

امعمال ہے۔ ہم ہر لمحے سچ کے بارے میں زیادہ جان سکتے ہیں اور سچ کے قریب پہنچ سکتے ہیں دوسرے معنوں میں ہم سچ کو مطلق طور پر پانے کی جدوجہد ہی کرتے رہتے ہیں لیکن اسے کبھی حاصل نہیں کر پاتے:

I can therefore gladly admit that falsificationists like myself much prefer an attempt to solve an interesting problem by a bold conjecture, even (and especially) if it soon turns out to be false, to any recital of a sequence of irrelevant truisms. We prefer this because we believe that this is the way in which we can learn from our mistakes; and that in finding that our conjecture was false we shall have learnt much about the truth, and shall have got nearer to the truth.<sup>1</sup>

سائنس، نظریے اور تجربات کے سہارے اپنا سفر شروع کرتی ہے۔ نظریے بنتے رہتے ہیں اور تجربات ہوتے رہتے ہیں نظریہ تخلیق کرنے والے بسا اوقات اپنے نظریے کے تجربی نتائج سے لاعلم ہوتے ہیں۔ دونوں کے مابین لازماً کوئی ربط و تعلق نہیں ہوتا لیکن کام چلنا رہتا ہے۔ ترقی ہوتی رہتی ہے۔ سائنس ایک سماجی تجربہ [social practice] ہے جس کی صورت گری میں ہزاروں لوگ مختلف سطحوں پر دن رات سرمایہ داروں کے اربوں کھربوں روپے کی سرمایہ کاری [capital] کے ساتھ مصروف عمل رہتے ہیں تب جا کر یہ نظری قضاہ مادی تجربے میں تبدیل ہوتا اور ایجاد کے سانچے میں ڈھل جاتا ہے۔ لیکن عام طور پر ایسا محسوس ہوتا ہے کہ کوئی ایک سائنس داں اچانک کھڑا ہو گیا اس نے کوئی خیال، نکتہ پیش کر دیا پھر اسے تجربے سے گزار کر دنیا میں ایک انقلاب پیدا کر دیا۔ محض نادانوں کا خیال ہوتا ہے لیکن سائنس کی تاریخ سے واقف اور سائنسی ایجادات کے مراحل سے آگاہ محققین جانتے ہیں کہ حکومت، ریاست، سرمایہ [capital]، سرمایہ دارانہ نظام [capitalism]، سرمایہ دارانہ نظم زندگی [market]، سرمائے کے بازی گرا داروں نئی مارکیٹ، فنانشل مارکیٹ، کی تو تیس اور ہزاروں قسم کے ذہن دماغ مختلف سطحوں پر مختلف مراحل کے ذریعے مل جل کر کسی سائنسی نتیجے تک پہنچتے ہیں جب تمام قوتیں ایک ہی سمت میں اور ایک ہی نتیجے کے حصول کے لیے مصروف عمل رہتے ہیں تب کوئی ایجاد ہمارے سامنے آتی ہے۔ یہ کسی فرد کی تنہا کوشش کا مادی ظہور نہیں ہوتا بلکہ ایک بہت بڑے اجتماعی عمل کا نتیجہ ہوتا ہے۔ اگر اس عظیم اجتماعی کوشش میں سے ریاست، حکومت یا سرمایہ [capital] کو نکال دیا جائے تو

1. K. R. Popper, *Conjectures & Refutation*, London: Routledge & Kegan Paul, 1969, p. 231; A. F. Chalmers, *What Is This Thing Called Science?* p.43.

