ROUTLEDGE REVIVALS

Education in the Open Society - Karl Popper and Schooling

Richard Bailey

EDUCATION IN THE OPEN SOCIETY - KARL POPPER AND SCHOOLING

To my mother and father, Betty and Ron Bailey,
for all of their love, support and extreme patience.

Education in the Open Society - Karl Popper and Schooling

RICHARD BAILEY
Leeds Metropolitan University, United Kingdom

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Notes on Presentation

Referencing

Due to the nature of this study, certain texts are referred to with some frequency. In order to avoid tiresome repetition, abbreviations are used to represent the most cited sources. They are listed below. Full references for these and all other cited texts are included in the Bibliography.

CR – *Conjectures and Refutations*
IA – *Intellectual Autobiography*, in *The Philosophy of Karl Popper* (ed. Schillp)
LdF – *Logik der Forschung*
LSD – *The Logic of Scientific Discovery*
OK – *Objective Knowledge*
OSEi – *The Open Society and its Enemies – volume 1*
OSEii – *The Open Society and its Enemies – volume 2*
PH – *The Poverty of Historicism*
RC – *Replies to my Critics*, in *The Philosophy of Karl Popper* (ed. Schillp)
SB – *The Self and its Brain* (with Eccles)
ZMD – *Zur Methodenfrage der Denkpsychologie* (Popper's doctoral dissertation)

Details of publications refer to editions consulted, and are not necessarily the most recent.

Gender-specific language

The normally thorny problem of whether to use *he*, *she* or the ugly *s/he*, as an indefinite pronoun is resolved in this book in the following way: Popper, a male, figures heavily in the text; therefore, if only for variety, unspecified teachers, children or others are always assumed to be female. I hope this opt-out is not too distracting to the reader.

I state my case, even though it is only part of the truth, and I would state it just the same if I knew it was false, because certain errors are stations on the road to truth. I am doing all that is possible on a definite job at hand. (Robert Musil)

The new central question, 'How do you improve your guesses? Will give enough work for philosophers for centuries; and how to live, act, fight, die, when one is left with guesses only, will give more than enough work for future political philosophers and educationalists. (Imre Lakatos)

1 Introduction

> Popper's philosophy has been a missed opportunity. It was, until just very recently, forbidden in the Soviet Union. And it continues to be widely misunderstood and misrepresented in England and the United States. It is, first and foremost an attempt to construct a non-authoritarian theory of science and society. (Notturno, 2000, p.xviii)

Conjectures and Refutations

Before his death in 1994, Sir Karl Popper had become widely recognised as one of the most important and influential philosophers of the Twentieth Century. He studied and published on an enormously wide range of subjects, including the philosophy of science, the philosophy of mathematics, political and social theory, ancient history, and music. While there has been a general resistance to his approach in academic philosophy, his influence has increased further as theorists and practitioners from numerous fields, have attempted to apply a Popperian approach to their own concerns. For example, the notable art historian, Ernst Gombrich, acknowledged his debt to Popper (Gombrich, 1958, p.ix), as did the Nobel Prize-winning immunologist, Peter Medawar (1991, pp.91-101), the theoretical physicist, Stephen Hawking (White and Gribbin, 1992, pp.102-3), and members of all political parties in Germany (Spinner, 1978). When a national newspaper asked distinguished writers and thinkers to name the greatest and most influential books published over the last half century, the most frequently cited philosophical book was Popper's The Open Society and its Enemies (Sunday Telegraph, 1994, p.8). Magee (1973, p.14) summed the position, thus: 'few broad areas of human thought remain unilluminated by Popper's work; while in technical controversies in sociology, probability theory, the interpretation of the pre-Socratic philosophers of Ancient Greece, and quantum physics, he is an important figure.[1]

That such a varied group could receive inspiration from Popper's work is indicative of the flexibility inherent in his philosophical approach,

and this seems to be attributable to its underlying unity: Popper was a systematic thinker. His thought was unified by a central concern with the growth of knowledge, in whatever manifestations. The Ancient Greek poet, Archilochus, wrote: 'The fox knows many things, but the hedgehog knows one big thing.' In his discussion of this distinction, Berlin (1996) identified one of the most significant differences that divide thinkers. On the one side, there are those who relate everything to a single system, a universal organising principle; on the other are those who follow many ends, which are often contradictory. The first type can be nicknamed 'hedgehogs', the second 'foxes' (ibid., p.1-2). Despite his wide interests and talents, there is little doubt that Popper belonged among the hedgehogs.[2]

