

*This document was originally published in
PROSPECTS: the quarterly review of comparative education
(Paris UNESCO: International Bureau of Education): vol.24, no.3/4, 1994, p. 533–54.
©UNESCO: International Bureau of Education, 2002*

This document may be reproduced free of charge as long as acknowledgement is made of the source.

HERBERT SPENCER

(1820–1903)
Brian Holmes¹

Herbert Spencer was a gifted amateur. Compared with his distinguished contemporaries, he was neither as precocious as J.S. Mill nor as well-educated as Charles Darwin and T.H. Huxley. Mill, a famous philosopher, was learning Greek at the age of 3 and had written a Roman history at the age of 6 (Bain, 1882). Both Darwin, who attended a famous public school—Shrewsbury (Barlow, 1958) and Huxley, who went to one of the best-known private schools in England (Bibby, 1959), received more formal education than Spencer. Yet at a time when, in the absence of popular publicly provided education, only a few boys acquired an education based on the classical languages, his schooling was not negligible. He attended a local school for three years but could not read until he was 7. At the age of 13 he went to stay with his uncle, Thomas Spencer, who had had a successful career at Cambridge University before becoming the priest of a parish near Bath. Young Herbert ran away when first left with his uncle but returned to acquire, on his own testimony (Spencer, 1850, p. 115), some knowledge of mathematics, physics and chemistry, a little French, some Greek grammar and an ability to translate some easy texts from Latin. Since, at the age of 16, Spencer declined the offer of a place at Cambridge University arranged by his uncle, he was obliged to look for a job. Fifty years later, he looked back on his educational achievements and was grateful for the stimulus to work provided by the school run by his uncle. His strictures about formal education were directed specifically to that type of schooling provided in the establishments attended by his subsequent adult friends who, in spite of it, had become world-famous professional philosophers and scientists. Formal schooling may not have been decisive in the careers of any of these nineteenth-century English intellectual giants; but Spencer was, however, an amateur among professionals.

For example, he learned much from experience. In roaming the countryside he collected specimens, acquired a tolerable knowledge of animal and insect life, and taught himself how to sketch from nature. Against the book knowledge acquired by his contemporaries, Spencer was proud to weigh the knowledge he had gained from things around him. At the same time it is clear that he benefited greatly from the intellectual atmosphere created by his father and uncle, and in which he grew up. His father, William George Spencer (1790–1866), was an apolitical radical who wanted to see society re-ordered. Though at one time a member of the Library Committee of the Derby Methodists, Spencer senior objected to the power that ministers exercised over the members of the congregation and began to attend Quaker services so that he could reflect quietly. He was by all accounts a good schoolmaster who, ahead of his time, advocated self-education. Free from doctrinal constraints, Spencer gave his father credit for the development in him of a scientific outlook which made him, like his father, hostile to supernatural explanations. As an agnostic, Spencer was more radical than his father, who could be regarded as a scientific deist. The two remained on good terms and corresponded regularly until his father died. The letters between them indicate mutual respect.

The influence of his uncle probably made Spencer even more radical since, for three years from the age of 13, Thomas Spencer (1796–1853), who was a lecturer and pamphleteer on matters of social reform, was in charge of Herbert's education. Thomas was interested in political action and favoured, among other things, church reform. Encouraged by his uncle, Spencer identified himself with most of the reform movements of the day. For example, his uncle was interested in the Complete Suffrage Union and, for a short time, Herbert was secretary of its Derby branch. His uncle also influenced his decision to write and at 16 he started a literary career with his short articles, critical of the Poor Laws, appearing in a local magazine.

By the time he was ready for work Spencer was already temperamentally opposed to all kinds of authority and was determined to pursue a literary career. His work as a railway engineer between 1837 and 1841 and again between 1845 and 1848 added another dimension to his education. The industrial revolution engaged the attention of a great many Englishmen. The construction of railway lines opening up the country was regarded by many Victorians as the single most important manifestation brought about by technological innovation in the nineteenth century. Spencer, engaged in surveying railway cuttings and inclines and preparing schemes for parliamentary approval, became aware of the ruthless drive to spread the network of railways. Some of his views on the social implications of this aspect of industrial development, of which he had first-hand experience, appeared in his article *Railway Morals and Railway Policy* in the *Edinburgh Review* of October 1854. Many years later, in 1892, he wrote a letter to an Earl of the Realm opposing the extension of a railway line through an inner London suburb unless the local residents were safeguarded from the enormous evil inflicted upon them by railway companies at every town in the kingdom (Duncan, 1908, p. 314).

In addition to his interest in social affairs, work on the railways also added to his scientific knowledge. The fossils he unearthed in the railway cuttings stimulated Spencer's study of geology. Thus, his brief experience of industrial life enabled him to speak to his fellow Victorians with some authority. At the same time, he missed no opportunity to increase his knowledge of the natural sciences.

From an early age Spencer appears to have been determined to give up engineering for a literary career, and between 1841 and 1845 he tried without much success to make his living as a journalist. His first work of any consequence a series of letters entitled *The Proper Sphere of Government* was published in *The Nonconformist*, to which he also contributed reports about the Complete Suffrage Union. Nevertheless, his initial failure to enter the literary field was not, in retrospect, without its compensations. He went back to engineering for a short time before becoming sub-editor of *The Economist* in 1848. This periodical had just been founded by an opponent of the Corn Laws and its editorial policy consistently and determinedly advocated *laissez-faire* as the correct way of running society. According to J.D.Y. Peel, Spencer simply amassed and presented factual material for *The Economist* and was more influenced by, rather than an influence on it or rather, was simply in accord with it (Peel, 1971, p. 77). The extreme position of the periodical was evident in its attacks on legislation which *Arrested on ignorance of the laws of nature, and could have no beneficial consequences* (ibid., p. 78).

The view that society should be organized in accordance with the laws of nature and that the best government was that which interfered least in the lives of individuals were convictions advanced consistently by Spencer in his subsequent writings. It was his aim to discover, within his evolutionary framework, natural scientific laws in accordance with which individuals could, without interference from the State, run their own affairs.

