

# **“Universities and Fundamentalism”**

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## **I. Introduction**

The topic “Universities and Fundamentalism” is part of the general issue of “Quality in Higher Education” and therefore poses particular questions:

- To what extent can fundamentalism affect the quality of performance of the universities?
- And: what is exactly meant by the “quality” of universities in this context?

Without the particular questions raised by integrating this issue into the general topic, the subject matter of this lecture could be understood in significantly broader terms. For example,

- How can fundamentalism affect students’ and professors’ individual situation at universities and their individual human rights and civil liberties?
- or how can fundamentalism affect the rights of people of different faiths or women at the university?
- or how can fundamentalism affect the accessibility of the university (e.g. fundamentalist barriers that hindered Jews in Christian Europe during the Middle Ages)?
- or questions concerning the effect on the general climate (outside of the university) and on society.

As interesting and weighty as these general questions may be, the focus of this lecture must remain on the previously mentioned (relevant) issues, although the general aspects will surely find their place as long as they are relevant to our topic.

In this context, the cardinal question of the counter- and co-existence of reason (ratio) and faith (religio) must be mentioned, an endless array of questions and answers that cannot be discussed at length here (that would require a conference of their own!). With regard to fundamentalism in particular, this will be covered nonetheless, as religious fundamentalism is certainly the strongest form.

## **II. First of all, two definitions are necessary:**

- (1) Universities, as the main form of “higher education”, are in today’s modern sense understood as tertiary education institutions (taking place after secondary school) that offer as a community of teachers and students in their own organizational form and management scientifically founded studies and have the right to grant academic degrees (bachelor, master and doctorate degrees).

This definition is practically identical in encyclopedias in France, Germany and Great Britain.

Today’s universities have the duty to systematize existing knowledge, to expand the boundaries of knowledge without prescribing answers or discouraging critical thinking and to pass on both existing and newly gained knowledge to the generations to come.

The global, present-day manifestation of institutions of higher education is a creation of the European Middle Ages, with certain forerunners in the Islamic-Arabic world (e.g. universities in Fez, Morocco, beginning in 859, Al-Azhar in Cairo, beginning in the 10th century).

The early European universities partly evolved from law schools such as Bologna (the granting of privileges by Emperor Frederick I Barbarossa in 1158), from medical schools (Salerno), or theological faculties of Paris and Oxford (the oldest!). They became an institution of the “studia generalia” or of a “universitas magistrorum et scholarium” through a combination of one of three faculties (theology, law, medicine) with the general subjects (the so-called “artes liberales” (“liberal arts”)), such as philosophy, logic, natural sciences. (see W. Rugg et.al.: *Geschichte der Universität in Europa, I* (München 1993) pp. 25-27)

It took a development of approx. 700 years, in which academic freedom was gradually secured in the face of fundamentalist restrictions made by the Church and state control, until the German scholar (and minister!) Wilhelm von Humboldt was able to formulate in an exemplary manner in the 19<sup>th</sup> century the guiding principle of the modern university: “freedom of research and teaching in the community of teachers and students”. Striving for a gain in knowledge without discouraging critical thinking or question-asking or prescribing answers is a generally recognized feature of the university, sometimes even found in constitutions (e.g. in article 5, paragraph 3 of the German Constitution) (Same principles in the French model of the “Grandes Ecoles”).

- (2) Fundamentalism, on the other hand, describes a rigid adherence to dogmatic doctrines that may not be challenged or subject to doubt through statements or findings that are inconsistent with the particular doctrine. Behind this lies the unshakable conviction of irrevocable truths that do not allow contradictions and need to be protected from all critical discussions.

For this purpose, the various forms of repression from censorship, bans on writing, formal condemnation, removal from office or functions, personal threats, burning of writings, banishment, imprisonment to physical destruction are used against “deviants” (dissidents or heretics).

The adamantly defended “truths” can be rooted in ideologies, in which case we are talking about ideological fundamentalism, or religiously founded with the claim to absolute truths from which the claim to universality results, then religious fundamentalism, which is also called ultra-Orthodoxy.