The aim of the present book is to present the outline of a Popperian theory of education, exploring the political, psychological and pedagogic concerns that offer structure to such a theory. It is argued that epistemology, or the theory of knowledge, must lie at the heart of every educational theory, whether it is made explicit or not. By examining the implications of those aspects of Popper's philosophy, politics and psychology that relate to education and learning, it is hoped that this area can begin to benefit from the opportunities enjoyed by those disciplines in which Popperian analysis is already accepted as an important contribution.[3]

The approach adopted is to trace an epistemological thread that unites the different aspects of Popperian philosophy, and to extrapolate from that thread towards the elements required for a satisfactory theory of education, focusing upon the growth of knowledge, within the individual, within a discipline and within the wider society. It also attempts to place educational concerns within Popper's overall system. As Plato made clear, epistemology and education are mutually dependent aspects, the artificial separation of which only leads to the impoverishment of both. Ironically, this point was acknowledged by Popper, in his extended study of Plato (OSEi), but never adequately addressed in his own philosophy. Moreover, whilst Popper's published work plays a vital role within this work, no final authority is claimed. Of course, his published work is not uncritically accepted: to do so would be to behave in an entirely un-Popperian manner. Acting as a starting-point, his work is in part critically accepted, and occasionally critically rejected. Also, theorists other than Popper are considered, if their work supports the overall Popperian position.

There seems to be at least four requirements for a coherent, epistemologically based theory. First, the account of the educational situation must pay attention to human biological nature, and the constraints this places upon teaching and learning. Second, it must conform to certain logical standards, so that its methodology cannot be rejected as logically

impermissible. Third, the theory must be compatible with the findings of psychological research as it relates to fundamental considerations, such as learning, interest, memory, anticipation and play. Fourth, acknowledgement must be given to the significance of cultural knowledge, tradition and the world of ideas. These requirements are addressed in this book.

Popper and Educational Theory

Popper's fundamental insight was that knowledge grows, not through the build up of certain information, but through the continual correction, alteration and rejection of earlier knowledge, a process he summed up in the phrase 'conjectures and refutations'. A useful statement of his position was provided in the preface to his book of that title:

> The way in which knowledge progresses ... is by unjustified (and unjustifiable) anticipations, by guesses, by tentative solutions to our problems, by conjectures. These conjectures are controlled by criticism; that is, by attempted refutations, which include severe critical tests. They may survive these tests; but they can never be positively justified ... As we learn from our mistakes our knowledge grows, even though we may never know – that is know for certain. (CR, p.vii)

Popper's approach, if broadly interpreted, can offer insight to any area concerned with the growth of knowledge, in social problem-solving and planning, scientific research, and cultural development.

With its emphasis upon learning and the growth of knowledge, it is, perhaps, not surprising that a number of educational theorists have shown interest in Popper's work.[4] Many philosophers of education have made references to Popper's theories in their work, although most seem to take elements away from the greater system, and thus miss the true potential implications of the Popperian approach. For instance, Hirst made frequent references to Popper in a number of places (for example, 1985, p.5), but he cannot accurately be considered a Popperian, since he disregarded central principles upon which Popper's work was based. For example, he explicitly accepted the traditional classification of knowledge in terms of justified true belief: 'they seem to me to express the nub of the matter, and all that I have to say about knowledge ... is based on this approach' (cited in Matthews, 1980, p.35). Fundamental to Popper's epistemology was precisely the rejection of this assumption:

> I assert ... that we cannot give any positive justifications or any positive reason for our theories and our beliefs. That is to say, we cannot give any positive reasons for holding our theories true. Moreover, I assert that the belief that we can give such

> reasons, and should seek for them, is itself neither a rational nor a true belief, but one that can be shown to be without merit. (Popper, 1983, p.19)[5]

Other educational theorists have focused upon specific aspects of Popper's philosophy, such as Holmes' (1981) presentation of a theory of comparative education inspired by Popper's early meta-scientific approach; Burtonwood's (1986) analysis of implications for multi-cultural education of the conception of the open society; Corson's (1985/6) work on educational research and Popper's theory of knowledge; and Swanwick's (1988) examination of the theory of three worlds and music education.