These views found expression in his first book, *Social Statics*, which was published in 1850, when he was 30. The book's contents were clearly in line with those espoused in *The*

Economist up until the time he left it in 1853. For example, in *Social Statics* Spencer enunciated the equal-freedom doctrine which asserted that the freedom of each person was limited only to the extent that the liberties of other people were not infringed. This view he reaffirmed at the age of 79 when he reviewed his life's work. His chapter on education in *Social Statics*, in which he applied his principles, was from the start controversial; some critics became particularly incensed by his view that there should be no state involvement in education. As national systems developed throughout the nineteenth century, his view was ignored or considered bizarre, except perhaps in the United States where the power of the federal government in education was resisted. Today, the dangers of state control of education are more clearly recognized, at least as it operated in the former Soviet Union. In the United Kingdom, too, the rights of parents to decide how their children should be educated in state schools are running up against the power of local authorities to run schools. While Spencer's extreme views about parental influence and state control are contrary to established opinion today, his warnings are reflected in the desire of present-day educational policy-makers to decentralize educational control and increase parental freedom of choice.

In 1853 a legacy from his Uncle Thomas made it possible for Spencer to leave *The Economist* and subsequently to devote himself, as had long been his wish, to writing. By this time his self-education had been completed. Compared with his contemporaries, Spencer lacked many of the formal educational ingredients required of a potential philosopher or scientist. By philosophers, he was not regarded as a true philosopher; by scientists, he was not considered a professional scientist. On the other hand, through his own observations, the intellectual atmosphere provided by his father and uncle, industrial life as an engineer and his work for a radical periodical, he had educated himself admirably for the monumental task he set himself when, in 1853, he became a professional author.

In the absence of an institutional position in which he would have been required to teach or undertake research, his achievements were enormous. On the one hand, he was a radical critic of the *status quo* and against authority of any kind. On the other hand he had, by 1860, deduced an intellectual conception of the whole universe and spent the next thirty-six years of his life filling in the details of his system. As an extremely talented amateur, elements of his the Synthetic Philosophy, finally completed in 1896, together with his correspondence with distinguished scientists like Darwin, Huxley and John Tyndall, and philosophers like J.S. Mill, testify to the fact that, without being one of them, he was accepted as being in their league. It was a remarkable achievement.

The socio-economic and political context

As a self-educated academic, Spencer had many counterparts in the commercial and economic life of his day. In the United Kingdom, the nineteenth century was a period when the application of science in industry, which had started in the eighteenth century, gained momentum. Many self-made men, with minimal formal education, contributed to the growth of industry and its infrastructure; the rural society was transformed into an urban society. The abundance of coal facilitated the development of the iron industry; between 1788 and 1839 the production of pig iron grew from 68,000 to 1,347,000 tons. Steam-driven machines revolutionized the production of wool and cotton. Lancashire became the centre of the cotton industry; the West Riding of Yorkshire the centre of the woollen industry. In 1835 England produced over 60% of the cotton goods consumed in the world. The network of canals was extended to link the industrial districts in the north of England with the centres of distribution and the ports. To these developments was added the growth of a railway system first opened in 1825, founded by George Stephenson, an engineer for a railway company in northern England. Spencer, as stated, was employed for some time as a railway engineer.

In the field of industrial development, there were great opportunities for enterprising men to make their own careers. Many of them from small beginnings helped to build up successful industries. These opportunities and their attendant success help to explain the optimism of the time and a disregard of the social evils that were fictionalized in such novels as *A Christmas Carol* and *Oliver Twist* by Charles Dickens. As a social reformer, Dickens revealed the dirt and brutality of schools, particularly those in the north of England. The squalor of Dickensian city life for the underprivileged is the other side of a situation in which a prosperous middle class grew in size and demanded for its children schools comparable to the ancient public schools, of which Eton, Harrow and Winchester were among the best known. Spencer criticized the schools of his day, but his commitment to economic liberalism and non-interference by the state prevented him from advocating the establishment of appropriate social services for those disadvantaged by the uncontrolled development of industry and commerce. Paradoxically, the population explosion, giving rise to Malthusian predictions of disaster, was seen by Spencer as a cause of progress and made social organization inevitable.

Politically, Spencer lived in an age of dissent and, as we have seen, was from an early age associated with many local radical movements. For the dissenters, the abolition of hereditary social advantages was the key to greater opportunities and self-betterment. Various groups were able to unite against the aristocracy, the landowners and the hereditary principle. On the issue of control of education, the Methodists aligned themselves with dissent. Spencer's family were Methodists. Faced with radical alternatives to the status quo, Spencer opted for co-operative individualism rather than socialism. He was, for example, against free libraries and state education on the grounds that they were socialist. And much as I abhor war, I abhor socialism in all its forms quite as much (Duncan, 1908, p. 422). As a radical in an age of radicalism, Spencer was a conservative. Yet he captured the mood of the times and spoke for the members of the growing middle class.

Spencer's synthetic philosophy

Spencer's philosophy was in tune with his individualism and optimism. Individuals free to adapt to a changing society made progress inevitable. When complete, *The Synthetic Philosophy* represented his life's work. During the 1850s, he had published enough to make his views well-known. In 1855 his *The Principles of Psychology* appeared. His earlier psychology had its origins in phrenology in vogue at the time through George Combe's *The Constitution of Man* which, because it asserted that an understanding of a person could be gained by studying the shape of their head, no doubt appealed to Spencer's interest in making the study of psychology scientific. Combe's view of education as similar to that of Spencer in that he thought it should be secular and scientific. Spencer's evolutionary psychology broke new ground but, according to Harold Barrington, should now be regarded as pre-psychology. In any case, it was extended and incorporated into his the Synthetic Philosophy which had been conceived in its entirety by about 1858

In the preface to *First Principles*, which appeared in 1862, Spencer laid out his scheme. At regular intervals he filled in its component parts by publishing *The Principles of Biology* in two parts in 1864 and 1867, the first part of *The Principles of Sociology* in 1876 and *The Principles of Ethics* in two volumes between 1892 and 1893. As mentioned, *The Principles of Psychology* had already been published in 1855. The whole scheme, planned to take twenty-four years, took him thirty-six years to complete. In addition, he also published a great many articles on social issues and scientific topics. His book *Education: Intellectual, Moral and Physical*, bought together previously published articles, appeared in 1861.

Descriptive Sociology, prepared with the help of several collaborators, included comparative studies of races throughout the world.

Spencer pioneered the scientific study of psychology and sociology but, from his first essay on *The Proper Sphere of Government* (1843), his ultimate purpose 'lying behind all proximate purposes [was] that of finding for the principles of right and wrong, in conduct at large, a scientific basis' (Spencer, 1879, p. iii). Science informed all his work.

