

A TANGLED WEB OF GUESSES:

A CRITICAL ASSESSMENT OF THE
PHILOSOPHY OF KARL POPPER



NICHOLAS DYKES



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FOR LIFE, LIBERTY AND PROPERTY

**“For all criticism consists in pointing out ...
contradictions or discrepancies, and
scientific progress consists largely in the
elimination of contradictions wherever we
find them. This means, however, that
science proceeds on the assumption that
*contradictions are impermissible and
avoidable ... once a contradiction is
admitted, all science must collapse.*”**

Karl Popper, c. 1940

**“Now a little debunking may do us a lot of
good ...”**

Karl Popper, c. 1980

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PREFACE

Karl Popper died at the age of 92 on September 17, 1994. Lengthy obituaries in British newspapers attested to the widespread esteem in which he had been held. Anthony Quinton, writing in *The Guardian*, said Popper was "this century's most important philosopher of science". Rom Harré, in *The Independent*, called Popper "the last of the great logicians". *The Daily Telegraph* hailed him as "one of the most influential thinkers of the 20th century"; while *The Times* averred that he was a philosopher of exceptional range, and of "uncommon originality, clarity and depth". The American journal *Liberty* was even more complimentary, 'conjecturing' that "Popper's thought is to be ranked with that of Plato, Hume, Kant and Russell".¹

A substantial element of caution was nonetheless apparent amidst the eulogies, suggesting that respect for Popper's thinking was by no means universal (*de mortuis...?*). Certainly, Popper seems to have found most of his more ardent supporters among scientists rather than among philosophers, an anomaly made explicit many years before by reactions to his book *The Logic of Scientific Discovery*. Scientist Sir Peter Medawar called the work "one of the most important documents of the twentieth century". Philosopher Hans Reichenbach bluntly asserted: "The results of this book appear to me completely untenable... I cannot understand how Popper could possibly believe that with respect to the problem of induction his investigations mean even the slightest advance."²

Such castigation notwithstanding, Popper was undoubtedly one of the more prominent philosophers of his day. Immensely learned, he was both a formidable critic and a prolific author of wide-ranging, provocative, and powerfully written books and essays. While many have disagreed with the novel philosophical approaches he proposed, few have found his work uninteresting. Even those who dislike him usually acknowledge that Popper's every sentence "gives us something to think about".³

That said, much of Popper's work is, in my view, more stimulating than philosophically important. This is because — as I intend to show — the major elements of his philosophy not only conflict with one another, they contain so many internal contradictions that his ideas often lead to conclusions at variance with his own publicly stated convictions.

INTRODUCTION

In an essay published in 1995, a doctoral graduate of the university where Sir Karl Popper taught, the London School of Economics, asserted that “Popper’s epistemology and methodology... are a useful part of the defence of libertarianism” and that, in its turn, “libertarianism is a useful part of the defence of Popper’s epistemology and methodology”.⁴ Since my own reading of Popper did not support such a conclusion, my first thesis may be stated in the form of a question: ‘Do Popper’s ideas provide a philosophical foundation for libertarian political and economic theory?’

My second thesis concerns possible similarity between the ideas of Karl Popper and those of the Russian-American novelist and philosopher, Ayn Rand, creator of the new individualist philosophy, Objectivism. Wallace Matson, for example, has suggested that Rand and Popper had “much in common”.⁵ His view has been partially endorsed by Robert Hollinger, who has spoken of “parallels” between the two thinkers.⁶

Because Ayn Rand did indeed provide a philosophical basis for libertarianism, the supposition that she and Popper had a lot in common implies that Popper’s philosophy might in some manner be interchangeable with hers. My second thesis is therefore another question: ‘Are Popper’s ideas an alternative to, or substitute for, Ayn Rand’s Objectivism?’

The Scope of this Essay

Popper wrote copiously on a wide variety of subjects. Of necessity, therefore, I have been selective; I have discussed only those aspects of Popper’s thought which seemed relevant to the above topics. I have kept the discussion general, steering clear of more complex issues such as Popper’s disputes with other philosophers, and technical matters such as his contributions to symbolic logic or theoretical physics, the latter being in any case well beyond my competence. I trust that my text or notes make clear where other main omissions have occurred.

A subsidiary purpose of this essay has been to make Popper’s views better known. He seems to me to be more talked about than read, and it is evident that there is some misapprehension about where he stood on a number of fundamental issues. I have therefore presented his ideas in detail. Since Popper wrote well and clearly, I have usually been able to let him speak for himself — through extensive quotation. However, an immediately noticeable aspect of Popper’s work is frequent repetition of the same ideas in only slightly varying form. The illustrative passages chosen are thus typical examples rather than ‘definitive statements’. In many cases I have given just one reference where six would do.

A problem which confronts any student of Popper’s work is the sheer volume of the Popper literature. Sir Karl’s famous disputes with other philosophers — such as Carnap, Kuhn and Wittgenstein; his public disagreements, friendly or otherwise, with former students or associates such as Joseph Agassi, William Bartley, and Imre Lakatos; and the opposition he faced from other quarters to his views on induction and on demarcating science, have resulted in an endless stream of scholarly articles. From 1967, its first year, to its most recent edition in 1995, *The Philosopher’s Index* lists nearly 950 articles under the subject title “Popper” — from many countries and in several languages. Even today, 60 years after Popper first made a name for himself, new commentaries appear virtually every month. One observer complained that “the controversy surrounding Popper’s proposed solution to the problem of induction is beginning to display many of the symptoms of being interminable”.⁷

Not wishing to engage in ‘interminable’ research, I have largely confined my reading of the literature to the 33 critical essays (with Popper’s replies) assembled by P.A. Schilpp in *The Philosophy of Karl Popper* (1974), and to monographs by An-

thony O’Hear (1980) and Bryan Magee (1982).⁸ I also perused *The Philosopher’s Index* in order to catch the drift of Popperian debates. My chief concern in all this was to make sure that I wasn’t merely furrowing ground already broken by other critics. As far as I could see, I was not.

Works Consulted

The Open Society and its Enemies, Volumes 1 and 2 [OSE1/2]⁹

The Poverty of Historicism [POH]¹⁰

The Logic of Scientific Discovery [LSCD]

Conjectures and Refutations [C&R]¹¹

Objective Knowledge [OKN]¹²

The Philosophy of Karl Popper, Books 1 and 2 [PKP1/2]¹³

Unended Quest [UNQ]

Realism and the Aim of Science [RASC]

The Open Universe [TOU]

Quantum Theory and the Schism in Physics [QTSP]¹⁴

The Self and Its Brain [TSIB]¹⁵

A World of Propensities [AWP]¹⁶

To reduce the number of endnotes I have given most references in my text, in the form of initial letters from Popper’s titles — as indicated above — followed by a page number. E.g. a quotation from *The Open Society and Its Enemies*, Vol. 2, page 122, would be annotated: [OSE2 122].

Re style, I have used double quotation marks for actual quotations, single ones for emphasis. Where a quotation begins a sentence, I have sometimes capitalized initial letters to assist readability. Unless otherwise noted, italics are in the original.

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Lastly, I would like very warmly to thank The Estate of Karl Popper for their permission, generously given, to reproduce copyright material so extensively.

KARL POPPER: A BRIEF BIOGRAPHY

Karl Raimund Popper was born in Vienna in 1902. His father, Dr Simon Popper, was a well known and successful barrister. His mother, Jenny, was an accomplished musician who instilled in her son a lifelong love of music. The family were assimilated Jews, and Popper was raised in the Lutheran Church. In later life he described himself as an agnostic, although he deeply respected and sympathised with religious belief [TSIB viii].

Popper’s father was an erudite bibliophile — he had a personal library of 10,000 volumes — and young Karl was better read than many a professor before leaving high school. For example, he had both embraced and partially rejected Marxism before he was seventeen; got through Freudianism as quickly by nineteen; and had mastered the intricacies of everything from the Presocratics to Logical Positivism long before receiving his doctorate in 1928. As to personal inspiration, Popper wrote: “I regard myself as a disciple of Socrates... I love the man.” Specifically, “I am an admirer of his self-critical search for truth” [PKP2 962].

The most profound and lasting influence on the young Popper, however, was Einstein’s revision of Newtonian cosmology, about which Popper first learned in 1919. The apparent overthrow of Newton’s “indubitable truths” left him “dazed”, but it also ignited the train of thought which was to dominate his life [UNQ 37].

After university, Popper qualified as, and obtained work as, a secondary school teacher. He also married another school-teacher, Josefine Henninger, whom he had met as a student. Thus settled, he began work on his ideas about the growth of scientific knowledge, published in Vienna as *Logic der Forschung* in 1934. The book earned him a reputation abroad and, with Nazi antisemitism on the march — and prescient about what it might lead to — Popper began to look for a position overseas. In 1936, he was offered ‘academic refuge’ in Cambridge. Both he and his wife would have preferred this, but Popper opted instead for a lectureship in New Zealand in order to leave the Cambridge place open for another refugee. At Popper’s suggestion it went to Friedrich Waismann, a member of the Vienna Circle [UNQ 110-11].¹⁷

His reputation enhanced by what he called his “war work” — *The Open Society and its Enemies*, regarded by many as his magnum opus — Popper was offered a prestigious post at the London School of Economics in 1946. There he remained, his fame growing (he was knighted in 1965), until his retirement in 1969. He continued working up to the last, however, producing some of his best-known ideas during the 1970s and 80s. He credited his much-loved wife Josefine with encouraging him to write — she typed all his manuscripts — and he nursed her throughout a long and painful illness until her death in 1985. They had no children.

A SUMMARY OF POPPER’S PHILOSOPHY

“I am a rationalist of sorts”¹⁸

Popper was by inclination a metaphysical realist, a firm believer in the existence of an independent, objective reality. A staunch advocate of reasonableness, of the value of human life, and of personal freedom — particularly intellectual freedom — he vigorously opposed subjectivism, relativism, determinism and idealism, and had a deep loathing of violence. “I hate violence.... I am a rationalist because I see in the attitude of reasonableness the only alternative to violence” [C&R 355].

The Philosopher of Science

By far the most extensive part of Popper’s work was in the philosophy of science. Indeed, he may rightly be regarded as one of the most eminent among 20th Century philosophers of science. He wrote at great length on probability theory, and on the more arcane aspects of quantum mechanics, and made significant contributions to ongoing debates over problems such as Bohr’s idea of ‘complementarity’. He also developed an interesting theory of ‘propensities’ as an explanatory tool for understanding both probability and sub-atomic physics.

However, Popper is best known in the scientific world for his ‘theory of falsification’ — the idea that one can distinguish science from pseudo-science by the fallibility of scientific knowledge; its criticizability, its falsifiability, its potential for being wrong: “ ‘In so far as scientific statements refer to the world of experience, they must be refutable; and, in so far as they are irrefutable, they do not refer to the world of experience.’ ” [OSE2 13].

Out of this notion of ‘demarcation’ grew Popper’s conviction that science is based not on induction, which he branded a ‘myth’, but rather on ‘critical rationalism’: the theory that scientific knowledge is always conjectural, tentative, never certain, but that it can and does grow through a process of hypothetico-deductive trial and error, which Popper christened ‘conjecture and refutation’ and thought of as a “new way of knowing” [OSE2 383].

Many scientists have found Popper’s philosophy of science congenial, even liberating, including famous names such as John Maynard Smith, and Nobel prizewinners Peter Medawar and John Eccles.¹⁹ Popper’s stress on refutation allowed them

to see that demolition of their favourite hypotheses represented advances in knowledge, not personal failures.²⁰

Philosophy of History

One area where Popper’s influence was unquestionably beneficial was in his analysis and refutation of the widespread tendency among historians, and other scholars, to seek “Inexorable Laws of Historical Destiny”²¹ by which the future might be predicted. ‘Historicism’, as he labelled this form of determinism, has never really recovered from Popper’s incisive criticisms.

Popper’s important and enlightening contributions to the history of philosophy also showed him to be a very capable historian himself. Among his more notable efforts were his work on Berkeley as a precursor of Mach, and several controversial interpretations of early Greek philosophy. A fair amount of academic acid was thrown during discussion of Popper’s historical ideas — to his considerable delight, he liked nothing better than a scholarly tiff.

Essentialism

One of Popper’s pet hates was the hoary philosophical concept ‘essence’, which Popper took to denote any sort of belief in the real existence of concepts, as found for example in Plato and to a lesser extent in Aristotle. For Popper, far more important than the ‘problem of universals’, was the problem of universal laws, or regularities, which he felt lay behind universals.

Popper therefore rejected any such notion as ‘the essential nature of things’ adopting instead a position he called “methodological nominalism” [UNQ 20]. He regarded words as no more than convenient labels and throughout his career resolutely refused to answer ‘what is’ questions, or to become involved in any discussion of linguistic precision, of meaning, or even of definitions, all of which preoccupations he dismissed as “empty verbalism”, “tiresome phantoms” or “verbal quibbles” [e.g. C&R 28, TOU xxi].

Philosophy of Mind

Another of Popper’s original philosophical ideas was his ‘Three World’ theory. This grew out of his conviction that mind and matter are totally different entities, but that they ‘interact’. According to the theory, World 1 is physical reality, the world of facts. World 2 is the world of consciousness, of mental events. World 3 contains the hybrid children of World’s 1 and 2 — the products of the human mind — and is held to be independent, objective, in a sense autonomous, and growing in an evolutionary manner.

The Open Society

It is on his work in political philosophy that Popper’s more general reputation is based. He is world-renowned for his exposure of the roots of modern totalitarianism in the ideas of Plato, Hegel and Marx. His *Open Society* has been translated into many languages and is widely credited with contributing to the demise of communist dictatorship in Eastern Europe: it circulated behind the Iron Curtain in forbidden *samizdat* form for decades.

But for all his fame as an advocate of ‘the open society’, of political freedom, Popper was far from being a libertarian. Although a friend and admirer of F.A. Hayek, and a keen student of his work, Popper believed wholeheartedly in government economic intervention and dirigisme — he called it “piecemeal social engineering” — as long as it was for altruistic ends and under constitutional control.

Popper’s attitude to socialism was similarly ambivalent. He rejected Marxian dogma, but his youthful attraction to Marx left him with considerable sympathy for ‘the red Prussian’. He was a member of the Marxian Social Democratic Party during the turbulent times in Vienna after World War 1 and, sentimentally,

he remained a socialist all his life: “if there could be such a thing as socialism combined with individual liberty, I would be a socialist still” [UNQ 36]. Given such views, Popper’s treatment of Marx in *Open Society* was distinctly friendly, of which more later.

A Critical Attitude

Popper’s most abiding contribution to philosophy may well turn out to be his consecration of criticism — by which he meant a critical and self-critical cast of mind — as the foremost virtue of anyone who aspires to think.²² The vital importance of refusing to accept any authority other than truth — “*truth is above human authority*” [C&R 29]; of never resting on one’s laurels; of never accepting any theory as final; of never imagining that we know all there is to know; of subjecting even the clearest and best understood of our conceptions to the most rigorous and searching tests we can devise: all these were the constant refrains of Popper’s philosophical writing.

For Karl Popper there was only one essential verb in philosophy, spelt for preference not with a soft and sibilant ‘s’, but with a nice sharp ‘z’: *criticize!*

Thus inspired, let us proceed.

A CRITIQUE OF KARL POPPER’S IDEAS

ONE: PRELIMINARY OBJECTIONS

Most of my criticisms in this paper are directed at Popper’s epistemology, in particular his theory of falsification, or ‘conjectures and refutations’. The theory has often been referred to, by Popper himself and by others, as ‘critical rationalism’,²³ or ‘fallibilism’. For the sake of brevity I shall generally use the latter term, despite its wider associations: Popper was not the only fallibilist. His most notable precursor was the American founder of pragmatism, C.S. Peirce, who actually coined the term ‘fallibilism’ long before Popper began his career.²⁴

Preacher and Practice

Strangely, this most astringent and remorseless of philosophical critics never seems to have gone through the exercise — at least, not in his major published works — of criticizing his own ideas. Doctrines such as fallibilism are advanced with much more assertion than argument. Search as one may, nowhere does one find fallibilism subjected to the kind of merciless probing with which Popper dissected Plato’s politics [OSE1]; or the battering ram ridicule he employed against Hegel [OSE2]; or the patient rigour of his line-by-line examination of some of Carnap’s ideas [C&R 253-92]. Nor does one find directed at fallibilism the book-length critical analysis Popper devoted to historical prophecy in *The Poverty of Historicism*, or to determinism in *The Open Universe* (the latter being his best work, in my opinion.) He did more than once acknowledge that his fallibilism was itself, like everything else, open to criticism [e.g. OSE2 378-9], but he left this all-important task to someone else.

What is so odd about this egregious lapse is that in the everyday world of things — in which us ordinary mortals live — fallibilism seems, at first blush, to be a distinctly peculiar doctrine. Solely concerned with what is *not*, never with what *is*, it appears to fly in the face of common sense. Yet while claiming that he “was always a commonsense philosopher” [OKN 322-3] and to “like best” those readers “who are not philosophers and who are used to relying on their common sense” [C&R 325], Popper apparently did not recognise that to

overcome immediate commonsensical objections — to win hearts and minds for fallibilism — he needed to place his critical powers on red alert and to put forward a defense of his theory at least on a par, in its attention to detail, with his devastating critiques of Plato and Hegel.

In a similar way, the man who was adamant that we should reject all authority, based a large part of his own thought on premises borrowed from Hume, from Kant, and from the lesser known Polish philosopher Alfred Tarski. Time and again Popper referred to the same Humian, Kantian or Tarskian theories in support of his views but not once in all my reading did I find a proper discussion of the serious objections that can be raised against the theories cited.

Popper urged *us* to disown all authority, but seemed content to rest *his* case on the reputations and authority of famous names like Hume and Kant; and, of course, on that of his “hero” Einstein [AWP 8], whose ‘overthrow’ of Newton was the leitmotif of Popper’s thought.²⁵

Belief, Conviction and Faith

Popper’s curious self-blindness may be related to discrepancies in his views on belief, conviction, and faith. “I am not a belief philosopher” he asserted; “I do not believe in belief” [OKN 25]. He added elsewhere, “beliefs are quite insignificant for a theory of truth, or of deduction, or of ‘knowledge’ in the objective sense” [UNQ 145].²⁶ The latter comment was made when he was about seventy. Some forty years earlier he had avowed: “No matter how intense a feeling of conviction may be, it can never justify a statement” [LSCD 46]; and “Nobody would dream of justifying the validity of a logical inference... by.... an acute feeling of conviction” [LSCD 98].

Yet one cannot help being struck when reading Popper by the extent to which he relied on what he denied. In *The Poverty of Historicism*, for example, the words ‘believe’ or ‘belief’ often occur several times a page, viz: “I *believe* that theories are prior to observations.... I do not *believe*, therefore, in the ‘method of generalization’.... I *believe*, rather, that the function of observation and experiment is the more modest one of helping us to test our theories...” [POH 98]. “I do not *believe* that we ever make inductive generalisations.... I *believe* that the prejudice that we proceed in this way is a kind of optical illusion.... Now all this, I *believe*, is not only true for the natural but also for the social sciences...” [POH 134-5]. In *Objective Knowledge* we read “I *believe* in the reality of the physical world. Secondly, I *believe* that the world of theoretical entities is real...” [OKN 323n7]. In *Unended Quest*, we are told of Popper’s “*conviction* that there is a real world” and that he “became *convinced* that... we cannot start from our sense experiences” [UNQ 75]. In *The Self and Its Brain* we read: “I wish to state clearly and unambiguously that I am *convinced* that selves exist” [UNQ 101].

That these illustrations (with italics added) are more than mere matters of style, of word choice, can be seen from Popper’s declaration of his ‘faith’ in reason. He was possessed, he said, of “an irrational faith in the attitude of reasonableness” [C&R 357]. He spoke approvingly of Socrates, “who taught the lesson that we must have faith in human reason” [OSE1 185]. Later in the same work Popper made his position explicit:

“neither logical argument nor experience can establish the rationalist attitude....

“this means that whoever adopts the rationalist attitude does so because he has adopted, consciously or unconsciously, some proposal, or decision, or belief, or behaviour... which may be called... an irrational *faith in reason*....

“critical rationalism... recognises the fact that the fundamental rationalist attitude results from an (at least tentative) act of faith — from faith in reason.... [and]

frankly admits its origin in an irrational decision..." [OSE2 230-1].

That the concept of 'faith' was introduced into our language in order to designate non-philosophical and non-scientific attitudes or assertions which are specifically *antithetical* to reason; and that therefore any such statement as 'to have faith in reason' is self-contradictory; Popper did not, to my knowledge, discuss.²⁷

Popperian Uncertainty

Another Popperian conviction — the core of his fallibilism — was the impossibility of attaining certainty. The following extracts are just a small sampling of this constant theme in his work:

"The quest for certainty... is mistaken.... though we may seek for truth... we can never be quite certain that we have found it" [OSE2 375].

"*There cannot exist a general criterion of truth.... No claim can be made for absolute certainty: we are seekers for truth but we are not its possessors*" [OKN 46-7].

"Common sense... [is] not by any means reliable, true, or certain" [OKN 69].

"[The] ultimate failure of all our attempts to understand... the impossibility of any real self-understanding..." [OKN 184].

"No particular theory may ever be regarded as absolutely certain.... No scientific theory is sacrosanct..." [OKN 360].

"Precision and certainty are false ideals. They are impossible to attain and therefore dangerously misleading..." [UNQ 24].

"*We never know what we are talking about*" [UNQ 27].

Popper's own favourite quotation was from Xenophanes: "all is but a woven web of guesses" [C&R 26, 153]. My point is that, leaving aside the self-contradictory nature of denials of certainty,²⁸ in the absence of certain knowledge one is either forced into a position involving some kind of unfounded conviction, belief or faith, or into scepticism.²⁹ Since Popper maintained that he was not a sceptic [OSE2 375, C&R vii], and that he was the "happiest philosopher" he had met [UNQ 126 & 196], he evidently based his own powerful convictions on that "irresistible impression of indubitable certainty" which he forbade to everyone else [LSCD 46].

One thing which is quite certain is that Popper wrote with absolute assurance of his own rectitude, as I think the quotations in this paper reveal. For all his belittlement of knowledge and certainty, I have never read anyone who wrote so many books all imbued with such conscious certainty and authority — the authority of *one who knows*.

Maybe Popper was merely practising his own dictum, "every theory entails its own truth, and therefore cannot predict a situation which involves its rejection" [TOU 67]; but the long and the short of this perhaps overlong look at Popper's deficiencies in self-criticism is, if the reader will excuse me, that with absolute faith in his own ideas, Popper never seemed to see the need to do a Popper job on Popper.

TWO: FALLIBLE FALLIBILISM

In this section I examine the difficulty of coming to grips with Popperian fallibilism. The problem is due as much to Popper's dislike of definitions as to the all-embracing nature of his attack on what he called 'essentialism'. Fallibilism is also difficult, in my view, to distinguish from scepticism;³⁰ and, in so far as it is possible to pin the theses of fallibilism down, the theory seems to include within itself an almost textbook set of logical fallacies.

"We never know what we are talking about"

Popper's deliberately paradoxical aphorism, which he used in his lectures to bring home the central thesis of fallibilism to his students [UNQ 27], also brings home the difficulty of criticising a philosopher who refused to have anything to do with definitions.

I am sure that this attitude was in part a reaction to the verbal obsessions of Logical Positivism and Linguistic Analysis — which dominated academic philosophy during Popper's career and both of which he loudly and publicly rejected³¹ — but it is nonetheless a large problem to assess the ideas of someone who maintained:

"Definitions do *not* play any very important part in science.... Our 'scientific knowledge'... remains entirely unaffected if we eliminate all definitions" [OSE2 14].

"I... believe that clarity is an intellectual virtue.... But I do not believe that exactness or precision are intellectual virtues in themselves.... I am not interested in definitions; since all definitions must use undefined terms" [OKN 58].

"Definitions never give any factual knowledge about 'nature' or about the 'nature of things'" [C&R 20-21].

"Always remember *the principle of never arguing about words and their meanings*, because such arguments are specious and insignificant" [UNQ 17].

"*There simply is no such thing as an 'explication', or an 'explicated' or 'precise' concept*" [UNQ 30].

"Definitions.... are never really needed, and rarely of any use" [RASC xxxvi].

"Questions of terminology are never important" [TOU 7n].

How, then, is one to have the temerity to define critical rationalism, the Popperian brand of fallibilism? The simplest way to begin is to assert that Popper was mistaken about definitions, as I am sure he was. I do agree with him that concepts — universals — have no independent, real existence; no 'metaphysical tangibility' if you like. They are human products, abstractions, created by our minds to facilitate thought, and making language possible. Whatever explanatory power notions such as Plato's Forms may once have had, they were pure supposition, philosophic inventions, *not* descriptions of reality.

But to extend the denial of conceptual realism, of (Platonic-Aristotelian) essence, to an all-embracing rejection of definitions and precise meanings, and further to describe terminology as arbitrary and unimportant — as Popper did — is surely to throw out the baby with the bath water.

It seems platitudinous to have to say so, but I do not see how language is *possible*, how we can *communicate*, without a fixed and defined terminology. To be sure, the sounds of words and their symbols in letters may have been arbitrary to start with — 'cow' could just as acceptably have been 'wock' — but once the convention is established that 'cows' refers to those large, familiar, ruminant herbivore quadrupeds which grace the verdant countryside, and to those alone, it would be fatuous and unintelligible to announce suddenly that a herd of wocks had escaped and that there was wockflop all over the lawn.

The difficulty is brought further into the open by looking at any term used by Popper to express his view of the world. Let us take 'propensity', which Popper employed in two different senses; as a new interpretation of probability, and to describe fundamental properties of matter. Other thinkers have employed alternative words for apparently similar ideas. Henry Morgenau referred to 'latency' [PKP2 758] and Patrick Suppes to 'disposition' [PKP2 761]. Aristotle, of course, began it all with 'potentiality'.

Now, when Popper said definitions are rarely of any use, did he want us to assume that there are no worthwhile differences between ‘propensity’, ‘latency’, ‘disposition’, or ‘potentiality’; no shades of meaning which might be helpful in discussing our conceptions of probability or of matter? What is so special about ‘propensity’? If words are entirely arbitrary why choose that particular one?

And what about the term ‘probability’, towards a theory of which Popper’s ‘propensity’ was posited, in contradistinction to the older ‘frequency’ interpretation? If definitions are unimportant, why are we bothering? What is it that distinguishes ‘frequency’ from ‘propensity’ — or from ‘probability’ itself for that matter? It is so instantly obvious that proper definitions of these terms are *vital* — if there is to be any intelligent discussion at all — that Popper’s attitude must be immediately ruled out of order.

While there may be a legitimate didactic purpose in the use of paradox to tease thought out of students, its injection into routine matters such as definitions is much more questionable. I think one may be forgiven for suspecting that when Popper said ‘we never know what we are talking about’ or dismissed definitions as ‘insignificant’ he had, like so many philosophers before him, merely taken a fancy to the old Sophist trick of bamboozling “the rabble without doors” with insoluble philosophical puzzles. As his mentor Hume put it: “Whatever has the air of paradox, and is contrary to the first and most unprejudiced notion of mankind, is often greedily embraced by philosophers, as showing the superiority of their science, which could discover opinions so remote from vulgar conception.”³²

Before leaving this subject, we shouldn’t forget to ask exactly what it is that we are supposed to understand by the term ‘propensity’. If the bits of physical matter — the tangible, observable stuffs of which physical entities are composed — exhibit a propensity to transmute themselves into something further, something slightly different, i.e., to bring out their potentialities, or the characteristics latent in themselves, in what way is this different from saying that they have essences in the Aristotelian sense? There has to be an identifiable *something* there, or any discussion of that something’s *propensities* would be meaningless. Similarly, a something which exhibits propensities — by evolving into a recognisable something else — must be different in some way from other observables or we wouldn’t be able to separate it from its background in the first place.

At this basic level (without of course endowing the word with any sense of immortality or otherworldliness) ‘essence’ would appear to be just as handy and intelligible a word as ‘something’; and, if there are things at all, discovering their essence, or nature, or identity, and thus their propensities; and then making that discovery communicable by means of a definition, would seem to be what most scientific activity is about.

For all his antagonism to ‘essence’, and to definitions, when he chose the word ‘propensity’, Popper seems to me to have been veering towards a kind of essentialism himself, of which more later.