Despite the general recognition of Popper's philosophy, this has seldom revealed itself as any more than a nodding acknowledgement on the part of philosophers of education. Few educationalists have attempted to explore the potential of a truly Popperian approach to educational issues. The first seems to have been Tyrrell Burgess (1977; 1986) who based his analysis upon Popper's well-known solution to the problem of induction. By focusing upon an issue at the heart of Popperian epistemology (related to his critique of the justificationist programme), Burgess was able to outline a distinctive solution to a number of problems that had been ignored by teachers and planners, largely originating with the assumption of inductive learning. As an influential thinker and writer, Burgess' work received a large audience. Joanna Swann (1983; 1988; 1998; 1999a; 1999b) extended Burgess' approach, and mapped out more fully the concrete implications for a schooling based upon non-inductive learning. Both Swann and Burgess accepted Popper's account of the growth of knowledge and learning, which they labelled the logic of learning.

Despite large agreement with the findings of Swann and Burgess, this work attempts to construct an educational model with a broader foundation, considering political biological and biographical aspects, as well as Popper's logical analysis of learning. It also departs from Swann and Burgess' work by suggesting that Popper's presentation of certain aspects of his theory, especially as it relates to the so-called logic of learning, is problematic. By augmenting the logical discussion with Popper's later work in evolutionary theory, a firmer foundation for a Popperian education theory is made available.

A further group of educationalists who have attempted to explore a range of issues from a Popperian point of view comprises the American educational philosophers, Ronald Swartz, Henry Perkinson and Stephanie Edgerton (1980; Swartz, 1985; Perkinson, 1980; 1982; 1984; 1985). Perkinson is rare among theorists within the Popperian community to have published on educational issues in depth. Some of the most interesting work relates to his historical analysis of educational theorising in terms of

Popper's philosophy and to his attempts at utilising an evolutionary perspective in the study of learning and teaching.

Joseph Agassi (1987; 1999) and John Wettersten (1987a; 1987b; 1999) have written about what the latter called 'Critical Rationalist Pedagogy' (Wettersten, 1999). Far less systematic than the work of the previously discussed groups' treatment, Agassi and especially Wettersten's approach has the virtue of linking possible educational implications of Popper's philosophy with his earlier work, when he was actually studying and practising education.

The appeal of Popper's work for educationalists seems to be the same as for scientists: a great deal leads to practical and methodological advice, linking practice with theory in such a way as to improve both. Magee (1973, p.10) summed up the appeal, when he wrote that, 'unlike that of so many contemporary philosophers ... (Popper's work) has a notably practical effect on people who are influenced by it: it changes the way they do their own work, and in this and other respects changes their lives. It is, in short, a philosophy of action'. Popper's work encompassed many fields and concerns, but most of his theories and guidance, which form the focus of this work, centre upon a simple, practical message: designs and plans are very often mistaken, and the safest, most reasonable way to proceed is by actively searching for these mistakes and learning something from them. As in science and politics, this simple, common sense advice has frequently been ignored by educationalists, at a cost.

From Instruction to Selection

Popper has been described as a systematic thinker: the wide range of topics he addressed were unified by a central notion, that knowledge, in whatever form, grows through fundamentally the same process. However, this is not to deny that a number of changes in his views took place during his career. More importantly, perhaps, certain aspects of Popper's output conflict with his central approach, most notably his theory of rationality, in which he seems to have fallen short of his own stringent demands. In presenting a Popperian theory of education, it has been necessary to place the different aspects of Popper's work within a framework. Where his actual work conflicts with this framework, this conflict is acknowledged, and a resolution is attempted. Essentially, though, this is a study of Popperian philosophy: Popper's insights were of revolutionary significance, but implicit in his approach is the recognition of the fact that certainty is a dangerous and unrealisable goal. The recognition of anomalies in Popper's work does not diminish its great value.

The development of Popperian philosophy is traced through early psychological and educational studies, in which seeds of doubt were sown regarding a number of important assumptions of traditional approaches. The story continues through Popper's work in the logic of scientific research, where he addressed a range of fundamental problems. It is argued that his philosophy came to fruition when, relatively late in his career, his epistemology became closely associated with evolutionary theory. Popper had always acknowledged an analogous relationship between his theory of the growth of knowledge and the theory of evolution. Later, though, some Popperians, most notably the psychologist D.T. Campbell (1974), suggested that the growth of knowledge does not merely resemble an evolutionary process, it *is* an evolutionary process. This position, commonly called evolutionary epistemology, is accepted and developed here. Evolutionary epistemology is part of a wider theory, which is also accepted, labelled either Universal Darwinism (Plotkin, 1995)[6] or Universal Selection Theory (Cziko, 1995). It argues that the processes of evolution are not restricted to adaptation of the organism and speciation, but are equally applicable to other forms of development in living systems.