سائنس کا پھولتا پھلتا غبارہ لمحوں میں پھٹ کر زمین پر گر جائے گا۔ جب دنیا کی تمام قومیں افراد، ریاست، حکومت اور سرمایہ اور ادارے، ہیست اور ہی پرایک ہی کام میں مصروف ہوں تو سائنس ترقی کیوں ممکن نہ ہو! چاسر کے الفاظ میں:

The maze of propositions involved in a body of knowledge at some stage in its development will, in a similar way, have properties that individuals working on it need not be aware of. The theoretical structure that is modern physics is so complex that it clearly cannot be identified with the beliefs of anyone physicist or group of physicists. Many scientists contribute in their separate ways with their separate skills to the growth and articulation of physics, just as many workers combine their efforts in the construction of a cathedral. And just as a happy steeplejack may be blissfully unaware of the implication of some ominous discovery made by labourers digging near the cathedral's foundations, so a lofty theoretician may be unaware of the relevance of some new experimental finding for the theory on which he works. In either case, relationships may objectively exist between parts of the structure independently of any individual's awareness of that relationship.<sup>1</sup>

So far I have outlined an objectivist view that focuses on theories as explicitly expressed in verbal or mathematical propositions. However, there is more to science than this. There is also the practical aspect of a science. A science, at some stage in its development, will involve a set of techniques for articulating, applying and testing the theories

1. Ibid., p.116.

of which it is comprised. The development of a science comes about in a way analogous to that in which a cathedral comes to be built as a result of the combined work of a number of individuals each applying their specialized skills. As J. R. Ravetz has put it, "Scientific knowledge is achieved by a complex social endeavour, and derives from the work of many craftsmen in their very special interaction with the world of nature". A full objectivist characterization of a science would include a characterization of the skills and techniques that it involves.<sup>1</sup>

سائنس کتنی معروضی [objective] ہے اور کتنی موضوعی [subjective]۔ سائنس کے جس نظریے کو سائنس دانوں اور ماہرین کے نزدیک درست، حق، سچ اور بالکل صحیح سمجھا جا رہا ہو عین ممکن ہے کہ وہ بالکل غلط ہو اور سائنس دان جس نظریے کو بالکل غلط سمجھ رہے ہوں عین ممکن ہے کہ وہی بالکل درست ہو یعنی نہ سچ کا پتا ہے نہ جھوٹ کی خبر۔ کچھ ہوتا رہتا ہے سچ اور غلط ہو جاتا ہے۔ اسی لیے فلسفہ سائنس کے علماء کہتے ہیں کہ سائنس کے نظریات کی نہ کلی تصدیق ممکن ہے نہ کلی تردید، کبھی تصدیق رہ جاتی ہے کبھی تردید ہو جاتی ہے آج جو سچ ہے کل غلط ہو سکتا ہے اور پرسوں غلط صحیح ہو سکتا ہے سائنس اسی انکل پنچو عمل اور رد عمل کا نام ہے۔ چیزیں موجود ہوتی ہیں، بہت سی تخلیقات، مصنوعات وجود رکھتی ہیں لیکن ان کے اندر کیا کمالات پوشیدہ ہیں ان کو کس کس طرح استعمال کیا جا سکتا ہے۔ ان سے کیا کیا مادی فائدے اور فتوحات حاصل کی جا سکتی ہیں اس کے لیے ایک خاص ذہنیت، خاص نظریے، خاص فلسفے، خاص فکر، خاص مزاج اور موضوعیت [Subjectivity] کی ضرورت ہوتی ہے، اس نظریے اور موضوعیت کے بغیر، جو اپنی جڑیں مابعد الطبیعیات میں رکھتا ہے، ایشیا کے وجود سے کوئی نئی شے تخلیق ہی نہیں ہو سکتی۔ مثلاً رسالت مآب صلی اللہ علیہ وسلم جس سرزمین عرب پر تشریف لائے وہاں تیل موجود تھا جو اب عربوں کی معیشت کا خاص ہتھیار ہے لیکن اس تیل کو صدیوں تک استعمال نہیں کیا گیا آخر کیوں؟ کیا اسے استعمال کر کے اسلام شرق و غرب میں نہیں پھیلایا جا سکتا تھا؟ مگر اس کے باوجود تیل اور اس کی متعلقات سے اسلامی تہذیب و تاریخ کا کوئی تعلق کبھی ظاہر نہ ہو سکا تو کیوں؟ عدسے ۱۲۸۵ء میں دریافت ہو گئے تھے مگر عدسوں کو ایک دوسرے کے سامنے رکھ کر اس سے دور بین بنانے کا عمل تین سو سال بعد وقوع پذیر ہوا آخر دور بین بننے میں تین سو سال کیوں لگ گئے؟ ظاہر ہے عدسہ کا ہونا کوئی واقعہ نہیں عدسوں کو ایک خاص