From the above discussion, I think we may conclude that definitions do in fact play a fundamental role in all thought, and that discussions about them are *not* ‘tiresome quibbles’. Rather, definitions are as essential to philosophy as they are to any other intellectual pursuit. In the words of Aristotle: “not to have *one* meaning is to have *no* meaning, and if words have no meaning, our reasoning with one another, and indeed with ourselves, has been annihilated.”³³

Which sane remark leads us to the little matter of a conflict between Popper’s attitude to definitions, and the Law of Contradiction; but I shall address this in Section Five.

Popperian Definition

Having seen his ambivalence towards criticism, authority, and belief, it should not surprise us that Sir Karl did in fact use precise definitions whenever it suited him. For example, in the “Introduction” to *Realism and the Aim of Science*, one reads:

“We must distinguish two meanings of the expressions ‘falsifiable’ and ‘falsifiability’:

1) ‘Falsifiable’ as a logical-technical term, in the sense of the demarcation criterion of falsifiability. This purely logical concept — falsifiable in principle, one might say — rests on a logical relation between the theory in question and the class of basic statements (or the potential falsifiers described by them).

2) ‘Falsifiable’ in the sense that the theory in question can *definitively* or *conclusively* or *demonstrably* be falsified (‘demonstrably falsifiable’). I have always stressed that even a theory which is obviously falsifiable in the first sense is never falsifiable in this second sense. (For this reason I have used the expression ‘falsifiable’ as a rule only in the first, technical sense. In the second sense I have as a rule spoken not of ‘falsifiability’ but rather of ‘falsification’ and of its problems)” [RASC xxii].

In case that was not sufficiently precise, Popper added:

“It is clear that the suffixes ‘able’ and ‘ability’ are used somewhat differently in these two senses. Although the first sense refers to the logical possibility of a falsification in principle, the second sense refers to a *conclusive practical experimental proof* of falsity. But anything like conclusive proof to settle an empirical question does not exist” [RASC xxii].

Lest his readers find the concluding sentence depressing, Popper offered some reassurance on the next page:

“It should be stressed that the uncertainty of every empirical falsification (which I have myself repeatedly pointed out) should not be taken too seriously (as I have also pointed out). There are a number of important falsifications which are as ‘definitive’ as general human fallibility permits. Moreover, every falsification may, in its turn, be tested again” [RASC xxiii].

Falsifiable Falsifications

The problem with these very clear definitions and very precise statements is that they leave one wondering how fallibilism itself is supposed to be criticizable — as Popper assured us it is: “nothing is exempt from criticism... not even this principle of the critical method itself” [OSE2 379]. But if the “uncertainty” of falsification should “not be taken too seriously”; and if every falsification “may be tested again”, what can “nothing is exempt from criticism” mean?

In “Replies to my Critics” Popper attempted to deflect this line of questioning by resorting to his demarcation criterion: “my theory is not empirical, but methodological or philosophical, and it need not therefore be falsifiable. Falsifiability is a criterion of demarcation, not one of meaning” [PKP2 1010]. Eh? Admittedly, thirty years separate the two quotations, but defending fallibilism by implying that philosophy is not empirical? Dear me. Where is *that* going to take us? I mean, where did Popper get his facts about philosophy from? Besides, only a hundred or so pages later, he came right out and said he was an empiricist [PKP2 1121].³⁴

Lastly, I think it reasonable to ask at this juncture how knowledge can grow through falsifiability when the falsifications themselves are falsifiable. An infinite regress of falsifiable falsifications seems a pretty fair description of Hell, or of Bedlam: “that way madness lies...”

Conjectural Knowledge

An easily graspable synopsis of Popperian fallibilism is presented in the Preface to *Conjectures and Refutations*:

“The way in which knowledge progresses, and especially our scientific knowledge, 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 severely critical tests. They may survive these tests; but they can never be positively justified: they can be established neither as certainly true nor even as ‘probable’ (in the sense of the probability calculus)” [C&R vii].

Or, as Popper put it more succinctly elsewhere: “all knowledge is hypothetical” [OKN 30]; alternatively, “All knowledge remains... conjectural” [RASC xxxv]. In other passages it is “all theories” which are conjectural [eg OKN 80].

As far as I was able to ascertain, the above extract from *Conjectures and Refutations* is about as comprehensive a ‘description’ of his fallibilism as Popper gave us. It will be recalled that he did not answer ‘what is’ questions, and thought definitions unimportant. His presentations — all too often annotated lecture notes rather than carefully worked out treatises — thus tend to be discursive and rather diffuse (‘rambling’ to be less polite) although they are frequently quite terse, and pontifical too, it must be said. They are statements of what he thought the case to be, and of his thinking thereon, rather than searching questions and answers, or hypotheses-evidence-arguments leading to conclusions.

Now I must repeat that, personally, I found Popper’s conjecturalism rather hard to distinguish from the traditional sceptic’s claim that knowledge is impossible. For, again speaking for myself, that which is unjustifiable, tentative, unprovable, conjectural, etc, I do not regard as knowledge.

Knowledge, to me, is something which it is possible to justify, to be positive about, to prove, to validate, in other words, to *know*. Conjecture, on the other hand, is *by definition* — if you’ll pardon the expression — *not* knowledge. Conjecture, according to *Chambers English Dictionary* is “an opinion formed on slight or defective evidence or none: an opinion without proof: a guess”.³⁵ Since one cannot define a thing in terms of something else which is contrary to it — since A is A, not B — the proposition ‘all knowledge remains conjectural’ is, quite clearly, self-contradictory.

This becomes even more clear when one notices that Popper’s proposition is itself *not* conjectural. It baldly asserts: “All knowledge remains conjectural” — which is a claim to knowledge. Thus the theory implied by the proposition uses in its first premise that which it attempts to deny.

Furthermore, the proposition ‘knowledge is conjectural’ is irrelevant. Epistemology, the branch of philosophy to which the theory of fallibilism belongs, is the study of the methods and grounds of knowledge. Conjecture is not valueless in this endeavour, but it is by definition *not* knowledge. Conjecture is conjecture, knowledge is something else entirely. The study of conjecture might be useful, but it is not germane to the study of knowledge.

Another immediate objection is that the notion of ‘conjecture’ actually depends for its intelligibility upon the prior concept of ‘knowledge’. The idea of a ‘conjecture’ arose precisely to designate a form of mental activity which was *unlike* knowledge, and to distinguish clearly *from* knowledge an idea put forward as opinion without proof. This common error is called ‘the fallacy of the stolen concept’ in the Objectivist philosophy.³⁶

The ‘theft’ becomes more apparent when one considers that Popper employed, as he had to, a large vocabulary of English (or German) words all of which he had to learn, and to *know*, in

order to express any or all of his ideas. There is nothing conjectural about learning a language. Similarly, in all his philosophical and scientific work Popper depended on a broad range of core concepts — evolution, mankind, reason, logic; universe, time, energy, light, atom, force, mass, attraction, repulsion, etc — all of which are universally known and recognised by thinking people as unalterable brute facts, *not* as conjectures. ‘All knowledge is conjectural’ may sound fine at High Table, but throughout his career Popper actually *worked* within a framework of knowledge, not of conjectures.

Lastly, the proposition ‘All knowledge is conjectural’ is simply *not true*. My observation that the sun is shining is not *conjectural*, it is a fact known to me and millions of other observers. The sun (albeit miraculously for February in England) is shining, right now, through my window. My observation is no more conjectural than the propositions ‘Bill Clinton is President of the USA’ (in 1996 AD); or ‘my grandmothers are dead’; or ‘the French for ‘yes’ is ‘oui’; or ‘2 plus 2 = 4’. These statements are *true*. They are demonstrable to any sane person: either ostensibly; or from observation; or through the presentation of evidence beyond reasonable doubt; via simple common sense; or by means of logic. They constitute knowledge, *not* conjecture.

The idea that knowledge is conjectural — the centrepiece of Popper’s philosophical edifice — thus turns out to be just as flawed, logically, as that tired old sceptical commonplace and cop-out³⁷ ‘knowledge is impossible’ (which, being itself a claim to knowledge, is self-contradictory). ‘Knowledge is conjectural’ is not one whit more valid than ‘knowledge is impossible’, either as a starting point for enquiry, or as a conclusion to it.³⁸

Fallibilism in Practice

The actual practical method of fallibilism seems little more tenable. We are urged to conjecture, to subject our conjectures to severely critical tests and, if they survive those tests, we are permitted to believe (?) some tentative, falsifiable, uncertain *je ne scai quoi*.³⁹

Cut off by its own dictates from knowledge, Popperian fallibilism — considered as a scientific method — seems to me, again on purely logical grounds, to be inherently arbitrary and subjective. In the first place, the conjecture, or proposition, or theory, or guess, to be tested — and Popper said the bolder the conjecture the better — would presumably be selected by the tester. But what criterion is used in carrying out the selection? Fallibilism provides no means for evaluating this all-important choice.⁴⁰ The only thing we could be referred to would be an earlier fallibilistic exercise, and then to an earlier one, and so on, *ad infinitum*. If it is to avoid an infinite regress, the conjecture itself, the proposition to be tested, must fall outside the scope of fallibilism. It has to be *a priori*. Therefore, unless further information is provided, I do not see how fallibilism can resist the charges of arbitrariness and subjectivity.

Further, the whole approach smacks of straw men. In a case where an (arbitrary) conjecture has successfully survived all tests, it could merely have happened that a ‘virtuous straw man’ (the conjecture) has one by one fended off an army of lesser straw men (the tests) which have been sent against it. But nothing would be *proven* by all this. Not only do we still require some demonstration of the worthwhileness of the conjecture, it also seems clear enough that some other method is required to establish that the opposing arguments are truly exhaustive and not just straw.

Put a slightly different way, and by means of an analogy: it is perfectly possible for a dangerous lunatic to pass a driving test. Even the most stringent ‘advanced driver’ courses ever devised may not necessarily uncover the explosive unroadworthiness of ‘the nut behind the wheel’.

The fallibilist method also strikes me as a form of question begging. It must surely assume some measure of truth in the

conjecture under examination — in what it sets out to establish — otherwise, what's the point? One recalls the famously circular 'ontological argument' for the existence of God: 'God is that than which nothing greater can be conceived. If 'that than which' didn't exist, it couldn't be 'the greatest'. Therefore God exists.' In Popperian terms this would read something like: 'My proposition deserves examination. Nothing in the process of examination undermined my proposition. Ergo my proposition is sound.' But it isn't.

Besides, the method misses the point. 'A is B', it conjectures. 'Plainly it is not C, nor D, and so on through to Z. So A is B.' But what if A is A? The method may result in a truth, 'nothing so far has undermined my conjecture' — but it does not prove the truth of the original proposition.

Finally, if one actually fleshes out the fallibilist method in what Popper liked to call "a thought experiment" [OKN 107] — a mental simulation of a test — it appears to lead to potentially catastrophic consequences.

Suppose, for example, that a very economical type of turbine blade for aero engines is invented. The blade is made from highly compressed, revived bone char, a form of pure carbon used in filtration. The new material is subjected to every imaginable test, *à la* Popper. It works. The new blades are fitted. The plane takes off. But, at 37,000 feet over Greenland, an unforeseen combination of strong headwinds, extreme cold, and dust from a volcanic eruption causes the blades to disintegrate. That Popper may have been knighted for enunciating the logic of the testing method will be of little consolation to the passengers and crew as they begin their twelve-minute plunge into oblivion.

My point is that the truth value of a proposition rests on the correct identification of the referents and relationships involved, not necessarily on any prior or subsequent *argumentation*. The fact that all earlier or later counter-arguments may appear to leave a proposition unscathed is, *per se*, irrelevant to the truth of the proposition.

In any design, philosophical or practical, if a false identification is incorporated, whole libraries of arguments may not reveal the consequent flaws. A building can be the most beautiful ever built, but a single misplaced decimal point in a stress calculation can bring it crashing down. To quote Popper: "... *contradictions are impermissible and avoidable*... once a contradiction is admitted, all science must collapse" [OSE2 39].

Fallibilism as a Criterion of Demarcation

Tom Settle, a major contributor to P.A. Schilpp's massive festschrift, *The Philosophy of Karl Popper*, stated firmly in 1970: "As a criterion of demarcation between science and non-science, Popper's 'falsifiability'-plus-a-critical-policy does not work" [PKP2 719]. Several other contributors evidently agreed; among them A.J. Ayer, William C. Kneale, Imre Lakatos, Grover Maxwell and Hilary Putnam. Without wishing to push myself into such exalted company, I have to say that I also found it hard to become enthused about Popper's famous distinction.

As noted earlier, Popper asserted that one could distinguish science from non-science by the refutability of scientific theories, by their potential for being wrong. His classic example was Newtonian physics, which he held to have been refuted by Einstein. On the other hand, he said, there were theories such as those of Marx, Freud and Adler, which Popper proffered as examples of non-science on the grounds that they were irrefutable.

One can understand how important the distinction must have seemed to the young Popper. Fascinated by science, he was surrounded by true-believing Marxists, Freudians, and Adlerians, all of whom claimed science was on their side while espousing doctrines which seemed obviously false to young Karl. Nonetheless, 'refutability' seems to me to miss the mark.

The ideas of Marx, Freud or whoever, surely stand or fall on their conformity to logic and the available evidence — in exactly the same way as do the ideas of Newton, Einstein, Heisenberg or any other scientist, or of any other thinker in any other field. Marxism and Freudianism [and Logical Positivism too, for that matter] failed to survive as viable theories due to myopic concentration on a narrow range of data, false interpretations of evidence, and logical inconsistency. They never were 'irrefutable'. They failed precisely because they could be, and were, *refuted*; either by contrary evidence, by exposure of contradictions, or by the resolute refusal of reality to conform to their predictions. It wasn't *refutability* which made them unscientific, it was inaccuracy and illogicality.

Science is distinguished by its strict adherence to physical evidence. Non-science is invariably characterised by preconception, followed by a cavalier disregard for, or rationalisation of, anything that doesn't fit into the preconceived schema. In one sense, this is what Popper was saying. But, due perhaps to his dislike of definitions, he homed in on the wrong identifying characteristic.

There are other, more serious, criticisms of Popper's theory of demarcation. Grover Maxwell pointed out that 'All men are mortal' is a perfectly sound scientific statement which is not falsifiable [PKP1 292]. Popper defended himself robustly [PKP2 1037ff], but it seemed to me that Maxwell won the debate. Maxwell might also have taxed Popper about mathematics. The axioms and principles of mathematics cannot be refuted. They are incorrigible truths. According to Popper's demarcation theory, therefore, mathematics is not a science. But physics is inseparable from mathematics. Could $E=MC^2$ be explained without it? So physics cannot be a science either. Much the same could be said about logic. The Law of Contradiction cannot be refuted — so, logic is not a science.

There is besides the singularly Popperian problem of Marxism. Marxism was one of the theories which led Popper to develop his conception of demarcation in the first place: "I had been shocked by the fact that the Marxists... were able to interpret any conceivable event as a confirmation of their theories" [PKP1 32]. Yet in "Replies to my Critics" Popper changed his tune entirely: "Marxism was *once* a scientific theory"; "Marxism was *once* a science" [PKP2 984-5, my italics]. I don't doubt that Popper would have swamped my objection with learned protests about 'initial conditions', 'immunisation', and distinctions between Marx and Marxism.⁴¹ But, to me, the idea of Marxism both being and not being a science, or the idea of science without logic or mathematics — either one reduces the demarcation theory to absurdity in pretty short order.

Popper certainly deserves some sort of prize for philosophical tenacity: he clung to his theory through thick and thin for over seventy years. I think he was able to do this precisely because the theory had so little relevance. 'Demarcation' was not a subject which animated many of his peers. Today, when the enemies against whom it was raised are long since vanquished, the theory also seems distinctly dated. It's like an old battle flag hung up in a church, a fading curiosity, its purpose forgotten.

THREE: THE FAULTY FOUNDATIONS OF FALLIBILISM

Popper built his fallibilism on foundations borrowed holus bolus from Hume and Kant. The first of these second-hand premises consisted of an unquestioned acceptance of Hume's attack on induction. The second was Popper's agreement with Kant's view that we impose ideas on reality, rather than the other way round.

The Humian Premise

Hume, whom Popper called “one of the most rational minds of all ages” [PKP2 1019], and “one of the most reasonable thinkers of all time” [OKN 95], served up one of the hotter chestnuts in philosophical history by developing the so-called ‘problem of induction’: a logical ‘proof’ that generalisation from observation is invalid. Most later philosophers have accepted Hume’s arguments, and libraries have been filled with attempts to solve his ‘problem’.

Popper thought he had the answer. “I believed I had solved the problem of induction by the simple discovery that induction by repetition did not exist” [UNQ 52; cf OKN 1ff & PKP2 1115]. What really took place, according to Popper, was fallibilism, knowledge advancing by means of conjecture and refutation: “... in my view there is no such thing as induction” [LSCD 40]; “what characterises the empirical method is its manner of exposing to falsification, in every conceivable way, the system to be tested” [LSCD 42]. According to Popper, Hume had shown that: “there is no argument of reason which permits an inference from one case to another... and I completely agree” [OKN 96]. Elsewhere he referred to induction as “a myth” which had been “exploded” by Hume [UNQ 80]. He further asserted that “every rule of inductive inference ever proposed by anybody would, if anyone were to use it, lead to... frequent practical mistakes.... There is no rule of inductive inference — inference leading to theories or universal laws — ever proposed which can be taken seriously even for a minute” [UNQ 146-7]. In a more detailed presentation, Popper wrote:

“Hume tried to show (in my opinion successfully, as far as logic goes)... that any inductive inference — any reasoning from singular and observable cases (and their repeated occurrence) to anything like regularities or laws — must be *invalid*.... [we] cannot validly reason from the known to the unknown, or from what has been experienced to what has not been experienced.... [No] matter how often the sun has been observed regularly to rise and to set, even the greatest number of observed instances does not constitute... a positive reason for the regularity, or the law, of the sun’s rising and setting. Thus it can neither establish this law nor make it probable...” [RASC 31].

The Problem with ‘The Problem’

Popper was at least correct about his ‘solution’. The problem of induction would indeed vanish if there were no such thing as induction. However, the issue would be far more effectively resolved, and in a more positive and commonsense-satisfying manner, were it to turn out that Hume had been *wrong*, and that there never had been any problem with induction in the first place. And, unfortunately for Popper, this is the case.

For all his charm and skill as a writer, his great intelligence, and his flair for ratiocination, Hume missed the point. Induction does not depend for its validity on observation, repeated or otherwise, but on the Law of Identity.

Hume stated, in essence, that since all ideas are derived from experience we cannot have any ideas about future events — which have yet to be experienced. He therefore denied that the past can give us any information about the future. He further denied that there is any necessary connection between cause and effect. We experience only repeated instances, we cannot experience any “power” that actually causes events to take place. Events are entirely “loose and separate.... *conjoined* but never *connected*”.⁴²

According to Hume, then, I have no *guarantee* that the hawthorn in my hedge will not bear grapes this autumn. Or, should I prefer figs, the thistles in a nearby field are just as likely to provide them as my neighbour’s figtree, for aught any-

one can tell. My expectation that the thorn will produce red berries, and the thistle those purple flowers so loved by my Scottish ancestors, is merely the result of “regular conjunction” which induces a subjective “inference of the understanding”.⁴³ In the gospel of St David, there is no such thing as *identity*, there is only “custom” or “habit”.

However, Hume also wrote: “When any opinion leads to absurdities, it is certainly false.”⁴⁴ And the idea that one might gather grapes of thorns or figs of thistles is surely absurd enough to qualify. And false is what Hume’s opinions most certainly are. Left standing, they lead to what he himself called “the flattest of all contradictions, viz. that it is possible for the same thing both to be and not to be”.⁴⁵

The crux of the case against Hume was succinctly stated in 1916 by H.W.B. Joseph in his great work *An Introduction to Logic*:

“A thing, to be at all, must be something, and can only be what it is. To assert a causal connexion between *a* and *x* implies that *a* acts as it does because it is what it is; because, in fact, it is *a*. So long therefore as it is *a*, it must act thus; and to assert that it may act otherwise on a subsequent occasion is to assert that what is *a* is something else than the *a* which it is declared to be.”⁴⁶

Hume’s whole argument — eloquent and elaborate though it may be — is, as Joseph implied in his drily precise way, “in flat conflict with the Law of Identity”.⁴⁷

Existence *implies* identity. It is not possible to exist without being *something*, and a thing can only be what it is: A is A. Any *actions* of that thing form part of its identity: “the way in which it acts must be regarded as a partial expression of what it is”.⁴⁸ A kangaroo leaps, a fish swims, and successful mating by either species brings forth progeny. To deny a connection between a thing, its actions, and their consequences, is to assert that the thing is not what it is. It is to defy the Law of Identity. Or, if one prefers to be guided by the Law of Contradiction (to which Hume was alluding when he spoke of “the flattest of all contradictions”) let us go right back to the original:

“... the most certain principle of all is that regarding which it is impossible to be mistaken.... which principle is this, let us proceed to say. It is, that the same attribute cannot at the same time belong and not belong to the same subject and in the same respect.... This, then, is the most certain of all principles.... For it is impossible for any one to believe the same thing to be and not to be...” Aristotle, *Metaphysics*, IV 3 1005a 11-24.⁴⁹

It is not necessary to prolong this discussion. Entities exist. They possess identity. By opening our eyes, ridding ourselves of preconceptions, and engaging in a process of elimination, we can discover the identities of the entities we observe. This activity is called induction.

In a nutshell, induction exists. And, because it rests on the axiom of the Law of Identity, correct induction — free of contradiction — is a valid route to knowledge. Proof of the pudding is all the spectacular success of science, induction’s main employer. Ergo, Hume was wrong. And, so was Popper.

There are, however, obvious strengths in Hume’s position, otherwise few philosophers would have followed him. Chief of these is the fact that he was partly right. No matter how sound our judgement or wide our experience, we cannot possibly have *complete, certain and absolute* knowledge of future events. We are not omniscient. Nor are we omnipotent: we are not in charge of the forces of nature. All kinds of unforeseen happenings *may intervene*, and the best laid of our plans gang agley. But, armed with the Law of Identity, there is no reason to allow the unforeseeable to turn us into timorous, cowering beasties.⁵⁰ The universe is not a series of “loose and separate events” any more than time is a series of discrete, unrelated segments of

duration. Rather, the universe is a continuum of slowly evolving identities with ourselves at the leading edge.⁵¹

To conclude, we can be completely confident that, whether or not we succeed in identifying their nature, things will continue to be what they are. We can worry about the unforeseen to our hearts' content, but the philosophic mind does not multiply anxiety without reason or beyond necessity.

Relabelling Induction

I have often wondered, as I'm sure others have before me, whether the whole problematic history of induction hasn't come about because induction may not actually *be* part of logic. No matter how slavishly we obey Bacon's or Mill's or Joseph's procedural instructions, induction is inevitably a slow, cautious, painstaking process in which the possibility of change or modification due to new evidence or knowledge can never be eliminated. But how can this hesitant advance be of the same kind as an infallible truth such as the Law of Contradiction?

I wonder therefore if it wouldn't be helpful to treat induction as the inseparable *ally* of logic rather than as an integral *part* of it. Seen as *the process of identification* — the method by which human beings use their senses to discover the facts of reality⁵² — and not as a type of *logical inference*; induction would take on much more of the character of a real and functioning 'sixth sense', and much less of the abstract, certain, near-mathematical precision which characterises properly executed deduction. If we were to regard induction as *potentially sound observation*, not as *inference*, surely much of the suspicion and distrust which the Humes and Poppers of this world have whipped up against it would dissipate?⁵³

In making this suggestion, I most emphatically do not wish to *divorce* induction and deduction, or to endorse specious and artificial Sunderings such as the analytic/synthetic dichotomy.⁵⁴ Induction and deduction are the most devoted of all associates. Their relationship very much resembles that of supply and demand, or of man and woman: each is the *sine qua non* of the other. Or, as scientist-entrepreneur Dr Ronald Merrill has expressed it, in an exquisitely apt analogy: "Like the two blades of a pair of scissors, these modes of thinking do together what neither can do alone."⁵⁵

An Aside on Hume

Before moving on to Kant, I would like to add a personal comment on Hume: although I enjoyed his *Dialogues*,⁵⁶ I did not find either the *Treatise* or the *Enquiry* persuasive. Very early on I noticed a chain of contradictions which rattled loudly through both books. For instance, Hume told us we have no reason to believe in fixed identities, yet asserted: "Nature, by an absolute and uncontrollable necessity, has determined us to judge..."⁵⁷ Similarly, he denied that there was any logic in prediction, then spoke of "principles which are permanent, irresistible and universal".⁵⁸

Hume's best known editor, Oxford professor L.A. Selby-Bigge, tried to defend the philosopher against such criticisms on the grounds of "indifference to what he had said before".⁵⁹ But my objections cannot be dismissed as 'easy verbal victories' as Selby-Bigge labelled earlier criticisms.⁶⁰ I am pointing to self-contradiction on the grand scale. Nor am I the first to do so. The eminent historian of philosophy, W.T. Jones, observed decades ago: "The argument that denies the validity of inductive inference rests — covertly, to be sure — on inductive inferences about how the mind works. The Humian attack on science must exempt the science of psychology, though there are no grounds for this exemption."⁶¹

Perhaps the most glaring example of Humian self-contradiction is on the matter of miracles. Having directed all his logical batteries against the uniformity of nature, Hume poured scorn on miracles, saying, amongst other things: "A miracle is a violation of the law of nature."⁶² Yet the law of nature is

precisely what Hume's philosophy attacks. Without identity, without natural uniformity, without cause and effect, *anything* can happen. On Hume's arguments, it is the continued occurrence of the *normal* which is miraculous.

Thus Hume's philosophy turns out to be — with or without its nobler parts — not a "violent paradox",⁶³ but simply a mistake. He was indeed — as he himself said he might prove to be — "a very backward scholar".⁶⁴ If ever a piece of work deserved to fall stillborn from the press...

Be all that as it may, confusions which seem obvious to me — a 20th century Objectivist blessed with considerable hindsight⁶⁵ — were not so obvious to our 18th and 19th century forebears. Most philosophers took Hume seriously, and most were totally flummoxed. The effects were not long to appear. Slowly, the Age of Reason ground to a halt. Enlightenment dimmed. And, deep in some unlit philosophical cavern, the rough beast of transcendental idealism, its hour come round at last, awoke from its slumbers and slouched off towards Königsberg to be born.⁶⁶

The Kantian Premise

Popper admired Kant. He called him the last great defender of the Enlightenment [C&R 176].⁶⁷ Popper did have reservations though; he described himself as an "unorthodox Kantian" [UNQ 82]. What he meant was that he accepted part of Kant's epistemology, but not all of it: "Kant was right that it is our intellect which imposes its laws — its ideas, its rules — upon the inarticulate mass of our 'sensations' and thereby brings order to them. Where he was wrong is that he did not see that we rarely succeed with our imposition" [OKN 68n31].

Ergo fallibilism, the philosophy of being able to be proved wrong, the philosophy of human error. Popper restated his case later in the same work:

"I am a realist. I admit that an idealism such as Kant's can be defended to the extent that it says that *all our theories are man-made*, and that we try to impose them upon the world of nature. But I am a realist in holding that... whether our man-made theories are true or not depends upon the real facts" [OKN 328].

He reaffirmed this position in *Conjectures and Refutations*:

"When Kant said, 'Our intellect does not draw its laws from nature but imposes its laws upon nature', he was right. But in thinking that these laws are necessarily true, or that we necessarily succeed in imposing them upon nature, he was wrong" [C&R 48, cf 49].

Lest it appear that Popper's rebellion against Kant was stronger than his loyalty, it should be added that Popper also stated, and apparently adhered to, the premise that "we know from Kant that human reason is incapable of grasping, or knowing, the world of things in themselves" [C&R 193, cf 194].

True to Kant's guiding hand, Popper thought of our senses as creative modifiers of incoming data rather than as neutral 'windows on the world'.⁶⁸ He expounded this distrust of sense experience at some length in *Objective Knowledge*:

"Classical epistemology which takes our sense perceptions as 'given', as the 'data' from which our theories have to be constructed by some process of induction, can only be described as pre-Darwinian. It fails to take account of the fact that the alleged data are in fact adaptive reactions, and therefore interpretations which incorporate theories and prejudices and which, like theories, are impregnated with conjectural expectations... there can be no pure perception, no pure datum; exactly as there can be no pure observational language, since all languages are impregnated with theories and myths.

Just as our eyes are blind to the unforeseen or unexpected, so our languages are unable to describe it....”

In case we had not got the message, he continued:

“the fact that theories or expectations are built into our very sense organs shows that the epistemology of induction breaks down even before taking its first step. It cannot start from sense data or perceptions... since there are no such things... which are not built upon theories (or expectations...). Thus the ‘data’ are no basis of, no guarantee for, the theories: they are not more secure than any of our theories or ‘prejudices’...” [OKN 145-6].

