

Religion and Natural Sciences

Institution: JATE University, Hungary

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Course Description

Introduction

In Hungary, the religious studies were restricted to some Reformed - and Catholic Church run High Schools (approx. 8-10 in the country), or at the lower level, to local churches at the period of 1948 - 1989. In addition, the official ideology of the society (“dialectic materialism” and “scientific socialism”), related to the religion by considering it to be unscientific, provided that with the progress of natural sciences religion is gradually diminishing, since religion is a false answer for the problems of Nature. Consequently, the vast majority of the people in Hungary think nowadays, that there is no relation between religion and natural sciences, even if they do not think that the religion is unscientific. Therefore, the *aim* of the course is to show for undergraduate students at our university, that there is no insoluble *contradiction*, but rather fruitful *interaction* can be seen between religion and natural sciences.

Experiences after the first semester teaching

The course has first been taught at the Fall semester of 1997. Its brief sketch has been described in the preliminary application of the 1998 Course Competition.

There were 19 students participating in the course. They came from the areas: 63 % sciences, 16 % arts and 21 % theology. Most of them were really interested in the theme with a high level of religious background knowledge. Because of this, most probably, there was an opinion at the end of the course that the students had expected bringing more knowledge/problems from the area of sciences. The course was, as planned, an open discussion around the different topics, the size of the group made it possible. Moreover 5 students hold mini-seminars, 3 of them was excellent.

As many as 89 students registered for the Spring term of 1998 for the Religion and Natural Sciences course from the areas: 76% sciences, 17% arts and 7% theology. However, it seems that although several students have a decent background education in religion, most of them have only a superficial knowledge in it. There were 6 mini-seminars in this term so far.

Therefore as a compromise, I think it is still necessary to hold the first three introductory lectures into the basics of religions (see below in the next section).

2.3 Brief description of the lecture contents

The course is planned to be a one term course, consisting of 13 lectures, every lecture has a duration of 2 x 50 min. The lectures are held weekly.

A brief description of the lectures, numbered at the left hand side, is given below. For the better guidance, little introductory remarks were given in front of smaller groups of lectures, which are closely related. These sentences are marked by italics.

The reference numbers in brackets at the end of the lecture descriptions refer to the book(s), which is (are) more relevant concerning that particular lecture. The list of the books can be found on the reading list.

Since most of the students are not familiar with the basics of the religions, the first three lectures is a brief introduction into it.

1. A brief introduction into the religion - phenomenology: the common features of different religions as examining the ancient archaic societies; the holy manifests; the inhomogeneous space (holy space) and time (holy time), myths. The holy space as a centre and reference point. The creation of holy space through rituals and cosmogony. The renewal of cosmos and the ancient religious man in the holy time - leading to the cyclic time view. The importance of the cyclic time view in the Eastern religions - why it did not help turning toward the cosmos. The linear time view of the Jewish - Christian tradition, its significance compared to the cyclic time view. How the religious man turns toward cosmos: the significance of the creator god picture in the Jewish (and following the Christian) and Islamic tradition. [1a]

2. The wide-spread religions of the modern world, part I. Brief summaries of the Chinese Religions, Hinduism and Buddhism, including: historical background, how the Universe and the human are considered, god(s), revelations, the way to the salvation. Connection between the cyclic time view and the salvation. [1b, 2]

3. The wide-spread religions of the modern world, part II. Brief summaries of the Jewish, Christian and Islamic religions, including: historical background, how the Universe and the human are considered, god(s), revelations, salvation. The significance of monotheism. Time is devoted to discuss the difference between the description (by social sciences) of religions and the personal faith. [1b, 2]

Lectures 4-5 discuss how the natural science was developed in the European culture. It is found that the Jewish - Christian thinking and the Greek heritage played a key role.