1. Ibid., p.119.

طریقے سے رکھنا اس کے لیے ایک خاص قسم کے ذہن کا ہونا لازمی ہے جو ایک خاص تاریخ و تہذیب اور زمان و مکان میں ظاہر ہو کر نتیجہ اخذ کرنے کا موضوعی ذہن [subjective mind set] رکھتا ہو اس نظریے کے بغیر جو خاص مابعد الطبیعیات اور زمان و مکان کے زیر اثر ظہر پذیر ہوا۔ عدسے کبھی آگے پیچھے رکھے نہیں جا سکتے تھے۔ چاہر اس کی وضاحت کرتے ہوئے پاپر کے حوالے سے لکھتا ہے:

My . . . thesis involves the existence of two different senses of knowledge or of thought: [1] *knowledge or thought in the subjective sense*, consisting of a state of mind or of consciousness or a disposition to behave or to act, and [2] *knowledge or thought in an objective sense*, consisting of problems, theories, and arguments as such. Knowledge in this objective sense is totally independent of anybody's claim to know; it is also independent of anybody's belief, or disposition to assent; or to assert, or to act. Knowledge in the objective sense is *knowledge without a knower; it is knowledge without a knowing subject*.<sup>1</sup>

Lakatos fully supported Popper's objectivism and intended his methodology of scientific research programmes to constitute an objectivist account of science. He talked of "the cleavage between objective knowledge and its distorted reflection's in individual minds and in a longer passage he observed,

...a theory may be pseudoscientific even though it is eminently "plausible" and everybody believes it, and it may be scientifically valuable even if it is unbelievable and nobody believes it. A theory may even be of supreme

1. K.R. Popper, *Objective Knowledge*, Oxford: Oxford University Press, 1979, pp.108-9.

scientific value even if no one *understands* it, let alone believe it.

The cognitive value of a theory has nothing to do with its *psychological* influence on people's minds. Belief, commitment, understanding are states of the human mind. . . . But the objective, scientific value of a theory. . . independent of the human mind which creates it or understands it.<sup>1</sup>

Lakatos insisted that it was essential to adopt an objectivists position when writing the history of the internal development of a science. "A Popperian internal historian will not need to take any interest whatsoever in the persons involved, or in their beliefs about their own activities."<sup>2</sup> Consequently, a history of the internal development of a science will be "the history of disembodied science".<sup>3</sup>

The works of Ptolemy and Al Hazen provided opportunities for the development of optics that were not taken advantage of until the time of Galileo and Kepler. In his investigation of that problem, V. Ronchi, writes,<sup>4</sup>

Although we do not know who first invented spectacle lenses, we do know with some exactness when

1. J. Worrall and G. Currie[eds.], *Imre Lakatos. Philosophical papers Volume 1: The Methodology of Scientific Programmes*, Cambridge: Cambridge University Press, 1987, p.1.