My earlier points that Popper wrote with total conviction and with more assertion than argument are well illustrated in the above passages. (When perusing Popper’s books it often seems as if all knowledge is conjectural — except Popper’s.)

Not that his work is devoid of argument, of course. In a footnote a few pages later he introduced some ‘scientific evidence’ for his view, rather in the manner of Montesquieu and the sheep’s tongue: “The physiology of the eye has shown that the processes of visually perceiving *visibilia* closely resemble an elaborate interpretation of *intelligibilia*. (One could claim that Kant anticipated much of this)” [OKN 154n1].

A Fundamental Difficulty

There may well be a dozen problems with Popper’s Kantian premise. I shall confine myself to a single objection, but one which seems both fundamental and insuperable.

The difficulty with Popper’s position is that, whether his case is well argued or not, if it is true that our senses are pre-programmed; if it is true that “*there is no sense organ in which anticipatory theories are not genetically incorporated*” [OKN 72]; then what flows into our heads is *determined* and what flows out of them is *subjective*.

I do not see any way out of this. If our senses are *not* neutral, if they organise incoming data using pre-set theories built into them by evolution, then they do not provide us with unalloyed *information*, but only with *prescriptions*, the content of which is determined by our genetic make up. Therefore, whatever is thereafter produced inside our heads — cut off as it is from any objective contact with reality — must be *subjective*. Popper in this manner offers us an epistemological theory at variance with his otherwise vehement rejection of determinism and subjectivism.⁶⁹

It is also necessary to point out that, on the basis of Popper’s Kantian premise, fallibilism cannot be applied universally. Since it is ultimately the product of the pre-programmed interpretation of the data which entered Popper’s head, fallibilism is a theory which can only be applied to Popper. According to his own view of his contact with reality, he would not be able to escape from the prison of his blinkered awareness to verify the relevance of fallibilism to anybody else.

Solipsism looms, yes, but that is a natural consequence of all theories of determinism. For if thought, or the basis of thought, is determined; whether by genes, or by the subconscious, or by social class, or by the environment, or by whatever determinant is preferred; then the deterministic theory itself must be determined, according to the theory, as well as its conclusions. Being thus preordained — by the genes, or the subconscious, or the class background of the person who expounds it — the theory can only be relevant to that person. Everybody else, again according to the theory, is determined by *their* genes, subconscious, material substrate, or whatever it may be that is supposed to do the determining. All theories of determinism deprive themselves of universal validity by the unavailability of their own premises.⁷⁰

The Cart before the Horse

Popper’s notion that “theories come before observation” [TSIB 134] perhaps needs more detail to make it explicit. Popper spelled it out clearly a second time in *The Self and Its Brain*: “Our senses should be regarded as auxiliaries to our brain. The brain in turn is programmed to select a fitting and relevant model (or theory or hypothesis) of our environment, as we move along, to be interpreted by the mind” [TSIB 91]. Again:

“All observations (and even more all experiments) are theory impregnated: they are interpretations in the light of theories. We observe only what our problems, our biological situation, our interests, our expectations, and our action programmes, make relevant. Just as our observational instruments are based upon theories, so are our very sense organs without which we cannot observe” [TSIB 134].

These statements echo Popper’s blunt observation in *Unended Quest* that “there is no such thing as an unprejudiced observation” [UNQ 51]. They are reminiscent of something he wrote long before in *The Poverty of Historicism*:

“neither the dryness nor the remoteness of a topic of natural science prevent partiality and self-interest from interfering with the individual scientist’s beliefs... if we had to depend on his detachment, science, even natural science, would be quite impossible” [POH 155].

The implications of all this for objectivity appear drastic. By saying that “theories come before observations”, is Popper asking us to accept that the heliocentric theory came before observation of perturbations in planetary orbits? Or that insect-eating plants were surmised before Darwin happened to examine sundews? Or that we start thinking about things before having any awareness of them? Such questions are admittedly bizarre but, *prima facie*, they do seem to be legitimate reactions to equally bizarre pronouncements.

This was not the only time Popper appeared to see things back to front. Discussing the evolution of the human brain, he wrote about “the emerging human language which created the selection pressure under which the cerebral cortex emerged, and with it the human consciousness of self” [TSIB 30]. This seems to be a development of an earlier ‘conjecture’ that: “it is human language which is responsible for the peculiarities of man” [UNQ 140].⁷¹

These idiosyncratic points of view may be due to Popper’s affection for Lamarck [e.g. RASC 94, TSIB 425]. However, I doubt very much if Lamarck would have believed that human language, which is based on concepts, on universals, could have developed *prior* to that distinctive ‘peculiarity of man’ — his conceptual faculty — which actually *produces* concepts. Although bold indeed, such a ‘conjecture’ would do more than put the cart before the horse: it would put the cart before the cave-man and the horse before the dinosaur.

Objectivity

Popper did seem to be aware of the problems created by his critical attitude towards the reliability of sense perception. In *The Logic of Scientific Discovery*, the book in which he originally introduced the world to fallibilism, he attempted to find an alternative home for objectivity. Although he denied, here as elsewhere, that there is “any logical means” to “reduce the truth of scientific statements to our experiences” [LSCD 46-7], he asserted that “the *objectivity* of scientific statements lies in the fact that they can be *inter-subjectively tested*” [LSCD 44]. He reiterated this in a slightly different form in *The Poverty of Historicism*: “it is the public character of science... which preserves the objectivity of science” [POH 155-6].

Sadly, this brand of shellac won’t stick at all, I’m afraid. Regardless of the authority of Kant which stands behind it, and

leaving aside the fallacious appeal to majority, if the observations of any one individual are unreliable because of the prejudices built into his or her senses, we do not get out of the difficulty by consulting others. If Rosalind Franklin is not to be trusted because evolution has genetically programmed her eyesight, what good will calling in Crick and Watson do? What magic makes their eyes any better? Do senses cease to be prejudiced by being multiplied? I'm sorry, Sir Karl, but you have painted yourself into an unenlightening and poorly illuminated corner.⁷²

Popper did come close to finding a way out of this impasse in *Objective Knowledge*. Poking gentle if presumptuous fun at Bertrand Russell over his attitude to 'naïve realism', Popper wrote that, according to Russell:

"The observer, when he seems to himself to be observing a stone, is really, if physics [physiology] is to be believed, observing the effects of the stone upon himself. Thus science seems to be at war with itself.... Naïve realism leads to physics, and physics, if true, shows naïve realism to be false. Therefore naïve realism if true, is false; therefore it is false" [OKN 65].

This argument, said Popper, was on the same level as: "When the reader seems to himself to be reading Russell, he is really observing the effects of Russell upon himself and therefore not reading Russell." Popper's conclusion: "I shall naïvely accept realism" [OKN 65].

It is unfortunate that Popper did not pursue the implications of his reasoning. He seems not to have realised that he was indirectly questioning his own Kantian assumption that the senses manufacture rather than reveal.

FOUR: OTHER PROBLEMS WITH FALLIBILISM

I have shown that the internal logic of Popper's fallibilism is seriously flawed and that it is based on mistaken premises. This is quite sufficient, in my view, for outright rejection. However, there are several other difficulties, both within the theory, and with Popper's general approach to philosophy, which must be addressed if one is to have more than a narrow view of his critical rationalism.

Preferences

In an apparent attempt to lessen the uncertainty of his fallibilism, and to make the falsifiability principle more acceptable to common sense, Popper qualified his theory by allowing us reasonably to *prefer* certain conjectures over others: "Although we cannot justify a theory — that is, justify our belief in its truth — we can sometimes justify our *preference* for one theory over another" [UNQ 104].

This assertion no doubt deserves a section in its own right, but two brief comments will have to suffice.

- 1) If justification is disallowed *in principle* — which Popper avowed time and again — then justification cannot subsequently be switched on and off at will. There is nothing intrinsically superior about a preference, as distinct from a theory or belief, to justify preferential treatment. Moreover, such a cavalier attitude is characteristic of relativism, a school of thought which Popper told us he disliked (see below).
- 2) Beliefs and preferences are by their very nature subjective. In introducing the above distinction Popper has merely drawn our attention once again to the subjectivist elements in his thought. Rather than allaying our fears, he has reinforced the impression that his philosophy is, in kind and by implication, a subjectivist one, and thus counter to his own oft-professed 'preferences' for realism and objectivity.

Relativism

A similar problem arises with another Popper claim. He maintained that his solution to the problem of induction:

"shows the way to a solution of the older problem — the problem of the rationality of our beliefs. For we may first replace the idea of belief by that of action; and we may say that actions (or inactions) are 'rational' if they are carried out in accordance with the state, prevailing at the time, of the critical scientific discussion." [UNQ 87].

Popper often spoke of 'the state of the critical discussion', but every time I came across this expression I couldn't help wondering whether it didn't entail relativism, which Popper vehemently opposed (he called it the "main philosophical malady of our time" [OSE2 369]). In *Realism and the Aim of Science*, for example, Popper wrote of persuasion, belief, and preference being "reasonable because... based on the result of the present state of the critical discussion". He added a few lines later: "The reasonableness of a belief... changes with time and cultural tradition, and to a limited extent even with the group of people who are conducting a discussion" [RASC 59].

Naturally, all thought, scientific or otherwise, must be integrated into its particular context and cannot be properly evaluated apart from that context; or, as Popper might have said, apart from its "third world background" [OKN 165].

It is Popper's introduction of the concept 'rational' that is bothersome. I apologise for bringing in such a painful *reductio*, but when I came across "the state, prevailing at the time", I couldn't help thinking of Popper's escape from Nazism: of German rocket engineers using slave labour at Peenemunde; of the doctors at Dachau carefully measuring the body temperatures of their freezing victims; of the scientists at I.G. Farben discussing the concentration of Zyklon B necessary for an efficient gas chamber. Were the actions of such as these made 'rational' by "the state, prevailing at the time, of the critical scientific discussion"?

It seems to me that in order to avoid some pretty caustic rebuttals, Popper's 'solution' needs much more elucidation than the single terse statement which concludes the 'belief-action' quotation above: "There is no better synonym for 'rational' than 'critical'" [UNQ 87].

Popper's *Via Negativa*

In another area, one of the things which bothered me from the beginning of my acquaintance with Popper was his devout refusal to consider anything positive. His fallibilism is invariably concerned with what is *not*, never with what *is*. Yet the negative 'it is not' cannot be uttered without implying the positive 'it'. A negative *implies* a positive, unless one is actually denying the existence of an entity, but that is a different issue. (And even denying the presence of fairies at the bottom of the garden implies the existence of the imaginary *idea* of 'fairies', however mistaken).

By chance, the next book I read after finishing my long march from *The Logic of Scientific Discovery* to *The Self and Its Brain* was George H. Smith's excellent and, I thought, definitive critique of religious belief, *Atheism: the Case against God*.⁷³ In one of many fascinating historical allusions, Smith reminds us of the *via negativa* of medieval theology. I was immediately struck by the similarity between the scholastic principle "we cannot know what God is, but rather [know] what He is not";⁷⁴ and Popper's assertion: "Not for nothing do we call the laws of nature 'laws': the more they prohibit the more they say" [LSCD 41]; later rephrased as: "natural laws.... do not assert that something exists or is the case; they deny it" [LSCD 69].

That negative implies positive was clearly understood by Popper. He referred to "the notion of falsity — that is, of un-

truth — and thus, by implication, the notion of truth” [UNQ 98]. But he did not seem to see that truth implies a ‘*what is*’ question every time fallibilism tells us *what is not*. It is a stolen concept situation: the idea of ‘falsity’ depends upon the logically prior idea of ‘truth’.⁷⁵

This problem was touched on by Grover Maxwell in his critique “Corroboration without Demarcation” in which he pointed out that many theories are in fact *positively confirmed* [PKP1 292ff]. Yet Popper continued to insist in “Replies to My Critics” that: “we certainly are not justified in reasoning from an instance to the truth of the corresponding law.... we *are* justified in reasoning from a counterinstance to the *falsity* of the corresponding universal law” [PKP2 1020].

It is as though Sir Karl were proposing a new rule, ‘Popper’s Razor’, which states: ‘Of two propositions, one asserting, one denying, you must prefer the negative’. But, if we are not allowed to argue from a positive instance to a true law, why are we allowed to argue from a counterinstance to a false law? The *reasoning process* is the same. If that process is wrong in the positive case, what makes it right in the negative one?

We might also enquire: if all observations are theory laden, and thereby suspect, what justifies our placing any confidence in negative observations? Again, the *procedure* is identical, so negative or falsifying instances deserve no more credibility than positive or confirming ones.

Thirdly, Popper states that a counterinstance justifies reasoning to the falsity of a law, in effect creating a universe of negative laws. But surely arguing from instances has been disallowed in advance by his rejection of induction? Collecting *disconfirmations* and arguing negatively is indistinguishable from collecting *confirmations* and arguing positively. Both are inductive procedures.

The three objections just outlined reveal for the second time Popper’s penchant for arguing himself into a corner. Only this time, the walls blocking his retreat do seem to be in rather a deep, dark dungeon.

To conclude under this head, Popperian fallibilism demarcates scientific knowledge by its *refutability*. It therefore claims that we can never be certain, because anything we think we know has to be falsifiable in order to fit into the category of ‘conjectural knowledge’. The net result is a sort of philosophical black hole reminiscent of some of the dafter aspects of existentialism — an inference Popper would have disliked.

Popper may, or may not, have seen the implications of his negativity but he nonetheless left us alone on the *via negativa* to make shift the best way we could.

Growth and Methodology

The problem just discussed looms even larger when one looks again at Popper’s claim that knowledge grows through conjectures and refutations. (The subtitle of his book by that name is *The Growth of Scientific Knowledge*). An immediate response to this assertion is: ‘What exactly is it that grows?’ The concept of *growth* implies the existence of a thing, a body, an entity of some sort, *that which grows*. It may well be true that conjectures and refutations play a considerable role in the growth of scientific knowledge, but they can’t do much of anything at all if there is no knowledge to start with. The growth of any kind of knowledge must presuppose *some* knowledge in the first place.

Popper did touch momentarily on this in *Objective Knowledge*. He stated: “*the growth of knowledge consists in the modification of previous knowledge*” [OKN 71]. However, he was solely interested in the infinite regress aspects of the issue which he attempted to resolve by positing innate ideas or in-born “dispositions and expectations”. The nature, or *epistemological status* of these dispositions, and of the “background knowledge — knowledge which... is taken for granted” which

they give rise to, was not discussed. (Given the problems we have found with ‘conjectural knowledge’, the conception of ‘*innate* conjectures’ would seem to require more than boldness. High altitude, free fall parachuting pales into insignificance compared to such a leap into the unknown).

That the growth of knowledge implies *knowledge* is another illustration of Popperian fallibilism’s dependence on something it attempts to deny, effectively ‘stealing’ a concept. Critical rationalism is supposed to replace our commonsense idea of inductively-acquired knowledge with a more accurate one of a continuous and tentative process of conjecture and refutation. But that process would be meaningless without something for the process to *process*, and *that* something is knowledge, not conjecture.

Popper said repeatedly that we learn through trial and error — through conjectures and refutations. But if asked ‘*What is learned?*’, he would have had no answer.

My objection reveals starkly that fallibilism is at best a *methodological* concept and, as Popper himself admitted: “Profound truths are not to be expected of methodology” [LSCD 54]. Fallibilism may indeed tell us something about how knowledge grows, but it tells us nothing at all — by its own admission — about knowledge. Yet it is the status, the validity, the nature, and the ‘present state of the discussion’ of the *extant body* of scientific knowledge which we really want to know about; not just what methods were used to bring it to its present pass.

It is hard to understand how Popper failed to see this. In *The Poverty of Historicism* he had the matter right under his nose. He used the analogy of machines:

“Physical machines can be successfully planned by way of blueprints, and with them, even a whole plant for their production, etc. But all this is possible only because many piecemeal experiments have been carried out beforehand. Every machine is the result of a great many small improvements. Every model must be ‘developed’ by the method of trial and error, by countless small adjustments” [POH 92].

This is undeniably true. But the end results of all that experimentation are real, working *machines*; dark Satanic mills full of ‘em; concrete *things*; the *existents* born of all that trial and error, all that extant knowledge.

It is frustrating continuously to have to point out the obvious. Sometimes one feels with Popper the same exasperation that Johnson felt with Berkeley: ‘For goodness sake, man! Go out and kick a good big stone!’ But what can one do with a fellow who, when bothered by a fly, says: “the presence of the fly is a conjecture” [UNQ 140].

Scientific v. Ordinary Knowledge

It might be objected that fallibilism is concerned with the growth of *scientific* knowledge, not ordinary knowledge, and that I am confusing the two. For example, Popper once informed a philosophical gathering about: “the mistaken assumption that *scientific knowledge* [is] a species of *knowledge* — of knowledge in the ordinary sense in which if I know that it is raining it must be *true* that it is raining, so that knowledge implies truth. But... what we call ‘scientific knowledge’ [is] hypothetical, and often not true let alone certainly or probably true” [UNQ 110].

His 1930s audience took this for a joke and laughed. Perhaps their amusement had something to do with Popper changing his mind about the distinction. We read in *Conjectures and Refutations*: “the study of the growth of scientific knowledge is, I believe, the most fruitful way of studying the growth of knowledge in general. For the growth of scientific knowledge may be said to be the growth of ordinary human knowledge *writ large*” [C&R 216]. (Perhaps Popper was echoing Einstein:

“The whole of science is nothing more than a refinement of everyday thinking”).⁷⁶

I am glad Popper did change his mind because, aside from matters of complexity or degree — to which Popper alludes — I cannot imagine a valid argument for a fundamental difference between scientific and ordinary knowledge. My observation, and consequent knowledge, of the trajectory of a thrown cricket ball is no different *in kind* from that of a space scientist’s knowledge of the trajectory of a rocket launch, or of an astronomer’s knowledge of the path of Halley’s Comet. My lay knowledge that children inherit physical traits from their parents is no different *in kind* from a geneticist’s knowledge of the structure of DNA. To be sure, the *content* of my simple knowledge differs vastly from ballistics, and ballistics from genetics, but *qua knowledge*, they differ in specifics and degree, not kind.

An Array of Double Standards

Like his mentor Hume — who kept his own scepticism locked up in his study as if it were a dog of uncertain temper — Popper appeared to have difficulty believing, or at least abiding by, his own philosophy. He seemed continually to employ in his thinking that which he denied to everybody else, and to be unaware that he contradicted himself in this and other ways. I have isolated five areas in which these idiosyncrasies are clearly revealed.

1. Popper explicitly rejected what he called the “utterly naïve and completely mistaken” “bucket theory of the mind” [OKN 61]; i.e., the idea that “before we can know or say anything about the world, we must first have had perceptions — sense experiences” [OKN 341].

Yet, in *The Logic of Scientific Discovery*, he blithely disregarded his own strictures: “I readily admit that only observation can give us ‘knowledge concerning facts’, and that we can... become aware of facts only by observation” [LSCD 98]. He made a related point in *Unended Quest*: “universal theories.... may clash with descriptions of observable facts” [UNQ 86].

2. One of the more glaring Popperian about-turns occurred in his references to scientific instruments. It will be recalled that Popper said “our observational instruments are based upon theories” [TSIB 134] implying that they are thus as suspect as sense data.

The assertion immediately makes one wonder, of course, how fallibilism is supposed to work. ‘Severely critical tests’ are part of the method. But if scientific *instruments*, the tools of the trade, are unreliable, how can the tests they are used in be adjudged ‘critical’ or ‘severe’?

Some such niggle must have bothered Popper because in *Quantum Theory and the Schism in Physics* he asserted: “although photographic films and counter readings have to be interpreted... they are in no way physically ‘interfered with’ or ‘influenced’ by our theoretical interpretations” [QTSP 41]. The explanation for this remarkable change of tack is presumably that in the former instance Popper was seeking to *establish* Kantian subjectivism, while in the latter he was seeking to *disestablish* Heisenbergian subjectivism.

3. Popper’s attitude to ‘the laws of nature’ was just as confusing. In *Open Society* he described natural law as “a strict unvarying regularity”. He went on: “A law of nature is unalterable; there are no exceptions to it.” He added: “laws of nature... can be neither broken nor enforced. They are beyond human control... although we may get into trouble by not knowing them” [OSE1 57-58]. Popper was equally positive in *Objective Knowledge* where he spoke of “universal laws of nature” to which “all individual things” are “subject” [OKN 196].

Such absolutist claims are difficult to reconcile with the actual *discovery* of natural laws when, according to Popper: “There is no road, royal or otherwise, which leads of necessity from a ‘given’ set of specific facts to any universal law” [OKN 359]; or that: “There can be no valid reasoning from singular observation statements to universal laws of nature” [RASC 32].

4. In like vein, Popper’s use of illustrative examples often involved the casual cold-shouldering of his own dicta. In *Realism and the Aim of Science*, when returning for the umpteenth time to attack induction, he told us that “mere supporting instances are as a rule too cheap... they cannot carry any weight” [RASC 130]; and that, “confirming instances are not worth having” [RASC 256].

However, when Popper had earlier sought to demonstrate the case that “practically every... ‘chance observation’ is an example of the *refutation* of some conjecture or assumption or expectation”, he unhesitatingly drew attention to scientific discoveries by Pasteur, Roentgen, Crookes, Becquerel, Poincaré and Fleming in order to confirm and support the point he was trying to make [RASC 40].

5. Popper’s use of the words ‘knowledge’, ‘know’, ‘truth’ and ‘fact’ often seemed, in fact, to be in open conflict with his critical rationalism (which may be summarised: “we know that our scientific theories must always remain hypotheses” [OSE2 12]).

Popper wrote, for instance: “Matter... consists of complex structures about whose constitution we *know* a great deal” [TOU 152-3, my italics]. He urged us to pay attention to the “*invariant content or meaning*” of a theory “upon which its truth depends” [OKN 240]. He also said: “If an assertion is true, it is true for ever” [OSE2 221]. He referred to “universal laws” which are “part of our common knowledge” [POH 145]; to “Hadamard’s decisive results” [TOU 49]; to “objectively true” statements [TOU 119]; to the “*fact* that theories or expectations are built into our very sense organs” [OKN 146, my italics]; and to the “undoubted” empirical fact that “we can *learn from experience*” [C&R 291].

All these statements seem to defy, in one way or another, the adamant uncertainty and dogmatically asserted tentativeness of Popperian ‘knowledge’ with which we began this discussion, and which is reaffirmed in practically everything Popper wrote; to wit: “in science there is no ‘*knowledge*’... in the sense which implies finality” [OSE2 12].

FIVE: TARSKI, TRUTH, FACTS AND REALISM

As a metaphysical realist, Popper upheld the ‘correspondence’ theory of truth: “A *statement is true if and only if it corresponds to the facts*” [OKN 46]. As a realist myself, I agree. However, Popper seemed to think that the “much maligned correspondence theory” [UNQ 98] was inadequate as it stood. It had become “suspect” and needed “rehabilitation” [OKN 60]. Most of all, he saw it under attack and threatened by modern relativism: “the theory that the choice between competing theories is arbitrary... [that] there is no such thing as objective truth”. To cure this malady, Popper recommended “a dose of Tarski’s theory of truth” [OSE2 369].

Tarski and Truth

The problem with the correspondence theory of truth, according to Tarski (or rather Popper’s account of Tarski):

“is one in which we *refer to or speak about* statements and facts and some relationship of correspondence hold-

ing between statements and facts; and that, therefore, the solution must be also one that *refers to or speaks about* statements and facts, and some relation between them" [OSE2 370].

Popper offered the following italicized paragraph by way of illustration:

"The statement 'Smith entered the pawnshop shortly after 10.15' corresponds to the facts if, and only if, Smith entered the pawnshop shortly after 10.15" [OSE2 370].

If we examine this carefully, ignoring its triviality, we see, said Popper:

"1) that it refers to a statement, and 2) to some facts; and 3) that it can therefore state the very obvious conditions which we should expect to hold whenever we wish to say that the statement referred to corresponds to the facts referred to" [OSE2 370].

The gist of this 'cure for relativism' seems to be that a statement about a statement is more valid than a statement about facts. Why this should be the case I was unable to discover from the ensuing discussion. My confusion grew when Popper, whom I thought had just given us a criterion for truth (namely, that a statement is true if it corresponds to the facts), proceeded to announce in his usual emphatic manner, that "*there can be no general criterion of truth*" [OSE2 373].

Dr Tarski's cure was discussed in greater detail in *Objective Knowledge* [319ff] and in *Unended Quest*. "How can one ever hope to understand", Popper asked in the latter; "what is meant by saying that a statement... corresponds to the facts?" He continued:

"Indeed, it seems that unless one accepts something like a picture theory of language (as did Wittgenstein in the *Tractatus*) one cannot speak of anything like a correspondence between a statement and a fact. But the picture theory is hopelessly and indeed outrageously mistaken, and so there seems to be no prospect of explaining the correspondence....

"This may be said to be the fundamental problem encountered by the so called 'correspondence theory of truth'.... Understandably enough, the difficulty has led philosophers to suspect that the correspondence theory must be false or — even worse — meaningless" [UNQ 141].

Enter Tarski stage left, in the garb of Logician Errant. "Tarski's philosophical achievement in this field", Popper told us; "was to reverse this decision"; i.e., that the correspondence theory was false or meaningless. Tarski did this, Popper said:

"very simply by reflecting that a theory which deals with any relation between a statement and a fact must be able to speak about a) statements and b) facts. In order to be able to speak about statements, it must use names of statements, or descriptions of statements, and perhaps words such as 'statement'; that is, the theory must be in a metalanguage, a language in which one can speak about language. [The same is then said about 'fact']. Once we have a metalanguage, a language like this in which we can speak about statements *and* facts, it becomes easy to make assertions about the correspondence between a statement and a fact; for we can say:

"The statement in the German language that consists of the three words 'Gras', 'ist', and 'grün', in that order, corresponds to the facts if and only if, grass is green" [UNQ 141-2].⁷⁷

We were next told that English was the metalanguage in the italicized paragraph and that the whole sentence asserted the correspondence. Popper concluded: "Thus it is possible... to

speak in an *appropriate metalanguage* about a statement and a (purported) fact. And so the riddle is solved: correspondence does not involve structural similarity... or anything like the relation between a picture and the scene pictured" [UNQ 142].

Commentary

I must say that I find it difficult to share Popper's enthusiasm either for his 'riddle' or for Tarski's 'solution'. There seem to be a host of unanswered questions. Why, for example, should the failure of Wittgenstein's theory be considered so conclusive? Why should a picture theory of language be considered the sole desideratum for the correspondence theory of truth? In what manner does a metalanguage-to-statement correspondence differ from a picture theory-to-fact correspondence? The lack of answers to such obvious queries left me unconvinced that upholders of the correspondence theory had ever had anything to worry about.

Addressing Tarski's theory as presented, it seems first of all that Popper's problem with the correspondence theory arose purely and simply from his prejudice against induction. If one regards human beings in the common sense way as creatures with a) reliable senses; b) a conceptual faculty; c) the ability to identify the facts of reality through observation and induction; d) the ability to form concepts based on similarities in kind amongst observed things (identifications); and e) the ability to construct statements out of these concepts in order to communicate the facts they have observed: then it is plain that a statement is true if it can be shown that it corresponds to the facts.

If one disregards Popper's literal-minded, pictorial interpretation of 'correspondence', and recognises that concepts are *derived*, directly or indirectly, from the facts of reality; then naturally, if steps a) to e) above are carried out correctly — that is, without contradiction — then there will be a completely straightforward, *logical* correspondence (expressed better perhaps as an empirical or inductive link) between statement and fact. And the name in English for that relationship is: truth.

Problems would only arise if one were able to prove that the senses are unreliable and/or that induction is invalid. Since, as we have seen, Popper gave us no good reason to distrust our senses and, further, failed to make even a small dent in induction, he did not provide us with any reason to doubt the correspondence theory of truth.

Secondly, it is completely unclear to me why a statement about a statement (or a statement about a statement *and* a fact) should be considered more valid than a statement about a fact. The relationship between subject and predicate in a statement (S₁) about a statement (*s*); a statement (S₂) about a statement *and* a fact (*s+f*); or a statement (S₃) about a fact (*f*), is *identical* in all three cases. S₁ stands to *s*, S₂ stands to *s+f*, and S₃ stands to *f*, in exactly the same way. That words are being used to describe words (or to describe a combination of words and facts), rather than to describe facts alone, changes nothing. In the first case a statement is object or predicate, in the second case a statement *and* a fact is object or predicate, in the third case a fact alone is object or predicate. The only difference is that in the first and second cases, the objects or predicates — to wit, a statement *s*, and a statement plus a fact *s+f* — are being treated *as if* they were facts, exactly as in algebra when letters are treated as if they were numbers. The statements *s* and *s+f* are the 'facts' under discussion at those points, the objects of our attention. That they happen themselves to express relations to facts, which they may or may not do in other circumstances, adds nothing to the specific logical relationship being illustrated.