He provoked controversy, having something to say on most of the issues of the day. In his own lifetime, his work was recognized by scientists and philosophers at home and abroad. He was offered honorary degrees and membership in scientific academies in the United Kingdom and in more than a dozen foreign countries. He refused all these invitations. In the United Kingdom, the publication of the last volume of *The Synthetic Philosophy* evoked an outburst of sympathetic appreciation from a wide range of scholars in recognition of his intellectual power and his high moral purpose. More than eighty of the most distinguished academics, politicians and literary figures in the country asked him to sit for a portrait with a view to its being deposited in one of our national collections for the benefit of ourselves and those who come after us (Duncan, 1908, p. 383). William Gladstone, a distinguished prime minister, went so far as to break his rule of not joining groups of signatories and agreed to be set down as an approver of the request to Mr Spencer (ibid.). Spencer eventually reluctantly agreed to have his portrait painted; in any event, he did not like it.

Further evidence of the liking and respect shown him by his contemporaries was revealed when he found it difficult to continue publication of *The Synthetic Philosophy*. An appeal for money was launched on his behalf and signed by distinguished academics, such as J.S. Mill, George Grote, Charles Darwin, T.H. Huxley, Alexander Bain, John Herschel, G.H. Lewes, John Tyndall, Charles King, T.H. Buckle and William De Morgan. With some of these men Huxley, for example he had prolonged disputes. His letters reveal, however, that he drew a sharp distinction between personal and impersonal criticism. He discussed issues on their merits and seldom descended to personal attacks. The tone in which he conducted debates helps to explain why, in spite of his critical rejection of established positions and his personal foibles, he was on good terms with the English intelligentsia. For example, he was a member of the exclusive X Club, of which there were only nine members, all of whom, with the exception of Spencer, were members of the most prestigious scientific organization in the United Kingdom: the Royal Society. Attempts were made to induce Spencer to become a member of that society, but he refused (as he did with many other honours) on the grounds that had the society invited him earlier, instead of hindering his work, he might have accepted. Members of the X Club wielded an enormous influence over scientific affairs. Spencer was, indeed, a member of the intellectual 'establishment'.

His position was recognized when, in 1868, he was elected to the Athenaeum, a London club where intellectuals met and for some time he was on its committee. He spent a great deal of time at the club and, by all accounts, became a good clubman, even if a pedantic member of the committee. Although claiming himself to be brusque and, certainly, in refusing the many honours he was offered by institutions in many countries he did not mince words he was described as sympathetic, companionable, hospitable, considerate and generous (ibid., p. 499–500). He liked children and enjoyed staying with friends. A keen sportsman, he was particularly fond of fishing and billiards. His was a complex character, yet his qualities outweighed his defects.

His foibles were well known. He was cantankerous, vain, sensitive to criticism, dogmatic and very self-confident. Some of his characteristics were, however, endearing. Huxley wrote: if ever Spencer wrote a tragedy, its plot would be the slaying of a beautiful deduction by an ugly fact (ibid., p. 502). Again, when Beatrice Webb commented on Spencer's contribution to the theory of evolution, Huxley remarked: He is the most original of

thinkers, though he has never invented a new thought (Webb, 1926, p. 27). His willingness to tell more experienced people how to do such things as bring up their children gave rise to some amusing situations. While paying great attention to the smallest detail of domestic management, he was most impracticable administrator. His serious nature was well known. On one occasion in Spencer's presence John Tyndall said of him: 'He'd be a much nicer fellow if he had a good swear now and then' (Duncan, 1908, p. 510). The thought of Spencer swearing caused hilarity among those present.

Spencer's theory of evolution

Spencer's originality lies in his formulation and application of the laws of evolution to the scientific study of psychology, sociology, biology, education and ethics. John Dewey, in a chapter entitled The Work of Herbert Spencer in his *Characters and Events* (1929), pointed out that the theory of evolution had a long history in European philosophy. In its nineteenth-century reformulation, it created enormous controversy because it ran contrary to Christian belief in the story of creation. Charles Darwin is regarded as the nineteenth century scientist who re-discovered evolution. His *On the Origin of Species* appeared in 1859. Very modestly, Spencer pointed out that his version of evolution had been published some years before Darwin's book appeared. Certainly, the theory was fully developed in *First Principles* published in 1862. What is clear, however, in the words of Darwin himself, is that in *On the Origin of Species* he restricted the application of the theory to biological changes. Spencer did not. Analyzing change in *First Principles*, he deduced the laws of evolution from changes in the solar system, the Earth's structure and climate, in plants and animals, in individual men and in society. Change, in accordance with these universal laws, included processes of integration and differentiation.

Integrative changes in the social organism were clearly and abundantly exemplified by Spencer. 'Uncivilized societies display them when wandering families, such as we see among the Bushmen, join into tribes of considerable numbers' (Spencer, 1862, p. 316). 'The progress from rude to, small, and simple tools to perfect, complex and large machines in a progress in integration' (ibid., p.324). In modern machines, a number of smaller simple machines are united. 'Evolution then, under its primary aspect, is a change from a less coherent form to a more coherent form'. (ibid., p. 327). This is a universal process.

Of more consequence to an understanding of modern societies is the process of differentiation as change from a homogeneous state to a heterogeneous state. As before, Spencer took his examples from all fields of scientific knowledge: in geology a molten mass is changed into mountains; in geography there is a differentiation of climates. Differentiation takes place in plants and animals. Man has grown more heterogeneous; for example, civilized man has a more heterogeneous nervous system and his thoughts are more heterogeneous than uncivilized man. In the human being this change from an indefinite, herent homogeneity, to a definite coherent heterogeneity (ibid., p. 389) was illustrated by changes from homogeneous infant noises to more and more differentiated and definite sounds.

Social change from homogeneity to heterogeneity was exemplified in the progress of civilization in every tribe and nation. Society, in its first and lowest form, was a homogeneous aggregate of individuals. Every man, for example, was a warrior, tool-maker, fisherman and builder. All women performed the same drudgeries. Every family was self-sufficient and may well have lived apart from the rest. Chieftainship was the first sign of a differentiation of function. Power then became hereditary and religion co-existed with government. The next stage of social evolution was characterized by laws, manners and ceremonial usages. The specialization of labour occurred. Transport systems stimulated the development of districts

with their own occupational characteristics. Society eventually became differentiated into classes. Spencer concluded:

Comparing the rule of a savage chief with that of a civilized government, aided by its subordinate local governments and their officers, down to the police in the streets, we see how, as men have advanced from tribes of tens to nations of millions, the regulative process has grown large in amount; how, guided by written laws, it has passed from vagueness and irregularity to comparative precision; and how it has sub-divided into processes increasingly multiform (ibid., 395).

These forms of differentiation were accompanied by differentiation in language, painting and sculpture, dancing and poetry. Spencer concluded: 'From the remotest past which Science can fathom, up to the novelties of yesterday, an essential trait of Evolution has been the transformation of the homogeneous into the heterogeneous' (ibid., p. 359). Along with change from homogeneity to heterogeneity, Spencer recognized moves from the indefinite to the definite, from simplicity to complexity, and from confusion to order.