Darwin was a naturalist, and discovered the governing principles of variation and selection in the natural world; but what if he had been, instead, a psychologist, a doctor or an educationalist?[7] Might he have discovered the same principles in his fields? Probably not, as scientific theories are not developed in an intellectual vacuum; evolutionary theories were far more common in natural science at the time Darwin was working. However, Darwinist principles are increasingly being found to explain satisfactorily the actions of a host of other systems in the natural world. Cziko (1995) has identified a general movement in a number of disciplines from providential explanations (that is, phenomena are explained in terms of a grand designer), to instructional theories (evolutionary theories in which the transfer of information from the environment is the dominant factor in change), to selectionists or Darwinian theories (in which variations or mutations occur independently of their usefulness, and in which some are selectively retained).

This is not to suggest that the development from providential to instructional to selectionist theories is inevitable, since to do so would be to commit the intellectual sin of historicism (PH). Nevertheless, one can understand the temporal priority of providential explanations over scientific explanations. Likewise, one can appreciate the appeal of the simpler instructional theories over selectionism. As Changeux (1985, pp.279-81) explained:

> It is ... worth noting that in the history of ideas 'instructive' hypotheses have most often preceded selective hypotheses ... An instructive concept consists of only one step ... The concept of selection, on the other hand, implies further reflection. It involves two steps, and it satisfies the quest for a material mechanism totally devoid of 'intentional' aspects. It is natural that this more complicated procedure, more difficult to execute, should have systematically appeared in second place throughout the history of scientific thought.[8]

Educational theory, and related theories of learning and teaching, have been dominated by instructional views. One wonders if educational theory would benefit from selectionism. This work argues that it would, and offers such a selectionist theory, based upon Popper's philosophical system.

Notes

[1] There are now a number of excellent summaries, commentaries and critiques of Popper's philosophy available in English. Unlike many philosophers, Popper's own writing is a model of clarity, so it always worth consulting his books, such as *Conjectures and Refutations*, *Objective Knowledge* and *The Myth of the Framework*. For a comprehensive Treatment, Paul Arthur Schillp's edited book *The Philosophy of Karl Popper* (in two volumes) contains Popper's 'Intellectual Autobiography', (also available as a separate book, *Unended Quest*), a series of essays by friends and critics, and Popper's replies. The book also contains a complete bibliography (up to 1974) of Popper's writing. Bryan Magee's *Popper* is wonderfully accessible (and short). Commentaries by O'Hear (1981), Stokes (1998), Notturno (2000) and Miller (1994) are all excellent, in their different ways, with O'Hear's book being the most critical and Miller's the most challenging. Musgrave (1993) introduction to the theory of knowledge places Popper's contributions in their historical context. Deutsch (1997) offers a provocative, idiosyncratic and highly readable treatment of Popper, evolution and almost everything else!

[2] Berlin categorised the following as, broadly speaking, 'hedgehogs': Dante, Plato, Hegel, Ibsen and Proust. Among the 'foxes' were Aristotle, Montaigne, Goethe, Pushkin and Joyce (1996, pp. 1-3). The central point of Berlin's discussion was that Tolstoy, the subject of the study, was a fox who wished to be a hedgehog!

[3] Popper himself has seemed to assume an epistemological basis for his work. From his early work in the philosophy of science to his later work on evolutionary theory, he has made it clear that knowledge, and specifically the growth of knowledge and learning, is his primary interest. So, when discussing his political works, for example, Popper stated,

> Both [The Poverty of Historicism and The Open Society and Its Enemies] grew out of the theory of knowledge of Logik der Forschung and out of my conviction that our often unconscious views on the theory of knowledge and its central problems ('What can we know?' 'How certain is our knowledge?') are decisive for our attitude towards ourselves and towards politics. (IA, p.115)

I do not think it is an especially controversial claim that questions of the nature and growth of knowledge should also be of some interest to educationalists.