Thus we see that Tarski's method does not *establish* that the correspondence theory is true. At best it merely *confirms* that the theory holds whether one is talking about words or about facts, which is hardly the revolutionary panacea heralded by Popper.⁷⁸

Nominalism and Contradiction

There is another important topic to explore: Popper's methodological nominalism and his dismissal of terminological issues. For how are we expected to learn about truth if not in words? What does 'correspondence to the facts' mean if it is not *words* corresponding to facts? How are we to relate words to facts, if words are unimportant? How are we to discover contradictions — so important in science, Popper told us — if there is no significant connection between words and facts? How are logic and the Law of Contradiction even *possible* if the relations between words and facts are of no interest philosophically, just 'tiresome quibbles'? Does not logic *depend* on precise definitions?

The answers to the last two questions are, I think, 'They are not', and 'Yes it does'. For the 'Laws of Thought' seem excluded by fallibilism.⁷⁹ If all identifications are tentative, or hypothetical, or conjectural, just 'guesses' as Popper never tired of telling us, and definitions are of no value, how can we ever state with any degree of assurance that A is A? How can we identify attribute and subject positively enough to state that they do or do not belong together? One could take this further and wonder whether thought itself is possible in a world of guesses.

Once again we have material for at least a chapter, but we shall have to ignore these intriguing questions in order to bring this heading to a close with what may be an equally significant objection to Tarski's theory. Which is that, if its first premise is true — namely, that we gain something by stepping back a pace into a metalanguage — why should we stop there? Surely we would gain more by taking a second step back into a meta-metalanguage, and even more with a backwards triple jump into a meta-meta-metalanguage. By the time we'd regressed to meta⁻¹⁰ we'd be really far out, wouldn't we? I mean, like out of sight.

Popper on 'Fact'

For a philosopher who stated so often that truth means correspondence to the facts, Popper was remarkably shy when it came to informing us about his conception of 'fact'. I noticed this trait early in my reading of *Unended Quest* (with which I began my Popperian studies) yet found no discussion of fact until several books later, half way through *Conjectures and Refutations*. In *The Logic of Scientific Discovery*, the one book I thought would be certain to expound Popper's view of fact, I could find no attention to the matter whatsoever. When I checked the Index, to see if I had missed something, I did indeed find fourteen references under the heading "FACTS"; but when I went back to the pages referred to, I could hardly find the word 'fact', let alone any discussion of its meaning.

I had of course by that time become accustomed to Popper's refusal to provide definitions. Nonetheless, it is difficult to grasp what a philosopher means by 'correspondence to the facts' when one is not told what he means by 'facts'. The passage in *Conjectures and Refutations* is as follows:

"Facts are something like a common product of language and reality; they are reality pinned down by descriptive statements. They are like abstracts from a book, made in a language which is different from that of the original, and determined not only by the original book but nearly as much by the principles of selection and by other methods of abstracting, and by the means of which the new language disposes. New linguistic means not only help us to describe new kinds of facts; in a way, they even create new kinds of facts. In a certain sense, these facts obviously existed before the new means were created which were indispensable for their description... But in another sense we might say that these facts do not exist *as facts* before they are singled

out from the continuum of events and pinned down by statements — the theories which describe them" [C&R 214].

I shall discuss some of the implications of this view in Section Seven. All I wish to state here is that I do not find this definition of 'fact' — or description if you will — at all adequate for a discussion of the correspondence theory of truth.

Once again, Popper seems unsaddled in advance by his refusal of induction. Rather than establishing, say, the objectivity of external reality; or the existence therein of different entities and processes which we want to identify and understand; or describing the nature of the link between language and fact — the sort of issues I would have thought prerequisite for such a discussion — Popper's description of fact instead raises many more questions than it answers.

'Reality pinned down by descriptive statements' is certainly eloquent. In 'determined by the principals of selection' we recognise Popper's usual Kantian line. But 'language creating new kinds of facts'; and 'facts not existing before the theories which describe them'? Where in heaven is *this* leading? I can hear the ghosts of Reichenbach and Wittgenstein clapping — with one hand.

Fact and Fallibilism

The reason I was so keen to learn Popper's idea of fact was because the first critical question which formed in my mind during my reading was: 'If knowledge has to be conjectural, or *falsifiable* in order to be classified as knowledge, how are we ever to discover any *facts*'?

To begin with, we perhaps need a reminder of Popper's unfailing conjecturalism; the essence, permit me, of fallibilism: "The entities of the physical world — processes, forces, fields of forces — interact among one another, and therefore with material bodies. Thus we conjecture them to be real... even though their reality remains conjectural" [TSIB 36].

Returning to earth — i.e. to facts — in the absence of a Popperian definition I would describe a 'fact' as a thing or state of affairs which has been discovered truly to exist. I would thus agree with my handy *Chambers English Dictionary* which defines 'fact' as "reality, a real state of things, as distinguished from a mere statement or belief". If this definition is acceptable, it follows that when an item of 'knowledge' is falsified, it can no longer be regarded as a fact. It is false, it is *not* a fact. As Popper would say, a false conjecture "contradicts some real state of affairs"; "falsifications... indicate the points where we have touched reality" [C&R 116].

But how *factual* are items of yet-to-be falsified, 'conjectural knowledge'? Whence do they obtain intellectual graspability, any testable solidity? How do they acquire *reality*, so to speak? How do conjectures — opinions without proof — fit into a world of real facts? How do we *actually* make contact with reality? How can we be said to be in touch with facts at all when we all we can do is conjecture?

We have been forbidden to regard as certain anything which we may think we know about facts: all knowledge is conjectural. We have been told that our senses are suspect and that all our observations are 'theory impregnated'. We have been told that facts can't be false: 'false conjectures contradict some real state of affairs'. Yet, according to fallibilism, anything we can claim to 'know' *has* to be falsifiable.

Even armed with Popper's earlier distinction between 'falsifiable' and 'falsification', we are led to the seemingly inevitable conclusion that we can *never* know any facts. Similarly, we can never find out what is true. For if truth is correspondence with the facts, as Popper assured us, and we cannot know any facts, then we cannot know any truth.

It thus seems that Popper's enthusiastic endorsement of Tarski (*Objective Knowledge* is dedicated to him) and of the corre-

spondence theory of truth — which Popper thought Tarski had saved from a premature death — are incompatible with Popper's main credo, fallibilism.

Fallibilism and Realism

It would also appear, in the same way and for much the same reasons, that fallibilism conflicts with another foundation of Popper's thought, his realism. "Denying realism" Popper wrote, "amounts to megalomania (the most widespread occupational disease of the professional philosopher)" [OKN 41]. He himself had always been:

"a commonsense realist... I was interested in the real world, in the cosmos, and I was thoroughly opposed to every idealism..." [OKN 322-3].

"I am a realist in two senses of the word. Firstly, I believe in the reality of the physical world. Secondly, I believe that the world of theoretical entities is real... I maintain my opposition to essentialism — the reality of *concepts* — but assert the reality of *problems, theories, mistakes, etc*" [OKN 323n7].

A few pages later Popper wrote:

"whether our man-made theories are true or not depends upon the real facts; real facts, which are, with very few exceptions, emphatically not man-made. Our man-made *theories* may clash with these real *facts*, and so, in our search for truth, we may have to adjust our theories or to give them up" [OKN 328-9].

It so happens that I too am a metaphysical realist. I also agree with Popper that if our theories clash with real facts we should give them up. And, as realists, the first thing we have to give up is fallibilism.

There are two reasons. If my reasoning under the immediately preceding heading is correct, fallibilism denies us any knowledge of real facts. Thus it not only contradicts realism, it leaves one with no good reason to be a realist.

Secondly, if my reasoning in other sections of this essay is correct, then fallibilism conflicts with the fact that, having discovered such real facts as the existence of the works of Karl Popper, say, we *can and do* have true knowledge of reality. No matter which way you look at it, fallibilism seems totally out of place in the mind of anyone who aspires to be a realist.

SIX: POPPER'S ATTACK ON ARISTOTLE

Gilbert and Sullivan told us in their light-hearted way that every Englishman was born either a little Liberal or a little Con-ser-va-tyve. Less good-humouredly, it has often been remarked that all philosophers belong, in their hearts, to one of two schools: Plato's Academy or Aristotle's Lyceum. While it would be a mistake to attach too much significance to such pigeon-holing, one can at least hazard a guess about a philosopher's basic values and proclivities from his or her estimate of the two giants of Ancient Greek philosophy, and/or of the seminal traditions they founded: other-worldly idealism (Platonism), and this-worldly realism (Aristotelianism).

Few philosophers have made their likes and dislikes in this regard plainer than Karl Popper. It may come as a surprise to some, however, to learn that despite his famous attack on Plato's political thought, and although he explicitly denied being a Platonist [OKN 154], Popper held the great idealist in the highest esteem.

In *Open Society*, for example, Popper began his critique of Plato by calling him a "genius" and affirming that: "I admire much in Plato's philosophy, far beyond those parts I believe to be Socratic" [OSE1 34]. Elsewhere in the book, Popper spoke

of Plato's "fascination" and of "the might of his unequalled intelligence" [OSE 109]. At the end of the original 1943 text, Popper characterised Platonism as an "alluring philosophy, unequalled in depth and richness" [OSE 199]. The conclusion of the 1966 edition reaffirmed Popper's "conviction of Plato's overwhelming intellectual achievement", and added that Plato was "the greatest of all philosophers". Even Plato's ethics and politics, which Popper found "morally repulsive" and "horri-fying" were, according to Popper, "as an intellectual achievement, without parallel". Popper ended the work with yet another reminder of "Plato's greatness" and of "his magic spell" [OSE1 343].

Unfortunately Popper did not elaborate, in the works I consulted, on the elements of Plato's philosophy which so enthralled him. The only things I came across, although significant enough maybe, were Popper crediting Plato with developing hypothetico-deductive reasoning, the method which Popper placed at the heart of his critical rationalism [TSIB 171], and with contributing to development of the Three World theory [OKN 154], which will be discussed below.

If Popper's reverence for Plato is a surprise to some, his opinion of Aristotle may come as a shock. Popper began his assessment of Aristotle in *Open Society* with the assertion that Aristotle's "version of Plato's essentialism... influenced the historicism of Hegel, and thereby that of Marx" [OSE2 1]. Popper went on to describe Plato as "Aristotle's great master" adding, "Aristotle... was not a man of striking originality of thought". Popper also implied that what Aristotle contributed "to the Platonic store of ideas" was relatively insignificant, and that ignoring the bulk of Aristotle's thought, as Popper intended to do, was not "as serious a loss as one might fear". Popper then stated:

"To be sure, [Aristotle] is the inventor of logic, and for this and his other achievements, he amply deserves what he himself claimed (at the end of his *Sophistic Refutations*) — our warm thanks, and our pardon for his shortcomings. Yet for readers and admirers of Plato these shortcomings are formidable" [OSE2 1].

After drawing attention to Aristotle's "inclination to compromise... [and] to find fault with his predecessors and contemporaries" [OSE2 2], Popper wrote:

"Instead of Plato's flashes of penetrating insight, we find dry systematization and the love, shared by so many mediocre writers of later times, for settling any question whatever by issuing a 'sound and balanced judgement' that does justice to everybody; which means, at times, by elaborately and solemnly missing the point. This exasperating tendency, which is systematized in Aristotle's famous 'doctrine of the mean' is one of the sources of his so often forced and even fatuous criticism of Plato" [OSE2 2].

Popper then gave an example of Aristotle's "lack of insight" — claiming that Aristotle appeared 'not to notice' implications of the Macedonian conquest — before continuing:

"Aristotle's thought is entirely dominated by Plato's. Somewhat grudgingly, he followed his great teacher as closely as his temperament permitted, not only in his general political outlook but practically everywhere" [OSE2 2].

This snub was followed by a series of brief, scornful commentaries on Aristotle's attitudes to politics, slavery, leisure, social class, liberal education, ideas of causality, biological interests, etc, all of which was sprinkled with asides about Aristotle's "feelings of inferiority", or his sycophancy as a "courtier". Along the way, Popper repeated more than once that Aristotle's ideas were merely second-hand Platonism; told us that "Aristotle's version of Plato's essentialism shows only unimportant differences" [OSE1 6], and lamented what he called the "de-

plorable fact” that Aristotle developed a scientific terminology, a “complicated and somewhat pretentious jargon” which “fascinated only too many philosophers” [OSE2 7].

Popper next returned to his opening charge that Aristotle influenced Hegelian and Marxist historicism. Although Popper acknowledged that Aristotle was not an historicist, he claimed that Aristotle’s concept of potentiality (“all movement or change means the realization (or ‘actualization’) of some of the potentialities inherent in the essence of a thing” [OSE2 6]) contained “all the elements needed for elaborating a grandiose historicist philosophy” [OSE2 7].

Popper then elaborated this charge, asserting that Hegel’s totalitarian philosophy was a logical development of Aristotelianism. He concluded:

“All these far-reaching historicist consequences... were slumbering for more than twenty centuries, ‘hidden and undeveloped’, in Aristotle’s essentialism. Aristotelianism was more fertile and promising than most of its many admirers know” [OSE2 8].

Popper continued his attack with a close look at “Aristotle’s *essentialist method of Definitions*”. This he described as:

“an inexhaustible source of confusion and of that particular kind of verbiage which, when combined with historicism in Hegel’s mind, has bred that poisonous intellectual disease of our own time which I call *oracular philosophy*. And it is the most important source of Aristotle’s regrettably still prevailing intellectual influence.... The development of thought since Aristotle could, I think, be summed up by saying that every discipline, as long as it used the Aristotelian method of definition, has remained arrested in a state of empty verbiage and barren scholasticism...” [OSE2 9].

Popper then took us on a quick run through Aristotle’s method of definition, which he said was “less radical and less inspired than Plato’s, but in the end it amounts to the same”. Popper also asserted that Aristotle’s arguments in favour of the theory were “surprisingly weak” [OSE2 11].

Aristotle’s system of definition was then contrasted with Popper’s own fallibilism, which is presented as ‘the method of modern science’ [OSE2 12]. The section concluded with:

“Scholasticism and mysticism and despair in reason, these are the unavoidable results of the essentialism of Plato and Aristotle. And Plato’s open revolt against freedom becomes, with Aristotle, a secret revolt against reason” [OSE2 21].

There followed a scan of the medieval era which began with a restatement of Aristotle’s influence on totalitarianism [OSE2 21-2], and included such statements as: “The Church followed in the wake of Platonic-Aristotelian totalitarianism, a development that culminated in the Inquisition” [OSE2 24]. The chapter ended with:

“the tribal Idealism of Plato and Aristotle was exalted as a kind of Christianity before Christ. Indeed, this is the source of the immense authority of Plato and Aristotle, even in our own day, that their philosophy was adopted by medieval authoritarianism. But it must not be forgotten that, outside the totalitarian camp, their fame has outlived their practical influence upon our lives” [OSE2 26].

Popper’s parting shot in the text of *Open Society* was a reference to “the intelligence-destroying influence of Aristotle” [OSE2 221].

The attack was sustained, however, in Popper’s Notes.⁸⁰ Either openly or by implication, Aristotle was accused of: envy and hypocrisy [OSE2 281n1]; of being ignoble, reactionary and racist [e.g. 282n3, 284n7]; of being inconsistent, imprecise and unclear [e.g. 286n15 & n18]; of the “vulgarization” of Platon-

ism [284n10]; of narrow-mindedness, pedantry, and cynicism [283n6, 302n60]; and, a second time, of mysticism [309n36]. That Aristotle was the source of Hegel’s philosophy was restated on a number of occasions [305n11, 309n36, 311n45, 316n85]. Aristotle was also asserted to be an “important contributor to the logic of power” [ie, of power politics] along with Plato, Machiavelli, and Pareto [324n13]; and was lumped together with Fichte [307n27], a progenitor of the rabid nationalism which led to Nazism, whom Popper had earlier dismissed as a fraud and a windbag [OSE2 53-55].

Although one or two of these charges, such as racism and cynicism, were also levelled at Plato (with others already seen above); and although Popper did refer to Aristotle’s “stupendous learning” and “astonishing scope” [OSE2 1] and allowed him “merits” for founding logic and trying to “tame idealism” [OSE2 301n54(3)], the overwhelming impression of Popper’s presentation is that Aristotle was a dull, thoroughly unpleasant, unimaginative plagiarist; whose influence on subsequent philosophy has been disastrous; but whom, fortunately, we are now at liberty to forget owing to Popper’s discovery of critical rationalism.

In Defense of Aristotle

Popper’s treatment of Aristotle goes against the grain of everything I thought I knew about ‘The Philosopher’. However, since I am not an Aristotelian scholar, I do not feel qualified to rebut Popper’s charges in any detail. Nonetheless, it does seem that even a modest general knowledge of the history of philosophy equips one to raise serious objections.

1. Popper’s characterisation of Aristotelianism as second-rate and derivative Platonism seems to me not only inaccurate but contradicted by the whole tenor of Aristotle’s philosophy. It also raises the puzzle of how the two traditions produced such dissimilar results. One thinks, for example, of the Platonist Augustine and of the Aristotelian Aquinas. It is an even bigger puzzle how modern commentators, some far better qualified than Popper — e.g. W.D. Ross, or J.H. Randall, Jr — managed to find such fundamental differences. To me, Plato and Aristotle are, literally, world’s apart. And, frankly, accusing the founder of logic of “a secret revolt against reason” seems to me to be completely potty, and that’s putting it mildly.
2. It is scarcely persuasive to claim that Aristotle’s ideas played a role in the rise of medieval authoritarianism in Europe when a) his works had been suppressed by the Church; and b) his philosophy was for that reason virtually unknown during the centuries in which medievalism developed.
3. Popper’s criticism of Aristotle — for finding fault with his predecessors and contemporaries — seems a particularly severe case of the pot calling the kettle black. Popper’s often acerbic efforts in this respect outdistanced Aristotle’s a thousandfold. That a ‘critical rationalist’ should carp at another’s criticism makes one suspect that Popper did not really like being criticised any more than the rest of us. It also makes his praise of Thales, for being able to tolerate criticism, ring rather hollow [C&R 150].
4. Associating Aristotle with the likes of Fichte and Hegel seems to me to be more of an attempt to smear than a philosophical or historical judgement.
5. The claim that Hegel’s historicism ‘slumbered for twenty centuries’ as potential in Aristotle’s theory of change strikes me as bizarre to say the least. If this was truly the case, Aquinas and his successors would surely have been historicists. That they were not, rather strongly suggests that Popper’s interpretation is more prejudiced than factual.
6. It is distinctly unconvincing to claim that Hegel developed ideas inherent in Aristotelianism while a) decrying Hegel for flouting Aristotelian logic [OSE2 39; cf C&R 329] and

- b) citing (approvingly) Schopenhauer's attack on Hegel's "mischievous and criminal misuse of language" [OSE2 63].
7. It is even less convincing to lay Hegel's philosophy at Aristotle's door while quoting *Hegel* to the effect that he had incorporated the whole of Heraclitus into his *Logic*, and that he "owed everything to Plato" [OSE1 203n4].
 8. Finding totalitarianism implicit in Aristotle's concept of potentiality is analogous to claiming that Popper was responsible for Cambodia's infamous 'Killing Fields'. Popper was world renowned as an advocate of 'piecemeal social engineering' long before the Khmer Rouge came to power, and social engineering is exactly how Pol Pot saw his actions. It is grotesque to blame one man's evil actions on the thoughts of someone else remote in time and place.
 9. Popper's interpretation is in any case wrong. On his reasoning, Aristotle's theory of change could be blamed for every crime or mistake committed since 300BC.
 10. It is unscholarly and unfair to use value-laden terms when attacking a man who died so long ago and about whose life and character so little is known. Aristotle worked hard to understand the world just as Popper did — without Popper's twenty-three centuries of hindsight.
 11. Aristotle's 'flaws': his 'deferential' attention to his predecessors, his indebtedness to them, his critiques of others' ideas, his primitive cosmology, his errors over essence etc, his dry, 'lecture note' style, and his perhaps over-methodical approach; all these were common knowledge long before Popper wrote. Making a great high-toned fuss about such matters is as unnecessary as it is trite.
 12. I can't help suspecting that Popper's dislike of Aristotle was due to fallibilism's conflict with the Law of Contradiction and with Aristotelian logic in general. This would have been a constant irritant, and an unsurmountable barrier, in Popper's undoubtedly efficient subconscious mind. A second reason may be disagreement over ethics. Aristotle's 'good life' is counter to Popper's Kantian deontology and his admiration for Christian moral teaching, both of which are presented and discussed in my Section Nine.
 13. At several points in this essay I refer to apparently Aristotelian elements in Popper's thought. In view of the anathema Popper pronounced upon the Stagirite, it is interesting to compare the work of the distinguished Aristotelian scholar, John Herman Randall, Jr. Describing Aristotle's development, Randall wrote of the "free imaginative speculation" of his mind, and of "the chastened discipline of that imagination by facts". Randall went on: "Aristotle's own thinking is not closed... but open. For Aristotle knowledge is not a neat 'system', but a living growth... it is biological.... Note Aristotle's keen sense... of the cumulative growth of scientific inquiry.... The Aristotelian corpus can be said to present a totality, not of results, but of problems. It is the problems that are for him primary..."⁸¹

But what is 'imaginative speculation chastened by the discipline of fact' if not conjectures and refutations? And who spoke so incessantly of the cumulative growth of science, analogous to biological growth? Who said *problems* were of paramount importance?

Randall could so easily have been writing about Popper that my preceding point about the possible psychological sources of Popper's animosity towards Aristotle becomes more intriguing. When we read Aristotle's remarkably 'Popperian' phrasing a little further on in Randall's book, the point becomes compelling:

"While no one person can grasp truth adequately, we cannot all fail in the attempt. Each thinker makes some statement about nature, and as an individual contributes little or nothing to the inquiry. But the combination of all the conjectures results in some-

thing big.... It is only fair to be grateful not only to those whose views we can share, but also to those who have gone pretty far wrong in their guesses. They too have contributed something: by their preliminary work they have helped to form our scientific way of thinking."

14. If it comes down to stating one's preferences — as Popper suggested we may — and I was asked to choose one book to have with me if cast away on a desert island, I would have no hesitation whatsoever in choosing Richard McKeon's *Basic Works of Aristotle* ahead of his *Basic Works of Plato*. I would never even consider *Conjectures and Refutations*.

If one were sitting alone on hot, dry sand under a ragged palm tree, trying to figure out how to stay alive, what use would it be to be told that our knowledge is no better than shadows on a cave wall, or that "we never know what we are talking about". I'll take the author who wrote "All men by nature desire to know"⁸² — and then told me how to do it — any day, any place, any time.

15. Finally, it is interesting to note that Popper's treatment of Aristotle (but not his critique of Plato) so appalled an American scholar — to whom the manuscript was sent for evaluation in 1943 — that he judged *Open Society* "not fit to be submitted to a publisher". In consequence, publication did not occur until 1945, in London, where Messrs Routledge and Kegan Paul proved less fastidious [UNQ 119-20].

SEVEN: POPPERIAN COSMOLOGY, WORLDS 1, 2 AND 3

As mentioned at the outset, Popper developed a theory in which he split reality into three parts: the physical world, or the world of facts; the world of consciousness, of mental processes and events; and a third world, the world of objective knowledge, the products of the human mind. I did not make a note of it, but I recall reading somewhere that Popper's out-of-the-blue announcement of this theory at a seminar caused quite a stir.

Popper obviously regarded the three world theory as an important contribution to philosophy. He described it in some detail in *Objective Knowledge* [e.g. 106ff, & 152ff], and in varying degree in *The Open Universe* and *The Self and its Brain*. The extracts here largely follow a fourth account, in *Unended Quest*. I shall present the theory somewhat briefly because I return to it in the next section.

An Important Distinction

Popper began his discussion with a distinction drawn by Bolzano between 'statements in themselves' and (subjective) thought processes, a distinction Popper thought to be "of the greatest importance" [UNQ 180].

"Statements in themselves can stand in logical relations to each other.... Subjective thought processes, on the other hand, can only stand in psychological relations....

"The two kinds of relations are utterly different... *thoughts in the sense of contents* or statements in themselves and *thoughts in the sense of thought processes* belong to *two entirely different 'worlds'*."

"If we call the world of 'things' — of physical objects — the *first world*, and the world of subjective experiences (such as thought processes) the *second world*, we may call the world of statements in themselves the *third world*. (I now prefer to call these three worlds 'world 1', 'world 2', and 'world 3')" [UNQ 180-1].

After offering the example of imagining a picture one knows; distinguishing between the actual picture, one's mental image

of it, and one's thoughts about the image; Popper used his own mental processes to illustrate the generation of a world 3 thought which, once written down, and "formulated in language so clearly that I can look at it critically from various sides... is the thought in the objective sense, the world 3 object which I am trying to grasp." He continued:

"The decisive thing seems to me that we can put objective thoughts — that is, theories — before us in such a way that we can criticize them and argue about them. To do so, we must formulate them in some more or less permanent (especially linguistic) form...."

"Books and journals can be regarded as typical world 3 objects..." [UNQ 182]

Some pages later, Popper added "we may include in world 3 in a more general sense all the products of the human mind, such as tools, institutions, and works of art" [UNQ 187].

Popper described world 3 somewhat paradoxically as both "man-made" and "autonomous":

"the third world, the world of objective knowledge... is man-made. But it is to be stressed that this world exists to a large extent autonomously; that it generates its own problems, especially those connected with methods of growth; and that its impact on any one of us, even on the most original of creative thinkers, vastly exceeds the impact which any of us can make upon it" [OKN 147].

Of equal significance are the relationships between the three worlds, world 2 being the 'mediator' linking the other two:

"The three worlds are so related that the first two can interact, and that the last two can interact. Thus the second world, the world of subjective or personal experiences, interacts with each of the other two worlds. The first world and the third world cannot interact, save through the intervention of the second world, the world of subjective or personal experiences" [OKN 155].

The ontological status of world 3, and the bearing of the theory on the 'mind-body problem', are addressed in my next section.

Commentary

I should stress first that I have no problem with the idea of objective knowledge as such. The conception seems completely normal to me, indeed commonplace. Once a thought has been concretized, particularly when written down, it becomes part of reality: it is objective.

Further, knowledge, to be *knowledge*, can only be knowledge of *reality*. If reality is objective, as Popper believed, then properly acquired and properly held knowledge will be objective too.

Nor do I see anything objectionable *per se* about Popper's tripartite division. It seems entirely straightforward to observe that there is a difference between a physical thing and a mental event, or to draw a distinction between the process of thinking and the contents of thought. In logic, for example, we study the process while disregarding the content. On the face of it, Popper's three worlds seem unremarkable.

When we look behind the mirror, however, things are not so easy. I have several objections, I think serious ones.

1. There seems little conjectural about worlds 1, 2 and 3. Popper laid out his theory in his usual sweeping, emphatic style with barely a nod at fallibilism. His language was indeed on occasion more cautious: "We are now perhaps no longer quite so very far removed..." [UNQ 184]; "I propose ..." [UNQ 186]; but the presentation typifies the less praiseworthy aspects of Popper's philosophical style: the free use of that which he denied everyone else; disobedience to his own tenets; and treating all theorizing as conjectural except his own.