Darwin is usually credited with what is called social Darwinism. It could more accurately be termed 'social Spencerism'. The examples of his analysis of social change given here are designed to demonstrate the wealth of examples Spencer used to establish his deductive hypothesis that societies, like everything else, change according to the scientific laws of evolution.

He also applied the biological notion of 'survival of the fittest' to societies. Modifications arise as a consequence of social differentiation and persist if they are well-adapted to the environment. They will eventually perish if they are not well-adapted. Spencer also held steadfastly, against scientific consensus, to a hotly contested biological theory advanced by Lamarck, who maintained that acquired characteristics were passed on to one's offspring. A majority of scientists rejected this view as the century progressed. In social affairs it has major implications. It means that characteristics acquired by parents through education can be inherited by their children. Thus, the characteristics of national character—a concept used by nineteenth century comparative educators—could be inherited. Racial characteristics, if not genetic, may also be passed on from one generation to the next. It is an assumption that can be used by both racists and anti-racists.

Convinced that all changes are evolutionary, Spencer argued from analogy in the absence of direct evidence. He used the analogy of the simple homogeneous human ovum which grows into an adult with specialized features—legs, arms, muscles, brain and so on—which help the human adult to adapt to his/her environment and survive; this justified his argument that, as societies evolve, functions become more specialized. In fact, his own sociological evidence was enough to persuade not only him, but the nineteenth-century sociologists in America and Europe, that homogeneous rural communities were changing to complex urban societies. Men like William Graham Sumner, Emile Durkheim, Ferdinand Tönnies, Karl Marx and Lester Ward, each in his own way, pointed to the fact that the political and economic functions once performed by all people had become the responsibility of specialists. Specialist agencies, like national and local governments and factories, had emerged in which could be performed specialist functions. The theories of social change favoured by Sumner and William Ogburn (in *Social Change*) owed something to Spencer's theory. Indeed, his theory of social evolution was itself a significant forerunner of the theories of social change enunciated by a succession of nineteenth and twentieth century sociologists, who saw differentiation of function as the key to an understanding of change.

Spencer on education

Spencer became interested in education when still young. He thought at one time of becoming a teacher. At another point in time there was a plan to set up a school with his father. He taught for a mere three months. Without any real experience in teaching, he denounced state education in letters published in *The Nonconformist* in 1842, when he was only 22 years old. Spencer argued that truth had always originated from the clash of different minds and that 'establishment' education would, by its very nature, inhibit change.

During the 1850s, in various articles he consistently argued the laissez-faire case against the dangers of state interference in the lives of individuals through state education. If this was a political argument, Spencer also questioned the need for formal education in the light of his emerging theory of evolution. Arguing from analogy, he asked in *Social Statics* (1850, p. 208–09) why education was necessary at all since in biology the seed and the embryo grow to maturity without external aid. Why should not a child grow spontaneously into a normal human being? In their evolution, children show all the characteristics of aboriginal man as mankind has evolved from an uncivilized state to a civilized one. Spencer considered that, in the stage of transition from one state to another, individuals had lost the dispositions appropriate to the life of savages and had not yet acquired those needed for civilized life. Under these conditions education should restrain uncivilized characteristics in children. Born, therefore, of man's imperfections, education as a form of coercion would become unnecessary. In the short term, in accordance with the laws of nature, education would evolve through its adaptation to changes in society.

Some comparative educationists have insisted, in a less deterministic way, that the evolution of education reflected changes in society. Since 1945, the climate of opinion has changed. According to the views of academics from the United States and UNESCO, many practitioners have asserted that the provision of education could change society. Spencer would have disagreed. As already stated, he considered that, as society evolved in accordance with these laws, organized education would not be needed at all. Even in a period of transition, all that education can do is to retard the process of social change. To add to his political objections about the role of the state in education, Spencer found convincing arguments from his theory of evolution.

His views would not be accepted by the planners of today. There is little evidence, however, to support the optimistic claims of the founders of UNESCO that universal literacy would raise standards of living, promote democracy and ensure peace. Spencer's analysis of the role of education in social change was apparent even during the 1850s when he prepared four articles on education which were published in: *The North British Review*, ('The Art of Education', May 1854); the *British Quarterly Review* ('Moral Discipline for Children'), April 1858 and *Physical Training*, April 1859) and the *Westminster Review* ('What Knowledge Is of Most Worth?', July 1859). These articles were brought together in an extremely popular book entitled *Education: Intellectual, Moral and Physical*, on which Spencer's fame as an educator rests. Published in 1861, it went into many editions and sold any thousands of copies.

As was his wont, Spencer confidently attacked established educational orthodoxy. True to form, while his experience of teaching was minimal and his serious professional study of education negligible, he was prepared to pronounce aggressively on child development, the curriculum and methods of teaching. His contacts with the children of his friends were not universally successful, but he did not hesitate in giving advice on how they should be brought up. It cannot be said, therefore, that his educational proposals were induced from experience. They were, however, very much in line with progressive educational thought today. Gabriel Compayre, who had prepared books on several distinguished educators, including Rousseau

and Pestalozzi, maintained in his book *Herbert Spencer and Scientific Education* that Spencer's ideas on education had been anticipated by Rousseau. Spencer denied having read *Emile* and claimed that he owed none of his ideas on education to it. He did, however, make frequent and favourable reference to Pestalozzi's theory of education, while deploring the extent to which the Swiss educator's practice fell short of it.

In education, as in other fields, the amateur attracted attention. In view of Spencer's very critical comments on the educational establishment, it is surprising that in 1868, within eight years of the appearance of *Education*, he had been included in R. H. Quick's *Essays on Educational Reformers* as one of the significant European educational innovators. Spencer, along with Richard Mulcaster, Roger Ascham and John Locke, was one of the Englishmen to warrant a chapter to himself in Quick's history. John Milton, J. Dury and Dr Arnold were mentioned, as it were, in passing. Quick's account of Spencer's little book was hostile, but he concluded:

I have ventured in turn to differ on some points from Mr Spencer; but I have failed to give an adequate notion of the work I have been discussing if the reader has not perceived that it is not only one of the most readable, but also one of the most important books on education in the English language (Quick, 1904, p. 469).

