

What does the science achieve?

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The science is one of pillars of European civilization and the science is part of European culture, too. But science does not fulfill such role in our past as nowadays do. Science has dominative role in development of western civilization. Above it I think the science is modern ideology, too.

If we want to meditate on changing role of science then we must take into consideration all past of science together with its adversaries.

The techno – reason strives to know how the things are or to get the hang of things and through that to manipulate by things. It is the trick of reason (Hegel) that enables to arrange the nature by such way that by automatic activity of parts we can get something what response to our purposes to our consumption.

Hegel wrote:

The reason is tricky by same way as it is powerful. The trick consists in mediate activity that egg (on to an act) the things to reciprocate on the essence of itself to elaborate together without activity of man. Despite of that such activity fulfill it purpose.

In European tradition the civilization and culture are as opposite side of activity. The base for civilization consists in science and to uses the trick of reason more and more. But question is how something such like the trick of reason is possible? What are the cognitive processes and what is the base for them?

The knowledge has been the reminiscence on our life among the ideas in Plato's conception. When we born we bring with the knowledge about essences and during our life we only recall to mind them. The light plays also important role in Plato's conception. The light is the symbol for the highest idea – kalokagathia - and the light enable to us to cognize the world. This idea plays role in Christianity until. We may cognize only what is in the light. The knowledge is not only our effort but it is the gift. The eye is basic sense.

The way of light is base for theism and theory is to see the will of god. We may see only what some transcendental power to demonstrate to us. They are the spices or prompters many times but we must see what it exists behind it. They are the essences.

Aristoteles thinks about the eye as only one of senses and the light only one of quality. He thinks about the touch as one of important sense. This idea finds its place as understanding during Renaissance.

F. Bacon spoke: *The knowledge is power*. And we think about the nature as the resource for as still. L. Tondl wrote: *It is the way from the love of wisdom to power. Man longing for knowledge for creation and discovering the mystery. But this longing has been changed by such way that we want to manipulate by nature and govern to it.*

Science contributes to our familiarity and the science is means for civilization. Science is form of our existence, too. We are here in the world through the science. We can see results of science and its application around ourselves. I think that the science is the form of ideology or social movement, too. It is because the science changes our surroundings more radical way then some social movements did it in our past. It is true that scientists do not enter to information space massively as actors for example but the role of scientists as experts and judges in social life is crucial. The public does not know how is possible to solve of many social issues and they are shifted to the role of believers because they do not understand what is in the focus of issue. The scientists by this way create the confirmed position in the social structure. The nation or state with the better science is winner on the field of politics or economy in nowadays.

The scientists have great responsibility for their scientific researches and the consequences of their work. It is not easy for scientists. We can see that many of research are close to public but not from the point of ethical view but for the economical or strategic reasons. The science is the tool of power and the financial profits, indeed.

If we appeal to responsibility of scientists then we must put in mind responsibility of politics and economists, too. They use the results only on the base of profit and out of consideration about the consequences their activity. There are many scandal examples of such activity as Chernobyl was and other examples with devastation impact on environment and the health of people. The responsibility is a matter of all people not only scientists.

The science passes through the period that is labeled as a period death of unlimited possibilities now. Most of people had a conviction that the science is able to solve most of issues until half of XX. Century. The situation has been radically changing after the Hiroshima and Nagasaki bombs. Not only scientist but most of people could see the limit of

application of scientific results because they are unable to see all consequences and they see also that science is not omnipotent.

This problem starts with L. Wittgenstein's question about demarcation. Demarcation in philosophy of science means to differ between the propositions that can be identified by the means of formal logic and the other propositions. These other propositions are such as for example: people are good or poor. Such propositions have not any denotative meaning. It is because we do not know what the good or wrong is. The propositions of science can be verified but other propositions do not. The demarcation circumscribes the field of science by this way. Great domain of life exists but it is not question of science.

K.R. Popper determines the demarcation in more detail way. He thinks that we cannot tell what the truth is but we can say only what the truth is not. It is basic principle of falsification. The theories that include some of logical contradictions or such theories that do not correspond to empirical facts are untruth. The rest of theories that are testable they are relevant.

The science enters to post modern period with popperian criterion of falsification. The proliferation hypotheses are dominant at this period and the narrative character of science, too.

I think the science overpasses dimension of human imagination and rationality. We only very hardly can understand what science is doing. We can meet with such categories as quarks, gluons, or mesons are; we can meet with existence four dimensional space time or even $x -$ dimensional space and such categories overpass our sensibility by which we are deeply rooted in the world; we can even read that the part is more than the whole, etc. Scientists maintain that all the cosmos has been included in only one proto atom that starts with stretch to nowadays form. These all is not in consonance to our imagination and therefore the scientists must create some narration for explanation and acceptance of scientific theories.

Scientific process participates on the persistence as other processes. It is conservatism that is so strong that we must take it into consideration. But if we want to understand the nature of contemporary science then we must consider also about the tension between process of cognition on one side and the presentation of scientific results on another side.

What do I mean? There are fuzzy facts that the scientists posit for construction hypotheses and theories. Every reader can judge it himself.

We know about origin of our genus only how the fragments of 56 bones are explained. Wife of R. Leakey these bones assembled. R. Leakey found out them on the border of Congo in Africa. The scientists create the story about origin of our predecessor on the base of these 56 bones. They said that they are the woman's bones and they called her as a Lucy. They

supposed that she lived in the group of 25 people and she brought the food to some very safety place. Scientists also supposes that the Lucy bear her son or daughter every 4 years if she want to protected them and that she communicate by gesticulation.

This story is logical and the scientists bundle up it into scientific terms when they deliver the contribution on the conferences. They spoke about the layer of spoil and what it included, what confirm the alluviums, etc. And other scientists agree with these arguments or not.