The ideological or religious fundamentalism can also be coupled with political motives or even primarily used as a political tool to cement systems of rule of functionary and priest castes.

We can find fundamentalism in the most diverse forms and degrees from a complete claim to universality of an ultra-Orthodoxy that governs all areas of being and knowledge to restrictions on some sub-areas or half-truths that are sacrosanct and may not be challenged, from the radically intolerant form (with the elimination of all deviants) to somewhat milder forms with relative tolerance.

A particular form of fundamentalism (which cannot be discussed at length here) is the individually based fundamentalism. This describes the exclusion of certain groups of people from universities and scholarship for religious or ideological reasons.

An example of such can be found during the Christian Middle Ages when it was forbidden by the Church to award Jews academic degrees (as determined by the Council of Basel on 7.9.1434, a ban that was later often breached in Italy and in Germany after the Reformation, or in Nazi Germany (beginning in 1937/38) where Jewish professors and students were barred from the universities. Under communist rule, children of the so-called bourgeoisie (or later of the so-called intelligentsia) had less chance of studying at a university or studying something of their choice, or even worse, as an opponent of the system they had no chance).

### III. Manifestations and impacts of Fundamentalism

(1) **The effects of fundamentalism** – virtually inherent to the system - will be classified according to the “proximity” to the fundamental truths or religious or ideological messages:

(a) At the core of the ideological and religious message, in which it directly concerns the dogmas and religious revelations, we also find the core of fundamentalism in its strongest form and efficacy.

Scientific facts, thoughts and discussions that are contrary to the central doctrinal teachings or that can lead to a critical analysis are generally suppressed with radicalness and brutality. Pertinent evidence will be destroyed (by burning books, etc.) and very often their creators as well (by execution).

In most cases, scholarly questions and statements in the fields of theology, philosophy (including logic and metaphysics) and history tend to attract the attention of fundamentalism. With that, a large area of the reflection on fundamental questions of man, the world and conditions of humanity is therefore repressed.

(b) Very often, in fact almost regularly, fundamentalism has an impact on areas outside of the religious doctrines, i.e. on statements or questions from the natural and social sciences, provided that these are included in the canon of the dogmata.

In the Christian Middle Ages, for example, a certain number of scientific statements from Greek antiquity were integrated into the dogma of the Catholic Church and were therefore protected, like religious belief systems, from criticism.

Such inviolable authorities were Aristotle in the natural sciences in general, Hippocrates and Galen in medicine and Ptolemy for the geocentric world.

For this reason, the strongest concrete obstacles are and were created for scholars who might expand the boundaries of knowledge. In medicine, it can be seen most clearly how much potential is not used or even lost for the improvement of people's living conditions when this expansion of knowledge does not occur.

- (c) In addition to the previously mentioned restrictions and limitations of cognitive processes with their harmful blockade effect, fundamentalism leads to an intellectual climate, which due to the use of reason is generally detrimental to the cognitive processes. For new scientific and technological knowledge, a critical mind that is always ready to overcome the limits of knowledge is necessary. One could not say: Stop! Questions are not allowed here!

The critical mind generally dies with restrictions on free thought. This also means that the free minds emigrate to other countries, which results in a so-called brain drain and stagnation.

This then leads to a limit to the range of academic fields in higher education and results in a narrowing field of vision and a loss in the dynamics of the coming generations.

## **(2) Historical Forms of Fundamentalism**

- (a) Fundamentalism's negative impact on academic culture can be seen in the golden age of the Islamic-Arab culture from the 8<sup>th</sup>-12<sup>th</sup> centuries and the decline of which caused by the influence of the ultra-Orthodoxy.

The Islamic-Arab expansion by Muhammad's successors (from 634 AD) and the encounter with the remains of prosperous cultures such as the Greek, Persian and Indian culture triggered a huge wave of modernization that was encouraged by the total openness of Islam to everything new and their distinctive thirst for knowledge, which is in line with Muhammad's demand to "seek and acquire knowledge and wisdom". Above all, the scholarly works of Greek antiquity were translated into Arabic, and it is among the greatest achievements of cultural history that Arabic developed within 2-3 centuries from a poetic language to a language of scholarship with which the most difficult philosophical and scientific theories and discourses could be expressed (the "lingua franca" of scholarship at that time).

