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SUMMARY OF THESIS*

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STABILITY OF THE BIOLOGICAL SCIENCE. TOWARD AN EVOLUTIONIST EPISTEMOLOGY, WITHOUT REFUTATIONS AND REVOLUTIONS

Formulating hypothesis from the observation and testing it through experiment is what characterizes the Baconian method; the initial formulation was an explicit result from an intuitive insight that Francis Bacon called induction. Objectivity is in the beginning of the knowledge process, the scientist has only to let facts talk for themselves while he reads the open book of nature.

A more sophisticated form of inductivism makes a distinction between discovery context and justification context so as to distinguish the way the scientific theories are developed from the way they are tested against their rivals. Karl Popper, disagreeing with this attitude, will attribute the first one to a chance while the second will assume an evolutionist epistemology.

Popper, not believing in the possibility of the existence of a truth criteria, proposes a falsiable one. Knowledge would not be formed through generalizations from the experiment, but through the elaboration of high empiric content conjectures that would be submitted to deductive logics (based on *modus tolles*) and experiment. Popper, under Humean influence, denies any role of induction in knowledge aquisition, that would not come either from perceptions or from observations or data collection, but from problems. In the lack of conclusive criteria of the empiric truth, we simply have to learn from our mistakes. The progress of knowledge would come from the refusal to a hypothesis and the search for a better explained content that could avoid at least some of the previous hypothesis faults. This would be the scientific progress criteria.

The problem about Popper's falsificationists is that the scientist does not pursue theories in order to prove they are false, but theories that he tries to show as true. Popper tells us what the ideal of science would be, but not the way it is practiced.

Isolated, both inductivism and the hypothetico-deductive method are simplistic and naive. The first one is blind, does not direct the experiment by theorical hypothesis. The second has theorical redirection, but does not take into account the hypothesis generation. As both stand on the same side in the description of the relationship between the experiment and the theory, this makes this double-sided interaction valuable. The theory of germs and the discovery of penicillin is subjected as an example of this approach in Biology.

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