

RATIONALITY AND SITUATIONAL LOGIC IN POPPER'S SCIENTIFIC WORK*

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1. *Problems Interpreting Popper.*

A literature exists in the philosophy of the social sciences lamenting the unsystematic and scattered nature of what Popper says about the issues at stake. What does he say? He argues for the unity of method¹ between the natural sciences and the social sciences. He puts forward some features that complicate the logic of the social sciences, especially the Oedipus Effect and application of the method of logical or rational reconstruction, and he offers several signature ideas. These signature ideas are: methodological individualism; logic of the situation; unintended (or unwanted, or undesigned) consequences of human action; and the rationality principle. What he says on each, it is often complained, is skimpy and unclear, possibly not coherent. But clarity, for Popper, is relative to problems and situations. In the 1950s, when “The Poverty of Historicism” first appeared in book format, similar puzzlement and frustration was expressed about his notions of historicism, essentialism, and, of course, methodological individualism, all underdeveloped by the standards of the analytic philosophy of the day.²

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1. Strongly affirmed in *The Open Society and Its Enemies* (hereafter *OS&IE*) (1945), v.II, ch. 14, n. 14 in reference to Weber.

2. It is indicative of the standards of scholarship at the time that George Pitcher (*The Philosophy of Wittgenstein*, Englewood Cliffs, NJ: Prentice Hall, 1964) credited the

In this paper I take a novel approach, one which can, I hope, illuminate genuine difficulties in grasping Popper's ideas on the social sciences without viewing clarity as an absolute ideal. The approach is to treat Popper as a social scientist, and to look to his scientific practice to illuminate his signature ideas.³ The exercise will test my hypothesis that his practice does exemplify his philosophy, and, *inter alia*, constitute an argument for proceeding in this way. Before showing that, I want to expand a little on the explicatory literature, not by looking at the worst of it, but by looking at one of the best pieces.

Professor Noretta Koertge studied in London with Heinz Post of Chelsea College, and had contact with LSE philosophy towards the end of Popper's academic career, and especially with his colleague Lakatos. Her paper "The Methodological Status of Popper's Rationality Principle" is one of the most cited on the rationality principle.⁴ In it she tries to explicate Popper's ideas in terms that will be agreeable both to his followers and to analytic philosophers, especially Carl Hempel and William Dray. Her policy is to launch criticisms of, and make modifications to, those of Popper's ideas that she is unable to accommodate to this programme. This policy is prone to errors of interpretation and of substance..

My criticisms of Koertge's paper are these.

1. She looks at the views of Hempel, which are inductivist and psychologistic, and those of Dray, who is an ordinary language analyst, and proceeds to make the confusing claim that Popper's scheme for the explanation of human action is closer to

doctrine of anti-essentialism to Wittgenstein, apparently unaware that the name comes from Popper (essentialism = realism about universals).

3. Three sociologists write as follows: "The reader who doubts that Popper was capable of carrying out (theoretical) work in sociology is especially referred to the fine study of "Plato's Descriptive Sociology" in *The Open Society and Its Enemies* as well as to the chapter titled "The Sociology of Knowledge" (Popper 1945, vol. I, 29-48; vol. 2, 201-211." See Peter Hedström, Richard Swedberg, and Lars Udéhn, "Popper's Situational Analysis and Contemporary Sociology", *Philosophy of the Social Sciences* 28(1998):359.

4. *Theory and Decision* 10(1979):83-95.

the latter than to the former. Yet the only way in which Popper's ideas are at all close to Dray's are that they are intuitive. That is to say, we grasp them as a matter of course. Otherwise, Dray's mistakes include treating Popper as a positivist, muddling together Popper's and Hempel's analysis of explanation as deductive, and bestowing on this analysis the wretched label of "the covering law model". These mistakes show him to be confused both as exegete and as philosopher. Since it is statements that are explained, it falls to Dray to offer an alternative to deduction that specifies the relation between the statement to be explained and the statements that constitute the explanation. This he never does.

2. Koertge analyses the rationality principle into two clauses, even though neither corresponds to anything Popper advanced:

(RP1) Every action is a rational response to some problem-situation

(RP2) Every person in a problem-situation responds rationally.

Both (RP1) and (RP2) are clearly false, hence Koertge finds it a puzzle that Popper claims the rationality principle to be almost empty. Since the only statements that are empty are tautologies and also, by courtesy, perhaps, logical falsehoods, Koertge has no difficulty in imputing content to (RP1) and (RP2). The content she imputes includes actors engaging in *methodical appraisal* of solutions to problems, as prelude to action. She views all action as resembling the behaviour of consumers in the free market when they engage in "comparison shopping" (p. 91).

3. Continuing, Koertge undertakes to show why a false principle should be used in social science explanation. Her ploy is to treat the rationality principle as part of a Lakatosian "hard core", that is, part of a small set of statements at the heart of a research programme that are protected from criticism and refutation in the interests of continuity. Nothing could better show the irrationalist tendency of Lakatos' methodology. By treating it as part of the hard core any threatened idea, theory, or principle can be rescued from challenge.

