Philosophy of Science: An Introduction

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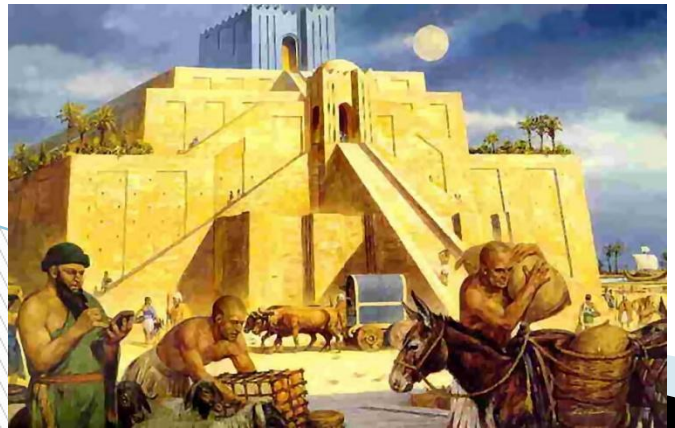
What is a science?

Science (from the Latin word *scientia*, meaning "knowledge") is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe.

History of science

- The earliest roots of science can be traced to Ancient Egypt and Mesopotamia in around 3500 to 3000 BCE.
- Their contributions to mathematics, astronomy, and medicine entered and shaped Greek natural philosophy of classical antiquity, whereby formal attempts were made to provide explanations of events in the physical world based on natural causes.



Major branches of Modern Science

natural sciences (e.g., biology, chemistry, and physics), which study nature in the broadest sense;

the social sciences (e.g., economics, psychology, and sociology), which study individuals and societies;

- the formal sciences (e.g., logic, mathematics, and theoretical computer science), which study abstract concepts.

The structure of science

the goal – obtaining new scientific knowledge;

the subject – the available empirical and theoretical information to help solve scientific problems;

the resources – methods of analysis and communication available to the researcher that help achieve acceptable to the scientific community solution to a problem.

According to the researcher T. Leshkevich, in creating the image of the philosophy of science one should distinguish between the two meanings of this term:

1) as a direction of the philosophy presented by a variety of concepts that offer one or another model of the development of the science which originated in the second half of the XIX-th century;

- **2)** as a discipline that emerged during the second half of the XX-th century in response to the need to understand the socio-cultural function of science in the scientific and technological revolution. Its subjects are the general patterns and trends of the scientific cognition as a special activity for the production of the scientific knowledge taken in its historical development and considered in the changing social and cultural context

The formation and development of the philosophy of science as a discipline was influenced by:

- 1) the general socio-cultural background of a particular historical epoch;
- 2) gnosiological, epistemological, and methodological studies;
- 3) theoretical approaches, models and concepts developed in the framework of the philosophy of science as a branch of the modern philosophy.

Conclusion

- The range of the main problems of the philosophy of science is quite wide:
- the scientific criteria and the differences between the scientific knowledge and the unscientific one;
- logic of the scientific research; structure of the scientific knowledge;
- mechanisms for generating new knowledge;
- scientific rationality; patterns of the history of science; interaction of science and culture;
- science base; value of science; ethos of science, etc. All of them are derived from the central problem of the philosophy of science – the problem of growth (development) of the scientific knowledge.