At the beginning of the twentieth century, a pioneer in the teaching of science, H.E. Armstrong, in his book (again now in vogue in the United Kingdom) *The Teaching of Scientific Method* (1903), advised all teachers to read Spencer's *Education* so that 'they may have clear ideas on the subject of education' (ibid., p. 381). Many years later, F.A. Cavenagh, in his introduction to a 1932 edition of Spencer's book, stated that while Spencer's views no longer impress, *Education* 'is still read; popular editions continue to appear; and every year students in training find it stimulating and provocative' (Spencer, 1861/1932, p. xx). J.A. Lauwerys, closely involved in the establishment of UNESCO and himself a scientific humanist in Spencer's tradition, wrote in a lecture at the University of London in 1951: 'For two generations, students in our training colleges and departments of education were brought up on a diet of which Spencer's *Education* was an important ingredient. And this is strange because the very people who prescribed it for study were its harshest critics' (Lauwerys, 1952, p. 162). It must be assumed that Spencer's views had some influence on the young teachers who read his book.

His assertion that science should replace the classical languages in the curriculum, and indeed should constitute the whole curriculum, antagonized the teachers of his day. It has also alienated twentieth-century educators who were prepared to accept that science subjects should occupy more of the school curriculum than previously but were not prepared to accept that they should replace language studies or, more generally, the humanities. Perhaps only in the former Soviet Union was science accorded the position in education that Spencer considered it deserved. Certainly, his views on science in the school curriculum cannot be said to have influenced British educational practice in secondary schools to any great extent.

On the contrary, many of his other assertions, based, again by analogy, on the evolution of an embryo into a mature adult, find expression in British primary schools. The answer to this apparent paradox lies in the extent to which Spencer had a vogue (of which more later) in the United States and his ideas were subsequently reintroduced into the United Kingdom through the writings of Dewey and other progressive educators from that country. In British primary schools today many practitioners acknowledge their debt to Rousseau, Dewey and Piaget, but not to Spencer.

Even though his *First Principles*, in which the laws of evolution were fully explained, was published somewhat later than the articles that constitute *Education*, two of the principles of evolution inform his analysis of education. Spencer himself claimed: 'The theory of evolution furnished guidance [in writing the article on education] as the ascent through lower

forms of life has been affected by the discipline of enjoying the pleasure and suffering the pains which follow this or that form of conduct' (1904, p. 18).

Two other fundamental evolutionary principles permeate his analysis of education. The first is that education evolves in a way similar to that in which individuals and society evolve. Indeed: 'There cannot fail to be a relationship between the successive systems of education, and the successive social states with which they have co-existed' (Spencer, 1861/1932, p. 61). Secondly, Spencer frequently wrote about the increased heterogeneity and complexity of education systems in the process of their evolution. Perhaps, if his articles on education had been written a few years later, his view that homogeneous education had given way to greater heterogeneity might have received greater attention. This has evidently been the case in science. Natural philosophy became, in the hands of specialists, astronomy, physics, chemistry and biology. In each of these subjects special fields of inquiry, like heat, light, sound and electricity emerged in physics; the two branches of chemistry—inorganic and organic—became further differentiated; and in biology, special fields like physiology and morphology emerged. Again, in accordance with his evolutionary principle, in many countries the primary school curriculum is far less differentiated than that offered in secondary schools. Secondary school teachers are more specialized than primary school teachers.

Spencer, somewhat inconsistently, considered that education lagged behind social change—a view taken by twentieth century followers of William Ogburn who accepted his theory of 'social lag'. Much of what Spencer wrote about the education of his day was negative. His positive recommendations were very similar to those expressed by Rousseau in *Emile*. Today, teachers in the United Kingdom and the United States accept them uncritically as part of a new orthodoxy. It is, therefore, worthwhile to examine in some detail what he wrote in the four articles that make up *Education* about the aims or purpose of education, attitudes to children, methods of teaching, discipline and the curriculum. Spencer complained that what was taught in schools was of no practical value. He used many examples to show that ornamental or decorative subjects were more prized than useful ones. In nine cases out of ten, he claimed, the Latin and Greek learned at school served no practical purpose. Indeed, boys were drilled in these subjects to show that they had received the education of a gentleman—a badge indicating a certain social position which commanded respect. Dancing, deportment, piano playing, singing and drawing served the same purpose in the education of girls. It was not the intrinsic value of knowledge that determined what was taught, but the respect and social power that its possession conferred on individuals. Knowledge as an instrument of social control is the theme of much sociological analysis today. The chapter on 'Intellectual Education' in *Education* was really about methods of teaching and attitudes toward children. Its recommendations were most obviously derived from Spencer's theory of evolution. For example, he pointed out that in the evolution of societies an increase in political liberty and the abolition of laws restricting individual action had been accompanied by progress towards non-coercive education—though it must be remembered that the latter lagged behind the former. Old educational practices based on a belief in the wickedness of children were in line with repressive social systems. Uniformity of belief—religious, political and educational—influenced by Aristotle had, however, under Protestantism given way to a multiplicity of sects and political parties.

In his analysis of its evolution, Spencer contrasted the characteristics of education in the past with the characteristics of education in the present. Learning by rote had given way to learning through the child's spontaneous processes. Teaching the rules had been replaced by the teaching of principles. It was accepted that for children the learning of grammar should come last, not first. Having grasped the principles, young people would be able to solve a variety of new cases as they arise, as well as being able to deal with old ones.

Learning through independent inquiry and discovery are advocated in British primary schools today. It was one of the changes in education observed with approval by Spencer. So too was the importance given to the cultivation in children of their powers of observation. The spontaneous activity of children—in the form of play—was at last being recognized as a legitimate way of acquiring knowledge.

Object lessons were favoured by Spencer, although he considered that they were badly conducted in practice. The old method presenting truths in the abstract had been replaced by presenting them in the concrete. He illustrated this change by referring to geographical and geometrical models. Finally, for Spencer, the most significant change in the evolution of education was the desire to make learning enjoyable rather than painful. This was shown in the interest taken in play, nursery rhymes, fairy tales and in lessons which should be brought to an end before the children showed signs of weariness. Most of these beliefs inform the rhetoric of British primary school teachers today.

Spencer concluded that the common characteristic of these changes was that they showed an increasing conformity with the methods of nature, that is, in accordance with the natural mental development of children. He stated: ‘there is a certain sequence in which the faculties spontaneously develop, and a certain kind of knowledge which each requires during its development; and it is for us to ascertain this sequence, and supply this knowledge’ (ibid., p. 71). Today, Piagetian theories of child development are widely accepted as the grounds on which to establish sequences of learning.