2. Lakatos, "History of Science and its Rational Reconstruction", p.127.

3. Ibid., pp. 120-121.

4. V. Ronchi, "The INfluence of the Early Development of Opticks on Science and Philosophy", In *Galileo: Man of Science*, [ed., E. McMullin], New York: Basic Books, 1967, pp.195-206.

they were first introduced: somewhere between 1280 and

1285. Yet the first telescope did not appear until around 1590. Why did it take three whole centuries to put one spectacle lens in front of another?<sup>1</sup>

فیرابینڈ نے مذہب سائنس [Religion of Science] کے بارے میں دو صدیوں سے خواہ مخواہ قائم مرعوبیت کا خاتمہ کر دیا۔ اس کی کتاب *Against Method* سائنس کی حقیقت کھول کر رکھ دیتی ہے۔ فیرابینڈ نے اپنی تمام تحریروں میں سائنس کے بارے میں خود ساختہ عقائد اور نظریات پر تازہ توڑ حملے کیے ہیں۔ اس کے حملوں کا کوئی تا حال موثر جواب نہیں دیا جاسکا۔ دو صدیوں تک مذہب سائنس کے اندھیروں میں بھٹکنے والے مغربی مفکرین فیرابینڈ کی مہیا کردہ روشنی میں حیران ہو کر رہ گئے کہ ہم کس دھوکے میں تھے۔ سائنس اور علم — سائنس اور حقیقت — دراء اوراء کا علم تاریخ انسانی کا سب سے بڑا دھوکا تھا۔ فیرابینڈ سائنس اور دیگر علوم، فلسفے، جادو، دیومالا، اساطیر وغیرہ وغیرہ میں کوئی فرق محسوس نہیں کرتا۔ فیرابینڈ کے افکار کا سہل ترین خلاصہ اور بہترین وضاحت چامر کے الفاظ میں پڑھیے:

Feyerabend makes a strong case for the claim that none of the methodologies of science that have so far been proposed are successful. The main, although not the only, way in which he supports his claim is to show how those methodologies are incompatible with the history of physics. Many of his arguments against the methodologies which I have labelled inductivism and falsificationism resemble those that appear in the earlier chapters of this book. Indeed, the views expressed there owe some debt to Feyerabend's writings. Feyerabend convincingly argues that methodologies of science have failed to provide rules adequate for guiding the activities of scientists. Furthermore, he suggests that, given the complexity of history, it is most implausible to expect that science be explicable on the basis of a few simple methodological rules. To quote Feyerabend at some length:

1. Ibid., pp. 127-128.

The idea that science can, and should, be run according to fixed and universal rules, is both *unrealistic* and *pernicious*. It is unrealistic, for it takes too simple a view of the talents of man and of the circumstances which encourage, or cause, their development. And it is pernicious for the attempt to enforce the rules is bound to increase our professional qualifications at the expense of our humanity. In addition, the idea is *detrimental* to science, for it neglects the complex physical and historical conditions which influence scientific change. It makes science less adaptable and more dogmatic.....

Case studies such as those reported in the preceding chapters. . . speak against the universal validity of any rule. All methodologies have their limitations and the only "rule" that survives is "anything goes"<sup>1</sup>....

...A passage from an article by Feyerabend written a decade before *Against Method* illustrates the fact that "anything goes" should not be interpreted in too wide a sense. In that passage, Feyerabend attempts to distinguish between the reasonable scientist and the crank.

The distinction does not lie in the fact that the former ["respectable" people] suggest what is plausible and promises success, whereas the latter [cranks] suggest what is implausible, absurd, and bound to fail. It cannot lie in this because we never know in advance which theory will be successful and which theory will fail. It takes a long time to

1. Paul Feyerabend, *Against Method: Outline of an Anarchistic Theory of Knowledge*, London: New Left Books, 1975.

decide this question and every single step leading to such a decision is again open to revision. . . No, the distinction between the crank and the respectable thinker lies in the research that is done once a certain point of view is adopted. The crank usually is content with defending the point of view in its original, undeveloped, metaphysical form, and he is not at all prepared to test its usefulness in all those cases which seem to favour the opponent, or even to admit that their exists a problem. It is this further investigation, the details of it, the knowledge of the difficulties, of the general state of knowledge the recognition of objections, which distinguishes the "respectable thinker" from the crank. The original content of his theory does not. If he thinks that Aristotle should be given a further chance, let him do it and wait for the results. If he rests content with this assertion and does not start elaborating a new dynamics, if he is unfamiliar with the initial difficulties of his position, then the matter is of no further interest. However, if he does not rest content with Aristotelianism in the form in which it exists today but tries to adapt it to the present situation in astronomy, physics, and microphysics, making new suggestions, looking at old problems from a new point of view, then be grateful that there is at last somebody who has unusual ideas and do not try to stop him in advance with irrelevant and misguided arguments.<sup>1</sup>