The problem goes back to the formulation of (RP1) and (RP2). Popper admitted that any claim that people always act rationally or appropriately to their situations is obviously false. Yet, he took it that, to say we explain by appeal to such a claim is almost banal or trivial. What is he getting at? He is getting at two things: one, that when we ask ourselves to explain someone's action we try out various models of their problem situation until we find one in which the action we are trying to explain seems an appropriate response; moreover, we do this as a matter of course. Two: what makes this account banal or trivial is that we have no alternative. This is not so much a verbal point (viz. that the demand for explanation simply is a demand for rational explanation) as the fact that any weaker alternative (viz. we sometimes act in ways that cannot be rationally explained) opens the door to arbitrary and *ad hoc* explanations. This happens in Koertge's paper when she has to add epicyclical theories of human error, theories of unconscious motives, and the like, to protect her version of what she deems to be Popper's rationality principle (p. 91).

4. It seems to me obvious that (RP1) and (RP2) do not capture Popper's rationality principle. The principle is not a generalization about people ("Every person..." etc.), it is a methodological principle that tells us how to proceed. Popper treats the rationality principle as a regulative principle, one he translates into a methodological injunction. It may clarify matters if we consider another case where he shifts the emphasis from generalisation to method, namely causation. In *The Logic of Scientific Discovery* Popper replaced "Every event has a cause", with the methodological rule, to "not abandon the search for universal laws and for a coherent theoretical system, nor ever give up our attempts to explain causally any kind of event we can describe".⁵ Applying this move to the social sciences, the rationality principle urges us, while not denying that people do strange things, not to give up the search for explanatory rational reconstructions of their typical and repeated actions in terms of

5. K. R. Popper, *The Logic of Scientific Discovery*, London: Hutchinson 1959, p. 61.

aims, situations, appreciation of situations, and action rationally appropriate to these. Notice how once we look at matters in this way the paradox that troubles Koertge vanishes: it vanishes with the help of two notions that are both trite and stated explicitly by Popper: typicality and repeatability. In his analysis of how we explain the breaking of a thread by showing it is overloaded Popper argues that it is because the event of the thread breaking under a load greater than its tensile strength is *typical*, that we are able to explain it. If breaking sometimes happened and sometimes did not, explanation using tensile strength alone would not be satisfactory. The whole idea of “overloaded” would be too vague to do any explanatory work. Only by typifying events we are trying to explain can we causally explain them. Koertge gets quite muddled over just what we can explain and what we cannot. Even when we explain a singular event, such as an accident, we concentrate on its typical and repeatable features that can be brought under physical law.

Koertge’s theory of error, her theory of unconscious motives, and the like, attempt to show what is explicable and what is not in advance. This seems to me over-ambitious. Instead of reaching for Hempel, Dray, and Lakatos, instead of resorting to the later Popper for the metaphysics of the three worlds to make sense of his ideas retroactively, as Koertge does, it is more fruitful to examine how Popper utilises the rationality principle in his own first-order work in social science. This way, we follow another of Popper’s methodological rules, try to reconstruct the problem-situation in which someone is working in order to make sense of those actions we call their intellectual work: the theories and explanations they put forward. Popper did not develop the rationality principle out of the blue, or as part of a vast philosophical system. He developed it out of his reading of Weber and economics, and he did that in the course of grappling with and criticising Plato’s sociology and Karl Marx’s economic and political ideas. He used it extensively when thinking about society and politics.

Koertge's policy in her article is understandable. The usual way of approaching puzzles about the key ideas of Popper or anyone else is to pore over the various places in his texts where the author expatiates on them. In two special 1998 issues of the journal I edit, *Philosophy of the Social Sciences*, a commotion was made because of the release of a new text, delivered orally in 1963, but only in print in 1994.⁶ High hopes that at last things would be clear were dashed. True, the word 'models' was self-consciously used for the first time, but the example of rational explanation that Popper analysed at length was rather mundane: a pedestrian crossing a road.

In this paper I make a different approach to trying to understand Popper's ideas about social science explanation. My aim is to explicate Popper's philosophy by analysing his scientific practice. Besides his contributions as a methodologist and philosopher, I want to emphasise that Popper did actual first-order work: in probability, in logic, in physics, in biology, and, most important for present purposes, in the social sciences. His major work of social science was *The Open Society and Its Enemies*. This was something he wrote during an interruption to his writing of "The Poverty of Historicism", a philosophical and, in particular, methodological monograph. The social science in *The Open Society and Its Enemies* can be assessed with the aid of Popper's own ideas on science. To specify: his falsificationism, his anti-essentialism, his critical rationalism.

The Open Society is a work of intellectual history, an attempt to make sense of history in the long view, to interpret it as the quest for an open society. The opening of society only becomes possible after the collapse of the collectivist organisation of tribalism: once social arrangements can be seen to be conventional rather than natural a new question opens up: what forms of social and political organisation will maximise freedom? In the course of answering this question Popper made extensive

6. "Models, Instruments, and Truth", in Karl R. Popper, *The Myth of the Framework*, London: Routledge 1994.

contributions to political science and economics in the form of conceptual and empirical criticisms of the work of Marx. He contributes to sociology by painting a sociological portrait of Plato that identifies him as one of the most brilliant sociologists of all time, yet by no means immune from criticism. *The Open Society* is even a work that contributes to the sociology of knowledge, which Popper uses to understand some of the social causes that made Plato a reactionary, which encouraged him to betray the ideals of his beloved teacher, Socrates.