Spencer himself maintained that it was not possible to perfect a system of education until a rational psychology had been established. In accordance with his epistemology, he was prepared to specify some of the principles on which good teaching should be based. Since the mind moves from homogeneity towards heterogeneity, education should proceed from the simple to the complex; teaching should begin at once with a few subjects, to which other subjects should be progressively added. Secondly, since in its process of development the mind advances from the indefinite to the definite, so:

in education we must be content to set out with crude notions. These we must aim to make gradually clearer by facilitating the acquisition of experiences such as will correct, first their greatest errors, and afterwards their successively less marked errors. And the scientific formulae must be given only as fast as the conceptions are perfected (ibid., p. 81).

He repeated his contention that lessons should move from the concrete to the abstract so that, through the medium of examples, the mind is led from the particular to the general.

More controversially, Spencer maintained that the education of the child should follow the education of mankind, considered historically. In short the individual’s mind should pass through the same stages as the general mind—‘education should be a repetition of civilization in little’ (ibid., p. 83). There is no doubt that, until recently, the content of science syllabuses in most countries followed the historical development of the subject; in physics the sequence in which topics were taught was: mechanics, heat, light, sound, magnetism and electricity.

Spencer’s fifth recommendation stemmed from his assertion that organized scientific knowledge can be achieved only after a fund of observations had been accumulated.

In the light of present-day approaches to primary education in the United Kingdom, what Spencer wrote is very significant. He said that the process of self-development should be encouraged through education. ‘Children should be led to make their own investigations, and to draw their own inferences. They should be told as little as possible, and induced to discover as much as possible’ (ibid., p. 94). There can be few such succinct statements of modern methods of learning by discovery, which should be pleasurable and based upon the spontaneous activity to which children are prone. Courses in which pupils show no interest should be abandoned. Self-instruction was a fundamental principle held by Spencer in the

recommendations he made about methods of teaching. This would enable the child to evolve in accordance with the natural development of its faculties.

Spencer proposed that instead of acquiring knowledge for the social prestige and power it conferred, education should be of practical use to its recipients. To the question 'of what use is it?', Spencer answered that it should help individuals to live satisfactorily. 'To prepare us for complete living is the function which education has to discharge; and the only rational mode of judging of an educational course is to judge in what degree it discharges such function' (ibid., p. 10). Spencer claimed that before a rational curriculum could be established with this aim in mind, it was necessary to determine the relative values of knowledge.

His curriculum theory broke new ground. Unlike the essentialism of Plato and Aristotle and the encyclopaedism of Comenius and Condorcet, it was not subject-centred but rather activity-centred.

In asking the question 'what knowledge is of most worth?', Spencer answered that it is the knowledge needed to pursue the leading kinds of activity which constitute human life. He wrote:

[These activities] may be naturally arranged into: 1) those activities which directly minister to self-preservation; 2) those activities which, by securing the necessities of life, indirectly administer to self-preservation; 3) those activities which have for their end the rearing and discipline of offspring; 4) those activities which are involved in the maintenance of proper social and political relations; 5) those miscellaneous activities which fill up the leisure part of life, devoted to the gratification of the tastes and feelings (ibid.).

The order in which Spencer listed the activities corresponded to their order of importance; however, he recognized that they were not definitely separable but were inextricably mixed. In all these areas of activity, nonetheless, a knowledge of science is essential. Satisfactory, direct self-preservation demands a knowledge of physiology. Indirect self-preservation requires a knowledge of those sciences—mechanics, biology, geology, chemistry and physics—on which industrial life depends. Spencer asserted: 'Some acquaintance with the first principles of physiology and the elementary truths of psychology is indispensable for the right bringing up of children' (ibid., p. 36).

Spencer was appalled by the failure of education to prepare parents for parenthood. As for citizens, history, as taught, threw no light on the science of society. What was needed if people were to discharge their civic functions was an education in descriptive and comparative sociology, both of which must be interpreted in the light of biology and physiology. Spencer also saw a science component in the activities undertaken by individuals during their leisure time. Art, music and poetry evoke emotions, but they can best be appreciated through a knowledge of science. Science not only underlies sculpture, painting and music, but true poetry is itself scientific. To be good, poetry must pay attention to those laws of nervous action which speech obeys. While Spencer took the argument to extremes, there is a way in which knowledge of science makes it possible to better appreciate the fine arts. Extreme though Spencer's views may seem, a case can be made that today every societal problem has a scientific component and that finding solutions involves an understanding of some elements of science.

R.H. Quick criticized Spencer's advocacy of the exclusive use of science in all five of the activities he identified. Although he conceded that science had an important role to play in industry, he considered it was impossible to teach all the sciences to everyone and that young people about to enter the world of work would be better prepared if their minds had been equipped to acquire knowledge rather than being given a great deal of special information. This view, that education should prepare individuals to acquire knowledge when it was needed, has only recently been challenged by educators in the United Kingdom, some of

whom now want schools to equip pupils to enter industry through vocational training. To Spencer's argument, Quick's second response was that, in many cases, a knowledge of science was of no practical value; this indicated that neither Spencer nor Quick recognized the difference between a knowledge of science which enables a person to perform a task and a knowledge which enables them to appreciate or judge the effectiveness of a job undertaken by somebody else. Pericles drew such a distinction in politics. For him, only a few can formulate policy, but in a democracy everyone should be in a position to evaluate it. Today, in the industrial world, few are in a position to invent machines and manufacture consumer goods, but everybody should be able to assess the consequences of introducing modern machines into the industrial processes. The difference is between the science needed by experts to produce goods and the science needed by everyone to evaluate the products produced by the few.

Perhaps the most serious weakness in Spencer's account of an activity-based curriculum is the fact that he failed, in accordance with his own theory of child development, to state clearly at what stage in the evolution of children scientific knowledge should be provided. When should physiology or education be introduced? And at what levels of sophistication? Spencer did not say. His curriculum seems too demanding for primary school children. It might meet the needs of secondary school pupils, but it seems better designed for adults preparing to become teachers. For many years, health education was part of the course for aspiring teachers; it included information on how children might learn the elements of self-preservation. In the 1960s in the United Kingdom, many university departments of education exposed students to training in the so-called 'disciplines' psychology, philosophy, sociology and history. Spencer would have approved.