[4] There has also been an attempt to put some of Popper's ideas into practice in an educational setting. *Sir Karl Poppers Schule*, in Vienna, is a private school for gifted pupils. I am not sure if the school has taken anything from Popper apart from his name. See the school's homepage (http://www.popperschule.at/).

[5] Matthews (1980, p. 56) identified two further reasons why Paul Hirst (and his sometime associate Richard Peters) failed to adopt a thoroughgoing Popperian approach:

> It is a great pity that Peters and Hirst did not incorporate two central Popperian tenets in their approach to philosophy of education – make epistemology square with science and ignore the analysis of concepts and the search of meaning.

[6] Dawkins (1983) also used the phrase *Universal Darwinism*, but he used it to suggest that essentially the same processes would take place wherever evolution occurs in the universe.

[7] Cf. Plotkin (1995, p.73-8). Darwin did, in fact, begin training as a doctor.

[8] Examples of influential selectionist theories in different fields include Edelman's *Neural Darwinism* (1992) and *Clonal Selection Theory* in immunology (Golub & Green, 1991).

2 The Educational Roots of Popper's Philosophy

> It is a disturbing fact that even an abstract study like pure epistemology is not as pure as one might think ... but that its ideas may, to a large extent, be motivated and unconsciously inspired by political hopes and Utopian dreams ... As an epistemologist I have only one interest - to find out the truth about the problems of epistemology, whether or not this truth fits with my political ideas. But am I not liable to be influenced, unconsciously, by my political hopes and dreams? (CR, p.6)

Introduction

This chapter examines some of the political, educational and psychological influences on the early stages of Popper's intellectual development. It focuses upon the years prior to the publication of *Logik der Forshung*, in 1934. It argues that it was during these years, prior to the publication of his great book on the philosophy of science, *Logik der Forschung* in 1934, that Popper absorbed traditions, pursued critiques, and laid the foundations of theories that are developed during his later work. Hacohen (1993) makes a similar assumption. He argues that 'Popper's intellectual formation ... is basically complete when he leaves Vienna in 1936' (ibid., p.32). We can hypothesise that Popper, too, felt this was the case, as the narrative and historical section of his Intellectual Autobiography (IA) ends not long after this time. Furthermore, this chapter suggests that a great deal of Popper's epistemology and scientific methodology reflect an implicit psychological content and approach, despite Popper's attempts to purge psychology from much of his work. Popper's work can be interpreted as the most recent representative of an under-rated and fruitful school of psychology. An understanding of his place within this school will greatly enhance the appreciation of his overall work, particularly as it relates to education and children's learning. It also offers the opportunity to pick up

the beginnings of an epistemological thread that stretches throughout his work.

Given the diversity of interpretations of Popper's work, the historical approach has much to support it. It gives an opportunity to find out how he arrived at his major theories and the obstacles his theories sought to overcome. In doing so, it might become possible to discover 'how the problems have arisen, how they have changed, what alternatives have been brought forward, why they have been brought forward, and what difficulties they have faced' (Wettersten, 1992, p.7). It will be suggested that the foundations of Popper's epistemology and political theory can be clearly traced to certain critical periods. Furthermore, it is noteworthy that one of the most influential periods in his early development was whilst he was working and training as a teacher and involved in educational reform. So, an unexpected situation arises that in exploring the implications of Popper's epistemology and political theory for education, one is led to consider the reverse - how far did his education influence epistemology and political theory?[1]

Science and Pseudo-science

Popper was born on 28th July 1902 into a wealthy middle-class family. His father, Simon, was a solicitor with interests in a wide variety of academic fields, 'really more of a scholar than a lawyer,' (IA, p.6). His mother, Jenny, was a keen musician. Popper's early life was one filled with music, learning and, above all, an appreciation of the works of great thinkers.

He shared an intellectually stimulating relationship with his father, whom he described as a radical liberal of the school of John Stuart Mill (ibid., p.5), and it is possible that it is from his father that Popper acquired the liberal frame of mind that was to play so large a part in his later political writings (Jacobs, 1989, p.260). Although it seems he never discussed the matter with his son, Simon Popper was active in committees running homes for the homeless. Ironically, one of those committees ran a large institution at which Adolf Hitler stayed during his early years in Vienna (IA, p.5). For his good (and occasionally illegal) work, Simon Popper was knighted by the Emperor, who was accustomed to using 'privilege as a check on innovation' (Johnson, 1972, p.39).