Originally published in late 1945, and written under straitened circumstances in New Zealand, *The Open Society and Its Enemies* was kept under revision for the next 25 years. Most notable are the changes between the first and the second editions. This is not the place fully to detail these changes, but three should be mentioned. Back in Europe in 1946 and faced with challenges to his Plato and to his Marx scholarship, Popper invested considerable effort in the scholarly apparatus of the book, supplementing and qualifying some of his claims. Many, but not all, of these expansions were to the scholarly apparatus and are signalled for readers by being embraced between asterisks. Insertions to the main body of the text, including new material, and corrections to what Popper called “mistakes of matter and style” (Preface to the Revised (second) edition, p. ix) were, however, not so marked. Important new ideas, such as the conspiracy theory of society, and that of abstract *versus* concrete social relations, emerge first in the second edition, the only one to which he wrote a separate Preface. Here is a summary table of the principal ideas he offered in three social sciences: history, sociology, and political science.

Table

POPPER'S CONTRIBUTIONS IN *THE OPEN SOCIETY AND ITS ENEMIES*
TO THE SOCIAL SCIENCES

HISTORY
1. The critique of historicism (<i>passim</i>)
2. A theory of historical interpretation (II, ch. 11, n. 66, pp. 288-89; ch. 25).
3. An analysis of historical explanation (II, ch. 25)
4. An analysis of the rise of nationalism (II, ch. 12, §III; n. 57)
5. The hypothesis of a Greek "Great Generation" (I, pp. 160-66 <i>et seq</i> and nn), and of a movement against slavery (I, p. 58 and n13).
6. Conjectures and argument about the Socratic Problem and the dating of Plato's works (I, ch. 10, nn. 53-57)
SOCIOLOGY
7. The hypothesis of an independent variable, the "strain of civilisation" (I, p. 154ff)
8. A sociology of knowledge of a) Plato (I, pp. 171-77)
b) Hegel (II, ch. 12)
c) Marx (II, p. 185)
9. A sociological theory of science (II, pp. 204-08)
10. A demonstration that social and historical relativism are variants of the paradox of the liar (II, ch. 24, nn.7, 8)
POLITICAL SCIENCE
11. A situational analysis of the failure of Utopianism (I, pp. 139-48)
12. A protectionist theory of the proper role of the state (I, pp. 96-105)
13. A critique of the political principle of the national state (I, ch9, n.7; II, pp. 49ff. and ch. 13, n. 2)
14. The paradoxes of a) sovereignty (I, pp. 106ff)
b) freedom (I, ch. 7, n. 4)
c) tolerance (I, ch. 7, nn.4, 6)
d) free market and intervention (II, ch. 2, n. 76)
15. The theory that all long-term politics is institutional (I, p. 110)
16. Arguments for the preferability of piecemeal over Utopian social engineering (I, pp. 138-48; ch. 9, nn. 1-7)
17. A new view of democracy as a system where the ruled have the right and the power to overthrow their rulers without violence(II, ch. 19, §V)
18. An analysis of how civil and international peace can be protected, with an application to policy towards a defeated enemy (Germany?) (I, ch. 9, n. 7)
19. A systematic critique of Marxism in theory and practice, including a compelling argument to the effect that what Marx called "capitalism" withered away in the twentieth century (II, ch. 18, n. 9).

In constructing this table I have left out all the dozens of major contributions and critical arguments that are philosophical *sensu strictu*. We should remember, however, that when philosophy can be used to refute first-order theories, as in demonstrations of their paradoxicality, it can contribute to and hence be a part of social science, just as much as empirical criticism.

What I shall now do is look at Popper's actual social scientific work as a way of helping grasp his signature ideas of methodological individualism, the logic of the situation, the unintended consequences of actions, and the rationality principle. I would like to focus on three of the contributions itemised in Table A, two from sociology and one from political science. These are Popper's sociology of knowledge of Plato (8a), his sociological analysis of science (9), and his ideas on piecemeal and Utopian engineering (16). They will illustrate that Popper's individualism is very different from the usual understanding of it; that what he means by rationality and by the logic of the situation is very simple and intuitive; and that analysing out the unintended consequences of action is most of the work of the social sciences. Koertge's (RP1) and (RP2) do not capture any of this.