1. Paul Feyerabend, "Realism and instrumentalism: Comments on the Logic of Factual Support", In *The-Critical Approache to Science and Philosophy*, [ed., M. Bunge], New york : Free press, 1964,p.305.



Feyerabend's anarchist theory of knowledge and interpretations of concepts and the observation statements that employ them will depend on the theoretical context in which they occur. In some cases the fundamental principles of two rival theories may be so radically different that it is not possible even to formulate the basic concepts of one theory in terms of the other with the consequence that the two rivals do not share any observation statements. In such cases it is not possible to compare the rival theories logically. It will not be possible to logically deduce some of the consequences of one theory from the tenets of its rival for the purposes of comparison. The two theories will be incommensurable.

One of Feyerabend's examples of incommensurability is the relationship between classical mechanics and relativity theory. According to the former - interpreted realistically, that is, as attempting to describe how the world, both observable and unobservable, really is - physical objects have shape, mass and volume. Those properties exist in physical objects and can be changed as a result of physical interference. In relativity theory, interpreted realistically, properties such as shape, mass and volume no longer exist, but become relations between objects and a reference frame and can be changed, without any physical interaction, by changing from one reference frame to another. Consequently, any observation statement referring to physical objects within classical mechanics will have a different meaning to a similar looking observation statement in relativity theory. The two theories are incommensurable

and cannot be compared by comparing their logical consequences. To quote Feyerabend himself,

The new conceptual system that arises (within relativity theory) does not just deny the existence of classical states of affairs, it does not even permit us to formulate statements expressing such states of affairs. It does not, and cannot, share a single statement with its predecessor ——— assuming all the time that we do not use the theories as classificatory schemes for the ordering of neutral facts. . . the positivist scheme of progress with its "Popperian spectacles", breaks down.<sup>1</sup>

Other pairs of incommensurable theories mentioned by Feyerabend include quantum mechanics and classical mechanics, impetus theory and Newtonian mechanics, and materialism and mind-body dualism.

It does not follow from the fact that a pair of rival theories are incommensurable that they cannot be compared in any way. One way of comparing such a pair of theories is to confront each of them with a series of observable situations and to keep a record of the degree to which each of the rival theories is compatible with those situations, interpreted in its own terms. Other ways of comparing theories referred to by Feyerabend involve considerations of whether they are linear or non-linear, coherent or incoherent, whether they are daring or safe approximations and so on.<sup>2</sup>

1. *Against Method*, pp.275-76.

2. "Changing Patterns of Reconstruction", p.365

If we are concerned with the problem of theory choice, then a problem arises concerning which of the several criteria of comparison are to be preferred in situations where the criteria conflict. According to Feyerabend, the choice between criteria and, consequently, the choice between incommensurable theories is ultimately subjective.

Transition to criteria not involving content thus turns theory choice from a "rational" and "objective" and rather one-dimensional routine into a complex discussion involving conflicting preferences, and propaganda will play a major role in it, as it does in all cases involving preferences.

In Feyerabend's view, incommensurability, although it does not remove all means of comparing rival incommensurable theories, leads to a necessarily subjective aspect of science.

What remains [after we have removed the possibility of logically comparing theories by comparing sets of deductive consequences] are aesthetic judgements, judgements of taste, metaphysical prejudice, religious desires, in short, what remains are our subjective wishes.<sup>1</sup>

I accept Feyerabend's view that some rival theories cannot be compared by merely logical means. However, I suggest that his drawing of subjectivist consequences from this fact needs to be countered in a number of ways. If we are to focus on the issue of theory choice, then I am prepared to admit that there will be some subjective element involved.