Teachers should be aware of the implications of these studies for education. Wherever necessary they should be able to pass on, in an appropriate form, the findings of sociology and psychology to their pupils. Activity-based learning in British primary schools following Piagetian stages of child development, including an emphasis on art, has lacked the scientific content that Spencer thought essential. Experience in the United States has shown how difficult it was to introduce a Spencerian curriculum in high schools. Progressive educators in that country have tried to do so throughout the twentieth century. Spencer's ideas in the United States Spencer wanted his work to be known in the United States. He found a staunch ally in Edward Livingston Youmans who, when he read Spencer's circular in 1860 on the plan for his *Synthetic Philosophy*, immediately promised support. It was the start of a long, cordial friendship during which Youmans promoted Spencer's writings, often in the face of opposition from the author, and arranged for him to visit the United States. Spencer was acclaimed with traditional American generosity. He recounted his reception in his *Autobiography*. Managers of railways and hotel proprietors went out of their way to make him welcome. He received the most generous private hospitality and was guest at a magnificent banquet held in his honour by leading members of American society. While genuinely touched by the warmth of his welcome, Spencer 'never felt quite at ease with the demonstrative activities of some of his American admirers' (Duncan, 1908, p. 228) and reminded them that things that would be considered quite normal on one side of the Atlantic were treated differently on the other side. The theory of evolution was a case in point. Youmans wrote to him saying: 'Evidently, there is more religious independence of thought in England than here [America]. For your critics, at any rate, take interest in the subject, while there is too much timidity here to venture upon either side of the discussion' (ibid., p. 254). On the other hand, Henry Ward Beecher, in a letter to Spencer in 1866, wrote: 'The peculiar condition of American society has made your writings far more fruitful and quickening here than in Europe' (ibid., p. 128).

Beecher's opinion was probably nearer the truth than that expressed by Youmans, who had no wish to offend Spencer. Evolution was a topic that aroused deep passions and furious debate in the United States. Woodbridge Riley, in *American Thought from Puritanism to Pragmatism and Beyond*, claimed that 'from the day of Puritanism to the day of pragmatism there have been so many skirmishes, battles, and general engagements as almost to merit the name of warfare between evolution and revelation in America' (1925, p. 173). In particular, with reference to the British contribution to the debate, he wrote:

The outburst of controversy upon the appearance of *On the Origin of Species* in 1859 was, therefore, no unexpected thing. . . . The battle was extended and furious . . . there was a [nationwide] continuous campaign of scientific controversy which lasted even longer than the civil strife which rent the country (ibid).

Certainly Spencer's writings were required reading for many American university courses during the second half of the nineteenth century. Not all theologians were convinced and, indeed, the college authorities at Yale objected when William Sumner, a follower of Spencer, prescribed the latter's *Study of Sociology* for one of his classes because of its anti-religious bias (Duncan, 1908, p. 208). Spencer's writings undoubtedly added to a debate that revolved around Darwin's biological theory.

Certainly, the pragmatists entered the debate, as was shown by Wiener in his *Evolution and the Founders of Pragmatism* and R. Hofstadter in *Social Darwinism in American Thought*. According to Wiener, 'the chief question discussed by the founders of pragmatism, beginning with Chauncey Wright, was how far one could legitimately apply Darwin's hypothesis of natural selection to subjects other than biology' (Wiener, 1965, p. 6). Pragmatists, like William James, John Dewey, George Herbert Mead, Boyd H. Bode and William Heard Kilpatrick, were the intellectual children of Darwin who, like Spencer, had demonstrated the importance of change in evolution. The pragmatists concluded that they could do away with permanence, eternal values and all forms of absolutism. Again, to quote Wiener: 'Darwinism and pragmatism were able to combat their conservative theological adversaries only because of the powerful impetus of scientific advances in the second half of the nineteenth century' (ibid., p. 1).

Among the founders of pragmatism, opinions of Spencer's work varied. J.L. Childs claimed that one of the 'primary cultural factors which has conditioned the thought of Dr Dewey is the theory of organic evolution' (1949). Dewey himself admired Spencer's single-mindedness. Dewey recognized that Spencer had conceived a whole system—an idea of all that is in the universe; but, with no interest in history and an isolation from the intellectual currents of the day, he filled in the details over a period of thirty-six years. But such work, according to Dewey, was possible only if the author was immune to the changing play of ideas and cross-currents of interests. For Dewey, the inevitable weakness in Spencer's position was that it eliminated the individual and the subjective.

Charles S. Peirce, one of the most distinguished logicians and scientists among the founders of pragmatism, was scathing in his criticism of Spencer's attempt in *First Principles* to show that evolution was a consequence of the mechanical principle of the conservation of energy. He wrote: 'But his chapter on the subject is mathematically absurd, and convicts him of being a man who will talk pretentiously of what he knows nothing about' (Wiener, 1965). William James was, according to Ann Low-Beer, carried away by *First Principles*, but subsequently became disenchanted. She stated that James continued to use Spencer's books in his courses but, in a final examination paper, invited students to mention all the inconsistencies in one of Spencer's books. In effect, James abandoned the simplistic behavioural psychology of Spencer in favour of a dynamic view of the mind that can change as well as be influenced by the environment. Thus, while Spencer was required reading in American universities for most of the second half of the nineteenth century, by its end his

work in philosophy and science had been replaced by that of specialists in the natural and social sciences.

If the pragmatists were influenced by evolution, their influence on education was greater than on any other aspect of American society. In the climate of opinion created by the pragmatists, Spencer was given credit for inspiring reform in education. Paul Monroe, in his *History of Education*, linked the work of Spencer with that of T.H. Huxley in promoting the scientific tendency in education. Of Spencer, he wrote that among those pressing the claims of science in the nineteenth century, 'the first of these, and yet the most influential at least for Anglo-Saxon thought, was that by Herbert Spencer' (Monroe, 1919, p. 684). Monroe was not alone in his judgement; L.A. Cremin in *The Transformation of the School* (1961) went so far as to claim that the revolution in American educational thought at the end of the nineteenth century had its origins in the work of Herbert Spencer. As in United Kingdom, not only the progressives took notice of him. He is referred to favourably by conservative thinkers, such as C.A. Bagley, even though he considered Spencer's assertion that teaching should start with the concrete as pernicious and believed, as in England, that enjoyment was merely an accessory in life (1911).

Many of the subjects advocated by Spencer, such as physiology, were introduced into American schools. Most historians of education in the United States, however, associate Spencer's name with a curriculum theory held by progressive educationists. It was articulated in a committee set up by the National Education Association. The Commission on the Reorganization of Secondary Education issued its report, usually called 'The (Seven) Cardinal Principles of Education', in which it was asserted that in primary and secondary schools the aim of the curriculum should be to enable pupils to cope with: (a) their health; (b) fundamental processes; (c) worthy home membership; (d) vocational efficiency; (e) civic participation; (f) the worthy use of leisure time; and (g) ethical behaviour. These seven areas could be reduced, without distortion, to Spencer's five areas of activity. Members of the Progressive Education Association, set up in 1918, of which Dewey was the leading figure, adopted the latter's problem-solving approach to operationalize the 'seven Cardinal Principles'. Instead of identifying activities in these areas, progressive educators identified the problems young people were likely to face as adults in the areas of health, earning a living, taking care of a family, civic participation, leisure time activities and moral behaviour. In some schools, experimental curricula were worked out collectively in discussions between teachers and pupils. In the absence of established models, the originality of a somewhat modified version of Spencer's curriculum theory created major difficulties when attempts were made to apply it in practice.