2. *Popper's Socio-Analysis of Plato*

Popper's socio-analysis of Plato is not an attempt to explain ideas away or to reduce them to functions of social factors. It is rather an attempt at the zero method of rational reconstruction, an attempt made necessary because of the seeming contradictions between the legacy of Plato's teacher, Socrates, and Plato's own considered philosophy. Anyone putting forward the ideas of Socrates would find the states envisaged in Plato's *Republic* or *Laws* to be very unwelcoming places. (It complicates matters that practically a lot of the evidence about what Socrates taught comes from Plato himself. The problem, then, can equally be treated as one of internal inconsistency between different, perhaps earlier and later, works of Plato.) Plato also

endorses lofty values, including hatred of tyranny, yet his blueprints for the *polis* are nothing if not tyrannical. Not only are there no controls on the rulers from below, but those persons in the classes below the guardians, namely, soldiers, tradesmen, women, and slaves are to be brainwashed so that they will know their place and be content with it, even to see it as “justice”. Why would a gifted and sensitive author not smooth out such intellectual inconsistencies? Popper’s answer, in short, is that Plato was trying to reconcile his experience with his ideals. In sketching Plato’s experience in life Popper is also looking for a unifying theme to make sense of all of Plato’s work, political and philosophical alike. He finds that theme in Plato’s having experienced rapid and even violent social change and its destabilising effects. The following is the story that Popper tells.

Plato lived through a period of wars and civil strife. Athens had a turbulent political history even before his birth. In his lifetime the 28-year struggle of the Peloponnesian War against Sparta was played out. The war brought epidemics and famine, civil war and a rule of terror known as the period of the Thirty Tyrants, led by two of Plato’s uncles. Upon the restoration of peace and democracy Socrates was charged with having miseducated Alcibiades, Critias, and Charmides, enemies of the state. Despite an eloquent defence, Socrates was executed and Plato and other companions of Socrates left Athens - perhaps for their own safety. On a visit to Sicily Plato became involved in intrigues at the court of the tyrant Dionysius I of Syracuse, an involvement that continued after his return to Athens and the foundation of the Academy.

All this resulted, according to Popper, in Plato suffering deeply from the instability and lack of political security. Plato was high-born and much interested in public affairs. Yet he was deterred from involvement

‘seeing that everything swayed and shifted without plan, I became desperate’...

From the feeling that society, and indeed ‘everything’, was in flux, arose the

fundamental impulse of his philosophy as well as of the philosophy of Heraclitus (*OS&IE*, 1945ed, I, p. 16).

Plato social experience could be summed up in the historicist law: social change is degeneration. It was a law that could be broken in only one way, by arresting all political change.

For evidence of the tension between Plato's Socratic ideals and the hard lessons of his experience, Popper scrutinises Plato's text. He draws attention to Book I of the *Republic*, which serves as a lengthy preface to the disclosure of what justice is in Book II, the revelation that what is truly just is each class in the city attending to its own business. The literary tactic of prefacing or delaying the idea to be offered suggested to Popper two alternatives. Book I was either a cynical and conscious attempt to employ the moral sentiments of the new humanitarianism for Plato's own purposes, or it was a tragic attempt to persuade his own better conscience of the evils of individualism. Popper's inclination is towards the latter, and he comments that this evidence of inner conflict is the main secret of Plato's fascination.

I think Plato was moved to the depths of his soul by the new ideas, and especially by the great individualist Socrates and his martyrdom. And I think that he fought against this influence upon himself as well as upon others with all the might of his unequalled intelligence, though not always openly. This explains also why from time to time, amid all his totalitarianism, we find some humanitarian ideas (*OS&IE*, 1945, I, p. 95).

Towards the end of the first volume of *The Open Society and Its Enemies*, in the eponymous chapter 10, Popper returns to his socio-analysis of Plato and completes his indictment of him. The charges are harsh. Plato, he reasons, betrayed Socrates by implicating him in his theory of how to arrest social and political change:

if we look upon the *Apology* and the *Crito* as Socrates' last will, and if we compare these testaments of his old age with Plato's testament, the *Laws*, then it is difficult to judge otherwise. Socrates had been condemned, but his death was not intended by the initiators of the trial. Plato's *Laws* remedy this lack of intention. Coolly and carefully they elaborate the theory of inquisition. Free thought, criticism of political institutions, teaching new ideas to the young, attempts to introduce new religious practices or even opinions, are all pronounced capital crimes. In Plato's state, Socrates would never have been given the opportunity of defending himself publicly; he would have been handed over to the secret Nocturnal Council for the 'treatment', and finally for the punishment, of his diseased soul.

I cannot doubt the fact of Plato's betrayal, nor that his use of Socrates as the main speaker of the *Republic* was the most successful attempt to implicate him. But it is another question whether this attempt was conscious (*OS&IE*, 1945, I, p. 171).

Following this, Popper probes deeply into Plato's famous 'fastidious reserve, the suppression of his own personality'. He argues that a sociological variable, the strain of civilisation, and immediate circumstances of struggle suggested to Plato the need for a complete reconstruction of Athenian society. But the Thirty Tyrants had offended the citizens' sense of justice. Only if the citizens were taught that *justice is inequality* could the programme of the Old Oligarch succeed. A big obstacle was the teachings of Socrates. They must be reinterpreted and reconciled with a totalitarian programme. Since it was a democracy that had executed him Socrates, democracy could not claim him as theirs. And Socrates had always criticised the anonymous multitude and described it and its leaders as lacking wisdom. Socrates had encouraged his disciples to participate in politics, which seemed to imply his approval of the rule of the wise.

