

Feyerabend on Falsifications, Galileo, and Lady Reason

Feyerabend maintains that in our world a falsificationist methodology meets insurmountable obstacles. Every hypothesis in science encounters empirical deviations big enough to falsify it. Therefore a falsificationist methodology would destroy science without giving us any substitute.¹

According to Feyerabend scientists do not mind empirical refutations in actual research. Either falsifications are not noticed or are immunized by *ad hoc* hypotheses. Feyerabend thinks that it is good that scientists proceed in this way: if every falsification were taken seriously, there would be no scientific development, and we would stand before a scrap-heap of falsified theories.

Feyerabend uses case studies from the history of science in order to support his thesis that a falsificationist methodology is unrealistic. In *Against Method* he analyses Galileo's defence of the Copernican system and argues that Galileo repeatedly violated a falsificationist methodology and did not pay any notice to generally accepted observations that contradicted the Copernican system. The Copernican assumption that the earth moves raised serious dynamical problems which Galileo could avoid only by introducing *ad hoc* hypotheses. If Galileo had not proceeded in this way, the Copernican Revolution would not have taken place and a great step forward in the development of science would not have occurred.

This alleged difference between scientific reality and the castles in the air built by philosophy of science has led Feyerabend to ask the rhetorical question whether philosophy of science is an unknown kind of insanity. A characteristic feature of mental disorder is that the insane person withdraws more and more from reality. Feyerabend finds the same

symptom among philosophers of science.²

In this paper I will investigate Feyerabend's interesting arguments against a falsificationist methodology. They pose serious problems, but I will try to show how they can be solved without giving up a rational methodology. According to Feyerabend "once, long ago, Lady Reason was a beautiful, strong, helpful though somewhat overbearing Goddess of research. By now her lovers ... have turned her into a garrulous but toothless old woman".³ I cannot agree and will try to show that Lady Reason is as beautiful and young as ever, perhaps demanding, but not overbearing, and smiling at her lovers in the most charming way.

1. DID GALILEO NOT PAY ATTENTION TO FALSIFICATIONS?

1.1. *Feyerabend's Account*

The most simple way to test the Ptolemaic and Copernican astronomical theories was to control whether the predicted positions of the planets agreed with observations. In this respect there were no important differences between the two theories. Both could predict the positions of the planets quite well. Thomas Kuhn's statement that at the time of the Copernican revolution the Ptolemaic theory was in a crisis and ridden with anomalies is not in agreement with the historical records. On the contrary, Copernicus maintains that the Ptolemaic theory was consistent with numerical data.⁴

But there were other difficulties not discussed by Copernicus, but mentioned by Andreas Osiander in his anonymous foreword to the main work of Copernicus. Ptolemy and Copernicus both assume that the distance between the earth and the planets varies. (In Ptolemy's geocentric theory the variations were caused by the epicycles of the planets). These variations in distance should appear as variations in the apparent size and brightness of the planets. You can observe that the apparent size and brightness of the planets vary, but in the case of Venus the variations are not as large as those predicted by both theories. Andreas Osiander used these deviations in order to support an instrumentalist interpretation of the Copernican theory: although both theories allowed good predictions of the positions of the planets, they could not be strictly true, because they did not allow correct predictions of the apparent size and brightness of Venus. For this reason Osiander argued that the