2. The idea of objective knowledge appears to *contradict* fallibilism. If knowledge exists *objectively*, how can it be called conjectural? My exercise in studying Popper, for example, was entirely dependent on the existence of a dozen world 3 artifacts containing hundreds of thousands of Popper's world 2-generated thoughts, every one of them made independent, objective, and durable too, by being admixed with world 1 objects, namely paper and ink, and printed in books. Now either those books exist and say what they say or they don't. There is simply no room for conjecture.
3. When thoughts have been objectified as world 3 artifacts, how do they conform to methodological nominalism? Once fallibilism is part of world 3 — in a book say — then either the word 'fallibilism' corresponds to the objective world 3 fact that there is such a scientific method, or it does not. There is nothing nominal or arbitrary here at all. We have a genus (scientific methods) and a differentia (Popper's method) the essential characteristic of which is to proceed by conjecture and refutation. Calling Popper's method syllogistic, or Baconian, or dialectic, would be quite clearly incorrect. It would thus be completely legitimate to argue about the meaning of the word 'fallibilism' with anyone who maintained that C&R was merely positivism in disguise, or whatever. The assertion would be *untrue*; it would *not* correspond to the objective, world 3 facts. (I also bet that Professor Popper would have praised the objector, and would not have dismissed his point as a 'tiresome quibble'.)
4. The existence of objective world 3 ideas also seems to conflict with Popper's rejection of 'essentialism' — the real existence of concepts — which formed such an integral part of Popper's attack on Aristotle, and of his dislike of definitions. Surely it is unreasonable (in the absence of further explanation at least) on the one hand to lambast essentialism — the idea that concepts are, or have, essences, which exist in our own reality or in another dimension — while simultaneously claiming on the other hand that concepts can have a real existence in another dimension, world 3. Like a hibernating squirrel, Popper did not always remember the stores of world 3 notions he had cached elsewhere.⁸³
5. How are we to gain access to this *objective* third world when our brains and senses are 'impregnated' with inborn expectations, and thus incapable of unadulterated contact with reality? World 3 may exist, 'out there', objectively, but Popper said "there is no such thing as an unprejudiced observation". So how are we to *know* what we are observing? How are we to be sure that we are *actually* observing world 3?
6. Why stop at worlds 1, 2, and 3? The basis for the theory is fundamental difference in kind, the worlds are "utterly different" as we saw earlier. However, in *Open Universe*, Popper suggested the possibility of a world 4 of art [TOU 115] and a world 5 of human institutions [TOU 154]. He also spoke of "the gulf which separates the human brain from the animal brain" [TOU 122]. But if we are talking fundamental differences in kind, shouldn't animal consciousness be world 6? And if art gets a world of its own, isn't commerce sufficiently different to be offered world 7? And I don't think the teachers would be very happy to be lumped in with human institutions like banks, they'd be far happier in world 8. And neither group would want the politicians, so we'd have to have world 9. And if we're talking fundamentals, surely you're not going to put plants in with conscious animals? Or inanimate things with animate? Or elephants with amoebas? Or Karl Popper with Hegel and Aristotle? It seems to me that the logic of Popper's argument leads eventually to something rather like an Aristotelian world of distinct entities grouped according to the identifying characteristic, or essence, of each kind.

7. It can also be objected that, *in fact*, knowledge only exists in our minds. True, it is objectified for the purposes of communication; but, without *brains*, where is it?⁸⁴
8. Finally, the ‘autonomy’ of man-made, objective knowledge seems very like Aristotelian potentiality. Popper often used number theory to explain world 3: “natural numbers are the work of men”, he stated. However, “unexpected new problems arise as an unintended by-product of the sequence of natural numbers.... These problems are clearly *autonomous*. They are in no sense made by us; rather, they are *discovered* by us; and in this sense they exist, undiscovered, before their discovery” [OKN 160-1]. Fair enough; but is that not just another way of saying that the future is not actual but potential? Or that unknown future discoveries do not *actually* exist, yet must exist in some sense as *potential* in the known?

In this regard it is interesting to look at Popper’s idea (in physics) of “the measures of possibilities” which he called “objective probabilities” or “*propensities*”. He used such distinctions, he said, “in order to draw attention to the fact that these ‘possibilities’ are now considered as *physical magnitudes* which, like forces, can interact and combine, and that they may therefore be considered, in spite of the term ‘possibility’, as *physically real*: they are not merely logical possibilities, but *physical possibilities*” [TOU 105].⁸⁵

There is some similarity, surely, between this conception of ‘propensity’ and “all movement or change means the realization (or ‘actualization’) of some of the potentialities inherent in the essence of a thing” which Popper dismissed as “pretentious jargon” when discussing Aristotle [OSE2 6-7].

Puzzlement grows when one reads, in *Quantum Theory*, of “the real potentialities of the Aristotelian *potentia*, i.e., of our propensity” [QTSP 133]; and of “a programme for a theory of change... which would allow us to interpret any real state of the world as both an actualization or realization of some of the potentialities or propensities of its preceding states, and also as a field of dispositions or propensities to realise the next state” [QTSP 198].

Was Popper a secret, or unconscious Aristotelian? Possibly. There is certainly an Aristotelian flavour about some of his later work, especially his essay “Two New Views of Causality” [AWP 3ff], written in his late Eighties. Perhaps it is difficult to espouse realism and not eventually find one’s way to The Philosopher.

EIGHT: POPPER’S IDEALISM

In light of what has just been said, it may seem strange to see the label ‘idealism’ attached to the philosophy of one who stated: “To me, idealism appears absurd” [OKN 41], and one whom we recently witnessed reiterating “I was thoroughly opposed to every idealism”. However, if we remember that we have already found scepticism, determinism and subjectivism where there was supposed to be none, an allegation of idealism should not come as a complete surprise.

Again and again in my examination of Popper’s work, I discovered that what he actually wrote, and particularly the implications of what he wrote, turned out to be quite different from both his own stated convictions or preferences, and from the general import of his reputation. We have already seen too, that Popper adopted basic premises from the idealists David Hume and Immanuel Kant, in both of whose subjectivist approaches to philosophy human ideas have primacy over objective reality. Given his enormous respect for Hume and Kant, and his incorporation of their most influential positions into his own philosophy, it would be more surprising if Popper was *not* an idealist of some sort.

Another factor which may alert the reader to the possibility that Popper was not what he presented himself to be is his warm praise of the other-worldly Plato and his sarcastic dismissal of the infinitely more this-worldly Aristotle. It could be, given its context, that the attack on Aristotle was intended to balance the ruthlessness of his attack on Plato’s politics in *Open Society*. However, Popper’s scornful rejection of ‘balanced judgments’ makes this unlikely. Besides, affection for Plato and dislike of Aristotle fits far better with what we know of Popper’s other affections — for Hume and Kant. Obviously, disliking Aristotle while finding Plato enthralling is not in itself evidence of idealism. But it is a clue.

Finally, we have discussed one of the clear implications of fallibilism — that human beings are unable to know any facts. We have also seen Popper’s frequent denial of the possibility of certain knowledge. Were we to allow these premises to stand, human knowledge would indeed consist solely of conjectures — which are by definition *ideas*, and quite distinct from real facts. Ergo, fallibilism is a form of idealism, although obviously there is much more to the matter than that.

Ideal Worlds

In the discussion of worlds 1, 2 and 3 in *Unended Quest*, Popper told us that, some forty years before, Heinrich Gomperz had warned him that he (Popper) was, potentially: “not only a realist in the sense of believing in the reality of tables and chairs but also in the sense of Plato, who believed in the reality of Forms or Ideas — of concepts, and their meanings or essences — I did not like the suggestion.... But I have become a realist with respect to the world 3 of *problems, theories, and critical arguments*” [UNQ 183].

The ‘reality’ of world 3, as it emerges from the discussion on following pages, is a) the ability to act upon physical things, i.e. world 1, through the medium of world 2; b) autonomy, in the sense that there are unintended and unforeseen consequences of our theories; and c) timelessness, in the sense that truth is timeless: what is true today always was, and always will be true. Popper concludes:

“I regard world 3 as being essentially the product of the human mind. It is we who create world 3 objects.... these objects have their own inherent or autonomous laws which create unintended and unforeseeable consequences....

“[these] repercussions on us are as great as, or greater than, those of our physical environment. There is a kind of feedback in all human activities: in acting we always act, indirectly, upon ourselves.

“More precisely, I regard the world 3 of problems, theories, and critical arguments as one of the results of the evolution of human language, and as acting back on this evolution” [UNQ 186].

As with the earlier description of objective knowledge, much of this appears unobjectionable. For example, we might observe the need for protection, think up a police force, publish the idea, help set up the force, and get arrested for sedition. It’s all there: worlds 1, 2 and 3; mental activity producing ideas with unforeseen consequences and with feedback on both physical reality and ourselves.

Nonetheless, beneath the surface, I detect an undertow pulling us in another direction: autonomous ideas? Repercussions greater than our physical environment? Feedback loops with apparently closed ideational circuits? Suspicion grows when one finds *Hegel* of all people brought into the discussion [OKN 125], his arrival being followed by phrases such as “the ‘objective mind’ or ‘spirit’ ” [OKN 149]; “eternal verities” [OKN 158]; and “the third world is... superhuman”, it “transcends its makers” [OKN 159].

Even if these conceptions have not quite reached the inhospitable shores of idealism, they do seem to be coasting its reefs with only a small margin for navigational error.

Facts Again

With a barnacle-scraping idealism lurking below the waterline, I would like to reconsider the passage already quoted from *Conjectures and Refutations* (quoted more fully in my Section Five), in which Popper described his view of ‘facts’:

“Facts are something like a common product of language and reality; they are reality pinned down by descriptive statements.... In a certain sense, these facts obviously existed before the new means were created which were indispensable for their description.... In another sense we might say that these facts do not exist as *facts* before they are... pinned down by statements — the theories which describe them” [C&R 214].

Here too, we may not be on the ideal rocks, yet, but we can certainly see them gleaming blackly through the breakers. The passage seems awash with Kantian undercurrents: “reality pinned down by descriptive statements”; “determined... by the principles of selection”; “linguistic means... create new kinds of facts”; “facts do not exist as *facts* before they are... pinned down by statements”. Surely the message in these abstracts — even by the means of which my new language disposes — translates as: ‘ideas create’.

Obviously, the statements could be rendered innocuous by interpreting them as attempts to describe the relationships which must hold in some way between language and reality. Had they come from an un-suspect realist one might indeed treat them as such. But when they are declaimed by an avowed Kantian there is less reason to be accommodating.

There is also the troubling line from one of Popper’s endnotes: “Heraclitus’ discovery that the world is not the totality of *things* but of events or *facts* is not at all trivial” [OSE1 205]. *Heraclitus?* Wasn’t he the author of the doctrine of universal flux? The intellectual parent of Hegel’s idea of the unity of opposites? But how can *facts*, in the common sense meaning of the word, exist in a universal flux?

Universal Laws

The significance of these troublesome questions grows when one re-examines Popper’s notion of universal law. We have seen that Popper was adamant that universal laws exist. In *Open Society* he described natural law as “a strict unvarying regularity”. He stressed that “a law of nature is unalterable; there are no exceptions to it”; adding, “laws of nature... can be neither broken nor enforced” [OSE1 57-58]. Popper was just as positive many years later when he described, in *Objective Knowledge*, “universal laws of nature” to which “all individual things” are “subject” [OKN 196].

How do these laws actually work? Popper denied that it was “the essential properties inherent in *each individual or singular thing* which may be appealed to as the explanation of this thing’s behaviour” [OKN 195]. He stated firmly that laws are “not inherent in... singular things” [OKN 196] and elsewhere that “Universal laws transcend experience...” [LSCD 425]. However, the “universal laws of nature” explain “regularities or similarities of individual things or singular facts or events”, and “all individual things... [are] subject to these laws”. In sum, “Laws of nature are conceived, rather, as (conjectural) descriptions of the structural properties of nature — of our world itself” [OKN 196].

Another way of looking at Popper’s view of ‘regularity’ can be found in *The Logic of Scientific Discovery*. Discussing the “principle of the uniformity of nature” Popper stated that this “expresses the metaphysical faith in the existence of regularities in our world (a faith which I share, and without which practical action is hardly conceivable)” [LSCD 252]. He then

explained: “Consistently with my attitude towards other metaphysical questions, I abstain from arguing for or against faith in the existence of regularities in our world.” A few sentences later he wrote of “the principle of the uniformity of nature” being replaced by “the postulate of *the invariance of natural laws*”, adding that what we should say is “it is part of our *definition* of natural laws if we postulate that they are to be invariant with respect to space and time; and also if we postulate that they are to have no exceptions.” The passage concludes: “the ‘principle of the uniformity of nature’ can again be regarded as a metaphysical interpretation of a methodological rule — like its near relative, the ‘law of causality’ ” [LSCD 253].⁸⁶

Once again, we have the makings of an interesting chapter, but I shall confine myself to noting that it seems we must interpret Popper’s ideas about universal law either as a Kantian imposition *on* reality, or as a description *of* reality. But, if the latter route is chosen, universal laws turn out to be either, “conjectural descriptions” of “structural properties” which are “not inherent in individual things” and which “transcend experience”; or, “interpretations” of “methodological rules”. Either way, it looks awfully like idealism to me.

The Reef-In-Itself

In *The Open Universe*, the good ship Popper sails straight onto the idealist rocks:

“we ought to admit the existence of an autonomous part of World 3; a part which consists of objective *thought contents* which are *independent of*, and clearly distinct from, the subjective or personal *thought processes* by which they are grasped, and whose grasp they can causally influence. I thus assert that there exist autonomous World 3 objects which have not yet taken up either World 1 shape or World 2 shape, but which, nevertheless, interact with our thought processes” [TOU 119-20].

This, I submit, is idealism, the *essence* of it, bare naked. I do not know how else to describe the “autonomous” existence of “objective thought contents” which have “not yet taken up” either a physical or mental “shape” yet which may “causally influence” the mind.

That this identification is not fantasy is borne out by *The Self and Its Brain*. Early in the book, Popper wrote of “unembodied” World 3 objects [TSIB 41ff]. Towards the end, he stated: “the World 3 object is a real object which exists, but exists nowhere.... In a sense World 3 is a kind of Platonic world of ideas, a world which exists nowhere but which does have an existence and which does interact, especially, with human minds” [TSIB 450, see also 43ff, and OKN 154].

The thesis of the work, a joint effort by Popper and neuroscientist Sir John Eccles, consists (according to its cover) of a revival of Cartesian dualism. Without admitting a mental *substance*, the authors defend “interactionism”, the theory that “the self-conscious mind is an independent entity” [TSIB 355], which interacts with the physical brain: “something totally different from the physical system acts in some way on the physical system” [TSIB 472].

That consciousness has primacy in this arrangement is explicit: “primacy is given to the self-conscious mind” [TSIB 356]. It is also asserted that human infants have “expectations or inborn knowledge, which consist of theory-like dispositions to interpret what reaches [them] through [their] senses” [TSIB 426]. Further, the work of the brain is mainly that of “interpretation”:

“This work must be very largely predisposed; and... must be ‘primary’ to experiencing either the external world or the ego. I would therefore suggest that it is incorrect to say that primarily everything comes to *me*... through the senses. Rather, what is ‘primary’ is the in-

born disposition to sense, and the inborn disposition to interpret what arrives through the senses" [TSIB 427; cf 116, 121, 134].

The Kantian design of these inborn dispositions had been made clear earlier in the book:

"The guessed regularities through which we try to introduce order into our world, an order to which we may adapt ourselves, and the similarities which depend on them, may perhaps be conscious. But even so, they will be dispositional in character, and for most of the time they will be part of our physiology" [TSIB 138].

To conclude, when one puts together a) mind as an independent entity; b) an explicitly Platonic conception of World 3; c) inborn dispositions which interpret sensory input; and d) order introduced into the world via guessed regularities; it follows both accurately and uncontroversially that Popper was an idealist.

Popper was free, of course, to adopt whatever theory he liked (and one should not forget that he left the world a freer place than he found it). Neither his philosophical choices nor the pitfalls of idealism are my concern here. Nor do I intend to discuss exactly how firmly Popper *did* run aground on the shoals of idealism, or whether he had not steered somewhere rather different, into a representationalist minefield, say.

My sole interest (admittedly a very narrow one) is to point out that when Popper maintained that he was a realist and "thoroughly opposed to every idealism", he evidently did not notice that his theories of Worlds 1, 2 and 3, of fact, of universal law, and of mind, convey to the disinterested observer an irresistible impression of idealism, albeit of a somewhat novel kind.⁸⁷

NINE: ETHICS

Interested mainly in theoretical natural science, and much less in the social sciences [UNQ 121], Popper never wrote anything like a treatise on ethics, though his sustained attacks on "inexorable laws of history" in *The Poverty of Historicism* and on determinism generally in *The Open Universe* have an obvious bearing on the subject.

The *Open Society and Its Enemies* is however shot through with moral overtones and Popper frequently stepped aside from his main themes to discuss either ethical principles, or the moral implications of some matter in hand. Two chapters are particularly noteworthy in this respect: Chapter 5, "Nature and Convention" [OSE1 57ff]; and Chapter 24, "Oracular Philosophy and the Revolt against Reason" [OSE2 224ff].

In this section I shall try to assemble Popper's views on ethics from such scattered discussions and asides, mostly in *Open Society*. My purpose is to ascertain, as far as may be possible, whether Popper's ethical convictions coincided with what we have discovered about the rest of his philosophy.

Popper on Mankind

Like most of us, I suppose, Popper had days when he thought mankind rather fine, others when he was pessimistic. In the Introduction to *The Self and Its Brain* for example, Popper stated (with Eccles) "we believe in... human rationality... We are unimpressed by the recurrent intellectual fashions that belittle science and other great human achievements" [TSIB vii, cf AWP 6]. On another day, in *The Open Universe*, Popper wrote: "in so far as we are calculators, we are miserably bad ones... We construct... electronic brains, simply because we have not got enough brains ourselves" [TOU 107]. In *Objective Knowledge*, he seemed to give up on humans entirely: "not only is man an irrational animal, but that part of us which we thought rational — *human knowledge*, including practical

knowledge — is utterly irrational" [OKN 90]. This echoes an earlier view in *Open Society*:

"From Rousseau onward, the Romantic school of thought realized that man is not mainly rational. But while the humanitarians cling to rationality as an aim, the revolt against reason exploits this psychological insight into the irrationality of man for its political aims. The fascist appeal to 'human nature' is to our passions, to our collectivist mystical needs, to 'man the unknown'" [OSE2 74].

Commenting on the rise of German nationalism, Popper wrote: "Nationalism appeals to our tribal instincts, to passion and to prejudice, and to our nostalgic desire to be relieved from the strain of individual responsibility..." [OSE2 49]. Later, describing Hegel's contribution to German nationalism, he added: "nationalism answers a need — the desire of men to find and to know their definite place in the world, and to belong to a powerful collective body" [OSE2 64].

Some chapters later, Popper quoted Marx's epigram: "It is not the consciousness of man that determines his existence — rather, it is his social existence that determines his consciousness'." Popper stated that he subscribed to this view [OSE2 89], and proceeded to employ it in an attack on John Stuart Mill's opposing position that: "all phenomena of society are phenomena of human nature" [OSE2 91]. Reiterated in Popper's own words, Marx's epigram became:

"Men — i.e. human minds, the needs, the hopes, fears, and expectations, the motives and aspirations of human individuals — are, if anything, the product of life in society rather than its creators" [OSE2 93].

Norms and Facts

In common with many other philosophers, Popper endorsed the fact/value dichotomy. There exist, he said, a world of facts and a world of human values, and never the twain shall meet: "it is impossible to derive norms... from facts" [OSE1 64]. He wrote this before going public on World 3]. Popper did allow that norms (or statements, decisions and proposals about norms) may *pertain* to facts. He even allowed Tarski a possible semantic connection, but he did not believe that the semantical approach was enough "to impair the correctness" of his earlier consideration of "the impossibility of deriving norms from psychological or sociological or similar, i.e. non-semantic, facts" [OSE1 234n5(2)].

Popper was equally positive that ethics could have no "rational scientific basis". This view seems partly based on his conception of "faith in reason"; on the necessity of 'critical give-and-take';⁸⁸ and on the impossibility of certainty. There was little uncertainty, however, in his manner of expressing his point of view: "it is impossible to prove the rightness of any ethical principle, or even to argue in its favour in just the manner in which we argue in favour of a scientific statement. Ethics is not a science" [OSE2 238].

The attempt to reach a scientific ethics Popper saw as a failed "monistic tendency" [OSE1 237n17] and more or less as an evasion of responsibility. His conclusion: "'Scientific' ethics is in its absolute barrenness one of the most amazing of social phenomena" [OSE1 237n18]. For the benefit of those curious about how norms come to be, Popper stated:

"Norms are man-made... we must blame nobody but ourselves for them; neither nature, nor God. It is our business to improve them as much as we can, if we find that they are objectionable.... by describing norms as conventional, I do not mean that they must be arbitrary, or that one set of normative laws will do just as well as another.... I rather imply that we can compare the existing normative laws (or social institutions) with some standard norms which we have decided are worthy of being realized. But even these standards are of our

making... our decision in favour of them is our own decision... we alone carry the responsibility for adopting them..." [OSE1 61].

Remembering supposed common ground with Ayn Rand, it is important to note that Popper criticised, amongst other theories, what he called "biological naturalism"; the view that there are "eternal unchanging laws of nature from which we can derive... [moral] laws" [OSE1 68]. The grounds for his critique were a) such a view can lead just as well to a 'might is right' ethics as to a 'protect the weak' variety; b) conforming to 'nature' does not lead "to a more natural form of civilization, but to beastliness"; and c) those try to live 'according to nature' — e.g. by eating properly to stay healthy — make a decision which is no different from that of those who "cherish other things more than their health" for instance, by risking their health for medical research. The proponent of biological naturalism "is therefore mistaken if he believes... that he has derived his norms from biological laws" [OSE1 68-71].

Popper and Christianity

After observing his denial of the possibility of a scientific ethics, it is perhaps not surprising to find that Popper, who was raised a Lutheran, retained a Christian outlook (although it will be recalled that he also said he could be described as "an agnostic" [TSIB viii]). Thus, while not endorsing "other-worldliness", Popper stated: "I concur with what I believe to be the true teaching of Christianity." This he seems to have understood as "an attitude of utmost reserve and even of contempt towards worldly success"; and the belief that "the only way to prove one's faith is by rendering practical (and worldly) help to those who need it" [OSE2 274].

Popper saw in Christianity an advance from tribal taboos. He wrote of "that Christianity which... against all tabooism... [opposes] in every case the voice of conscience to mere formal obedience and the fulfilment of the law" [OSE1 65]. He interpreted Christianity as individualistic: "individualism, united with altruism, has become the basis of our western civilization. It is the central doctrine of Christianity ('love your neighbour', say the Scriptures, not 'love your tribe')" [OSE1 102]. Popper also found Christian principles noble, referring to: "the demand that the state should protect the weak, a demand which is, of course, anything but ignoble. (The hope that this demand will one day be fulfilled is expressed by the Christian teaching: 'The meek shall inherit the earth.')" [OSE1 117].

Popper was particularly concerned that his readers distinguish the anti-individualism of Plato from true Christianity:

"In the field of politics, the individual is to Plato the Evil One himself.

"This attitude, anti-humanitarian and anti-Christian as it is, has been consistently idealized. It has been interpreted as humane, as unselfish, as altruistic, and as Christian.... But we must also realise that those who, deceived by this identification and by high-sounding words, exalt Plato's reputation as a teacher of morals and announce to the world that his ethics is the nearest approach to Christianity before Christ, are preparing the way for totalitarianism and especially for a totalitarian, anti-Christian interpretation of Christianity. And this is a dangerous thing, for there have been times when Christianity was dominated by totalitarian ideas. There was an Inquisition; and, in another form, it may come again" [OSE1 104].

Expressing the same sentiment in a slightly different form, Popper told us: "The medieval conversion of Christianity into an authoritarian creed could not fully suppress its humanitarian tendencies; again and again, Christianity breaks through the authoritarian cloak (and is persecuted as heresy)" [OSE2 58].

Popper credited Christianity with the growth of science. He quoted the Christian philosopher J. Macmurray:

"Science, in its own field, is the product of Christianity, and its most adequate expression so far; ... its capacity for co-operative progress, which knows no frontiers of race or nationality or sex, its ability to predict, and its ability to control, are the fullest manifestations of Christianity that Europe has yet seen" [OSE2 243].

Popper's approving comment:

"I fully agree with this, for I too believe that our Western civilization owes its rationalism, its faith in the rational unity of man and in the open society, and especially its scientific outlook, to the ancient Socratic and Christian belief in the brotherhood of all men, and in intellectual honesty and responsibility" [OSE2 243-4].

Of Christianity's more general influence, Popper adds later in the same work: "it should certainly be emphasized... how much of our Western aims and ends, humanitarianism, freedom, equality, we owe to the influence of Christianity" [OSE2 271].

"Us Post-Kantians"

Although Christian in outlook, Popper would probably have preferred the designation 'Kantian'. The quotation which forms my heading here is from *The Self and Its Brain* [168] and was written when Popper was about eighty years old. He was referring to the reward of an action not being a moral motivation. I think both the phrase itself, and its context, make it clear enough that Popper remained as an old man what he was in his twenties, "a Kantian in ethics" [UNQ 82]. That this creed was unwavering is suggested by a passage in *Open Society*, a work from Popper's middle years: "we have to aim at something beyond our own selves, something to which we can devote ourselves, and for which we may make sacrifices." More succinctly: "We need an ethics which defies success and reward" [OSE2 277].⁸⁹

It is interesting to contrast these sentiments with the following comment on the *Nicomachean Ethics*:

"The Aristotelian phrase, 'the good life', seems to have caught the imagination of many modern admirers who associate with this phrase something like a 'good life' in the Christian sense — a life devoted to help, service, and the quest for the 'higher values'. But this interpretation is the result of a mistaken idealization of Aristotle's intentions; Aristotle was exclusively concerned with the 'good life' of feudal gentlemen, and this 'good life' he did not envisage as a life of good deeds, but as a *life of refined leisure*, spent in the pleasant company of friends who are equally well situated" [OSE2 284n9].

A Humanitarian Ethics

In a note to Volume 1 of *Open Society*, Popper presented a brief formulation of what seemed to him "the most important principles of humanitarian and equalitarian ethics":

"1) Tolerance towards all who are not intolerant and who do not propagate intolerance.... This implies, especially, that the moral decisions of others should be treated with respect, as long as such decisions do not conflict with the principle of tolerance.

"2) The recognition that all moral urgency has its basis in the urgency of suffering or pain. I suggest... to replace the utilitarian formula... 'Maximize happiness' by the formula... 'Minimise suffering'. Such a simple formula can, I believe, be made one of the fundamental principles... of public policy.... We should realise that from the moral point of view... the promotion of happiness is... much less urgent than the rendering of help to those who suffer...

"3) The fight against tyranny; or in other words, the attempt to safeguard the other principles by the institu-

tional means of a legislation rather than by the benevolence of persons in power” [OSE1 235n6].

Commentary

As an Objectivist, confident that a benevolent ethics of rational self-interest and individual rights can be derived scientifically from the facts of reality — i.e. from the facts of man’s nature — I must say that I found Popper’s ethical opinions and suppositions uninformative and unhelpful. Moreover, it was disappointing to discover that a presumed ‘intellectual ally’ held so many conventional views, and also to find that a philosopher whom I came to admire for the power and clarity of his self-expression, should have proffered such poorly-grounded and poorly-expressed banalities as the underpinnings of a free society.

I was particularly disappointed in Popper’s view of mankind. The overall impression of the statements quoted at the beginning of this section is that humans are, in Popper’s view, anything but heroic. Rather, they seem to be inadequate, irrational, timid little collectivists whose intellectual lives and values are largely determined by their social milieu.⁹⁰ Such an assessment was hardly what I would have expected from the author of a famous attack on totalitarianism and of a treatise on the invalidity of determinism.

I must stress too, that Popper’s interpretation of the influence of Christianity on Western civilization is virtually the opposite of my own. Like his attack on Aristotle, it seems extraordinarily idiosyncratic and unhistorical. As for crediting Christianity with the growth of science, I find this so bizarre I can only assume that, locked away as he was when he wrote *Open Society* in wartime provincial New Zealand (and at log-gerheads with the university authorities, who thought he should lecture, not write [UNQ 119]) Popper was temporarily born again as a disciple of Tertullian, ‘*Credo quia absurdum*’.

Popper’s reaction to the *Nicomachean Ethics* is predictable enough, given his dislike of Aristotle: the passage fairly shudders with disapproval. A life of refined leisure is the last thing a Popperian should pursue. He must rather devote himself to helping others, to duty, to public service, to the ‘higher’ values. Far, far, better Socratic dissatisfaction than porcine, or human, contentment.

In general, I found Popper’s discussion of ethics vague, inconsistent and incomplete. To give an example of his inconsistency; the arbitrariness of ethical norms — which surely must arise in the absence of scientific or God-given ethics — seemed to be disputed clearly in the long passage on normative laws quoted above: “I do not mean... that one set... will do just as well as another” [OSE1 61]. Yet, a few pages later, “a certain element of arbitrariness” is acknowledged [OSE1 65]; an element which becomes both specific and universal a few pages after that: “moral laws... are arbitrary” [OSE1 68]. To illustrate his vagueness or incompleteness: Popper’s principle of tolerance, admirable at first blush, is so weakly-worded that it implies toleration of all kinds of irrational, immoral or offensive behaviour; from blotting out one’s consciousness with drugs, to fraud, to theft, to trying to seduce one’s brother’s wife.