Popper claims that there is evidence in the texts that Plato knew, despite himself, that he was distorting and betraying Socrates' teaching. This comes through whenever he attacks humanitarian ideas in the *Republic*: he is evasive and scornful when combating the egalitarian theory of justice, hesitant in his defence of lying, racialism, and his own theory of justice. Plato's *Menexenus* even contains a sneering reply to Pericles' funeral oration, where Socrates is depicted as swept along for several days by the lofty sentiments; he finally regains his senses. Popper says it is Plato who was carried along and who had to struggle hard to regain his senses and remember how much he had come to hate the ideas of Pericles and of Socrates.

Popper's discussion of Plato comprises an analysis, or at least clues for it, of the proper conduct of the social sciences. It is an exemplary, deep analysis of the interaction of mind and circumstances, reducing neither to the other. Ideas are produced in an embodied person, not a vacuum; social and political circumstances are real and pressing, and do much to dictate the problematic. Good faith is assumed, at least initially. Plato is described as genuinely trying to make the world a better place and trying to face obstacles realistically, including obstacles presented by those he was trying to help who could not see that they were acting against their own interests. Those are some of the elements that go to make up Plato's intentions, his goals. His acting to achieve them is constrained by the situation. The situation includes recent wars and devastation, Plato's own sense of mission and of responsibility, the martyrdom of a beloved teacher who ran afoul of democracy, the strong and emancipatory appeal of ideas that were in the air, especially those from Pericles and Socrates, and Plato's shrewd assessment of the political psychology of the masses.

Thus Plato's books display his use of his opponents' weapons against them, including the name and spirit of Socrates. They also serve as complex arguments trying to show all the ramifications and depredations of social change and the great benefits to be gained from arresting it. Plato's works are at the same time literary

masterpieces and political propaganda of a most ingenious sort. So ingenious, perhaps, that Plato may have deceived himself, much as he deceived generations of readers, that he was benevolent and progressive. Popper suggests that Plato deemed his own criticism of Socrates to be powerful, and his own ideas to be a rectification of Socrates' views in the light of this criticism.

In Popper's socio-analysis Plato's ideas are not reduced to social factors; social factors are not treated as mere aggregates of individuals; social factors structure how individuals become what they are, and how they act. Popper begins with the situation into which Plato was born, begins, that is, with the objective reality that preceded and formed him. He next considers the various forces that played upon Plato. His noble descent. His encounter with one of the greatest of all Greek minds, Socrates. His exile, return, and application to the task of trying to devise ideas that would ensure peace, order, and good government. His failure is most acute in that while he could achieve peace and order, good government was more difficult, because the institutions necessary to ensure peace and order did not fit comfortably with good government, especially when they are measured by the simple criterion of whether Socrates would have fared any better in Plato's imagined *polis* than he did in democratic Athens.

Popper's analysis is very subtle. He goes as far as possible with rational explanation, showing how Plato's works can be unified under the principle of resisting or bringing to a halt to social change. He presents the motivation as rational, the conclusion as not unreasonable, the hope powerful. In developing all the consequences of his ideas, however, Plato harvests some that are unintended. He reproduces in his work his own inner conflicts: they are reproduced as contradictions - within works, between works, between the historical Socrates and the literary, allegedly improved, Socrates. These contradictions are an unintended consequence of those actions we call 'working out his ideas'. Plato is not unaware of the contradictions, and tries to distract both himself and the reader when the more glaring

ones are to be presented. Contradictions are an objective logical feature of Plato's work, a difficulty for it, and a clue to the reader as to where there are weaknesses to be explained. It is a fact that even the greatest minds can make logical mistakes. It is also a social and political fact of the greatest moment.

Popper's socio-analysis of Plato uses and applies *the rationality principle, methodological individualism, the logic of the situation, and the unintended consequences of actions and ideas* to a single individual and his body of work, looking at it as a whole, in its social and psychological context. It utilises social wholes and social forces in characterizing the situation, it does not engage in reductionism, and it employs only to the most commonsense and observable of psychological variables. Popper's social theory of science, to which I now turn, looks at collective rather than solitary intellectual activity, at the typical rather than the particular.

3. *Popper's Sociological Theory of Science*

Before proceeding, a caveat. Popper added significantly to his section on the sociology of science between the first (1945) and the second (1950/1952) editions of *The Open Society and Its Enemies*. I shall concentrate, however, as throughout this paper, on the text of the first edition.⁷

The social aspects of science, what I shall call Popper's social theory of science, are introduced into the argument in order to solve a problem. The problem is a contradiction that emerges between two quite intuitive claims. The first claim is that scientific knowledge is *objective*, hence in some sense scientific work and scientists are objective. The second claim is that we are all, in Bacon's terms, *prejudiced*: we all take many ideas and presuppositions as self-evident and accept them uncritically; in a later jargon, we are under the sway of total ideologies. If scientists cannot escape prejudice then they cannot be objective.

7 . I discuss the problems of interpreting Popper in relation to his different works and their editions in *The Republic of Science. The Emergence of Popper's Social View of Science, 1935-1945*, Amsterdam: Rodopi 2001.