Although an avid student, Popper left school at the age of 16. He found the classes 'boring in the extreme - hours and hours of hopeless torture' (IA, p.23). The curriculum at Austrian secondary schools at the

time was focused almost entirely on the arts and humanities, and made little reference to scientific discoveries being made in the outside world. Rather than waste his time further he decided to direct his own study. He enrolled as a non-matriculated student at the University of Vienna and was free to attend any lectures he wished.

He became interested in the popular psychological theories of the day, such as those of Freud and Adler. Indeed, after an unsuccessful period working as a manual labourer, Popper offered his services at Adler's child-guidance clinics. Popper left this work after a short time, apparently due to some disagreement with Adler's working methods. He also worked as a counsellor and guide in a socialist children's day camp. This was also a time of deepening involvement with politics.

Fascinated by politics from an early age, Popper toyed with socialism, becoming a Marxist for a short while in 1919. Popper viewed 1919 as a crucial year in his intellectual development, and in the overall development of his philosophy. His admiration for Marxist theory was brought to an abrupt end shortly before his seventeenth birthday, when he witnessed the killing of several socialists and communists by police, during a demonstration. The horrified Popper felt some responsibility for these deaths, for as a Marxist he felt he was supposed to believe that the coming of socialism would be quickened by an intensification of the class struggle. According to some popular forms of Marxism, the murder of innocent protesters was a step towards the inevitable revolution. Popper found the faith in such immutable laws of history intolerable and instantly became an 'anti-Marxist' (Marcuse and Popper, 1972, p.27). The experience, which Popper was later to view as 'one of the main events in my life' (IA, p.27), along with his growing dissatisfaction with the pseudoscientific rhetoric of Freud and Adler, were seen as decisive in his adoption of a fallibilistic outlook and the recognition of the value of differentiating between dogmatic and critical thinking.

By coincidence, at the same time as his departure from Marxism, Popper was introduced to the ideas of Albert Einstein. Popper's generation had been taught to accept Newton's cosmology and mechanics as unquestionable truths. However, in May 1919, Eddington's eclipse observations corroborated Einstein's conjecture that light, rather than just matter, is subject to gravitational forces. Newtonian science, despite its innumerable corroborations in the past, now suddenly turned out to be incomplete at best. A new theory had come along offering a new understanding of the universe and survived very challenging tests. The

Einsteinian approach was thrown into sharp contrast against Marxist, Freudian and Adlerian theories at a number of points. Rather than reject outright previous theories (most notably Newton's), Einstein accepted them 'as a very good approximation' (ibid., p.29). Moreover, Einstein asserted that his theory was only provisional, leading, he hoped, to a better theory. The central issue for the young Popper was Einstein's intellectual modesty in regarding the theory untenable if it failed specified tests, a quality characteristically lacking from the thought of Marx (as interpreted by Popper's fellow revolutionaries) and the psychoanalysts.

By the end of 1919, Popper had begun to work out some central ideas upon which his conception of science was later based, including the conclusion that 'the scientific attitude was the critical attitude, which did not look for verification but crucial tests; tests that could refute the theory, though never establish it' (IA, p.29).[2] The critical attitude came to represent in Popper's work a sort of 'cognitive ethic' (Stokes, 1998, p.10), which evolved into the methodological tenet that seekers of the truth must test, criticise and try to refute their theories. From this insight, Popper began to articulate certain key features of his later work, most notably *falsificationism*, his view that the scientific enterprise is characterised by systematic testing of hypothesis, and *fallibilism*, his belief that our knowledge of the world is always open to error and uncertainty.

Popper's preoccupation with the demarcation between science and pseudoscience might seem rather abstract. In his view, however, it constituted a real philosophical problem, with serious practical consequences. He attributed this attitude to Kant (LSD, pp.34 and 313), who argued that an understanding of scientific knowledge and methodology were important weapons in the Enlightenment's battle against superstition and prejudice (Reiss, 1970). Like Popper, Kant took inspiration for his views from the scientific achievements of the day. Whilst Popper, as we have seen, developed his theories with reference to Einsteinian physics. Kant turned to Newton's theories (CR, pp.26-7; cf. Stokes, 1998).