As to fallibilism, I certainly did not notice anything hypothetical about Popper’s ethics. He handed down moral injunctions in the manner of an infallible pope issuing encyclicals. There was neither a nod nor a wink at conjecture and refutation. Which is strange really. Surely the severing of norm from fact sets the stage for an outpouring of ethical hypotheses? The more so because, if truth means correspondence to the facts, as Popper so frequently told us; and if we cannot derive norms from facts, as he has just informed us so emphatically; then plainly no truth can ever be found in ethics. The field is wide open for bold conjecture.⁹¹

TEN: POLITICS

Popper’s politics contain some of his best thinking and some of his worst. His attacks in *The Open Society and Its Enemies* on Platonic and Hegelian totalitarianism, and on more general evils such as tribalism (a.k.a. nationalism) are inspiring; his esteem for Marx, and his advocacy of ‘piecemeal social engineering’, depressing.

In his defense, it needs to be restated that Popper wasn’t particularly interested in the social sciences. He therefore never explored political or economic theory in any sort of depth (i.e., aside from analysing the political ideas of Plato, Hegel and Marx); nor expounded his own political or economic views in anything like a proper treatise. His one major political work, *Open Society*, he christened “my war effort” [UNQ 115]; it was a detour from his normal interests, in a sense forced upon him by war.

But, as the old expression says, ‘tis an ill wind... Because, for all its flaws — and there are many, e.g. the irrational attack on Aristotle — *Open Society* is a philosophic classic: passionate, powerfully written, challenging, dramatic, new; in many ways a mould-breaking and path-setting masterpiece. In its own day, it stirred up a “wasps’ nest” of reactions [UNQ 118] and probably destroyed forever the complacent, ivory tower security of Platonist and Hegelian political theorizing. If he had written nothing else, Popper would have earned a place in philosophy’s Hall of Fame for this book alone.

Karl Marx

If Jesus of Nazareth and Immanuel Kant were the sources of Popper’s ethics, Karl Marx was the fountainhead of his political views. To be sure, even at the tender age of seventeen, Popper had seen through dialectical materialism and Marx’s ‘historicism’. Later, in *Open Society*, he subjected Marxism to a 50,000 word critique. Nevertheless, Marx remained a hero and an inspiration. Even though Popper learned in the late 1940s “shattering” evidence that Marx was far from being the intellectual pioneer and humanitarian portrayed in *Open Society*, he waited until 1965 to acknowledge this publicly. Further, Popper neither modified nor retracted the highly flattering but totally inaccurate portrait of Marx the man which, like a theme in counterpoint, takes most of the sting out of Popper’s critical analysis of Marxism.

Marx and History

To set the stage for Popper’s treatment of Marx and Marxism, it needs to be stressed that Popper disapproved of the “unrestrained capitalism” of the 19th Century: “I consider the economic policy of non-intervention of the early nineteenth century as undesirable, and even as paradoxical” [OSE2 327n10]. More specifically, “Marx lived, especially in his younger years, in a period of the most shameless and cruel exploitation... cynically defended by hypocritical apologists who appealed to the principle of human freedom, to the right of man to determine his own fate, and to enter freely into any contract he considers favourable to his interests” [OSE2 122]. Popper added: “I believe that the injustice and inhumanity of the unrestrained ‘capitalist system’ described by Marx cannot be questioned” [OSE2 124]. Popper thus saw Marxism as a “reaction against... oppression”. Marx’s prophecy of the victory of the proletariat was “his reply to one of the most sinister periods of oppression and exploitation in modern history” [OSE1 203n3; remaining Marx quotes from OSE2].

The Portrait of Marx

Marx’s “burning protest” against these “crimes”, will, said Popper, “secure him forever a place among the liberators of mankind” [122]. There can be no doubt of his “humanitarian impulse” [81]. Marx made “an honest attempt to apply rational methods to the most urgent problems of social life... He op-

ened and sharpened our eyes in many ways. A return to pre-Marxian social science is inconceivable. All modern writers are indebted to Marx, even if they do not know it" [81-2]. Popper continued:

"One cannot do justice to Marx without recognizing his sincerity. His open-mindedness, his sense of facts, his distrust of verbiage, and especially of moralizing verbiage, made him one of the world's most influential fighters against hypocrisy and pharisaism. He had a burning desire to help the oppressed, and was fully conscious of the need for proving himself in deeds.... he devoted immense labour... to improve the lot of the vast majority of men. His sincerity in his search for truth and his intellectual honesty distinguish him... from many of his followers..." [82].

Marx "hated preaching" [199]. Even his mistaken theories, "are proof of his keen sociological insight into the conditions of his own time, and of his invincible humanitarianism and sense of justice." [121] He was an "optimist" with a "love for freedom" and "certainly not a collectivist" [200]. Rather, he was "an individualist" whose main interest was "to help suffering human individuals" [319]. "Marx's faith, I believe," said Popper; "was fundamentally a faith in the open society" [200]. Finally, early Marxism, with its "ethical rigour" and "tremendous moral influence", may be "the most important corrective idea of our time" [201].

Marx's Intellectual Achievements

Despite pointing out that Marxism was a "bad guide to the future" which "renders its followers incapable of seeing what is happening before their own eyes" [141]; Popper maintained that, "we have to admit that it is an imposing edifice" [133]. Marx was, in fact, "the last of the great holistic system builders" [134].

As a sociologist, Marx's "greatest achievement" was to criticise Mill's idea "that the laws of historical development must be explicable in terms of *human nature*" [88]. Marx's contrary approach involving "a specific realm of sociological laws" was a "more penetrating conception" containing views "of lasting merit" [88]. Marx's theory of the state, "undoubtedly furnishes an enlightening interpretation of his own historical period". Although the theory has been successfully criticised, "there can be little doubt about the value of the Marxist interpretation as a first approximation, and about the service rendered to his successors in this field" [121]. Marx's examination of institutions was in fact where he was most successful, and revealed "Marx's own high standards" of analysis [197]. In sum, Marx made "serious and most important contributions to social science" [253].

As an historian, Marx's "terrible picture" of the economy of his time is "only too true" [186]. Although Popper discredited Marx's powers as a prophet very thoroughly, he allowed that Marx's historical prophecy was, "a closely-knit argument" [136]. Part of it, Popper was prepared to grant, "followed from its premises"; namely that: "all classes except a small ruling bourgeoisie and a large exploited working class are bound to disappear, or to become insignificant.... Not only is the number of the bourgeoisie small, but their physical existence, their 'metabolism', depends upon the proletariat. The exploiter, the drone, starves without the exploited... if he destroys the exploited then he ends his own career as a drone" [137].

As to Marx the economist, "Marx's economism can be said to represent an extremely valuable advance.... [its] *general importance... can hardly be overated...*" [107]. "The tendency towards the accumulation and concentration of wealth, which Marx observed, can hardly be questioned" [169]. Marx's derivation of the theory of surplus value from the labour theory of value was "brilliant" [172]. It was "a theoretical success of the first order" which permitted a "really astonishing number of

further applications" [173]. Popper did criticize the theory for being inadequate, redundant and "essentialist" [174-7] but concluded that "even if Marx's analysis was defective, his effort to explain the phenomenon of 'exploitation' deserves the greatest respect" [178]. Elsewhere, aspects of the exploitation theory were described as "ingenious and interesting" [179], "ingenious" and "admirable" being used several times by Popper to describe Marx's theories [117, 147, 183, 193]: Marx saw many things "in the right light" [193]. As for boom and bust, Marx's speculations on the trade cycle are "most valuable", the mere fact that he addressed the problem being "greatly to his credit" [196].

In outlining Popper's kid-glove treatment of Marx (which contrasted so sharply with his withering attacks on Marx's mentor, Hegel, and with his caustic dismissal of Aristotle) I do not wish to belittle or dismiss the force or scope of Popper's criticism of Marxism. Popper noted, for example, that the rising standard of living of workers everywhere is a "glaring refutation of Marx" [183] and he showed in several different ways that various of Marx's arguments, theories, and historical prophecies were "completely wrong" [e.g. 185] or "false" [187]. Nonetheless, just as Popper's treatment of Aristotle reveals deep antagonism, the lasting impression created by his treatment of Marx is of an overwhelming — almost fawning — approval, and of the deepest sympathy and respect.

The Red Prussian

Although it may seem a rather long digression, I do not believe one can properly assess Popper's view of Marx without examining some of the 'shattering evidence' referred to earlier. This was presented in a book called *The Red Prussian* by Leopold Schwartzschild, published in London in 1948. Sadly, the book has never received the credit and publicity it deserves. It was out of print for decades and, owing to the power of the Marxian myth, particularly in Academia, even so prominent a scholar as Anthony Flew was unable to persuade publishers to reprint it.⁹²

The Red Prussian is a critical biography of Marx based exclusively on original sources such as the Marx-Engels correspondence. Marred only by a bantering tone, it is as dramatic a piece of demythologising as one could wish to read. The Marx disclosed is totally unlike the common picture of a saintly humanist and scholar, slaving in poverty to realise a vision of peace and prosperity for the downtrodden. The brief synopsis which follows hardly begins to do justice to Schwartzschild's work.

The personality of the man is one of the greater shocks. Schwartzschild's Marx is a devious, vindictive, dishonest, mean-spirited drunkard; an irresponsible spendthrift who lived virtually his entire life as a parasite, dependent on handouts obtained either by false pretences or by outright lies, or by begging from family, friends and unwitting supporters. The dedicated and hard working scholar is exposed as a garrulous layabout who interspersed long periods of idleness with bursts of frantic activity usually motivated by hatred and envy of rivals.

The great economist and original theoretician turns out to be an inveterate second-hander who loathed economics — this "economic muck" he called it [e.g. 245] — and who purloined most of his ideas from other socialists. Where Marx was at all original, his self-styled 'scientific discoveries' were dreamed up out of whole cloth long before he so much as opened a book on economics and literally decades before he had a shred of evidence to support them. The famous years in the British Museum library were actually spent in acute boredom trawling for anything he could possibly force into the Procrustean bed of preconceived notions. (Schwartzschild of course details thearrant nonsense of which Marxism consists.)

As for Marx being a great humanitarian, Schwartzschild shows that he was driven not by sympathy for the poor, but by a fierce resentment of the rich and powerful. His mind swirling with Hegelian abstractions, Marx actually had little feeling for real human beings (apart from his wife and children), although he did greatly admire the aristocracy. The ‘proletariat’, on the other hand, he despised with all the scorn a snobbish bourgeois intellectual could muster. He saw the workers — “those asses” [212] — purely and simply as a means for satisfying his own vaunting ambition for fame, influence and power.

The celebrated cosmopolitan of the International was in fact a rabid German racist and, though he was of Jewish descent, even an anti-semite when it suited him. In dozens of hate-filled letters he labelled a more famous rival “Izzy the bounder”, “the little Jew”, “Ephraim Smart”, “Baron Izzy” and “the little kike” [233].

Marx the pacifist was in truth a warmonger who on many occasions expended enormous energy advocating and agitating for war in the hope of profiting from the ensuing chaos.

The parallels between Marx and Hitler are quite startling: a small and unprepossessing physique; frustrated artistic ambition (Marx failed as a poet); fervent nationalism; a powerful presence and the gift of the gab; a strong taste for violence; an equally strong contempt and distaste for liberalism and democracy; an insane desire for power and domination: the descriptions are interchangeable.

Besides an insatiable lust for power, the great themes of Marx’s life and character were paranoia over any real or imagined threat to his position as sole *führer* of European socialism, and the most violent hatred of anyone who became, or who seemed capable of becoming, more successful in the cause than he did. He went to incredible lengths to slander, vilify and purge from his various organisations anyone who showed the least sign of superseding him or of disregarding his pre-eminence.

Marx’s character was perfectly clear to his contemporaries. Bakunin described his “crazy theories” and “discontented self-satisfaction” [146]. Later, he wrote of the “underground intrigue, pointless machinations, wretched personal quarrels, dirty vituperation, and infamous slanders” [346] which Marx and his “sulphur gang” introduced into the International. One such slander was Marx’s widely disseminated lie that Bakunin was a Czarist agent.

Another contemporary, Carl Schurz, who became an American Senator and US Secretary of the Interior, described Marx’s behaviour at a conference in 1848:

“Never have I met a man of such offensive, insupportable arrogance.... Everyone who disagreed with him was treated with scarcely-veiled contempt. He answered all arguments which displeased him with a biting scorn... or with a libellous questioning of their motives. I still remember the cutting, scornful tone with which he uttered — I might almost say ‘spat’ — the word ‘bourgeois’; and he denounced as ‘bourgeois’ — that is to say as an unmistakable example of the lowest moral and spiritual stagnation — everyone who dared to oppose his opinions” [188].

The “disgusting intrigues” and “mean gossip” which Marx and his circle indulged in were attested to by one Lieutenant Techow, an exiled revolutionary of 1848. Although impressed by Marx’s intellectual power, dominating personality, and leadership qualities, Techow wrote: “If his heart matched his intellect, if he could love as intensely as he can hate, then I would go through fire and water for him.... But I am convinced that personal ambition in its most dangerous form has eaten away anything that was good in him.... everything he does is aimed at the acquisition of personal power” [211].

Another who understood Marx clearly was the famous socialist lawyer, scholar and politician, Ferdinand Lasalle, whom Marx hated as much for his social graces as for his success, and to whose friendship and frequent help Marx responded with hatred, calumny, perfidy and hypocrisy (it was he whom Marx called “the little kike” etc). Lasalle was unruffled, even joking about Marx’s paranoia: “Marx is the Marat of our revolution. There is no treachery that anyone can think of that Marx will not get wind of in advance. And he will get wind of a good deal of treachery that no one would dream of thinking” [245].

The last word here goes to Dr Arnold Ruge, who was for many years a target of Marx’s envy and hatred, and who suffered a great deal from the vendettas and slanderous assaults Marx orchestrated. Ruge summed him up neatly in 1844: “Baring his teeth and grinning, Marx will slaughter everyone who blocks his path” [98].

Difficult Questions

Popper was probably the most prolific footnoter, appendix writer and self-reviser in the history of philosophy.⁹³ The Notes to Volume 1 of *Open Society*, for example, are substantially longer than the text. The two volumes together have over fifty pages of appendices. The work also went through three revised editions in the years immediately following publication of *The Red Prussian*. Yet Popper waited until the very last page of the Fifth Edition (1966) before admitting that he had read Schwartzschild’s book. Even then, this most prolix of modern thinkers dealt with Leopold Schwartzschild’s evaluation of Marx in just one short paragraph — less than 150 words — in which Popper carefully threaded together aspersions about Schwartzschild’s scholarship with reluctant acknowledgement that the biographer had a case:

“Some years after I wrote [*Open Society*], Leopold Schwartzschild’s book on Marx... became known to me. There is no doubt in my mind that Schwartzschild looks at Marx with unsympathetic and even hostile eyes, and that he often paints him in the darkest possible colours. But even though the book may not always be fair, it contains documentary evidence, especially from the Marx-Engels correspondence, which shows that Marx was less of a humanitarian, and less of a lover of freedom, than he is made to appear in my book. Schwartzschild describes him as a man who saw in ‘the proletariat’ mainly an instrument for his own personal ambition. Though this may put the matter more harshly than the evidence warrants, it must be admitted that the evidence itself is shattering” [OSE2 396].

The rest is silence. To my knowledge Popper never published another word on the subject in the nearly three decades of active philosophising which remained to him.

So we have to ask, why did Popper wait fifteen years or more to acknowledge Leopold Schwartzschild’s work? Why did he then do no more than hint that he might have been wrong about Marx? Why did he not take advantage of one of the four revisions of *Open Society* to modify the inaccurate portrait he had given us? After a lifetime spent urging us to criticize, and never to accept authority, why did Popper leave Marx on the pedestal he had built for him and which Marx was so far from deserving? Over one third of Popper’s most famous work had been drastically falsified, yet this celebrated critical rationalist had nothing to say?⁹⁴

He certainly had the *opportunity* to say it. Professor H.B. Acton of the University of Edinburgh wrote in 1966 that according to Popper “Marx was primarily concerned with achieving freedom for individual men and women” and that nothing published in the twenty years since *Open Society* had appeared required “any radical modification” of this view [PKP2 876]. Why did not Popper enlighten the good professor when he wrote his 1974 response to him in “Replies to My Critics”?

Popper did “plead guilty” to having “idealized the picture of Marxism” over some minor points, but there was not one word about Schwartzschild [PKP2 1162-5].⁹⁵

Difficult questions indeed. To be fair to Popper, it must be said that he did not have the Marx-Engels correspondence to hand when he wrote *Open Society*, nor many of the other sources Schwartzschild used. Secondly, social science was not his field, and a major rewrite would have taken him from other work he regarded as more important. Then again, nobody likes to be that wrong, and a major climbdown might have dented his academic respectability just when he was settling into a new career in England. Finally, Popper’s view of Marx — as a great humanitarian and important thinker — was probably just about universal amongst his academic peers, LSE was a hotbed of socialism for much of the century. There would have been no great clamour for revision from that quarter.

The problem is more one of honesty and consistency. Popper knew that he had been proven very seriously wrong. In my view he owed it to himself, to his philosophy, to his students, and to influential readers (such as the budding politician Margaret Thatcher, who greatly admired *Open Society*) to tell the truth. He chose not to. Why?

I conjecture four main reasons. I give these now although in so doing I shall get ahead of myself somewhat. In the first place, I think Popper had a genuine sympathy for the poor, having left his comfortable home to live and work among them in the difficult times after World War I [UNQ 39]. Even though he may have realised that he had been taken in by the tear-jerking propaganda in *Capital*, sympathy for the poor, and his Christian ethics, may have led him to cling to his own interpretation of Marx as a humanitarian.⁹⁶

Secondly, although he rejected as ‘Utopian’ Marx’s advocacy of a comprehensive reconstruction of society, Popper nonetheless believed wholeheartedly in doing the job bit by bit. As a social engineer himself, he would perhaps have found it difficult and unrewarding to rewrite the third of *Open Society* which is devoted to Marx and to his own politics.

I also suspect that Popper, deep down, was as uncertain of himself as he was of everything else — a fallibilist, no less. My surmise is based on reports that, in public, Popper was often rude and aggressive,⁹⁷ a sure sign of inner unease. He was also, in my view, an intellectual show-off. One of the most marked features of his literary style is bombarding the reader with often obscure philosophical allusions; with endless cross-references to his own work; and with page after page of propositional algebra. Attempting to blind people with science is always a cloak for insecurity.⁹⁸ There is, besides, that incessant, nagging restatement and reworking of his ideas. Popper was always worrying away at his theories, not in a manner which suggested self-criticism, rather one which suggested self-doubt. For these reasons I believe that Popper waited until after he had been knighted before letting on that he might have been wrong about Marx. As *Sir Karl*, his position was secure; above, and possibly beyond, criticism.

Finally, I think it reasonable to guess that Popper recognised, if only on a subconscious level, that he and Marx were two of a kind, at least in one respect. Marx was guilty of the logical fallacy of *pars pro toto*, of mistaking the part for the whole. As Schwartzschild reminded us — in more than one place [e.g. 244] — Marx built his theories on the labour theory of value. Yet, in reality, labour is just one element in the formation of a price, monetary or otherwise. In very much the same way, as I will soon show, Popper built critical rationalism on just one aspect of a wider principle of philosophy: *pars pro toto*, he mistook the part for the whole. As Aristotle remarked, a friend is another self. I think Popper recognised one in Marx.

The Social Engineer

A hint of what to expect from Popper’s politics can be found early in *Open Society* where we read of “a world which does not, and cannot, live up to our moral ideals” [OSE1 5].

When one then discovers, at the core of these ideals, precepts such as, ‘the only way to prove oneself is by rendering practical help to those who need it’; and, ‘to minimise suffering can be made one of the fundamental principles of public policy’, one begins to understand why Popper more than once quoted Marx’s aphorism: “ ‘The philosophers have only *interpreted* the world in various ways: the point, however, is to *change it* ’ ” [POH 51, cf OSE2 84].

Unsurprisingly, Popper did not believe in natural rights. This appears to be due more to his vehement opposition to ‘essentialism’ rather than to fallibilism. In refusing to allow that anything has an ‘essential nature’, he would not agree that ethical or political principles could be derived from the ‘nature of man’. He thus referred to rights dismissively as “allegedly ‘natural’ rights” [OSE1 72], and suggested that the philosophy of “spiritual naturalism” which gave rise to them was “so wide and so vague that it may be used to defend anything” [OSE1 73]. Views on rights which differed from his own Popper dealt with only in the most general terms or not at all. For instance, neither Locke nor Spencer are mentioned in his very brief appraisal of other political theories, although Paine’s name does pop up once [OSE1 73].

Another view of rights appears momentarily. In a discussion of what he calls the political “aestheticism” of Plato and Marx, “the desire to build... a really beautiful new world”; Popper says we should demand, rather, “that every man should be given, if he wishes, the right to model his life himself”. The source of this gift, and what happens to a man who does not wish to ‘model’ his life, is not specified. However, we can perhaps guess answers to such questions from a following sentence: “Politics, I demand, must uphold equalitarian and individualistic principles; dreams of beauty have to submit to the necessity of helping men in distress, and men who suffer injustice; and to the necessity of constructing institutions to serve such purposes” [OSE1 165].

The kind of institutions Popper had in mind had been spelled out earlier. In contrasting his own advocacy of “piecemeal” as opposed to Platonic or Marxian “Utopian” social engineering, Popper wrote: “blueprints for piecemeal engineering are comparatively simple. They are blueprints for single institutions, for health and unemployment insurance, for instance, or arbitration courts, or anti-depression budgeting, or educational reform. If they go wrong, the damage is not very great, and a re-adjustment not very difficult” [OSE1 159].⁹⁹

Popper’s conception of the proper role of the State, and of the derivation of that role, is made explicit in Volume 2 of *Open Society*:

“the injustice and inhumanity of the unrestrained ‘capitalist system’ described by Marx cannot be questioned; but it can be interpreted in terms of... the *paradox of freedom*. Freedom, we have seen, defeats itself, if it is unlimited. Unlimited freedom means that a strong man is free to bully one who is weak and to rob him of his freedom. This is why we demand that the state should limit freedom to a certain extent, so that everyone’s freedom is protected by law. Nobody should be at the *mercy* of others, but all should have a *right* to be protected by the state.

“Now I believe that these considerations, originally meant to apply to the realm of brute-force, of physical intimidation, must be applied to the economic realm also.... economic power may be nearly as dangerous as physical violence; for those who possess a surplus of food can force those who are starving into a ‘freely’ ac-

cepted servitude, without using violence.... a minority which is economically strong may in this way exploit the majority of those who are economically weak.

“... the nature of the remedy is clear. It must be a *political* remedy.... We must construct social institutions, enforced by the power of the state, for the protection of the economically weak from the economically strong.... We must demand that unrestrained *capitalism* give way to an *economic interventionism*” [OSE2 124-5].

Popper’s pessimistic view of man, which I presented earlier, extended to the belief that wealth was impossible without a strong state to protect it: “it is only the active intervention of the state — the protection of property by laws backed by physical sanctions — which makes of wealth a potential source of power; for without this intervention, a man would soon be without his wealth. Economic power is therefore entirely dependent on political and physical power” [OSE2 128].

In advocating ‘piecemeal social engineering’, Popper was fully aware of “that most fundamental problem of all politics: the control of the controller, of the dangerous accumulation of power represented in the state”. However, he thought that the “full significance of democracy” is that it is “the only known means to achieve this control” [OSE2 129].¹⁰⁰

Finally, although he recognised “the tremendous benefit to be derived from the mechanism of free markets” [OSE2 124], Popper thought (in 1943) that “much remains to be done” in the way of “democratic interventionism”. However, he was pleased to report that: “Unrestrained capitalism is gone. Since the day of Marx, democratic interventionism has made immense advances, and the improved productivity of labour — a consequence of the accumulation of capital — has made it possible virtually to stamp out misery” [OSE2 187].

A Brief Comment

I have included this anthology of Popper’s political ideas more for completeness’ sake than out of any desire to discuss or criticise his views. As with his ethics, I was disappointed that this great crusader against totalitarianism should turn out to have such conventional and uninteresting political opinions. One might indeed have a field day tearing them to pieces, but since interventionism and welfarism were intellectually demolished long ago by the likes of Ludwig von Mises, Henry Hazlitt, Murray Rothbard and many others, any comments of mine would be redundant.

One cannot help wondering, however, if Popper’s ideas on the merits of social engineering, and on the ease with which policies can be changed, survived into the Eighties. The disasters of the British Planned Economy and Welfare State surely could not have escaped even his rose-tinted spectacles.

He wrote for example, that “what I call piecemeal social engineering is intended to make men free to run their own affairs” [PKP2 1169]. Oh? Well, whatever its *intentions*, piecemeal social engineering in Britain has *in fact* reduced its once proud people to a state of near serfdom. Further, it has created an enormous dependency culture in which a third or more of the people are parasites on the remainder, while incessant deficit spending and inflation, required to ‘pay’ for the engineering, have not only destroyed untold billions of hard-earned savings, but have tied the massive burden of an incalculably vast mortgage around the necks of our children and grandchildren.

It will be interesting to see if Popper’s private papers reveal any second thoughts. Personally, I doubt it. His published writings show Popper to have been extremely firm in his opinions, opinionated even. Although he did publicly climb down more than once, and spoke of having to eat “humble pie” [OKN 241], I am sure the latter statement was made tongue-in-cheek: this essay has already made clear that Popper was much more inclined to cling to his views at all costs.¹⁰¹

I am not alone in this contention. *The Times* obituary, for example, recorded Popper’s reputation as “a difficult man”. *The Daily Telegraph* said: “Popper’s belief in his own infallibility was remarkable.” Lastly, Jim McCue, writing in *The Times Magazine* on May 13, 1995, reported that Popper’s students at the London School of Economics perceived him as so intolerant of contradiction that they used to joke about “The Open Society by one of its enemies”.

Popper’s temperament aside, fallibilism would deny certainty in political theory as elsewhere, specifying instead endless trial and error. In actual, day-to-day politics, such beliefs would be more likely to lead to perpetual tinkering rather than to any willingness to admit that one’s basic interventionist premises might be wrong.¹⁰²

CONCLUSIONS

After considering various aspects of Popper’s attack on induction, and finding it wanting, it may be fruitful to begin the concluding remarks of this essay with a brief look at induction in practice, and at Popperian fallibilism, in a sort of competitive comparison of the two theories.¹⁰³

Induction

That induction is the normal, natural and valid process for discovering knowledge is, I think, rather more than strongly suggested by the exercise I have gone through during the last 18 months. Prior to August, 1994 — aside from glancing at *Open Society* in Foyle’s bookshop in London some years ago — I had not read one word of any Popper book and had no first-hand knowledge of Popper’s ideas.¹⁰⁴

Since Popper granted, as we saw earlier, that when one is reading Popper one is indeed reading Popper, I assume he would also grant that, having read a dozen volumes of his work, and having hopefully demonstrated this to the reader by means of generous quotation, I do indeed now have some knowledge of what he wrote and thereby of what he thought.

But how did I obtain this ‘knowledge’? I went through no process of conjecture and refutation. With no personal acquaintance of what Popper had written, I had no prior theories, anticipations, guesses or feelings about what I might find;¹⁰⁵ although I did assume, due to his reputation and the praise I had seen heaped upon him, that his work would be interesting and persuasive.

Anyhow, I came, I read, I judged. I simply found out about Popper, in exactly the same way I would find out about any author of whom I knew nothing: by opening a book and reading.

Yet Popper asks me, us, to believe that what I read is hypothetical? That the quotations I have tried faithfully to copy out accurately are tentative, because my eyes and brain are controlled by pre-programmed theories? That the Popper books piled in front of me now — like that famous fly of his — are mere conjectures?

I’m sorry, but I find the whole concept of fallibilism irredeemably unpersuasive. I have found myself wishing that Popper had had his house burgled. I would like to have seen his reaction to policemen taking fingerprints, and later the judge’s reaction to Popper when the philosopher advised him gravely that the defendant should be set free because although his fingerprints matched those found all over Popper’s study they were merely conjectural, as was the sackful of Popperian loot found stashed in the defendant’s attic.

Fallibilism’s lack of persuasiveness is reinforced when we consider any one of Popper’s major critical efforts. Take Plato’s politics. People had for centuries regarded it as one of the great contributions to human thought. Along comes Popper.