At the time Popper was writing (1938-1943), the sociologists of knowledge were concentrating on exposing the prejudices of class. Nowadays, precisely the same arguments are directed at prejudices due to sex, to skin colour, to location (orientalism), or to power (colonialism). These sources of bias are claimed to be insuperable, to pollute all (social) thought, and to undermine claims to objective social science (even to objective natural science).

Popper grants all such claims, and even strengthens them. Long before feminist and post-colonial epistemology came along, he noted that the arguments were valid, and that they applied as much to the natural sciences as to the social sciences. He strengthened the point by describing the passionate partiality of natural scientists towards their intellectual offspring. "If scientific objectivity were founded...upon the individual scientist's impartiality or objectivity, then we should have to say good-bye to it" (**OS&IE** (1945), II, p. 205). The sociologists of knowledge, today as yesterday, still fall into the trap of exempting themselves from the dire consequences of the prejudices they are diagnosing in others. They claim that some socio-analysis, Critical Theory, for example, or a dose of feminist epistemology, or a dose of post-colonial epistemology, or some kind of struggle with one's prejudicial demons, is the best medicine that anyone can come up with. The most extreme claim, something unthinkable to the Marxists whom Popper was criticising in 1945, is the idea that objective knowledge is impossible, and all that we have are male mathematics, colonialist physics, sexist biology, and the like.⁸

All such arguments, Popper shows, derive from a false view of in what the objectivity of science consists. Drawing on his own earlier work on scientific method, Popper sketches a drastically different picture of the objectivity of science. Assuming

8. The entire excursus into relativism that, renewed and relabelled, continues to this day, cannot survive Popper's quite general demonstration that any attempt to formulate historical and social relativism becomes a form of the paradox of the liar, i.e. a provable contradiction (see references at #10 in Table A).

that there is some objectivity in the work of science, he poses the problem, how is that achieved? It is clearly not achieved by any of the paradoxical nostrums of the sociology of knowledge. His answer is that it is achieved through social means, it is lodged in the social aspects of scientific method. He discusses two of these social aspects: free criticism; and avoiding talking at cross-purposes. By free criticism he means the anti-authoritarian tradition that encourages critical assessment no matter how forcefully a scientific idea is advanced. Avoiding cross-purpose talk involves efforts to find and to use a common language by recognising experience as the impartial arbiter of controversies. Experience here refers to observation and experiment:

experience is 'public' if everybody who takes the trouble can repeat it... In order to avoid speaking at cross-purposes, scientists try to express their theories in such a form that they can be tested, i.e. refuted (or otherwise confirmed) by such experience (*OS&IE* (1945), II, p. 206).

This is what constitutes scientific objectivity.

Is not this model of objectivity vulnerable to the original objection, namely, that however hard scientists try, they are prisoners of their prejudices and biases? In principle, yes. In practice, no, because science has created social institutions designed to promote objectivity and impartiality to the extent that it does make a difference; these institutions include laboratories, scientific periodicals, congresses and, of course, clear language. Such institutions make public control possible, and foster the expression of criticism. Only political power can impair the functioning of these institutions. (In the absence of such institutions, critics of objectivity who prescribe raising consciousness offer no means of checking their own prejudices.)

Popper illustrates his views with two ingenious thought experiments, one the case of a clairvoyant who conjures/dreams up a discovery later produced by a *bona*

fide scientist. At the time the clairvoyant's work is produced, competent scientists would have found the discovery partly understandable and partly fantastic, because many later relevant discoveries were then unknown. Such 'revealed science', Popper argues, is not scientific at all since it was not the result of scientific method: it was not open to critical scrutiny. Carelessly read, the example suggests that Popper is endorsing method as a logic of discovery. The second thought-experiment should dispel any such misreading.

In a less far-fetched thought experiment, Popper considers the case of Robinson Crusoe doing a lot of empirical work after building himself physical and chemical laboratories, an astronomical observatory, and such like, and writing up his research in papers some of which coincide with work done by scientists who were not marooned. This, Popper argues, is still revealed science. The element of scientific method missing here is that no-one but Crusoe has checked his results, compensated for his prejudices. Hence his papers would not be communications to others in such a way that they could check them. Both the clairvoyant and Robinson Crusoe lack the interpersonal mutual-checking of institutionalised scientific method. Thus their work is not criticised, and, not being criticised, it is unclear that it has been expressed with the clarity needed for communication. The proof of clarity is in the pudding of criticism. The point of this second thought experiment is to criticise the idea that Crusoe could do science because he had learned the logic of discovery: Crusoe can develop ideas because he can use his (self-) critical abilities; but his ability to articulate and criticise these ideas is limited by prejudices that he does not know he has; so, sooner rather than later, his 'scientific work' will cease to be and even to seem scientific.