Damascus, Baghdad, Isfahan, Samarkand, Merv, Cairo and Cordoba were the research centers from the 9<sup>th</sup>-12<sup>th</sup> centuries with polymaths who, in addition to philosophy, greatly enhanced mathematics, astronomy, geography and science. I only want to mention a select few here:

Al Kindi (800-873): Philosophy and optics

Al Kharazmi (ca. 830): Algebra, based on the "Indian" mathematics, and astronomy (Sanskrit)

Abu Nasr Muhammad al Farabi (870-950): was an Arab philosopher, mathematician and music theorist. He studied Plato and Aristotle in Baghdad. Against violent resistance from the Islamic orthodoxy he emphasized human reason and logic alongside a divine intelligence. By using the human mind, which will never come close to the divine, so-called “active intellect”, one could suddenly acquire knowledge independently. Al-Farabi is also the author of the most important work on oriental music theory.

At this time, Muslim scholars discovered the basic principles of astronomy, the human body, new worlds of ideas and developed modern algebra.

Ibn Sina / Avicenna (980-1037) was one of the leading commentators on Aristotle. He applied his laws of logic to medicine and wrote the most extensive medical work of the time. His collection was the standard work in all the medical faculties of the European Renaissance and was translated 86 times into Latin and Hebrew.

The Persian polymath Muhammad ibn Zakariya al-Razi was dedicated to researching diseases and was the first to distinguish between smallpox and measles. His discoveries remained unchallenged until the 17<sup>th</sup> century.

By the 10<sup>th</sup> century, the astronomer Muhammad ibn Dschabier al-Battani had already calculated the length of the solar year to be 365 days, 5 hours, 46 minutes and 24 seconds – which according to today’s calculations is off by just two minutes.

Omar Khayyam: Poet, mathematician and astronomer, he reformed the calendar in 1079.

However, as early as the 10<sup>th</sup> century, a counter-movement of the orthodox asharites formed in order to put an end to the ratio-euphoria.

One of its most important students, the theologian and jurist Abu Hamid Mohammed al-Ghazali, lived from 1058-1111 in present-day Iran. He accused the philosophers of putting their own knowledge, which was based on conceptual chains of proof, before the Quran. Even though Ghazali did not completely dismiss reason as a source of knowledge, he did believe that every part of the text of revelation needed to be taken literally as long as there was no definitive evidence to the contrary. Ghazali was certain: God is and will remain the initiator of all causal chains. Fire does not burn bales of cotton; no, we dismiss such positions. On the contrary, the cause of burning, the blackening of the cotton, the collapse into ashes, is God. God could change the laws of nature tomorrow, “for it is the divine power that can saturate without food, cause death without wounds or enable survival, even though one has suffered a deep cut to the neck.” While the Western world jumped at the findings of someone like Farabi and benefited from scholarly advances by doing so, the Ghazali’s orthodox Muslims committed themselves to criticizing reason with devastating consequences. (see Wolfram Eberhardt, *Im Namen Allahs*, Wien 2008, p. 202-204)

Averroes (Ibn Rushd), 1126-1198, was one of the greatest philosophers and scientists of his time. He had published a response to Al Ghazali in which he defended the use of reason on the basis of Aristotelian philosophy. The Islamic Orthodoxy then accused him of using ancient philosophy at the expense of true faith. Around 1195, the Caliph of Cordoba gave in to the pressure and ordered all works on logic and metaphysics to be burned and banished Averroes to Morocco (There were even popular, malicious epigrams circulating against Averroes). Tellingly, his works are no longer available in Arabic but can still be found in Latin and Hebrew. As a result, the strict Islamic Orthodoxy established itself not only in Andalusia but also in the rest of the Muslim world.