1. *Against Method*, p.285.

when a scientist chooses to adopt or work on one theory rather than another, although those: choices will be influenced by "external" factors such as career prospects and availability of funds in addition to the kinds of consideration mentioned by Feyerabend in the above quotations.. However, I think it needs to be said that, although individual judgments and wishes are in a sense subjective and cannot be determined by logically compelling arguments, this does not mean that they are immune to rational argument. The preferences of individuals can be criticized, for example, by showing that they are seriously inconsistent or by showing that they have consequences that the individual holding them would not welcome. I am aware that the preferences of individuals are not solely determined by rational argument and am aware that they will be strongly moulded and influenced by the material conditions in which the individual exists and acts. (A major change in career prospects is likely to have a greater effect on an individual's preferences than a rational argument, to give a superficial example.) Nevertheless, the subjective judgements and wishes of individuals are not sacrosanct and are not simply given. They are open to criticism and to change by argument and by alteration of the material conditions. Feyerabend welcomes his conclusion that science contains a subjective element because it offers the scientist a degree of freedom absent from the "more pedestrian parts" of science. I will have more to say about Feyerabend's conception of freedom in a later section.

My second kind of response to Feyerabend's remarks on

incommensurability takes us away from the issue of theory. Choice. Zahar's case study of the rivalry between Lorentz's and Einstein's

theories, suitably modified in the light of my objectivist account of theory change, explains how and why Einstein's theory eventually replaced Lorentz's. The explanation is in terms of the extent to which Einstein's theory offered more objective opportunities for development than Lorentz's, and the extent to which those opportunities bore fruit when taken advantage of. That explanation is possible in spite of the fact that the theories are at least in part incommensurable in Feyerabend's sense, although he is not subjectivist. It must be conceded that subjective decisions and choices will be involved in the conditions specified by the sociological assumption on which my objectivist account of theory change depends. The account assumes that there are scientists with the appropriate

skills and resources to take advantage of opportunities for development that present themselves. Different scientists and groups of scientists may make different choices when responding to the same situation, but my account of theory change does not depend on the individual preferences guiding those choices.

### 3. Science not necessarily superior to other fields

Another important aspect of Feyerabend's view of science concerns the relationship between science and other forms of knowledge. He points out that many methodologists take for granted, without argument, that science (or, perhaps, physics) constitutes the paradigm of

rationality. Thus Feyerabend writes of Lakatos,

Having finished his "reconstruction" of modern science, he [Lakatos] turns it against other fields as if it had already been established that modern science is superior to magic or to Aristotelian science, and that it has no illucry results. However, there is not a shred of an argument of this kind. "Rational reconstructions" take "basic scientific wisdom" for granted, they do not show that it is better than the "basic wisdom" of witches and warlocks.<sup>1</sup>

Feyerabend complains, with justification, that defenders of science typically judge it to be superior to other forms of knowledge without adequately investigating those other forms. He observes that "critical rationalists" and defenders of Lakatos have examined science in great detail but that their "attitude towards Marxism or astrology, or other traditional heresies is very different. Here the most superficial examination and most shoddy arguments are deemed sufficient" He backs up his claim with examples.

