

Analytical Index

Being a Sketch of the Main Argument

Items:

Introduction

Science is an essentially anarchistic enterprise: theoretical anarchism is more humanitarian and more likely to encourage progress than its law-and-order alternatives.

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This is shown both by an examination of historical episodes and by an abstract analysis of the relation between idea and action. The only principle that does not inhibit progress is: *anything goes*.

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For example, we may use hypotheses that contradict well-confirmed theories and/or well-established experimental results. We may advance science by proceeding counterinductively.

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The consistency condition which demands that new hypotheses agree with accepted *theories* is unreasonable because it preserves the older

theory, and not the better theory. Hypotheses contradicting well-confirmed theories give us evidence that cannot be obtained in any other way. Proliferation of theories is beneficial for science, while uniformity impairs its critical power. Uniformity also endangers the free development of the individual.

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There is no idea, however ancient and absurd, that is not capable of improving our knowledge. The whole history of thought is absorbed into science and is used for improving every single theory. Nor is political interference rejected. It may be needed to overcome the chauvinism of science that resists alternatives to the status quo.

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No theory ever agrees with all the *facts* in its domain, yet it is not always the theory that is to blame. Facts are constituted by older ideologies, and a clash between facts and theories may be proof of progress. It is also a first step in our attempt to find the principles implicit in familiar observational notions.

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As an example of such an attempt I examine the *tower argument* which the Aristotelians used to refute the motion of the earth. The argument involves *natural interpretations* – ideas so closely connected with observations that it needs a special effort to realize their existence and to determine their content. Galileo identifies the natural interpretations which are inconsistent with Copernicus and replaces them by others.

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The new natural interpretations constitute a new and highly abstract observation language. They are introduced *and concealed* so that one fails to notice the change that has taken place (method of anamnesis). They contain the idea of the *relativity of all motion* and the *law of circular inertia*.

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Initial difficulties caused by the change are defused by *ad hoc hypotheses*, which thus turn out occasionally to have a positive function; they give new theories a breathing space, and they indicate the direction of future research.

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In addition to natural interpretations, Galileo also changes *sensations* that seem to endanger Copernicus. He admits that there are such sensations, he praises Copernicus for having disregarded them, he claims to have removed them with the help of the *telescope*. However, he offers no *theoretical* reasons why the telescope should be expected to give a true picture of the sky.

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Nor does the initial *experience* with the telescope provide such reasons. The first telescopic observations of the sky are indistinct, indeterminate, contradictory and in conflict with what everyone can see with his unaided eyes. And, the only theory that could have helped to separate telescopic illusions from veridical phenomena was refuted by simple tests.

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On the other hand, there are some telescopic phenomena which are plainly Copernican. Galileo introduces these phenomena as independent evidence for Copernicus while the situation is rather that one refuted view – Copernicanism – has a certain similarity with phenomena emerging from another refuted view – the idea that telescopic phenomena are faithful images of the sky. Galileo prevails because of his style and his clever techniques of persuasion, because he writes in Italian rather than in Latin, and because he appeals to people who are temperamentally opposed to the old ideas and the standards of learning connected with them.

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Such 'irrational' methods of support are needed because of the 'uneven development' (Marx, Lenin) of different parts of science. Copernicanism and other essential ingredients of modern science survived only because reason was frequently overruled in their past.

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Galileo's method works in other fields as well. For example, it can be used to eliminate the existing arguments against materialism, and to put

an end to the *philosophical* mind/body problem (the corresponding *scientific* problems remain untouched, however).

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The results obtained so far suggest abolishing the distinction between a context of discovery and a context of justification and disregarding the related distinction between observational terms and theoretical terms. Neither distinction plays a role in scientific practice. Attempts to enforce them would have disastrous consequences.

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Finally, the discussion in Chapters 6–13 shows that Popper's version of Mill's pluralism is not in agreement with scientific practice and would destroy science as we know it. Given science, reason cannot be universal and unreason cannot be excluded. This feature of science calls for an anarchistic epistemology. The realization that science is not sacrosanct, and that the debate between science and myth has ceased without having been won by either side, further strengthens the case for anarchism.

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Even the ingenious attempt of Lakatos to construct a methodology that (a) does not issue orders and yet (b) puts restrictions upon our knowledge-increasing activities, does not escape this conclusion. For Lakatos' philosophy appears liberal only because it is an *anarchism in disguise*. And his standards which are abstracted from modern science cannot be regarded as neutral arbiters in the issue between modern science and Aristotelian science, myth, magic, religion, etc.

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Moreover, these standards, which involve a comparison of content classes, are not always *applicable*. The content classes of certain theories are incomparable in the sense that none of the usual logical relations (inclusion, exclusion, overlap) can be said to hold between them. This occurs when we compare myths with science. It also occurs in the most advanced, most general and therefore most mythological parts of science itself.

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Thus science is much closer to myth than a scientific philosophy is prepared to admit. It is one of the many forms of thought that have been developed by man, and not necessarily the best. It is conspicuous, noisy, and impudent, but it is inherently superior only for those who have already decided in favour of a certain ideology, or who have accepted it without having ever examined its advantages and its limits. And as the accepting and rejecting of ideologies should be left to the individual it follows that the separation of state and *church* must be supplemented by the separation of state and *science*, that most recent, most aggressive, and most dogmatic religious institution. Such a separation may be our only chance to achieve a humanity we are capable of, but have never fully realized.

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