(see *Encyclopaedia of Islam*, 2<sup>nd</sup> ed., Ibn Rushd, p. 213)

The demonization of the free use of reason also brought an end to the burning desire for knowledge. However, there were still great scholars in Islamic academics such as:

Ibn Kuldun (1332 -1406), essential to social sciences and anthropology.

Ibn al-Shatir (1304-1375, Damascus), forerunner of the Copernican heliocentric model.

Ibn Battuta (1304-1368/69) Morocco, Geographer.

However, the wide river of scientific knowledge, if you will, ran dry. The strong emphasis on the limits of free use of reason led to a stagnation and finally to the end of the “Golden Age”.

- (b) The Golden Age of the Arab-Persian Islamic culture now became a breeding ground for the European scientific culture. Many works were translated from Arabic (the “lingua franca” of scholarship at the time) into Latin and – thanks to Jewish cultural mediators such as Maimonides – into Hebrew (By the mid 12<sup>th</sup> century, the Toledo School of Translation – Gerard of Cremona became especially important), and also into Greek. This meant that not only had the antique heritage, which for the most part still only existed in Arabic texts, been preserved and handed down, it had also been developed further because new things had been found, thought and discovered. This is due to the fact that the Arab-Islamic scientists had a stronger focus on experimental-empirical methods than in Greek science. Ibn al-Haytham (Alhazen) in his *Book of Optics* (1021), for example, had been one of the pioneers of these experimental methods with field tests.  
(see Wikipedia, Science in medieval Islam, pp. 1-5)

In its early days, the Christian Church had a hostile attitude toward pagan scholarship (Pope Gregory, c. 600 AD). Even though the church father Augustine (400 AD) had approved of the use of reason in the tradition of Aristotle, he dismissed the study of nature conducted merely out of curiosity.

From the 11<sup>th</sup> century onward, the Catholic Church also started to be better disposed toward academic scholarship (Gerbert of Aurillac, later Pope

Sylvester II, for example, traveled to Catalonia to further educate himself by studying Arab and Jewish works).

As A. Toynbee observed, this change is due to the cultural treasures that Europe more and more willingly received from Muslim and Jewish people.

The reception of the teachings of Aristotle with his emphasis on reason as a source of knowledge became extremely important in the Western academic culture, which beginning in the 12<sup>th</sup> century developed the scholastic method of teaching in theology (as an academic field). (Dialectics as a thinking technique) However, there was a considerable amount of opposition to the emphasis on reason from the Christian-Catholic Orthodoxy: i.e., Bernard of Clairvaux denounced and rejected the teachings of the rationalist and astute dialectician Abelard at the Council of Sens (1141) on the grounds that they undermined his faith (Against “pride of reason”!). Beginning in about 1240 AD, the commentary on Aristotle by Avicenna (Ibn Sina) and Averroes (Ibn Rushd) gained considerable influence on Christian theology and philosophy in Europe. Albertus Magnus (1193-1280), one of the greatest thinkers and theologians of the Middle Ages, a physicist and chemist as well, owes his vast knowledge to the study of many Arabic and Hebrew writings. He was a fervent admirer of the philosophical teachings of Aristotle and adopted a “division of powers” between the area of philosophy (reason) and that of theology in which the Church fathers were the leading authority. With this, “he emancipated the secular sciences from the role of maids of theology” (as Rüegg I Asztalos, p. 370). He was the teacher of Thomas Aquinas.

However, the Christian-Catholic Orthodoxy regarded the effects of rationalism with great suspicion and regularly intervened when they thought they were going to discover so-called heresies, whether in theology or scholarly principles of the faculties of arts (in Paris and Oxford).

Thus, in 1270 it was formally brought to the attention of the members of the arts faculty at the University of Paris (Sorbonne) that academic autonomy is not a license for religious arbitrary opinion. In 1272, the magisters of “logical and natural science” adopted an appropriate statute after which no member of the faculty was permitted to hold disputations on purely theological issues such as the Trinity or incarnation. Issues that touched upon faith and philosophy were to be decided according to beliefs. If someone were to come across sentences in a commentary or thoughts in a disputation that are contradictory to faith, they would have to be termed completely false and removed from the commentary or argument. By the 15<sup>th</sup> century, the magisters were obligated to take an oath on this statute before being accepted into the faculty.