Feyerabend is not prepared to accept the necessary superiority of science over other forms of knowledge. Further, in the light of his incommensurability thesis, he rejects the idea that there ever can be a decisive argument in favour of science over other forms of knowledge incommensurable with it. If science is to be compared with other forms of knowledge then it will be necessary to investigate the nature, aims and methods of science and those other forms of knowledge. This will be done by the

1. *Against Method*, p.205.

study of "historical records textbooks, original papers, records of meetings and private conversations, letters and the like". It cannot even be assumed, without further investigation, that a form of knowledge under investigation must conform to the rule of logic as they are usually understood by contemporary philosophers and rationalists. Failure to conform to the demands of classical logic may well be, but is not necessarily, a fault. An example offered by Feyerabend concerns modern quantum mechanic. To consider the question whether the modes of reasoning involved in some version of that theory violate the dictates of classical logic or not, it is necessary to investigate quantum mechanics and the way in which it functions. Such an investigation may reveal a new kind of logic operating which can be shown to have certain advantages, in the context of quantum mechanics, over more traditional logic. On the other hand, of course, the discovery of violations of logic constitute a serious criticism of quantum mechanics. This would be the case, for example, if contradictions were discovered that had undesirable consequences; for example, if it were discovered that for every event predicted by the theory, the denial of that event is also predicted. I do not think Feyerabend would disagree with this latter point, but neither do I think he gives it due emphasis.

Voodoo, astrology and the like is not a pressing problem in our society, here and now. We are simply not in a position to have a "free choice" between science and Voodoo, are Western rationality and that of the Nuer tribe.

Feyerabend defends what he refers to as the

"humanitarian attitude". According to that attitude, individual humans should be free and possess liberty in something like the sense John Stuart Mill defended in his essay "On Liberty". Feyerabend is in favour of "the attempt to increase liberty, to lead a full and rewarding life" and supports Mill in advocating "the cultivation of individuality which alone produces, or can produce, well developed human beings. From this humanitarian point of view, Feyerabend's anarchistic view of science gains support because, within science, it increases the freedom of individuals by encouraging the removal of all methodological constraints, whilst in a broader context it encourages a freedom for individuals to choose between science and other forms of knowledge.

From Feyerabend's point of view the institutionalizations of science in our society is inconsistent with the humanitarian attitude. In schools, for example, science is taught as a matter of course. "Thus, while an American can now choose the religion he likes, he is still not permitted to demand that his children learn magic rather than science at school. There is a separation between state and Church, there is no separation between state and science". What we need to do in the light of this, writes Feyerabend, is to. "free society from the strangling hold of an ideologically petrified science just as our ancestors freed us from the strangling hold of the One True Religion!" In Feyerabend's image of a free society science will not be given preference over other forms of knowledge or other traditions. A mature citizen in a free society is "a person who



has learned to make up his mind and who. has then decided in favour of what he thinks suits him best". Science will be studied as a historical phenomenon "together with other fairy tales such as the myths of 'primitive' societies" so that each individual "has the information needed for arriving at a free decision". In Feyerabend's ideal society the state is ideologically neutral. Its function is to orchestrate the struggle between ideologies to ensure, that individuals maintain freedom choice and do not have an ideology imposed on them against their will.<sup>1</sup>

The notion of liberty and freedom of the individual that Feyerabend has taken over from Mill is open to a standard objection. That notion, which views freedom as freedom from all constraint, overlooks the positive half of the issue, namely, the possibilities within a social structure to which individuals have access. For example, if we analyze freedoms of speech in our society solely in terms of freedom from censorship, we overlook issues such as the extent to which various individuals have access to the media. The eighteenth century philosopher, David Hume, nicely illustrated the point I am getting at when he criticized John Locke's idea of the Social Contract. Locke had construed the social contract as being freely adopted by members of a democratic society and argued that anyone not wishing to subscribe to the contract was free to emigrate. Hume replied, Can we seriously say, that a poor peasant or artisan has a

1. *Science in a Free Society*, London: New Left Books, 1978.

free choice to leave his country, when he knows no foreign language or manners, and lives from day to day, by the small wages which he acquires? We may as well assert that a man, by remaining in a vessel, freely consents to the domination of the master; though he was carried on board while asleep, and must leap into the ocean and perish, the moment he leaves her.<sup>1</sup>

