulating its presuppositions and tenets in a more careful and sophisticated manner.

Mill's *System of Logic*, from which our selections of his work are mostly taken, can thus be seen as being largely an attempt to set the "philosophy of experience" upon a secure foundation, both by examining the nature and credentials of inductive inference and by systematizing the procedures involved in a way that demonstrated their epistemological priority and general applicability. He begins his discussion by criticizing what he thinks are incorrect notions of induction; in particular, he attacks the views of Whewell, which he regards as (among other things) obscuring the central problem of scientific validation or proof. In later chapters Mill develops at considerable length his own theory of the canons by which scientific conclusions may be experimentally assessed and finally justified; though it remains questionable whether he succeeded in the task he set himself. For the methods he describes themselves presuppose the truth of certain very general principles, such as the so-called "law of causation"; and although it is suggested that knowledge of the latter is safely grounded upon past experience, it is hard to see how the argument Mill propounds escapes circularity.

Mill's background and his deep interest in social reform would lead one to expect him to be particularly concerned with the possibility of extending
Inductions Improperly So Called*

1. Induction, then, is that operation of the mind by which we infer that what we know to be true in a particular case or cases, will be true in all cases which resemble the former in certain assignable respects. In other words, Induction is the process by which we conclude that what is true of certain individuals of a class is true of the whole class, or that what is true at certain times will be true in similar circumstances at all times.

This definition excludes from the meaning of the term Induction, various logical operations, to which it is not unusual to apply that name.

Induction, as above defined, is a process of inference; it proceeds from the known to the unknown; and any operation involving no inference, any process in which what seems the conclusion is no wider than the premises from which it is drawn, does not fall within the meaning of the term. Yet in the common books of Logic we find this laid down as the most perfect, indeed the only quite perfect, form of induction. In those books, every process which sets out from a less general and terminates in a more general expression,—which admits of being stated in the form, "This and that A are B, therefore every A is B,"—is called an induction, whether anything be really concluded or not: and the induction is asserted not to be perfect, unless every single individual of the class is included in the antecedent, or premise: that is, unless what we affirm of the class has already been ascertained to be true of every individual in it, so that the nominal conclusion is not really a conclusion, but a mere reassertion of the premises. If we were to say, All the planets shine by the sun's light, from observation of each separate planet, or all the Apostles were Jews, because this is true of Peter, Paul, John, and every other apostle,—these, and such as these, would, in the phraseology in question, be called perfect, and the only perfect, Inductions. This, however, is a totally different kind

*From A System of Logic (London, 1843), Book III, Chap. 2, pp. 188-200.