In Volume One of *Open Society* he went through the *Republic*, *Laws*, etc, not just with the proverbial fine-toothed comb, but with a sort of remorseless philosophical laser (though some have argued that he got even that all wrong).¹⁰⁶

Yet not once during this great critical exercise did Popper give any hint that he regarded the object of his study as conjectural. His method was purely, ineradicably *inductive*. He took Plato's dialogues as fact, examined them line by line in search of evidence, and generalised his conclusions. In what way is this different from Copernicus's rethinking of observed epicycles, or from Einstein's re-examination of the evidence that had led Newton to his mechanistic conclusions? Copernicus, Newton, Einstein: *they* certainly thought they were thinking inductively, and nothing in all Popper's writing establishes that they were not.

I have mentioned evolution more than once. Popper called Darwinism "a brilliant scientific hypothesis" about "a host of biological and palaeontological observations". He added, in a footnote: "I see in modern Darwinism the most successful explanation of the relevant facts" [POH 106]. Some thirty years later Popper confirmed that he was "very ready to accept evolution as a fact" [UNQ 167].¹⁰⁷

"What have we here?" our policemen might ask. A scientific hypothesis based on a host of *observations*? But what about theories coming *before* observations? And are not observations limited to what our 'expectations make relevant'? Yet an 'hypothesis' is now to be accepted as a 'fact' and *not* as a conjecture?

Popper's problem is of course that the theory of evolution is just about as inductive as you can get. There they were, all those billions of silent, stony witnesses; inescapable, lying around all over the globe; a host of inexplicable, *incorrigible* observations; teasingly in front of people when they went to sleep, and relentlessly there again in the morning when they woke up. Every test human ingenuity could devise said the fossils were made of rock, and every test anybody else could imagine said they had once been alive. They were just there, incontrovertible concrete facts, a puzzle and a mystery through all the centuries from *Historia Animalium* to *The Origin of Species*.

Yet induction is a *myth*? Evolution itself genetically incorporated the interpretation of the fossil record into Charles Darwin? He didn't actually need to *see* any fossils, then? Handy tool, fallibilism. Seems irrefutable to me.¹⁰⁸

Popper came up with a rather neat, if coy, way out of this dilemma. He stated solemnly in his autobiography, *Unended Quest*: "I have come to the conclusion that Darwinism is not a testable scientific theory, but a *metaphysical research programme*" [UNQ 168].¹⁰⁹

Fallibilism

All of which leads back to my own by now frequently restated conclusion that fallibilism, as a theory of knowledge, is false. That this lengthy exercise has been necessary is of course due to Popper's reputation, to the volume of his work, and to the undoubted interest of a lot of what he wrote. Nevertheless, it is a real puzzle to me why more philosophers have not joined Reichenbach and, later, Anthony Flew, in rejecting Popperian fallibilism out of hand.¹¹⁰

I shall shortly conclude this essay by going into the grains of truth which I think explain this phenomenon, but let us dwell for a moment on some of the things which spring to mind as Popper waffles on and on about how we never know what we are talking about.

One thinks of a toothache. Will a dentist be impressed if he is informed by a patient that his knowledge of the function of nociceptors and A-delta nerve fibres is criticizable? That his

diagnosis of a cavity must be refutable to be scientific? That the existence of dental caries is in any case hypothetical?

One thinks of Harvey and the circulation of the blood. Once, that was indeed a bold conjecture. But does anybody nowadays seriously wish to maintain that Harvey's theory is refutable? Or that we don't know what we are talking about when we say that blood circulates in the human body?¹¹¹

One thinks of human reproduction and the old joke about being a little bit pregnant. Were Simon and Jenny Popper, or any other couple then or since, uncertain about the biological facts underlying the consequences of their unions?

One thinks of Hiroshima and Nagasaki. Would Popper or one of his disciples¹¹² stand at the wartime memorials of those cities and declaim that nuclear fission is falsifiable, that atomic weapons are a surmise?¹¹³

It is perhaps such gratuitous offenses to common sense more than anything else which make fallibilism so immediately suspect. I mean, who in their right mind would ever get on a plane, or even go near an *airport*, if they were told that the modern scientific theory of jet propulsion was mere 'conjecture'? As for American astronauts, there can be only one word for their trust that rocket power would take them to the moon: lunatic.

Perhaps the penultimate word should go to Popper. In *The Poverty of Historicism* he came out with the risible admission that, after scientific statements have passed a great number of severe tests, "their tentativeness may cease to be obvious" [POH 131].¹¹⁴

Bacon's Chapeau

Decades ago, when I was briefly a student in France, I was struck by a curious custom in the university cafeteria. Whenever a young man came in wearing any sort of hat — it was midwinter in mountainous country and freezing outside — great cries of "*Chapeau! Chapeau!*" went up. I never did figure out whether the outcry was directed at the elegance or oddity of the headgear — some samples were pretty peculiar; at the lack of manners of the wearer — indoors with his hat on; or at his cowardice — in not enduring frostbite like the rest of us.

Be that as it may, I often felt like shouting "*Chapeau!*" when reading Popper, because the last thing to say about fallibilism is that it tells us nothing new. Critical rationalism is merely an alternative way of asserting that we are not omniscient. But what rational philosopher ever asserted that we were? Popper's endlessly repeated refrain that we learn by trial and error is banal: it "quite unnecessarily elaborates what nobody contests" [C&R 248n31].

All Popper has actually done is to take a single aspect of induction — disconfirming instances, known to every student of logic since the time of Francis Bacon — and, his head spinning from the shock of Einstein's rewrite of cosmology, tried to elevate this one isolated premise to the status of a philosophical system: *pars pro toto*.¹¹⁵

Any child who ever got involved in a 'did-didn't' spat; any accused or advocate who ever offered up an alibi — and the judge who pondered its veracity — could have told us all we needed to know about fallibilism. It is not a *replacement* for induction, it is an exaggerated focus on the *negative element* of induction.

And it is this, of course, which gives fallibilism its appeal, its veneer of verisimilitude. For critical rationalism does indeed involve important truths. We are *not* omniscient. We *are* fallible. Disconfirming instances *must* be sought and, where not found, anticipated at any and all times.

It was perhaps the novelty of Popper's forcefully expressed views, and their sudden appearance in a distinctly barren philosophical landscape, which hid fallibilism's partiality and the fact that it owed most of its authority to much wider truths

which Popper left unstated. Like a polished conjuring trick, fallibilism can impress, even dazzle; but closer examination reveals both its author's sleight of hand, and the old hat from which his philosophy was plucked.

Popper and Libertarianism

Which finally brings us back to the theses of this paper. Did Popper provide a philosophic basis for libertarianism? Is Popper's critical rationalism a substitute for Objectivism?

To the first question our answer must be an emphatic 'no'. While I certainly think that *The Open Society and Its Enemies* can be studied for the light it throws on Plato or Hegel's politics, no libertarian needs me to tell him or her that Popper's weakly-argued 'democratic interventionism' — based as it is on a seriously flawed epistemology — should be avoided like the plague.

Much more than this though, by its very own account, Popperian fallibilism cannot serve as a *foundation* for anything. The whole point of the fallibilist exercise is to deny justification. For that reason alone Popper's philosophy cannot possibly be used to justify libertarianism, or for that matter to justify any concrete proposal for *anything*, whether epistemological, ethical, or economic.

Economics in particular may not rely on Popperian support, and much of modern libertarianism is economic in origin. For all the principles, arguments, and facts of economics are based on *past instances*. Therefore, all the *predictions* of laissez-faire economics — the heart and soul of libertarian theorising — are specifically *disallowed* by Popper's rejection of induction.

In one of his most famous metaphors Popper likened the basis of scientific knowledge to piles driven into a swamp.¹¹⁶ Well, he said it. I have nothing to add.

The Spell of Popper

What I do wish to add is a caveat about the undoubted interest and attraction of Popper's writing. Just as Popper himself warned us against the 'spell' of Plato, I think an alarm needs to be sounded over the 'spell' of Popper. This is particularly so now that Popper is being marketed as a libertarian: his books stocked and advertised by that fount of genuine good works, Laissez-Faire Books in San Francisco, and philosophers of the calibre of Wallace Matson telling us that he had "much in common" with one of the genuine heroines of modern libertarianism, Ayn Rand.¹¹⁷

Popper was a powerful and sometimes inspiring writer of enormous erudition.¹¹⁸ Many of his stated positions — his public endorsement of realism and objectivity, and opposition to determinism and subjectivism — are ones with which we can readily agree. There is a clear danger, however, that respect for Popper's sound views; combined perhaps with admiration for his scholarship and for the clarity of his writing; might draw the unsuspecting into believing that Popper's heroes — Plato, Hume, Kant, Marx — are worthy of deeper study and more respect than they actually deserve.

There is an even greater danger, perhaps, that the philosophically unwary might be drawn into unwitting acceptance of the subjectivism, determinism and idealism which lie hidden beneath the surface of Popper's thought. I am the first to acknowledge Popper's merits, but I believe his charm, power and authoritative style could prove a snare and a delusion.

I certainly think Matson's comment is seriously overstated. Whether Popper was a genuine realist and proponent of reason or not, Rand would have been appalled to see her name associated with someone who so caustically disdained Aristotle; who preferred Plato, Hume, Kant and Marx; and who endorsed altruism, interventionism, and the welfare state.

I do however understand the view of those who find something in common between Popper and Rand. I am sure, for

instance, that Popper's heart was partly in the right place. He was inclined to 'our side of the fence'. His critiques of historicism, totalitarianism, nationalism and racism, for example, were as genuine as they were praiseworthy.

They were also brave. It takes courage to launch assaults on 'great' philosophers such as Plato and Hegel, especially when exiled far from home, using a language not one's own, and relatively early in one's career. It was courageous too, in a time when 'national self-determination' had assumed the status of Holy Writ, to condemn it as "a myth", as "irrational", and as "a dream of... tribal collectivism" [OSE2 51]. Even more so was it brave, as a person of Jewish descent, to decry the time-honoured, 'politically correct' cliquishness of Judaism: "racial pride is not only stupid but wrong, even if provoked by racial hatred. All nationalism or racialism is evil, and Jewish nationalism is no exception" [UNQ 105; OSE2 22-3].

An Open-Ended Parallel

The Rand/Popper connection I prefer is Robert Hollinger's milder version, that there are certain 'parallels' between Rand's and Popper's thought. And the parallel which struck me most forcibly — the one which I think provides Popper's philosophy with the largest of its 'grains of truth' — is the loose, but clear enough relationship between fallibilism (which we now know to be 'negative induction') and Rand's description of concepts as 'open-ended'.¹¹⁹

Take the discovery of heavy water, which Popper used to support fallibilism. He wrote: "Prior to this discovery, nothing more certain and more settled could be imagined in the field of chemistry than our knowledge of water" [OSE2 374]. But the discovery of a new kind of water, Popper held, *overthrew* our knowledge of ordinary water: "This historical incident is typical... we cannot foresee which parts of our scientific knowledge may come to grief one day. Thus the belief in scientific certainty... is just wishful thinking" [OSE2 375].

For Rand, by contrast, far from shaking our knowledge of H₂O, the discovery of the occurrence of deuterium in water was merely an *addition* to our knowledge. Nothing was overturned, or thrown out, our concept of water had merely been *expanded*. Similarly, Einstein's rewrite of Newtonian physics did not necessarily *overthrow* Newton's ideas, it merely *incorporated* them into a wider concept and context.

A concept is "an 'open-end' classification", Rand wrote; "which includes the yet-to-be-discovered characteristics of a given group of existents".¹²⁰ The whole vast exercise on which Popper spent his life seems to be something which Rand resolved in half-an-hour's thought.¹²¹

Academic Learning versus Self-Education

There are several other parallels between Popper and Rand: including a systematic approach to philosophy, an emphasis on context, an outright rejection of relativism, and even a dismissal of 'modern' art and music. But I shall leave these to look for a moment at differences. For it is interesting to speculate about how these thinkers might have fared had their lives been reversed: Popper a largely self-taught, relatively poorly read, highly independent, immigrant intellectual in the USA; Rand an intensely knowledgeable professional philosopher, also an immigrant, but in the stuffy, hidebound, ivy-mantled world of UK scholarship.

For the remarkable thing about the two of them is how much more perceptive the relatively untutored Rand was compared to the immensely well-educated Popper. Popper struggled all his life to develop critical rationalism yet failed to see the one essential point which Rand grasped in half a private hour. In another instance, Popper produced a very worthy and interesting treatise on determinism without spotting the crucial importance of its root contradiction — something upon which Rand homed in almost effortlessly.¹²²

I do not wish to disparage Popper's work unduly, but he rather reminded me of an old hunting dog, willing and full of enthusiasm for the chase, but with senses past their best. He knew there was *something* out there, but as he pushed on through the philosophical bushes he snuffled his way right past the rabbits.

The pros and cons of traditional academic tuition versus self-education was certainly something which interested Popper. He had a great deal of scorn for the typical 'liberal arts' education [OSE2 283n6]. He was also highly critical of the traditional method of teaching philosophy via readings from 'great' philosophers. This, he maintained, can lead to uncomprehending emulation, the student merely attempting "to speak their queer language, to match the tortuous spirals of their argumentation, and perhaps even tie himself up in their curious knots" [C&R 73].

In considering academic education, it is interesting to compare Popper's work to that of George H. Smith. Smith was only twenty-one and had not even finished his bachelor's degree when he started work on *Atheism: The Case against God* (completed in 1973). But the scope and penetration of his analysis, the organisation of his material, and the quality of his philosophical argumentation are streets ahead of Popper — for all the latter's doctorate, immense learning, vast teaching experience, honours, accolades, rare prizes and knighthood.

As the case of Rand shows so clearly, gifted minds may well be better off on their own, free to think for themselves without all the clutter of set books, fussy minutiae and degree requirements. How often has the cloistered conformity of the ivory tower dulled, congealed or ossified a youthful promise?

Popper's Tangled Web

In one of his less happy moments Popper wrote of the "pretentious muddle" of philosophy, which he claimed was due to the Aristotelian tradition [OSE1 32]. I disagree. I think, rather, that it was the gradual *abandonment* of the good in Aristotle, begun during the Renaissance, which led in the end to the dreadful muddle of philosophy in the Twentieth Century. Although most of the damage was done before Popper came on the scene, his own contribution to perpetuating the harm may not have been inconsiderable.

I have thus been tempted to conclude this paper with the comment that the innumerable inconsistencies and contradictions in Popper's thought mean that, despite his immense efforts during a long and happy working life, all he really succeeded in doing was to create a 'tangled web of guesses', a pretentious muddle of his own.

But I do not wish to end on a sour note. Besides, it would not be fair. Popper may have done little to rehabilitate realism, objectivity or rationality, yet his resolute espousal of them as proper and fitting goals may well bring benefits in the long term. Similarly, while his ethical and political thought left much to be desired, if he did indeed contribute to the collapse of the Iron Curtain through *samizdat* circulation of *Open Society*, then we are forever in his debt.

A Viennese Master of English

It would not be fair either, to leave Popper without stressing his ability and power as a writer of English, a language he did not start to write until he was past 35. Like Rand, he certainly mastered it; although Rand had a fifteen year advantage, having started at the age of 21.

Popper's English is invariably clear, smooth, confident and unpretentious. It is, besides, always emphatic, often forceful, sometimes eloquent, and occasionally inspiring — even to a reader becoming progressively less sympathetic, as I did. Popper also regularly entertained his readers with homely similes, excellent analogies and dry wit. An example of the latter is this casual aside on existentialism: "the utter boredom of the bore-

in-himself bored by himself" [C&R 194]. (Happily, though needless to say, Popper had no time for the Noughtings of Nothingness).

My favourite Popperism is a *reductio ad absurdum* directed at Hegel. Question: " 'How can our minds grasp the world?' " Hegel's answer: " 'Because the world is mind-like.' " Popper's riposte: " 'How can this mirror reflect my face?' — 'Because it is face-like' "; and, " 'How can the English language describe the world?' — 'Because the world is intrinsically British' " [C&R 330]. Here is some more vintage Popper:

"What a monument of human smallness is this idea of the philosopher king. What a contrast between it and the simplicity and humaneness of Socrates, who warned the statesman against the danger of being dazzled by his own power, excellence, and wisdom, and who tried to teach him what matters most — that we are all frail human beings. What a decline from this world of irony and reason and truthfulness down to Plato's kingdom of the sage whose magical powers raise him high above ordinary men; although not quite high enough to forgo the use of lies, or to neglect the sorry trade of every shaman — the selling of spells, of breeding spells, in exchange for power over his fellow-men" [OSE1 156].

The Virtue of Independence

What is most admirable in Popper's philosophy, in my opinion, is the aspect with which I led into my critique: his advocacy of a critical, anti-authoritarian attitude. And it is with this positive contribution that I would like to bring my paper to a close.

Popper reminded us, for example, never to forget one of Kant's precepts: "Always regard every man as an end in himself" [C&R 182]. He urged us to adopt Kant's principle of autonomy, "it is you... who must judge" [C&R 26]: "The secret of intellectual excellence is... intellectual independence.... The authoritarian will in general select... mediocrities.... he excludes those who revolt, who doubt, who dare to resist his influence" [OSE1 134-5]. Thus we should reject all authority except "the authority of truth... an impersonal, interpersonal, objective truth which it is our task to find, and which it is not in our power to change or to interpret to our liking" [C&R 375]. In particular, we should tolerate "beliefs that differ from ours" and should "suspect all those who claim that they are authorized to teach the truth" [C&R 375].

Popper warned us against seeing the world as a "physically closed system" because that "creates the deterministic nightmare" [OKN 219]. He strongly opposed the notion of "*one* school doctrine", arguing rather for a "*plurality*", all of which "try to approach the truth by means of critical discussion" [C&R 151]. We should take especial note of the injustices meted out to heretics: "the attempt to force men to conform was pointless... those who resisted were the best... the only ones whose assent was worth having" [C&R 375].

Popper was adamant in dismissing the idea that truth is manifest; the idea that "error is something that needs to be explained (by lack of good will or by bias or by prejudice)" [C&R 348]: "the simple truth is that truth is often hard to come by, and that once found it may easily be lost again. The theory that truth is manifest — that it is there for everyone to see, if only he wants to see it... is the basis of almost all fanaticism. For only the most depraved wickedness can refuse to see the manifest truth; only those who have reason to fear truth conspire to suppress it.... the theory... may also lead... to authoritarianism.... many disappointed epistemologists... turn away from their own former optimism and erect a resplendent authoritarian theory..." [C&R 8-9].

Many a contemporary scholar, disappointed or no, would do well to study and take heed of these trenchant observations.

Popper and Rand

The answer to my second question, ‘Is Popper’s philosophy a substitute for, or alternative to, Ayn Rand’s Objectivism?’, hardly needs stating. It is an even more emphatic ‘no’ than I gave to the first. I have recorded Popper’s several virtues as a writer and thinker, his sound outlook on some important philosophical issues, and his contributions to history and science. But for all his immense efforts, in the really vital areas of epistemology, ethics and politics, Popper led us either nowhere new, or into his own tangled web.

Rand presented us with an original philosophical system containing all the essentials for a genuinely free society: a clear, concise and coherent re-validation of realism, reason, objectivity and knowledge — with a highly innovative theory of concepts as its core; a mould-breaking and radically new individualistic ethics — rational egoism; and a modern theory of natural rights. In sum, she was the first and so far the only thinker to provide a wholly consistent philosophical defense and justification of laissez-faire capitalism.¹²³

Popper, by contrast, using genuine convictions but largely borrowed premises, offered us a cautiousness so profound it amounted to little more than scepticism rehashed and reheated — although with a garnish of philosophical *nouvelle cuisine* to make it more palatable to the fashion conscious. Popper did prefer and commend a democratically-governed “open society”, but can a society remain ‘open’ while those in power try to “minimize suffering” via “piecemeal social engineering”? Popper left this question very much open to conjecture but, with the examples of Bismarck, Beveridge and Bill Clinton before us, there is only one possible answer: not for long.

So, Popper or Rand? There really is no contest. Rand may not have been a philosopher in the current, academically accepted sense, but she had all the hallmarks of genius: the ability to think in wide, all-encompassing abstractions; intense perceptiveness; genuine creativity; and, above all, the energy and courage to translate her radical philosophic vision into brilliant works of art. The results of Rand’s work were not only solutions to problems which have bedeviled philosophers for centuries, but a practical, easy-to-understand, guide to life for Everyman: “a philosophy for living on earth”.

Popper, on the other hand, was a model philosopher in the academic sense, but for all his efforts he really did not take us much further forward than Xenophanes.

A Proposal

Despite the many flaws in Popper’s thinking, I do believe that, at the end of the day, Objectivism has something to *learn* from Sir Karl. For where Rand went wrong — and where some Objectivists have stayed wrong — is in precisely that “cocksureness” against which Xenophanes, and Popper, warned us [OSE2 387]. Rand’s achievements were enormous, but she tended to assume that everything had been resolved, when, from a *philosophical* point of view, work had only just begun. The same is true of some of her followers. Instead of pressing ahead and expanding the Objectivist horizon they have been far too content to rest on Rand’s laurels. They have even come up with the absurd idea that Objectivism is a ‘closed system’. (Popper had a word for that: megalomania.)

I am not proposing a marriage of Popper and Rand, their philosophies are too plainly incompatible. But it does seem to me that Objectivism would benefit from adopting Popper’s *critical attitude*, especially because — as we have seen — self-criticism was a child whom Popper quickly abandoned.

APPENDIX: EVOLUTIONARY EPISTEMOLOGY, AN IDENTITY APPROACH

Popper’s thinking has given birth to a new school of philosophy called Evolutionary Epistemology (EE). EE takes as its first premise an analogy between fallibilism and evolution. To quote Popper: “what characterises the empirical method is its manner of exposing to falsification, in every conceivable way, the system to be tested. Its aim is not to save the lives of untenable systems but, on the contrary, to select the one which is by comparison the fittest, by exposing them all to the fiercest struggle for survival” [LSCD 42].¹²⁴

I came across EE due to an interest in the old idea of using evolution to undermine scepticism. Originally, I intended to write an essay on EE’s philosophic foundations. However, since EE is based on Popper’s philosophy, many of my comments in this paper are equally applicable to EE, so a separate critique would be redundant. I therefore include here as an appendix the core of my earlier ideas on the relationship between evolution and epistemology, ideas which are quite unlike those advanced by the proponents of EE.¹²⁵

I shall begin, *pace* Popper, with two definitions.

1. When I use the concept ‘identity’ I am calling on the traditional Law of Identity. This states very simply that a thing is what it is. It is the ultimate tautology: A is A. The most important implication of the Law of Identity is that ‘to be’ means ‘to be *some thing*’. To exist at all, a thing *has* to be something, and it *can only be* the thing that it is. (Otherwise, it would be in conflict with the Law of Contradiction, which states that a thing cannot both be and not be; or, more fully, that an attribute cannot at the same time belong and not belong to the same subject in the same respect.) To exist is to possess identity; which means to belong to a kind, or to have a specific nature.
2. By ‘evolution’, I mean the theory (with its accompanying mass of evidence) that human beings are the result of a self-replicating process which began some 3.5 billion years ago in the ultra-violet irradiated oceans of the young planet Earth.
3. It is compellingly apparent that life emerged because the chemical elements in the ‘primeval soup’ had specific identities. They were certain kinds of things with certain attributes which, when placed in a certain set of circumstances, acted in accordance with their natures to produce the potential inherent in them. The naturally stable properties of carbon, hydrogen, etc, enabled them, when bathed in energy, to serve first as building blocks, then as food, for the earliest life forms, the proto-cellular bacteria, or ‘prokaryotes’.¹²⁶
4. It is also immediately apparent that the identities of the chemical elements were constants. Prokaryotes continued their unobtrusive aquatic existence unchanged for a billion years, quietly sustaining and regenerating themselves until mutation brought about the next stage of development; the emergence of the true cell, the eukaryote. That too persisted unobtrusively for another billion years, unconsciously brewing the next great leap forward, the multi-celled organism.
5. Such extraordinary endurance could not have occurred if life’s ingredients were in any way ambivalent or chemically fickle. It was the certain, fixed, and unaltering nature of the atoms involved which made the emergence of life possible. The essential prerequisite of life is natural constancy.
6. More complex life forms evolved by natural selection, by adaptation. Those creatures survived which were able to adapt to the gradually changing Earth environment. But no matter how dramatic or sudden climatic and other changes

may have been, adaptation means conforming to something else. It is only possible to adapt if what is *adapted to* remains unchanged long enough for the adaptation to take place. Thus every species which evolved demanded the same constancy from the environment as did its ancestral prokaryote. No stage of evolution could have occurred in a state of flux, each required a bedrock of unchanging identity, of certainty.

7. This is even more apparent when one considers the 'decimations' which the fossil record reveals. Where constants were removed — in other words, when the environment changed too rapidly — life forms unable to adapt quickly enough died out. In fact, 99.9% of all species to whom mutation and/or natural selection gave birth are now extinct.
8. The requirement of constancy, of identity, runs through every stage of evolving biological complexity. Sensory awareness, for example, came about due to the existence of detectable entities of fixed identity. Sensation is meaningless without *some thing* to sense. Sense receptors could only have developed in response to permanent features of the environment, to stimuli constant in kind. Whether this involved early sponges filtering nutrients from water; or the ability of plants to turn towards light; or an insect's capacity to detect scent molecules moving through the atmosphere: the emergence of any faculty of sensation required exactly the same certainty and constancy as the adaptations of natural selection itself.
9. Perception too, the ability to discern and be aware of entities, could only have evolved against a variegated background of clear and permanent identities.¹²⁷ Perception is meaningless without *some thing* to perceive. An organ of perception capable of accurate discernment would have needed age-long exposure to identical entities in order to come into being. For the animal kingdom to develop the intense perceptiveness of an eagle's eye; or the complex, coordinated perceptions of a pride of hunting lions: the essential precondition had to be a world that remained, to each species, *objectively* unchanging.
10. The evolution of a conceptual faculty would have required an even greater degree of certainty. Consciousness is meaningless without *some thing* to be conscious of. Reason would have been literally inconceivable except in a setting of constants. The ability to observe, to identify existents, and to form concepts about them, demanded a world of the utmost fixity. The evolution of the power to abstract; the capacity to form the concepts of 'seed' or 'kind' from observations of wheat and fruit and berries; to plant a seed and be assured a like kind would appear: none of this would have been possible except in a landscape of unchanging identities lasting across millennia. Concept formation was born of natural constancy, of certainty.
11. From prokaryotes to man, it was the existence of identity, of constants in the Earth environment, which allowed evolution to take place. In exactly the same way, it is the continued existence of constants which makes all present life possible. Take the element calcium. Calcium plays an essential role in the metabolism of all nucleated cells and, in vertebrates like ourselves, is as vital to muscle, nerve and brain function as it is to bone formation. Human beings have ten quadrillion nucleated cells. Every second of our lives, millions of these are employing calcium to grow and regenerate, just as any cell has done since the first nucleated eukaryotes were formed 2.5 billion years ago. The naturally fixed and stable nature of calcium, its identity, combined with many other equally stable ingredients, in unimaginable complexity, were the first links of the helical chain which led to conscious, reasoning man.
12. An unbreakable thread of similarity runs through the history of life. It lies in the relationships between the creatures which evolved and the constants which made possible their evolution. The relationship between an atom of carbon and the cell it helps to build; between an amino acid and the DNA to which it contributes; between the existence of photons and the faculty of sight; between the presence of prey and the survival of predators; or between aspen, beech, maple, oak and pine, and primitive man's grand abstraction 'tree': in all cases constants of unchanging identity form the building blocks of future life.
13. What makes these relationships so intriguing is an analogy with the birth of knowledge. If there had been no unchanging carbon, there would have been no cell; no unchanging amino acid, no DNA; no constant flood of photons, no sight; no permanent species of prey, no predators; no entities with discernible natures or predictable patterns of behaviour, no conceptual faculty. The things which served as stimuli for Australopithecine, Neanderthal, and *Homo Sapiens* — the visible, tangible, audible, external entities thronging the world in which they found themselves — had to be constant and unchanging for the evolution of reason to take place. Water, weather, plants, animals, all had to be there as certainties. And, because they were constants, they caused knowledge: berries, eggs, fish and meat became 'food'. What carbon was to prokaryote, concepts are to man: the essentials of survival.
14. The phylogenetic nature of human fetal growth — the fetus going through stages similar to those passed through during the evolution of the species — suggests a possibly fruitful line of enquiry for epistemology. A child's process of learning how to form concepts may mimic precisely the stages of primitive man's evolution of a conceptual faculty.
15. It is obviously true that there are all kinds of *uncertainties* in our knowledge, and wide variations in degree of certainty. But a knowable world, and certainty itself, *had* to exist for there to be a conceptual faculty in the first place. Even when equipped with a fully-fledged faculty of reason, primitive man could still not have survived without certainties derived first perceptually, then conceptually, from his environment. Which water supply was drinkable; which berries were edible; which animals dangerous; which seasons called for shelter; how to make fire, etc: all required certain, unchanging, accurate knowledge based on the trials and errors of generation after generation.
16. The same holds for every advance in subsequent civilization: the myriad observations passed on through the centuries which led from hunting and gathering, to agriculture, to industry, to spacecraft: all were founded on the permanent presence of an external world in which everything has its own potentially knowable nature or identity. Humanity's evolution, our survival as a species — as concept-forming, reasoning creatures — was entirely dependent on the certainties of nature, certainties which we became uniquely equipped to discover and know. The Law of Identity — the certainty of natural constancy — is as much the bedrock of civilization as it is of reason, and of life itself.
17. Assuming that participants in epistemological debates are prepared to abide by the rules of logic; the fact that man's mental faculties *could not have evolved* without the naturally-occurring constancy of identity — *without certainty* — is surely a powerful argument against certain forms of philosophical scepticism.
18. To put the whole matter succinctly, in the manner of J.W.N. Watkins: if our senses were unreliable we wouldn't be here. If reality was unreliable, we wouldn't have got as far as senses.