Even the teachings of Thomas Aquinas (1225-1274), who was later canonized and is considered one of the greatest scholastic philosophers and theologians and representative of Aristotelian thought, were still under attack from the traditionalist orthodoxy in Paris and Oxford. (see Rüegg I – Asztalos, pp. 370-375), though his teachings eventually established themselves in the Catholic Church. With that, philosophy had gained its autonomy and the sciences were recognized as disciplines determined by

reason. In the process, Averroes (Ibn Rushd) had a considerable influence on Thomas Aquinas, even though he had been opposed to many of his statements. (A Spanish author, Asin Palacios, 1904, even speaks of “averroism” in the theology of Thomas Aquinas.)

For the next two centuries, the fundamental truths and scientific doctrines that had become dogmas of the Catholic Church were not to be touched. This was watched over by the “Inquisition”, a special prosecution and judicial authority of the Catholic Church.

Even then, when around 1450 the dogmatism of the Catholic Church could be repressed in favor of greater freedom for reason as a result of humanism, the Renaissance and the Reformation in Europe, the natural philosopher, Giordano Bruno was still burned at the stake in Rome in 1600. Moreover, one of the greatest natural scientists of his time, Galileo Galilei, who substantiated the Copernican heliocentric model of the solar system, escaped a similar fate in 1633 by renouncing his scientific theses.

#### **IV. Modern Science (Renaissance and Enlightenment in Europe)**

- (1) Historians consider the period of time between 1450 and 1550 to be a “turning point” in European intellectual and scientific history that led to intellectual horizons, worldly wisdom and knowledge of technology.

This was also the opinion of the contemporaries of the time. The Florentine philosopher Ficino (1443-1499) saw himself as part of a new “Golden Age” characterized by the advances in academic life such as

- Humanism, which not only opened up new avenues in the humanities but also in natural sciences
- The enrichment of philosophical thought by referring to the original writings of Plato (returning to the sources)
- The invention of the printing press by Johannes Gutenberg from Mainz (1460)

(see Rüegg II, p. 25)

The origin of this turning point can be found in Italy with the “Renaissance” (as the general term for the era) and humanism, the intellectual movement initiated by Petrarch (1304-1374) that emphasized returning to the original works of antiquity and a more in-depth study of them (“studia humanitatis”).

This was made possible and assisted by the particular historical situation in which after the fall of the Hohenstaufen empire Italy could concentrate on boosting the prosperity of the free city states and smaller principalities and use this to create a flourishing culture in art and architecture, literature, philology, philosophy and natural sciences.

Representatives of the arts and humanities were generously funded in the contest of rulers (many of them were themselves „humanists or classicists“).



Even though the representatives of humanism did not conflict with the official teachings of the church (this would have been very dangerous!), they usually were indifferent to religion (Many also say “pagan”) and described the Middle Ages as the “time of darkness”. Curiosity, which was considered in scholastics as a vice, became a guiding virtue. Thus, religious fundamentalism lost its influence: there was often a large variety of responses from authorities recognized by the church to be found to almost every topic, or they simply turned out to be incorrect after the Vasco da Gama (1497/98) expedition around Africa or the discovery of America by Columbus (1492).

The Protestant reformation (Martin Luther 1517, Zwingli, Calvin) also contributed considerably to modifying the Church authority.

Within a few generations, humanism had gathered the social elite from all of Europe.

Reformation and Humanism in Germany came to have a very close connection because of Melanchthon, a friend of Luther, who integrated humanism into the academic reform at the Protestant-oriented universities as well (in which occupational training also became of great importance).

The further development was not linear: On the one hand, the Renaissance, with its anthropocentric world view and philosophy of life (life-affirmation, cultural optimism) and the appreciation of the individual human personality to the glorification of geniuses (Leonardo da Vinci, Michelangelo) and their struggle for the freedom of empirical scientific research based on new discoveries. On the other hand, there were still fundamentalist-justified executions, not only by the Catholic Church, as mentioned, but also by the Protestants under Calvin in Geneva.