Another factor in Popper's developing thought on these matters was his association with members of the famous *Wiener Kreis*, the Vienna Circle, which was the most influential philosophical movement of the time. An underlying assumption of the Circle was that philosophy has a vital social function, concerned with combating the damaging effects of dogmatic thinking, irrationalism and fanaticism. Science, some members of the group suggested, was an objective means by which ideological

claims could be tested (Kolakowski, 1972, p.208). Their approach, logical positivism, became a target in Popper's early metascientific work, such as *Logik der Forschung* (although that book was originally published as part of a series by logical positivist authors), but he accepted their assertion that science was politically important as it offered a model of the growth of all human knowledge. He also adopted from the Vienna Circle, as will be seen later, a view that the proper study of epistemology was of the logical analysis of the growth of knowledge, rather than the psychology of individuals.

Red Vienna

> From the distance of seventy years it is customary to regard the last years of Austria-Hungary as a tranquil exercise in multiracialism. In fact, it was a nightmare of growing racial animosity. Every reform created more problems than it solved. (Johnston, 1983, p.37)

During the winter of 1919/1920, Popper left his parents' home, emerging into adulthood at one of the most transitional periods in Austrian history. He entered a society in which the old order and the new battled for control. He had been twelve at the outbreak of the First World War, and had witnessed the gradual disintegration of his orderly social and intellectual world. The end of the war marked the end of the great Austro-Hungarian Empire. The defeat of 1918 led to an unceremonious splitting into national states. Defeat in the war led to a period of hunger and revolution, and then reaction (Popper, 1973, p.52). There was a shortage of housing and high inflation, compounded by the existing difficulties faced by a nation devastated by years of war, such as a huge war debt, a starving population, and large-scale unemployment. It is difficult nowadays to imagine how devastating the events following the First World War would have been for a idealistic young man: 'The breakdown of the Austrian Empire and the aftermath of the First World War, the famine, the hunger riots in Vienna, and the runaway inflation ... They destroyed the world in which I had grown up' (IA, p.24). It was in such circumstances that Popper decided to stage his 'own private revolution' (ibid.), by dropping out of school, enrolling at the University of Vienna and entering the world of left-wing politics.

A vacuum existed at the centre of political power after the war. No group was prepared for government of a small, newly formed nation state.

Nevertheless, there was a noticeable rise in support of socialist ideas. The Austrian Social Democratic Party rose in popularity, taking advantage of the revolutionary atmosphere of the time. Disturbances and demonstrations increased, and on the day of the Emperor's abdication and the announcement of the new state of Austria's status as a German republic, Popper recalled that he was 'close enough to hear the bullets whistle when ... soldiers started shooting at the members of the Provisional Government' (IA, p.24).

The story of the new republic was one of extremes and polarisation. Of the major political parties, the Social Democrats adopted a broadly Marxist stance. They aimed to gain workers' confidence, especially in industrial centres like Vienna. They promised 'hope for a better future' (Papanek, 1962, p.47), by demanding wholesale reform. The inappropriately named Christian Socials, and the smaller German Nationals, were dominated by the Catholic Church. Their appeal was to conservative minds, and those dwelling on thoughts of German revenge after the humiliation of defeat in war. Together, they forced the Social Democrats into a coalition government.

The suffering and despair lead to willing audiences for leaders and prophets of every variety. Especially popular were those claiming to have discovered laws explaining the present deplorable situation, and those offering attractive solutions. This goes some way to explain the sudden, unprecedented appeal of socialism in Austria, thanks to the Marxists' claims to have in their possession knowledge of the historical laws whereby the rise to power of the working class was simply inevitable. New ideologies and movements were appearing on the scene with increasing frequency, especially in 'starving post-war Vienna' (Popper, 1973, p.52), and it was during this period of uncertainty that the Social Democrats took the chance to initiate a host of progressive welfare and educational reforms aiming to lay the foundations for the new socialist republic. Temporarily holding a majority in both national and Viennese governments the Social Democrats took the opportunity to begin to develop their utopian municipal programme (Grüber, 1991, p.22).

As a young keen socialist (he would have been seventeen when the Social Democrats led the initial coalition government), Popper was caught up in the political milieu and joined the Social Democratic Party. The extent to which Popper was involved with the Social Democratic party is unclear. Bartley claimed that he 'was for a time actively involved in socialist party activities in Vienna' (Bartley, 1974, p.320). Popper, for his