Each individual is born into a society that pre-exists and, in that sense, is not freely chosen. The freedom an individual possesses will depend on the position he occupies in the social structure, so that an analysis of social structure is a pre-requisite for an understanding of freedom of the individual. There is at least one place in *Against Method* where Feyerabend indicates that he is aware of this kind of point. In a footnote to a remark about freedom of research he notes:

The scientist is still restricted by the properties of his instruments, the amount of money available, the intelligence of his assistants, the attitudes of his colleagues, his playmates - he or she is restricted by innumerable physical, physiological, sociological, historical constraints.<sup>2</sup>

Feyerabend's subsequent talk of freedom of the individual fails to give adequate attention to the

1. The quotation from Hume's "Of the Original Contract" is in E. Barker, *Social Contract: Essays by Lock, Hume and Rousseau*, London: Oxford University Press, 1976, p.156.

2. *Against Method*, p.187.

constraints operating in society.<sup>1</sup>

سائنسی عمل کے نظری حصے حقیقت کی توجیہ سے قاصر ہیں۔ سائنسی نظریات کو حقیقت جاننے کا عمل تصور کرنا محض غلط فہمی ہے۔ اکثر سائنسی نظریات محض افسانوی کہانیاں ہیں، جو ہر دور میں لوگوں کو فریب دیتی ہیں اور ہر مرتبہ یہ افسانوی حقیقتیں بدلتی چلی جاتی ہیں، یہ کیسی حقیقت ہے جو تصورات ذہنی کی طرح اڑتے ہوئے بادلوں کی طرح بدلتی رہتی ہیں۔ Realism کا بھی سچائی سے کوئی تعلق نہیں، دنیائی الحقیقت کیا ہے؟ یہ کائنات اصل میں کیسی ہے؟ کوئی سائنسی نظریہ اس کی حقیقت بتائی نہیں سکتا اور جو کچھ حقیقت یا جزوی حقیقت بہ ظاہر معلوم بھی ہوئی ہے اس کے بارے میں ہمیں کیسے معلوم ہو کہ یہ وہی حقیقت ہے جو خالق حقیقت کے تصور حقیقت سے ہم آہنگ ہے، ظاہر ہے سائنس کے پاس ایسا کوئی پیمانہ نہیں کیوں کہ جب تک حقیقت کا راست پیمانہ آپ کے پاس موجود نہ ہو آپ حقیقت کو کیسے مطابق حقیقت یا میں گے! اصلاً حقیقت کچھ نہیں ہوتی کائنات کے الفاظ میں ہم حقیقت کو پاسی نہیں سکتے لہذا ہم حقیقت تخلیق کر سکتے ہیں یا اپنے ذہن کے خیالات، تصورات کو زمانے پر مسلط کر سکتے ہیں اور اسے ہی حقیقت قرار دیتے ہیں۔ لہذا یہ سمجھنا کہ سائنس تلاش حقیقت، حقیقت مطلق کی جستجو، خالق کائنات کی حقیقی آرزو کا نام ہے، محض خام خیالی ہے۔ سائنسی نظریات حقیقت [Reality] بیان کرنے سے عاجز و قاصر ہیں۔ Realism کیا حقیقت سے آگہی کا کوئی طریقہ ہے؟ اس کا دعویٰ تو یہی ہے لیکن اس دعوے پر یقین کرنے کی شہادتیں بہت کم ہیں اور جو کچھ میسر ہیں وہ انتہائی غیر معتبر ہیں۔ چامر لکھتا ہے:

According to an alternative view, which I will call instrumentalism, the theoretical component of science does not describe reality. Theories are understood as instruments designed to relate one set of observable states of affairs with others. For the instrumentalist, the moving molecule's referred to by the kinetic theory of gases are convenient fictions enabling scientists to relate and make predictions about observable manifestations of the properties of gases, whilst the fields and charges of electromagnetic theory are fictions enabling scientists to do likewise for magnets, electrified bodies and current-carrying circuits. (جاری ہے۔)

1. What Is This Things Called Science? pp. 136-143.