4. The science (nature) in the ancient, big river based cultures: Mesopotamia, Egypt, China, India. Important and interesting results in mathematics, astronomy. The periodic challenge caused by river floods leading economic, whereas the cyclic time view connected to the religions, leading to cultural stagnation. The Greek science and culture, important and interesting examples in mathematics and astronomy. The world-view of Plato and Aristotle: scientific, philosophic and religious aspects, dualism - separation of science and practice. Why the Greeks could not step forward in science (polytheism,

cyclic time view, dualism). Why there is no continuation of the Greek mentality: social, cultural and religious aspects. [1-4]

5. The ways how Europe could inherit the Greek knowledge, the role of the Arabic (Islamic) mediation, the results of Arabic science, why they could not step forward in it (what the Arabian mystics and philosophers thought about Nature and the Aristotle's type of laws). The importance of the Greek heritage in the European culture. Europe around the II. millennium: social and cultural state. The long way to the modern science: the importance of the contemplative monasteries - the unity of theory (science) and practice - and the European universities emerging from the Islamic and then mainly the Christian schools. From Albertus Magnus - Thomas Aquinas (bringing Aristotle into the Christian theology); Occam's razor; Buridan; Copernicus; Kepler; Galileo, Descartes - to Newton. The birth of the modern science. [3-5]

Lecture 6 discusses the significance of the scientific method, its connection to the religious knowledge and its limits.

6. The scientific method as empirical reflection: induction, hypothesis, deduction, control and feedback. The role of Mathematics, axiomatic structure. Success of science: description of separable and reproducible phenomena. Limits: the complex (non-separable) and non-reproducible, particular events. The transcendental knowledge of being and the universe: metaphysical (philosophical) and theological reflections. About the "contradiction" between science and religion in the frame of the different reflection methods and Kuhn's scientific paradigm theory. Example, the Giordano Bruno and Galilei case. [3-7]

Lectures 7-13 show how the most important and relevant results of the contemporary sciences broadens the human knowledge about the universe and life and track the indirect effect of it on the religious thinking.

7. The matter. Our basic scientific knowledge about matter: the building elements of matter, the four basic interactions. The wave-particle dualism. Matter - antimatter, breaking of symmetry. Natural laws and symmetry, mathematics. (Connection point to Plato's idealistic world view.) The limits of mathematics: Gödel's Incompleteness Theorem and uncountable numbers of the Turing machine. What the different religions say about matter? [3, 4, 8-11]

8. Our knowledge about the cosmos: planets, stars, black holes. Developing of stars, how the materials of planets are formed? Galaxies, the evidences of the expanding universe: Hubble law, the cosmic background radiation. Description of the universe: introduction to Einstein's special and general relativity theory. The evolution of the universe, the "Big Bang" (standard theory), the possible developing directions: open, critical and closed. [8-12]

9. Questions around the creation. The creation tales can be found in the myths and the "Bible story": religious aspects and how these reflects the "scientific" view of cosmos

and nature of that age. The view of the beginning of cosmos based on the contemporary science: do we need assuming a creator? Is the beginning a singularity? The Hartle - Hawking quantum-cosmological theory. The very low probability of getting the universe in the state we observe: question of the initial values, resonance in the He + Be = C cycle in the stars, etc. Are the values of physical constants important - the stability of the matter and Universe. The cosmological anthropic principle (weak and strong), its philosophical and theological relevance. Everett's and Guth's many world hypothesis and their critics. [1, 8-12].

10. Motto: "Does God play dice?" The free will in different religions. Can natural sciences allow that? Deterministic views and reductionism. The uncertainty feature of quantum mechanics with a brief introduction into it. The role of observer in the quantum mechanics. Developing structures of matter: non-linear systems, the flow of time, entropy, chaos, self-organised systems. [4, 8]

11. Biological evolution, Darwinism, its effect on Christian hermeneutics. P. Teilhard's theory: evolution, anthropology and eschatology. Whitehead's process theology. Humans as co - creators, intelligence and artificial intelligence, religious reflections. [4, 8, 13-16]

12. The human life. Is the life just an accident - the probability of getting the DNA code from accidental events. Davies's hardware and software laws. Self-organised critical states - adopted to living organism. The probability of extraterrestrial life - philosophical and theological consequences. The spirit - matter dualism, religious and scientific reflections. [4, 8, 15, 17]

13. Some ethical questions raised by the development of natural sciences. Global warming, at the edge of environmental catastrophes: can human conquer Nature (Earth)? Are not we just destroying the Earth? Could the human conquer the human by artificial intelligence? Can the man mentally follow the enormous speed of developing of sciences? Are the natural sciences just serve the technology (which may also defeat the human) nowadays? Could the human manipulate the DNS code? Have the scientists responsibility? What the different religions say about these questions. [18]