The Progressive Education Association tried to do so in its *Eight-year Study* from 1933 to 1941. The study was designed to show whether the customary college entrance requirements were essential to college success, or if pupils on a broader course favoured by progressive educationists could succeed as well as pupils from the college preparatory course in the ordinary high school. The results were inconclusive, but at least they showed that pupils from progressive schools did not inevitably perform less well in college than those from regular schools. The fact remains that the selection of curriculum content has presented secondary school curriculum developers with a formidable task in view of the traditional demands universities and other institutions of higher education place on potential entrants to higher education.

Dewey considered that problems should be solved collectively and scientifically, but the role of science in the progressive school curricula was not as great as Spencer would have wished. Nevertheless, when the Progressive Education Association was disbanded in the 1950s, after its members had been accused by Senator McCarthy of un-American activities, it was true to say that it had completed its reforming task, having disseminated progressive

views very widely among American teachers. Criticism of high school curricula, which follow Spencer's 'activity-based' approach—considered repetitious and lacking in rigour reached a crescendo in the United States from time to time. Criticism during the McCarthy era in the 1950s is one example. *A Nation at Risk*, prepared by a Presidential committee in the early 1980s, was another recent example of such criticism. Spencer was ahead of his time in curriculum theory. He can be regarded as one of the important pioneers of modern education. In practice his ideas find uneven expression. In primary schools in the United Kingdom most of his prescriptions about methods of teaching and the treatment of children have been accepted. Curricula in British primary schools were until the 1988 Education Reform Act based on the activities of children and overtly in accordance with their mental and physical development. In American junior and senior high schools there has been continuous tension between the advocates of a curriculum based on problems relevant to children and young adults, and the more conservative educators who want to see a return to the established school subjects or disciplines. In so far as Spencer influenced progressive educators in the United Kingdom and the United States of America he can, as Quick perceived, be regarded as one of the most influential educational reformers. Not a bad achievement for an amateur.

Note

1. *Brian Holmes (United Kingdom)*. First worked as a secondary school science teacher and wrote several school text books. After four years as a lecturer in science teaching at the University of Durham, he joined the University of London Institute of Education in 1953. He eventually became Professor of Comparative Education. From the 1960s, onward, he became a central figure in the field of international comparative education. Upon retirement he was made Dean of the College of Preceptors. Apart from the editorship of several journals, his most significant publications were *Problems in Education* (1965), *International Guide to Education Systems* (1979), *Comparative Education: Some Considerations of Method* (1981) and *Educational Development Trends* (1983). He died in 1993.

Works by Herbert Spencer

In chronological order

- 1850. *Social Statics*. London.
- 1855. *The Principles of Psychology*. London, Williams and Norgate.
- 1861. *Education: Intellectual, Moral and Physical*. London, Williams and Norgate. Reprinted in 1932 with an Introduction by F.A. Cavenagh. Cambridge, Cambridge University Press.
- 1862. *First Principles*. London, Williams & Norgate.
- 1864-67. *The Principles of Biology*. London.
- 1872. *The Study of Sociology*. London.
- 1873-81. *Descriptive Sociology*. London, Williams & Norgate.
- 1876-96. *The Principles of Sociology*. London, Williams & Norgate.
- 1892-93. *The Principles of Ethics*. 2 v. New York, Hurst.
- 1904. *Autobiography*. 2 v. London, Williams and Norgate.

Works about Herbert Spencer

- Armstrong, H. E. 1903. *The Teaching of Scientific Method*. London, Macmillan.
- Bagley, C. A. 1911. *Educational Values*. New York, Macmillan.
- Bain, A. 1882. *J. S. Mill*. London, Longmans, Green.
- Barlow, N. (ed.). 1958. *The Autobiography of Charles Darwin*. London, Collins.
- Bibby, C. 1959. *T. H. Huxley*. London, Watts.
- Childs, J.L. 1949. 'Cultural factors in Dewey's Philosophy of Education'. *Teachers College Record* (New York), Vol. 51, No. 3, December.
- Combe, G. 1828. *The Constitution of Man*. London.
- Compayre, G. 1908. *Herbert Spencer and Scientific Education*. Trans. by M.E.F. Findlay. London, Harrap.
- Cremin, L. A. 1961. *The Transformation of the School*. New York, A. Knopf.
- Darwin, C. 1859. *On the Origin of Species*. Harmondsworth, Penguin, 1968 ed.

- Dewey, J. 1929. 'The Philosophical Work of Herbert Spencer'. In: *Characters and Events*. New York, Holt.
- Duncan, D. 1908. *The Life and Letters of Herbert Spencer*. London, Methuen.
- Hofstadter, R. 1955. *Social Darwinism in American Thought*. Boston, Beacon.
- Huxley, T. H. 1901. *Evolution and Ethics and Other Essays* London.
- Lauwerys, J. A. 1952. 'Herbert Spencer and the Scientific Movement' In: A. V. Judges (ed.). *Pioneers of English Education*. London, Faber.
- Lewes, G. H. 1883. *Comte's Philosophy of the Sciences*. London, Bell.
- Low-Beer, A. 1969. *Spencer*. London, Collier-Macmillan.
- Monroe, p. 1919. *History of Education*. New York, Macmillan.
- Ogburn, W. F. 1966. *Social Change*. New York, Delta.
- Payne, W. H. 1907. *Compayre's History of Pedagogy*. London, Swan Sonnenschein.
- Peel, J. D. Y. 1971. *Herbert Spencer: the Evolution of a Sociologist*. London, Heinemann.
- Quick, R. H. 1904. *Essays on Educational Reformers*. London, Longmans
- Green. Riley, W. 1925. *American Thought from Puritanism to Pragmatism and Beyond*'. New York, Henry Holt.
- Sumner, W. G. 1906. *Folkways*. New York, Dover.
- Webb, B. 1926. *My Apprenticeship*. London, Longmans Green.
- Wiener, p. P. 1965. *Evolution and the Founders of Pragmatism*. New York, Harper.
- . (ed.) 1958. *Values in a Universe of Choice: Selected Writings of Charles S. Peirce*. New York, Doubleday Anchor.