Popper's social analysis of the objectivity of science conforms to methodological individualism. Science is typified as the discoveries and ideas proposed by individuals which are subjected to criticism and other tests devised by other individuals. This

system of relationships is not treated as merely the aggregate of those individuals and their actions. On the contrary, there have to be non-reducible social institutions, and their associated traditions, that provide the necessary check on prejudices and partisanship, to both of which natural scientists are prone. Scientific individuals display their rationality not just in making discoveries and engaging in critical dispute, but also, and crucially, in the design and maintenance of the social institutions of science. The function of these social institutions is to foster a situation in which there are opportunities and incentives to create, to communicate, and to criticise, especially the latter two. These institutions promote and facilitate the friendly-hostile cooperation of rival scientists. The one signature idea that Popper does not explore in this passage of *The Open Society* is that of unintended consequences. There are unintended consequences of scientific work, none the less. The very structure of science itself, that theoretical edifice that still stands, and the parts of the structure that are known to be problematic are the results of human action but not of human design. Turning to the social institutions within which science is produced, one might say that, in the spirit of Popper's claim that institutions need to be both well-designed and well-manned,⁹ the institutions of science sometimes have unintended consequences that may thwart in some ways the aims of freedom of thought and freedom to criticise and test. The institutions may then be in need of piecemeal reform.¹⁰

The analysis I have offered presented the socio-analysis of science as a case of Popper applying methodological individualism, the logic of the situation, the

9. My phrasing is an allusion to a sentence in "The Poverty of Historicism", written at around the same time as the first edition of *The Open Society and Its Enemies*, "(Institutions are like fortresses. They are effective only if they are properly manned.)" See *Economica*, vol. 11, 1944, p. 123. For the book version of 1957 Popper varied this: "(Institutions are like fortresses. They must be well designed and properly manned.)" See, *The Poverty of Historicism*, London: Routledge 1957, p. 66.

10. See my "Popper's Ideal Types: Open And Closed, Abstract and Concrete Societies", in Ian Jarvie and Sandra Pralong, eds., *Popper's Open Society After 50 Years*, London: Routledge 1999, pp. 71-82.

unintended consequences of actions (and ideas), and the rationality principle, to science, looking at it as a whole, and in its social and psychological context. Popper's social theory of science presents it as a collective activity rather than as the aggregate of the solitary intellectual activities of individuals, as typical of scientific discovery in general rather than of any particular discovery.

4. *Popper's Situational Analysis of the Failures of Utopianism*

My final case study from Popper's work as a social scientist takes us to the one chapter in *The Open Society and Its Enemies* where the chapter title was changed between the first and the second editions. Originally chapter 9 was entitled "Aestheticism, Radicalism, Utopianism"; curiously, it later became "Aestheticism, Perfectionism, Utopianism", a quite drastic shift of meaning.¹¹ The chapter is a critique of the approach to politics that he terms Utopian engineering: social engineering undertaken to bring about the ideal state. As well as contrasting it with the more rational approach that he terms piecemeal social engineering, he develops separate arguments against Utopianism. They consist almost entirely of thinking through the logic of the situation faced by the ambitious Utopian engineer.

On first glance, Utopianism seems to be the epitome of rationality. It is action directed to a clear *ultimate* goal. It thus seems more rational than action directed at intermediate goals, which might turn out to be in conflict with the ultimate goals, and especially more rational than "muddling through". This appearance is deceptive and collapses under careful scrutiny. Utopianism proves to be action towards an unknown and unknowable goal, and hence involves employing means that cannot be judged appropriate, and so cannot be subjected to critical scrutiny: local failures may be successes by reference to the ultimate goal, so their discovery need not be taken as

11. Popper's philosophy is a critique of radicalism in all its forms, moral, social, political, epistemological, aesthetic, so it was an odd decision to take a key term out of the title of this chapter.

valid criticism of the effort. Because the goal is deferred, all criticism can be deflected in this way.

Popper offers three arguments to show how Utopian social engineers will not be able to act rationally. The first argument is that the Utopian engineer will have difficulty assessing his own success. Radical social change is bound to be arduous and long-drawn out. Carping and other unreasonable criticism will need to be firmly set aside to give the changes a chance, to avoid action becoming paralysed by doubt. In setting aside *unreasonable* criticism, the Utopian can hardly avoid suppressing *reasonable* criticism at the same time. His supposedly rational pursuit of an ultimate goal, then, can proceed only by denying himself the opportunity to learn, denying himself, that is to say, one of the touchstones of rationality.

The second argument is that, if the changes take longer than one generation, the project will be handed on to successors. But it is possible that those successors will not be pursuing the same ideal, and so the sufferings already imposed for the sake of the ideal may have been in vain.

The third argument takes the second a bit further. If the process of change is protracted, not just the leading cadres, but the very ideal itself may undergo change. Ideas, ideals, even values, and the ranking of values, are very likely to change with the succession of generations and the development of new perspectives. If the aim changes then the claim that the changes are rational breaks down, since it is futile to try to move towards a changing aim. What if criticism shows us that all the steps taken hitherto lead away from the new aim, rather than towards it? If we change direction we expose ourselves to the same risk. Moreover, if the ideal is so distant that it cannot be achieved expeditiously, inescapable problems arise about whether any step taken is a step towards it. Unrealised ideals are, after all, an unknown country: we have neither knowledge nor experience of this country, neither knowledge nor experience of which

roads lead to it, neither knowledge nor experience of the problems of navigating those roads.