The development into a free, modern science, however, could no longer be stopped: From Copernicus (1543) to Kepler (1571-1630), Frances Bacon (1561-1626), Galilei (1564-1642), Descartes (1596-1650), the chemist Robert Boyle (1627-1691), Leibniz (1646-1716) and the physicist Isaac Newton (1642-1727) and many others (especially in medicine), the new development led to a paradigm shift at the universities. In the 18th century, the experiment became the research focus. The practical applications in the “industrial revolution” (e.g. invention of the steam engine 1769), the powerful stream of thought of the Enlightenment (17<sup>th</sup>-18th cent.) with the famous call from Immanuel Kant (1724-1804): “Sapere aude” (dare to know) as a liberation of man from his self-imposed immaturity (1724-1804), the social changes (strengthening of the middle class) and political revolutions (USA 1776; France in 1789) led to the definitive end of the reign of religious fundamentalism over science in the European world.

- (2) Now to the interesting question: How could, in Europe of all places, the academic stagnation brought about by religious fundamentalism from 1500 to 1800 AD be overcome and evolve into such a – from the perspective of world history - unique triumph of modern science and technology?

Many scholars have tried tackling this question. Up to about 1500 AD, world history has shown a similar situation in all the well-known, prosperous cultures of the world (China, India, Near East and Europe), but then the completely new and independent emerged in modern European science and technology. Why?

From a teleological standpoint, the German philosopher Karl Jaspers considers this to be a “secret of history”. (Oswald Spengler “by accidents”)

There were, however, according to Karl Jaspers (and others), several attempts to explain this by taking into consideration certain political, sociological and economic factors of Europe at that time: (e.g. geographical diversity and competition of states and free towns in culture; contacts with new cultures by expeditions, permanent intellectual controversy between Church and Empire concerning supremacy; general idea of political freedom; invention of the printing press, 1460 Germany).

Thus, the breeding ground for critical rationality (and with that, the significance of reason following Aristotle while limiting religious fundamentalism) had been laid better than before.

With regard to universities in particular, a widespread climate of a scientific, rationally verifiable search for the truth emerged at that time, which the German historian Grundmann (1956) traced back to an impetus of “amor sciendi”, credited with capturing the classes of intelligence. Other historians actually see an influence of social forces that hoped for some kind of gain from the universities.

However, the majority considers it to be a multidimensional approach, that is, a mutual condition of a deeper intellectual drive and the social environment. (see Rüegg, I, pp. 28-30)

- (3) The scientific and technological development is now a worldwide phenomenon. Contemporary history also demonstrates that only if people and countries have not only adopted this outwardly as “consumers” of products and practical applications, but have also adopted this as their own through the pursuit of knowledge that is founded upon reason, they have become also real “players” in this global development process, with some truly impressive successes for their economic prosperity as well. A few striking examples include:

- Japan (since its opening in the middle of the 19<sup>th</sup> century)
- South Korea (after the end of World War II and Japanese occupation)
- Taiwan (since separating from communist China)

The same holds true, especially in recent times, for India, China and Brazil, and partly for other countries that have indeed primarily focused on nuclear and military technology, such as Pakistan and Iran. For Turkey, this path to modernity must be stated generally since the secularization stemming from Kemal Ataturk’s reforms, which has had major successes in just recent years.

## V. Universities and Fundamentalism today

- 1) Since the middle of the 19<sup>th</sup> century, religious fundamentalism has no longer had a real position of power at universities in Europe and North America.

The Catholic Church had been long opposed to the Darwinian theory of evolution because it is contradictory to the biblical story of creation, but it no longer had an effective alternative to prohibit its teachings in universities (with the exception of the so-called Catholic universities).

In fact, ideological fundamentalism became dominant.