NOTES

1. D.R. Steele, "Ended Quest", *Liberty* (Port Townsend, WA, USA) 8/2, December 1994. The UK obituaries appeared on 19/9/94.
2. The quotes appear on the front and back covers of the 1972 London edition from Hutchinson, which I used for this paper.
3. Karl Popper, *Unended Quest: An Intellectual Autobiography* (London: Fontana/Collins, 1976) p. 122. The speaker was an aggrieved Platonist.
4. Jan Clifford Lester, *Popper's Epistemology versus Popper's Politics: A Libertarian Viewpoint*, Philosophical Notes No. 34 (London: Libertarian Alliance, 1995). The fact that a selection of Popper's works are now listed by Laissez-Faire Books of San Francisco suggests that Dr Lester is not alone in his opinion. Please note that I use Dr Lester's work as a starting point in the friendliest fashion.
5. Wallace Matson, "Rand on Concepts", *The Philosophic Thought of Ayn Rand*, D. Den Uyl and D. Rasmussen Eds (Urbana, Illinois: University of Illinois Press, 1984) p. 22.
6. R. Hollinger, "Ayn Rand's Epistemology in Historical Perspective", *ibid.*, p. 56. The Objectivist philosopher David Kelley has also referred to 'parallels' between Popper and Rand, in a private communication. I might add that although I disagree with some aspects of Rand's thought, I have regarded myself as an (independent) Objectivist for 30 years. For the purposes of this paper, I have assumed that the reader has some familiarity with both Libertarianism and Objectivism.
7. Andrew J. Swann, "Popper on Induction", *British Journal for the Philosophy of Science* [BJPS], 39(3), 1988, p. 372. Swann maintained that much of the argument "missed the point". Two years later, Tom Settle claimed it was Swann who had missed the point (BJPS, 41(3), 1990): interminable indeed.
8. Anthony O'Hear, *Karl Popper* (London: Routledge, 1980), referred to hereafter as 'O'Hear'; and Bryan Magee, *Popper* (London: Fontana, 1982). Dr O'Hear kindly suggested that I should read David Miller's *Critical Rationalism: A Restatement and Defense* (Lasalle, Illinois: Open Court, 1994); and *Karl Popper: Philosophy and Problems* (Cambridge, UK: Cambridge University Press, 1996). Unfortunately, I was unable to obtain the former and the latter had not yet been published.
9. K.R. Popper, *The Open Society and its Enemies: Volume 1, The Spell of Plato; Volume 2, The High Tide of Prophecy, Hegel, Marx, and the Aftermath* (London: Routledge and Kegan Paul, 5th Edn, 1966). My first epigraph is from OSE2 39.
10. K.R. Popper, *The Poverty of Historicism* (London: Routledge and Kegan Paul, 1961).
11. Karl R. Popper, *Conjectures and Refutations: The Growth of Scientific Knowledge* (London: Routledge, 1989).
12. Karl R. Popper, *Objective Knowledge: An Evolutionary Approach* (London: Oxford, 1972).
13. *The Philosophy of Karl Popper*, P.A. Schilpp, Ed, Volume XIV, Books I and II of The Library of Living Philosophers (Lasalle, Illinois: Open Court, 1974).
14. RASC, TOU and QTSP form a trilogy. Originally a single manuscript, *Postscript to The Logic of Scientific Discovery*, they were published in three volumes, edited by W.W. Bartley III. The editions I consulted were: *Realism and the Aim of Science* (London: Routledge, 1992); *The Open Universe: An Argument for Indeterminism* (London: Hutchinson, 1982) and *Quantum Theory and the Schism in Physics* (London: Hutchinson, 1983). My second epigraph is from RASC, p. 258.
15. John C. Eccles, Karl R. Popper, *The Self and Its Brain: An Argument for Interactionism* (London: Routledge and Kegan Paul, 1983).
16. Karl R. Popper, *A World of Propensities* (Bristol, UK: Thoemmes, 1990).
17. Biographical details given here are from UNQ, or from the British newspaper obituaries cited earlier.
18. *Conjectures and Refutations*, *op cit*, p. 120. Popper may have half meant 'rationalist' in the Cartesian sense. He was ambivalent on this issue, as we shall see.
19. Cf J. Bronowski's account of Popper's appeal [PKP1 606ff].
20. This point was made by Eccles [PKP1 350].
21. Anthony O'Hear drew my attention to Popper's thoughtful and moving dedication to POH, O'Hear, p. 153.
22. Tom Settle made a similar point [PKP2 707]. Popper called criticism "the lifeblood of all rational thought" [PKP2 977].
23. Popper's thinking has been developed into 'Comprehensive Critical Rationalism' by some of his followers, notably W.W. Bartley III; cf *Evolutionary Epistemology*, *loc cit* (my note #125).
24. E. Freeman and H. Skolimowski note that Peirce anticipated some of Popper's central ideas [PKP1 464ff]. Popper freely acknowledged this [PKP2 1072], adding "I feel proud of so eminent a predecessor" [PKP2 1119]. There is no hint of borrowing; Popper did not read Peirce until the 1950s.
25. Popper used Einstein's revision of Newton as his standard evidence for fallibilism. There are 44 references to Einstein in LSCD; 40 in C&R; 38 in OKN; and 31 in UNQ.
26. Popper's rejection of belief is curious in that he held knowledge to be conjectural and advocated hypothetico-deductive reasoning. That 'belief' and 'hypothesis' are near enough synonyms was pointed out by Dr Harry Binswanger in his fine study *The Biological Basis of Teleological Concepts* (Los Angeles: Ayn Rand Institute Press, 1990) p. 231.
27. The self-contradiction of 'faith in reason' was pointed out by Ayn Rand, but I was unable to find the reference. Popper's 'faith' in reason is discussed in O'Hear, p. 147ff.
28. Cf the amusing exchange, "Nothing is certain" — "Are you sure about that?" in Ronald Merrill, *The Ideas of Ayn Rand* (Lasalle, Illinois: Open Court, 1991) p. 92.
29. See Popper's discussion of certainty in *Objective Knowledge*. Despite contradicting himself by allowing certainty for unexplained "valid and simple proofs", his argument is that "*We act upon our beliefs*", and his discussion is about the intensity of belief [OKN 78, his italics]. See Tom Settle's pertinent and witty comment about belief: "Belief notoriously conceals and protects errors (as every believer knows, at least with respect to his opponents' beliefs)" [PKP2 707].
30. Cf Imre Lakatos: "The difference between total scepticism and humble fallibilism is so small that one frequently feels that one is engaged in a mere verbal quibble" [PKP1 260].
31. In actual fact, there is a very linguistic flavour about Popper's work: from 'basic statements' in LSCD; through his endorsement of Tarski; all the way to his theory of world 3. For Popper's views on Wittgenstein see OSE2 296-9 and UNQ 122-4. Several critics have surmised (e.g. O'Hear), that Popper's philosophy was a 'reaction' to Logical Positivism. For Popper's view of metaphysics see (e.g.) LSCD 68ff; or C&R 71ff, 184ff, 193ff. Apparently Popper was enraged when W.W. Bartley once innocently compared him to Wittgenstein (O'Hear p. 47).
32. David Hume, *A Treatise of Human Nature* (Glasgow: Fontana/Collins, 1962) p. 71.
33. Aristotle, *Metaphysics* IV 4 1006b 7-9, McKeon, *loc cit*, p. 738 (my italics); quoted in Randall, *loc cit*, p. 116. More could be discussed here, e.g. Popper's claim that "all definitions use undefined terms"; cf OSE2 9-21, and 287-301 nn26-54.
34. Cf the comments by William C. Kneale in PKP1 [206-7].
35. 7th Edition, 1988, p. 301.
36. The fallacy was spelled out clearly by Nathaniel Branden in *The Objectivist Newsletter*, January, 1963.
37. All that scepticism represents is a yearning for omniscience. The same is true of determinism, which is merely a variant of scepticism. Both are, in essence, attempts to evade the responsibility of thought.
38. Popper did acknowledge that: "the term 'conjectural knowledge' may be claimed to be a contradiction in terms" [OKN 76], but the discussion which followed this concession failed to show either that the term was not self-contradictory; or if it were, why we should ignore that fact.
39. The old spelling is Hume's; *Treatise*, *op cit*, p. 155.
40. Tom Settle has made the same complaint. On the question of *which hypothesis* to choose, he wrote, "we get no good guidance from Popper" [PKP2 702].
41. Cf O'Hear, p. 97. I think the distinction is pure rationalisation.
42. David Hume, *An Enquiry Concerning Human Understanding*, 3rd Edn, L.A. Selby-Bigge and P.H. Nidditch Eds (Oxford: Oxford University Press, 1975) p. 74. The argument is actually a *post hoc* fallacy.
43. *Ibid.*, p. 96.
44. *Ibid.*
45. *Treatise*, p. 63.
46. H.W.B. Joseph, *An Introduction to Logic*, 2nd Edn (Oxford: Oxford University Press, 1916) p. 408. George H. Smith notes that Ayn Rand said much the same thing; see *Atheism, Ayn Rand, and Other Heresies* (Buffalo, NY: Prometheus Books, 1991), p. 200. It was from Rand that I learned the argument. I am grateful to Smith for reminding me of Joseph's *Logic*, which I had not looked at for 25 years.
47. Joseph, *Logic*, p. 408.
48. *Ibid.*

49. Richard McKeon, Ed., *The Basic Works of Aristotle*, (New York: Random House, 1941) p. 736-7. I am indebted to Joseph for the precise reference.
50. Family legend has it that Robert Burns was born, or was sheltered as a newborn infant, in the house of an ancestor of mine. By coincidence, these lines were written on the Bicentenary Burns Night.
51. The notion that the universe suddenly sprang into existence in a 'big bang' makes no sense to me. Time is within the universe. The universe is not in time. The universe cannot have 'begun' at all — *ex nihilo nihil fit*. (See Nathaniel Branden, "Intellectual Ammunition Department", *Objectivist Newsletter*, May 1962). Popper also questioned Big Bang (though I can't remember where). He pointed out that the idea of the universe being 'infinitely large' moments after its 'birth' would exceed the speed limit — of light.
52. Cf Joseph, Ch. XVIII *passim*. Joseph's discussion of induction and causality is masterly. He says science must "demonstrate the properties of any kind" (p. 382); and refers to induction as "dise-tangling the identities" (p. 425). Popper would have loathed him.
53. Thoughts such as these could have spurred Popper's attack on induction. Tom Settle has credited him with the belief that "inductive inference" is a contradiction in terms" — a stronger way of stating my point. See "Swann versus Popper on Induction: An Arbitration", *BJPS*, *op cit*, 43(3), 1990, p. 404.
54. Cf Leonard Peikoff, "The Analytic-Synthetic Dichotomy" in Ayn Rand, *An Introduction to Objectivist Epistemology*, Expanded 2nd Edn, L. Peikoff and H. Binswanger Eds (New York: Meridian/Penguin, 1990) p. 88ff. Ronald Merrill notes that the dichotomy has also been attacked by W. Quine, J. Wild, M. White and W. Matson amongst others; Merrill, *op cit*, p. 170.
55. Merrill, p. 97. Peter Medawar recalled Whewell's observation that "induction and deduction went upstairs and downstairs on the same staircase" [PKP1 276].
56. *Hume's Dialogues Concerning Natural Religion*, edited by N. Kemp Smith, 2nd Edn (London: Thomas Nelson and Sons, 1947).
57. *Treatise*, p. 234.
58. *Treatise*, p. 275.
59. *Enquiry*, *op cit*, p. vii.
60. *Ibid*.
61. *A History of Western Philosophy* (New York: Harcourt, Brace 1952) p. 800ff. Jones has several other telling criticisms.
62. *Enquiry*, p. 114. My criticism is of Hume's consistency, not of his conclusions. I share his views, not his method.
63. *Treatise*, p. 217.
64. *Enquiry*, p. 39.
65. And a lot of help from Ayn Rand.
66. With apologies to W.B. Yeats, whose "Second Coming" has long been one of my favourite poems.
67. Revealingly, Popper once referred to himself as one of "the last laggards of the Enlightenment" [RASC 177].
68. Popper's development of this view — a blend of Kantian, Lamarckian, and Darwinian ideas — really deserves a paper in itself, but would be far too long a digression here.
69. Any *innate* cerebral content would of course be equally subjective, but to explore this would take us too far afield — for Popper was fond of innate ideas [OKN 26-7, 63, 71-2, 258; C&R 27, 47-8; TSIB 116]. In AWP he said: "For our senses to tell us anything, we must have prior knowledge. In order to be able to see a thing, we must know what 'things' are" [37]; adding, "99 per cent of the knowledge of all organisms is inborn and incorporated in our biochemical constitution" [46]. On this logic we would know most things in advance and could hardly learn or discover anything. Also implied is the inheritance of acquired characteristics — if 'knowledge' *really is* 'incorporated'. For a refutation of Popper's 'prior' argument see David Kelley, *A Theory of Abstraction* (Poughkeepsie, NY: Institute of Objectivist Studies, 1995) pp. 4-6. See also his *Evidence of the Senses*, *loc cit*.
70. Cf Nathaniel Branden, "The Contradiction of Determinism", *The Objectivist Newsletter*, May 1963. The issue was debated by W. Dwyer and D. Bold in *The Personalist* #53 and #54, 1972-3. The argument has been around since ancient times (cf my note #122). It was also used against relativism by Lionel Ruby in *Logic: An Introduction* (Chicago: Lippincott, 1960) p. 332.
71. Cf PKP2 1112-3 where Popper sees the origin of language in animal signalling, and in storytelling.
72. If our senses were actually unreliable, we could have no knowledge of external reality and would have to abandon the scientific enterprise entirely. In fact, as J.W.N. Watkins noted, if our senses were unreliable we wouldn't be here [PKP1 404]. Popper half acknowledged this [PKP2 1114, AWP 32 #4].
73. Buffalo NY: Prometheus Books, 1989.
74. *Ibid*, p. 52. Smith's discussion of the *via negativa* helped me to focus my own criticisms.
75. Cf PKP2 1103 where Popper acknowledged trying to "do without the idea of truth" in the first edition of LSCD (1934). His notion of truth suggests omniscience: "I use the term 'truth' in the absolute or final sense" [PKP2 1124]. This implies that, if we don't know *everything*, we can't know *anything*. Perhaps this misconception underlay his sceptical philosophy.
76. Quoted by David Kelley in *The Art of Reasoning* (New York: W.W. Norton and Co, 1988) p. 255. In AWP, Popper called science "enlightened common sense" [49].
77. We can ignore Popper's tiny oversight that his example is true if and only if *Gras* means 'grass', etc.
78. Another criticism of Popper's reliance on Tarski can be found in O'Hear, p. 206.
79. Popper dismissed the 'Laws of Thought' as "psychologism" and "a thing of the past" [LSCD 98]. As for universals, he wrote: "The statement, 'Here is a glass of water' cannot be verified by any observational experience. The reason is that the *universals* which appear in it cannot be correlated with any specific sense-experience. (An 'immediate experience' is *only once* 'immediately given'; it is unique.)... Universals cannot be reduced to classes of experiences; they cannot be 'constituted' " [LSCD 95]. But surely the whole point of universals is that they are *abstractions*? They refer abstractly to all the particulars subsumed under a concept, including the particular to hand.
80. Popper also had caustic things to say about Aristotle in *Objective Knowledge*, viz: "Aristotle's version of essentialism does not contain even a hint of a solution, it seems he never grasped the problem" [OKN 196].
81. *Aristotle*, John Herman Randall, Jr. (New York: Columbia University Press, 1960), pp. 29-31. The Aristotle quote which follows is on p. 53. For an alternative translation, see *Metaphysics I* 1 993b 1-14 in McKeon, *op cit*, p. 712.
82. The first sentence of the *Metaphysics*, *ibid*, p. 689.
83. Popper saw that he was open to criticism on this score and later referred to worlds 1, 2 and 3 as "modified essentialism" [PKP2 1115]. Another critic of the theory, H. Skolimowski, pointed out that "under no circumstances" is Popper's objectivism "to be confused with the 'objectivism' of Ayn Rand" [PKP1 495]. I agree. Anthony O'Hear is also critical (O'Hear, Ch IX).
84. I owe this point to Dr Harry Binswanger, who writes: "in the strict sense knowledge resides only in the minds of men, not in the symbols by means of which men record their knowledge... the 'knowledge' possessed by books is actually only a potential for causing knowledge to exist in the mind of a reader" (Binswanger, *op cit*, p. 152).
85. In "Replies", Popper repeated that propensities are real in the sense that matter is real [PKP2 1129-30].
86. Popper called causality "the theory or the law which constitutes the logical link between cause and effect" [OKN 352; cf OKN 90]. Of course, theories are conjectures... In AWP he announced 'two new views of causality' but these seem to me to be just as conjectural as his old views [AWP 21ff].
87. Two earlier critics who pointed out Popper's idealism were Anthony O'Hear: "Popper's Platonism" (O'Hear, p. 181) and J.W.N. Watkins: "Popper's objectivism is a very mitigated version of Platonism" [PKP1 399]. However, both would have agreed with Feigl and Meehl that for Plato 'Ideas' exist extra to mankind; whereas, for Popper, objective knowledge is man-made [PKP1 543]. Popper may have been led to idealism by his scepticism — an ancient pattern. O'Hear concludes his study: "having torn ideas from their living context, Popper was led both to his radical scepticism and to his postulation of an abstract world of ideas..." (O'Hear, p. 207).
88. This formulation is used by Wallace Matson in Den Uyl and Rasmussen, *op cit*, p. 22. Popper came close to it, too; cf OKN 147.
89. In a 1954 radio broadcast, Popper said Kant had brought about a second "Copernican revolution", in ethics. He added: "Kant humanized ethics" [C&R 181]. I disagree, strongly.
90. Ayn Rand called environmental determinism of the Popper type "an alibi for weaklings"; *Letters of Ayn Rand*, Michael S. Berliner, Ed (New York: Dutton, 1995) p. 483.
91. It is worth noting that if we can't derive values from facts, we can't derive *anything* from facts. In what way do ethical theories differ from scientific ones? Looks like adieu science to me. John Wild wrote interestingly on Popper's fact/value dichotomy [PKP2 860-1].
92. *The Red Prussian* by Leopold Schwartzschild, translated by Margaret Wing (London: Pickwick Books, 1986).

93. E.g., Popper's revisions and second thoughts about LSCD ran to something like 1000 pages. Even the 1972 edition of the original LSCD has 20 appendices covering 180 pages. Professor J. Bronowski lamented this pedestrianism [PKP1 606].
94. Anthony Flew asks the same question in his Introduction to the Pickwick edition. [My endorsement of his book does not extend to Schwartzschild himself, who evidently had an authoritarian streak. See Rand, *Letters, op cit*, p. 467.]
95. Popper asserted that one should treat opponents "not only fairly but generously" [PKP2 1163], but I do not think this excuses his lapse on Marx. A major retraction was called for.
96. My conjecture about Popper's humaneness was subsequently endorsed in a private communication from Mrs Melitta Mew, one of Popper's heirs, who said the poverty and suffering Popper witnessed as a young man affected him deeply and led him to support measures to alleviate suffering such as "piecemeal social engineering". Popper also remarked to Mrs Mew that he had read *The Red Prussian* "much too late". Had he been aware of Marx's behaviour he would have treated him "less leniently" in *Open Society*. I am very grateful to Mrs Mew for this information.
97. Noted in the newspaper obituaries cited at the beginning of this paper, but common knowledge in academic circles. I learned very late that Popper suffered from tinnitus, which may explain, and excuse, a great deal.
98. E.g., Popper called the following an "explicit definition" (as near as I can render it): "D(AP) p(a) = p(a,b) <-> (c)((d)(p(c,d) >_ p(d,c)))- p(a,b) = p(a,c)" [C&R 388], while claiming to be addressing the ordinary reader.
99. Popper maintained that Hayek's thesis in *The Road to Serfdom* was consonant with his ideas on social engineering [OSE1 285n4]. My recollection of Hayek is different.
100. Interestingly, but oddly, Popper attributed the rise of "Modern totalitarianism" to "the breakdown... of... Social Democracy... the democratic version of Marxism" [OSE2 60].
101. He also had the backing of practising politicians. Lord Edward Boyle, who called Popper "one of the greatest minds of our age", drew support for interventionism from Popperian ideas such as piecemeal social engineering [PKP 843ff].
102. As my essay was going to press, I learned from Mrs M. Mew, Popper's heir, that: "In his later years [Popper] became increasingly sceptical about the welfare system, its abuses and misapplications". I am grateful to Mrs Mew for this information, which suggests that my estimate of Popper's intransigence may be too harsh.
103. Rejecting fallibilism on logical grounds, I have not discussed "degrees of testability", "corroboration", "verisimilitude", etc, which Popper brought in to bolster his theory. These are effectively analysed in O'Hear, Ch. III.
104. I had seen Popper's notion 'knowledge is conjectural' used as a first premise, and fallibilism employed as a method, in an unpublished Phd thesis. Cf Jan C. Lester, *Liberty, Welfare, and Market Anarchy* (London School of Economics, 1992) p. 10ff. My first-hand acquaintance of Popper began in August, 1994, with his essays in Bartley and Radnitsky, *loc cit*.
105. On second thoughts, I did have one expectation: of finding an intellectual ally.
106. R. Levinson, *In Defense of Plato* (Cambridge, MASS: Harvard University Press, 1953); J. Wild, *Plato's Modern Enemies and the Theory of Natural Law* (Chicago: University of Chicago Press, 1953). Wild returned to the attack in 1964 [PKP2 859], but Popper was able to brush him aside because he hadn't read Popper's 1961 rebuttal of Levinson [PKP2 1159, cf OSE1 323]. I am indebted to David Conway for pointing me to Wild's work.
107. To keep us guessing, Popper also wrote that Darwinism, "has very little content and very little explanatory power, and it is therefore far from satisfactory.... we should try hard to improve upon Darwinism, or to find some alternative" (PKP2 1084). Lamarckism? Creationism?
108. With its device of falsifiable falsifications, Popper's fallibilism surely has to be 'irrefutable'. It thus belongs in the same Popperian file as the ideas of Freud *et al*.
109. Popper's evasiveness reminded me of an observation by John Maynard Smith: "[It is] an occupational risk of biologists to claim, towards the end of their careers, that problems which they have not solved are insoluble"; *Did Darwin Get it Right? Essays on Games, Sex, and Evolution* (Harmondsworth, Middlesex: Penguin, 1993) p. 249. Cf UNQ 187: "theories which deny what they cannot explain"; and TOU 151, re getting out of problems by denying them: "The solution... is the denial" — Popper and induction?
110. Anthony Flew, "Deconstructing, and Reconstructing, Popper", *Critical Review*, 4, #1-2: "Popper's entire philosophy of science reduces to absurdity" (p. 167).
111. See C&R 4ln8: "most dissectors of the heart before Harvey observed the wrong things — those which they expected to see". Surely this argues *for* Baconian objectivity, *against* fallibilism? Harvey broke free in a way Popper thought impossible.
112. 'Disciple' may be too strong, but Popper's influence can be seen in the writings of John Maynard Smith ("I am enough of a Popperian...") (*Did Darwin Get it Right?, op cit*, p. 180): e.g., "Evolution theory has no more claim to objective truth than Genesis" (p. 42); or "sure and certain knowledge is something we can expect only at our funerals" (p. 43). Dicta of this kind hardly inspire confidence in Smith's work on evolution.
113. Popper did write about the "realization" of the "conjecture" of an atomic bomb [TSIB 47], but he did not seem to realise that this one phrase blows apart his notion that knowledge remains conjectural.
114. Had this not been his first attempt to describe fallibilism in English, one might be tempted to suspect that the whole enterprise was devised tongue in cheek.
115. H.W.B. Joseph described the essence of inductive reasoning as the "process of elimination" (*Logic, op cit*, p. 430) by which we discover the identities and causes of things and events. The negative process yields the positive finding.
116. In LSCD; quoted by Henryk Skolimowski [PKP1 488].
117. I don't mean to belabour Matson's comment, which was an aside in an essay on an unrelated topic. However, it does seem to sum up the misapprehension that Popper might be a substitute for Rand.
118. Henry Margenau complimented Popper for taking the trouble to learn the subjects he philosophised about — unlike some of his opponents [PKP2 750].
119. By 'open-ended' Rand meant 'capable of unlimited expansion', not just universality or numerical infinity. I am fairly sure that conceptual open-endedness was the philosopher's stone Popper sought and never found. He did come close, though. Compare Rand's theory of abstraction, in which 'particular measurements are omitted', with this statement from *The Open Universe*: "Science may be described as the art of systematic over-simplification — the art of discerning what we may with advantage omit" [TOU 44].
120. Ayn Rand, *Objectivist Epistemology, op cit*, p. 66. That Rand would have been caustic about Popper's work is suggested by her scorn for those who think the discovery of a black swan negates the prior concept of white swans (p. 67). Popper used the example repeatedly, in just that way [e.g. RASC 256, PKP2 982].
121. *Ibid*, p. 307.
122. For Popper on determinism, see TOU, especially 81ff; cf OSE2 216, and "Of Clouds and Clocks" in OKN, quoted at length by H. Feigl and P.E. Meehl [PKP1 533-5]. In TSIB, Popper spelled out the contradiction in a quote from Epicurus, but did not see its implications [75ff]. He also came close to 'stolen concepts', pointing out that the word 'illusion' exists to contrast unreal experiences from real ones [TOU 90-2].
123. Aside from her own work, the best source for Rand's ideas is *Objectivism: The Philosophy of Ayn Rand* by L. Peikoff (New York: Dutton, 1991) — although it is uncritically focused on Rand alone. A wider-ranging study is *Ayn Rand: The Russian Radical* by Chris Mathew Sciabarra (University Park, PA: Penn State Press, 1995). In some ways a better presentation than Peikoff's, the latter work is spoiled by a laboured and unsuccessful attempt to tie Rand's ideas to earlier trends in Russian thought. For a readable and lively introduction to Rand, see R. Merrill, *op cit*.
124. More succinctly, "our hypotheses... die in our stead" [OKN 244]. In later life Popper thought "Evolutionary Epistemology" sounded "pretentious"; he preferred "an Evolutionary Theory of Knowledge" [AWP 29].
125. See *Evolutionary Epistemology, Theory of Rationality, and the Sociology of Knowledge*, G. Radnitsky and W.W. Bartley III Eds (Lasalle, Illinois: Open Court, 1987), reviewed by I.C. Jarvie in *Critical Review* 2/1. See also Anthony O'Hear, "The Evolution of Knowledge", *ibid*, where he points to the "massive circularity" of attempts to "justify... sensory data by appeal to biology" (p. 83). A similar objection is made by Dr Harry Binswanger, *op cit*, pp. 174 and 191-2. (I hope I have avoided circularity). See also O'Hear, Ch. IX.
126. For background information see R. Dawkins, *The Selfish Gene* (1989); S. Jay Gould, *Wonderful Life* (1991); L. Margulis, *Microcosmos* (1987); J. Maynard Smith, *The Theory of Evolution* (1993); and E. Mayr, *One Long Argument* (1991).
127. Re direct perception of entities, see David Kelley, *The Evidence of the Senses: A Realist Theory of Perception* (Baton Rouge and London: Louisiana State University Press, 1986), Ch 5.