The third argument continues as follows. Only if we could rationally determine once and for all an absolute and unchanging ideal, and what the best means of realising it are, could we put a stop to these problems. But there is no rational method of determining the one true ideal. Popper stresses that Plato's programme makes excellent sense given that it was for an ideal state, for a truly rational and ultimate goal, one that Plato was convinced he could achieve by means of infallible science. But the ideal state and the ideal science cannot exist. And so, striving to reach the ideal will only intensify dissent; such dissent, in turn, will not be open to rational discussion and Utopianism will prevent compromise. Under these conditions, disputes can be settled only by power; in the last resort, by violence.

Note how Popper's analysis makes sense of the internecine violence Utopianists visit on one another. Once disputes are resolved and one vision and one leadership are in position they are bound to discover that they do not know how to proceed. When they make a stab in the dark and they experience failure or resistance, the logic of their ideas is that even more radical change is needed. The more radical the change, the more elements of society are altered, the faster the situation becomes one in which there is too much happening to decide what is causing what, whether any success has been achieved at all, whether the very ideas and values behind the Utopian ideals any longer make sense. Knowledge, Popper argues, comes from trial and error, from the making of mistakes. It is indispensable to the making of mistakes that we not face a chaotic situation in which changes and their consequences are indistinguishable and the tools to assess either one are called into question all at the same time. This is precisely the situation the Utopian social engineer creates.

As soon as a percipient leadership understands what has come about and tries smaller-scale experiments and pilot projects it has fallen back onto the programme of

the despised opponents variously called the gradualists, the incrementalists, the piecemeal social engineers. Writing in the years 1938-1943, Popper clearly has before his mind various Utopian experiments, especially that in Russia. Other obvious subsequent test cases for Popper's ideas have been North Korea after 1948, China after 1949, North Vietnam after 1954, Cuba after 1961, and Cambodia after 1975. Each of these Utopian régimes had the Soviet experience to learn from; none seems to have done so. The large scale planning, the Utopian economic schemes, the less than rational view that the only way to better conditions for the people was to slaughter large numbers of them, all were repeated with variations. All these régimes ended up in the hands of despots whose very position was in flagrant contradiction to what the official ideology preached. All now look to us to be combinations of tyrannies, warlordism and gangster states, cloaking themselves in fancy rhetoric.

The above analysis has deployed all the main elements of Popper's philosophy of the social sciences. It was a simple application of situational logic, using as actors typical individuals with benevolent aims and a claim to be proceeding rationally, that is, matching means to explicit ends. From this model, various consequences follow, intended and unintended. Yet nothing is more flagrantly irrational than failure to learn from experience, failure even to see that a certain experience is comparable. So much for the claimed rationality of Utopian social engineering. Gradualist and piecemeal approaches now can be seen to be more rational than Utopianism.

5. The Upshot

How do these case studies in his social science work illuminate Popper's ideas? They show that the four signature ideas mentioned at the beginning are all of a piece. Methodological individualism, situational logic, analysing the unintended consequences of action, and the rationality principle come together as a package and throw light on one another. Methodological individualism is the methodological proposal that we explain by using typified individuals, their aims, and their situations

(Athenian aristocrat, scientists, Utopian engineers), exploring how their situation constrains them, and how unintended consequences of actions always require on-going self-critical re-assessment if action is to remain rational. Critical feedback about consequences can affect means, but it can also affect aims. Plato, however, was not a typical individual. How does Popper's socio-analysis of Plato sit with his emphasis on the typical? The answer is clear: even when it is the actions of a particular individual, including the actions of thinking and writing,¹² that is to be explained, the explanation proceeds by typifying the individual - by age, by sex, by class, by education, by ideas, and modelling his reaction to his situation as though he were typical. The rationality principle amounts to the methodological proposal to give a rational explanation wherever possible - to the limit of our intellectual resources. At that limit we may declare some features of the problem inexplicable. Were we to declare them irrational, that would amount to the same thing. Popper sums up better than I can:

The 'world' is not rational, but it is the task of science to rationalise it. 'Society' is not rational, but it is the task of the social engineer to rationalise it. (This does not mean, of course, that he should 'direct' it, or that centralised or collectivist 'planning' is desirable.) Ordinary language is not rational, but it is our task to rationalise it, or at least to keep up its standards of clarity. The attitude here characterized could be described as '*pragmatic rationalism*'. This pragmatic rationalism is related to an uncritical rationalism and to irrationalism in a similar way as critical rationalism is related to these two. For an uncritical rationalism may argue that the world is rational and that the task of science is to discover this rationality, while an irrationalist may insist that the world, being fundamentally irrational, should be experienced and exhausted by our emotions and passions (or

12. For the idea of thought as a special form of action, see Jarvie and Agassi "The Rationality of Dogmatism" in Agassi and Jarvie, eds., *Rationality: The Critical View*, The Hague: Mouton 1987.

by our intellectual intuition) rather than by scientific methods. As opposed to this, pragmatic rationalism may recognise that the world is not rational, but demand *that we submit or subject it to reason*, as far as possible. Using Carnap's words (*Der Logische Aufbau*, etc., 1928, p. vi) one could describe what I call 'pragmatic rationalism' as 'the attitude which strives for clarity everywhere but recognises the never fully understandable or rational entanglement of the events of life'. (*OS&IE* (1945), II, p. 337, n. 19).