- During the Nazi period in Germany (1933-1945), the racist ideology and leader cult led to restrictions on teaching and research material in anthropology, sociology, and history. Not only were the Jewish academics banished (Consequence: intellectual impoverishment) but also their academic fields of expertise (e.g. Einstein's theories. Counter-movement of the so-called "German Physics"). The "Reichsforschungsrat" was responsible for planning and monitoring all research.
- Under communist rule, the teaching or research of anything that contradicted or put the doctrine of Marxism-Leninism into question was forbidden.

This was especially true for the social sciences and history, economics, psychology and – surprisingly – for many areas of the natural sciences such as genetics (which touched upon the dogma of the sole determinacy of the human being through social relations) or even for chemistry in which the existence of oscillating processes that self-organize dead matter was denied (Belousov-Zhabotinsky reaction). Even the development of the computer was long devalued as imperialist machinations, which had devastating consequences in the form of a technological gap in relation to the Western world. The dogma of a rigorous rejection of the market economy as an instrument for providing the population with supplies led to an extreme shortage of goods (as in North Korea today) and so finally to the collapse of the system.

- (2) The effects of religious fundamentalism on academics can be found for the most part in Islamic-Arab states. Unbelievable examples of the persecution of so-called "deviants" from dogma have been reported, for example:

In 1992, the Egyptian Faraq Fouda was murdered in front of his house as a result of a religious condemnation ("fatwa") because he acted in favor of the separation of Church and State in opposition to the teachings of the Islamic Orthodoxy.

In 1985, the Sudanese theologian Mahmoud Mohamed Taha was even officially executed in Khartoum because he had called the sharia a historical construct, and in the last quarter of the 20<sup>th</sup> century, the Egyptian Linguist Abu Zaid was forced to divorce his wife and leave Egypt because he dared to analyze the Quran as a historical text. (see H. Abdul-Samad, *Der Untergang....*, München 2010, pp. 87-88)

A society in which critical thinking is discouraged because the distinction between knowledge and faith is not accepted, is, as I said, generally harmful to a pursuit of knowledge founded upon reason and is therefore harmful to scientific and technical advances.

Statistics have been reported (see *Spiegel-Online* from 16.11.2007) which demonstrate that Islamic-Arab countries are significantly lagging behind in modern science and research:

The OIC (Organization of the Islamic Conference), in which 57 Islamic countries are represented, is ranked last in research. In comparison to the world average (2003) of 137 scientific publications per 1 million inhabitants, the OIC-countries had on average 13 per 1 million inhabitants. Turkey positively stands out as the leader.

So far, there have only been 2 Islamic Nobel Prize winners in the natural sciences: Abdus Salam (Pakistan, Nobel Prize for Physics in 1979) and Ahmed Zewail (Egypt, Nobel Prize for Chemistry in 1999).

The explanation for this can be found in a certain rejection of an open-ended pursuit of knowledge by the Islamic Orthodoxy. Even modern science and research are supposed to confirm the religious truths. The “fruits” of modernity, which are based on the scientific methods of the constant tester of hypotheses irrespective of any authority, are willingly accepted (that is to say, buying with oil revenues) without even entering into modernity.

- (3) In the USA, we can find a quasi-religious fundamentalism in the so-called creationists who vehemently oppose the Darwinian theory of evolution and regard it as contradictory to the biblical story of creation (to the satisfaction of the Islamic Orthodoxy).

This concerns the so-called Evangelical Christians whose theories are also partly represented by renowned scholars under the neutral designation “intelligent design”.

This only affects the school sector because individual states or communal school authorities stipulate that both doctrines should be taught. Similar influences on the universities are not evident. Since the free choice of universities/colleges is guaranteed (more than 700 certified universities), there is always the possibility (hypothetically speaking) that teachers and students can avoid the danger of a one-sided indoctrination by changing universities / colleges.

## **VI. Future Prospects**

So, what does the future hold?

There is still hope that the remnants of fundamentalism that continue to exercise an influence at universities can be overcome by raising awareness and teaching tolerance.