2.4 Showing how the planned content of lectures meets the "Guidelines for Completing Final Course Competition Application"

2.5 Student mini-seminar works

Students are encouraged to hold mini-seminars (approx. 15 -20 min duration) in the frame of the lectures on well defined topics. These are open for all students and voluntary. So far 11 mini-lectures have been held, mostly on presenting the different religions. About 60% of these presentations were excellent/good, the others were relatively poor. The reason for this latter is that several students, although they have the proper knowledge, they do not know how to make a small presentation. Anyhow, these mini-seminars is planned to be continued with scientific topics as well.

2.5 Evaluation

For general lecture series, like the “Religion and Natural Sciences” course, two alternative evaluation form can be chosen by the students at our university. For the first type, the students have to participate at the lectures, which is confirmed by the course director. For the second type, the students have to pass an oral (or written) test and as a result of this they get an evaluation mark. The students mostly chose this latter in the 1997 Fall term.

III. Reading list

The list is selected in such a way that the books can easily be found in Hungarian language (except no. 5).

Strongly recommended books for discussions: 1a, 3 (first three chapters), and 8.

Lecture notes for helping the students has been writing by the instructor of the course, supposedly would be finished at the end of this 1998 Spring semester. About 60 pages is planned by single line spacing.

[1] a) Mircea Eliade: Das Heilige und das Profane. Vom Wesen des Religiösen, Rowohlt Taschenbuch Verlag GmbH, Hamburg, Hungarian translation, Budapest, 1957.

b) Mircea Eliade: Histoire des croyances et des idées religieuses I-III., Éditions Payot, Paris, 1978, Hungarian Translation, 1997.

[2] Gerhard J. Bellinger: Knaurs Großer Religionsführer: 670 Religionen, Kirchen und Kulte, weltanschaulich-religiöse Bewegungen und Gesellschaften sowie religionsphilosophische Schulen, Droemer Knaur, München, Hungarian translation, Budapest, 1986.

[3] Károly Simonyi: The cultural history of physics, Gondolat Kiadó, in Hungarian language, Budapest, 1978.

[4] Laszlo Végh: Religion and Natural Sciences, lecture notes in Hungarian language, KLTE University of Debrecen, Debrecen, 1997.

[5] Nancy R. Percy and Charles B. Thaxton: The Soul of Science, Christian Faith and Natural Philosophy, Crossway Books, Wheaton, Illinois, 1994.

[6] Thomas Kuhn: The Structure of the Scientific Revolutions, Hungarian translation, Budapest, 1984.

[7] Alfréd Turay: Cosmological Anthropology, lecture notes in Hungarian language, Catholic Theological College of Szeged, Szeged, 1996.

[8] Paul Davies: The Mind of God, Simon & Schuster Inc., Hungarian Translation, Budapest, 1992.

[9] John D. Barrow: The Origin of the Universe, Basic Books, Inc., Hungarian translation, Budapest, 1994.

[10] Steven Weinberg: The First Three Minutes, Basic Books, Inc., Hungarian translation, Budapest, 1977.

[11] Paul Davies: The Last Three Minutes, Basic Books, Inc., Hungarian translation, Budapest, 1994.

[12] László Székely: From Einstein's Cosmos to the Inflationary Universe, ELTE University of Budapest, Budapest, in Hungarian language, Budapest, 1990.

[13] Richard Leakey: The Origin of Humankind, Basic Books, Inc., Hungarian translation, Budapest, 1995.

[14] Richard Dawkins: River Out of Eden, Basic Books, Inc., Hungarian translation, Budapest, 1995.

[15] Paul Davies: Are we alone? Basic Books, Inc., Hungarian translation, Budapest, 1995.

[16] P. Teilhard de Charden: Le phénomène humain, Hungarian Translation, Budapest, 1980.

[17] P. W. Atkins: Creation, W. H. Freeman and Company Limited, Oxford, Hungarian Translation, Budapest, 1982.

[18] Here we quote from newspapers, from scientist and from Papal Encyclics.