

EPISTEMOLOGICAL BASIS OF RADIOATION PROTECTION

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Abstract

Regarding natural phenomena understood or not, the absolute truth must be somewhere....

In fact, there is no evidence that neither nature nor the phenomena that it includes were “created” to be understood... Except for the fact that Man appeared through the same process, with his curiosity, capacity to perceive and manipulate, his greed for power and fears.

In general, the attitude towards questions for which the absolute truth has not been reached varies from ignorance/indifference to the search of knowledge through scientific methodology, and may even be based on beliefs.

The fact that the interaction between ionizing radiations and living beings results in biological effect is true. That the biological effect of high doses of radiation, absorbed outside the context of medicine, is hazardous for the irradiated individuals also seems to be true. That any dose is dangerous, or not, is debatable: the available information and knowledge are not consistent enough to end the question; and so, the absolute truth remains hidden.

Radiological Protection is founded on the principle that any increase of dose results in an increase in the risk of cancer, and that this risk must be kept as low as possible. It is therefore based on this “belief” that the international organisms of radiological protection emit recommendations aiming the protection of people and the environment.

What is interesting about this question is that because of restrictions imposed by regulating agencies, populations, members of the public and the environment are properly protected against harmful effects of ionizing radiations, which makes the truth no longer interesting.

Radiological Protection is a requirement associated to all activities involving nuclear energy. It satisfies several interests and opposes others.

The greater the opposed interests and the perception that the absolute truth can represent dialectic advantage to one of the parts, the greater the perception of the importance of its revelation.

In the present study, two initiatives of search for the truth were analyzed: the initiative of the Brazilian National Congress, through the creation of a working group in charge of evaluating the radiological protection in the country; and WONUC’s initiative to create a publication focused exclusively on the effect of low doses of ionizing radiation.

In relation to the understanding of the biological effects of the radiations, the document underlines the difficulty of all those involved in accepting the evidence that the truth related to this question was not reached.

In respect to the initiative of the WONUC, the International Journal of Low Radiation is now in its 4th volume; publishing works that oppose the “official belief” that any dose is harmful.

KEYWORDS: Radiation Protection; epistemology; knowledge.