Two points are important here:

- (1) Basically, nations or society incur irresponsible losses when potential intelligence or a pursuit of knowledge (as undoubtedly demonstrated in the Islamic and Arab states) is not activated and therefore remains unused because of a self-imposed blockade. Even though modern science and technology can pose certain risks and tend to be misused (e.g. weapons of mass destruction, environmental degradation, depersonalization), the benefits and advantages outweigh the disadvantages due to scientific advances, without which humanity could not survive on a level which seemed unimaginable years ago (Effective prevention of epidemics and cures or alleviation of disease, supply of food, water and energy, education for everyone, aid after natural disasters, not to mention relief in daily life and the many conveniences of mobility).

The ever-increasing world population is, however, dependent upon further advances. When fighting disease and poverty, supplying food and water, creating new concepts of energy supply and preventing the global destruction of the environment, every bit of intelligence and willingness to conduct research will be needed.

It must be clear to every society and every nation that each of them is called upon to actively contribute to this, rather than just profiting from it.

This active contribution in science and technology is in their own interest, for only then can a permanent basis for the economic prosperity of the community be established.

- (2) However, the basic question of modern scholarship is: Do the two opposites— faith/reason (knowledge) – have necessarily to lead to fundamentalist restrictions on the pursuit and expansion of knowledge?

No, that is not the case, as the past and present demonstrate:

Even Avicenna (Ibn Sina) and Averroes (Ibn Rushd) and later the Catholic church father Thomas Aquinas opened the door to a balance between faith and reason in their teachings of the double-truth with the areas of  
-rational cognition (true or false) on the one hand, and  
-faith, in which certainty is mediated by faith alone, on the other.

Based upon religious faith, according to which reason has been given by God to man, perceiving the world by means of reason is consequently nothing more than “a reflection of the thoughts of God” (see Karl Jaspers, *Ursprung*, p. 99), and according to a striking formulation by Martin Luther, God is “present as the creator even in the gut of a louse” (as cited in Jaspers).

The reason for the restrictions on free thought imposed by the ultra-Orthodoxy can be found in the fear that faith could become lost if authorities did not set limits on the use of reason or the pursuit of knowledge.

This is entirely possible as many famous examples have shown: Karl Marx (1818-1883), David Hume (1711-1776), Voltaire (1694-1778), Bertrand Russell (1872-1970) among others, or it could come to a skeptical agnosticism (“ignorabimus”) as is the case with Karl Popper for whom the kingdom of rationality is an enclosed garden, outside of which the “jungle” begins.

Still others come up with synthesis solutions such as the “philosophical faith” of Karl Jaspers or the “cosmic religiousness” of Albert Einstein.

However, the fact that – contrary to the fears of the ultra-Orthodoxy! – modern scholarship can lead to faith can be demonstrated by impressive examples from physics, namely the quantum theory and quantum physics. Today, physics and transcendence no longer relate to each other in antagonistic but rather in a complementary manner.

A good example is the Nobel Prize winner Max Planck (1858-1947), founder of the quantum theory.

He describes how the discovery of a higher, simpler legality in physical processes (that is to say, the principle of the smallest action, later known as the Planck constant) became a tangible sign “for the rule of a higher form of reason that dominates nature” **„für das Walten einer höheren, die Natur allmächtig beherrschenden Vernunft“**, which even Leibniz had recognized in the laws of nature (Hans-Peter Dürr, Hrsg. *Physik und Transzendenz*, pp. 35/36).

And Werner Heisenberg (1901-1976), Nobel Prize winner and father of quantum mechanics explicitly emphasizes that physics and transcendence only illustrate different aspects of one reality that span from a lowest layer, where we are still able to objectify, to a highest layer, “in which the view opens up for those parts of the world that can only be discussed in similes” (Dürr, p. 19). **„in der sich der Blick öffnet für die Teile der Welt, über die nur im Gleichnis gesprochen werden kann“**.

On this basis, and I would like to close with this statement, there is a convincing answer to the basic and essential question concerning the relationship between rationality and religion, namely that the areas of reason/knowledge and faith/religion can and must face each other with mutual tolerance, or even with “humility”, as the great English historian Arnold Toynbee stated.

General note from author:

*This presentation text contains only few footnotes of scientific evidence. More material will be quoted in the text which will be available later on the website of the International Conference of Higher Education.*