If they agree then this story is considered as scientific and true. But it is not the end of work. The story must be transform to the speech that is understandable for pupil between age 10 to 15 another story is prepared for the students in the age between 15 and 18th and also to the form for public.

I know that the bones have been more then only 56. I know that the findings are compared to another bones, I know that they are elaborated different scenarios about life our predecessors, etc. But in fact we have in our hands nothing more then 56 fragments of bones. And even we don not know if these fragments have been composed by only one right way. It is all what are the facts "homo habilis".

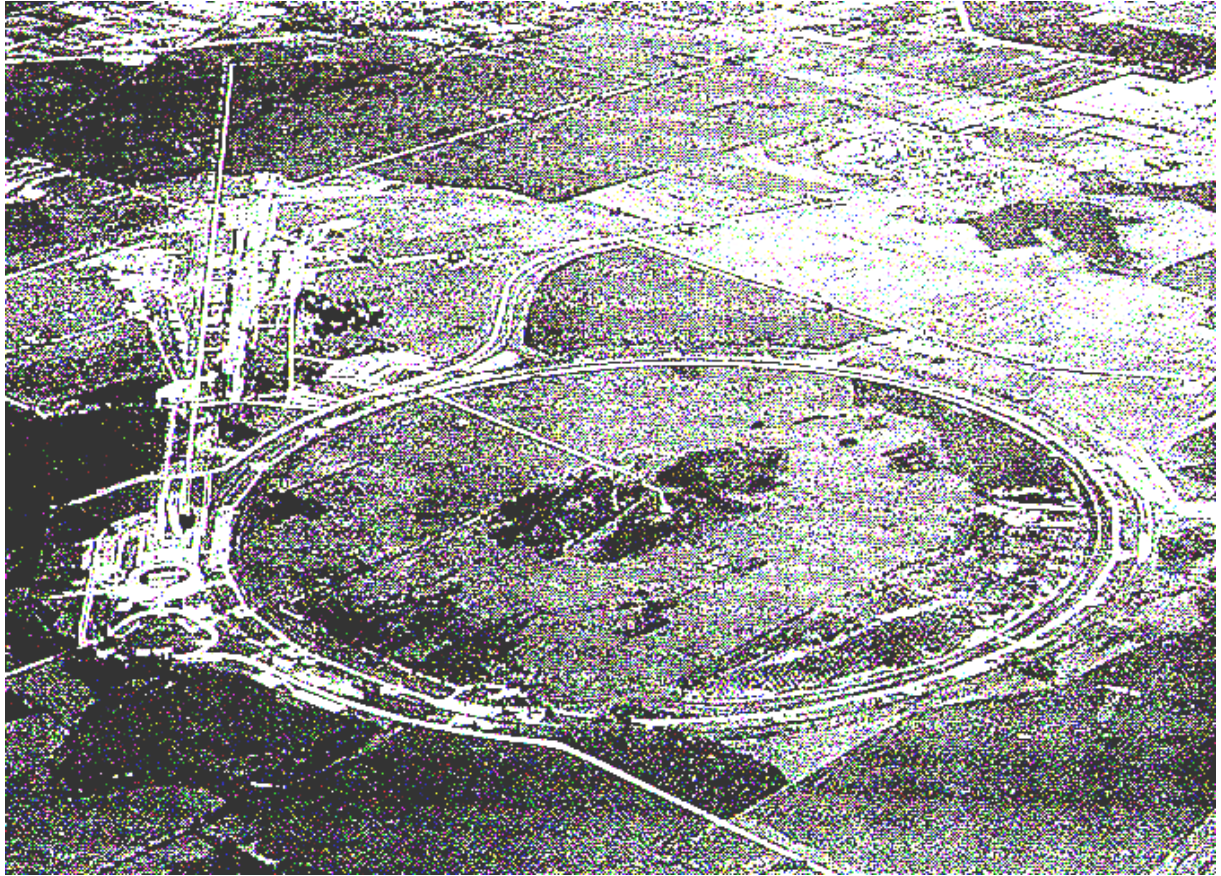
Or we can consider about another example. What do we know about the structure of matter?

They are only the pictures from bubble chambers where the hadrons are bombarded be another hadrons or leptons.

The facts are such:

Geneva or the surrounding of University of Standford is undermined and in the tunnel with inside diameter about 40 km is full of electromagnets.

Picture it illustrates



When we dispose by such accelerator then we can locate a proton into and we force again it some lepton by very speed. Proton and lepton dash against and as the result of such collision we get the bubbles very similarly how we can see the bubbles if we open the bottle of aerated water. Scientists then make photo and they explain this phenomenon as a hadrons, baryons, mesons, quarks, anti-particles and many other things. We know about approximately 200 such particles now.

Next picture illustrated such photo from the bubble chamber.



All physical theories repose on such photos and if some scientist is so successful that he/she take a snap of very unusual picture then he or she have great promise for Nobel price.

I remark again that I simplify the facts. I know that mathematical and physical models precede to such experiment that the scientists disposed by such scientific findings as a relict radiation is etc. but it does not change the basic fact that the theories are founded on the pictures of bubbles.

The photos of bubbles need to be retelling, they must be composed to the story that is logical and acceptable that is able to give the sense. Alternative discourse is the source of scientific progress in postmodern science and therefore we can characterize the development of science as shifting from one discourse to other one. The truth is realized in the form of new story about world.

Science constructs new worlds very similarly how it is in literature. It is reason why we can speak about narrative character of contemporary science. The science looks for continuity in the chains of occurrences. Theories are constructs on the base of coherent scientific findings but science also resigns on all facts.

I think modern science is currently approaching a constructive rationality. The task of modern science does not consist of unveiling or discovering truth that is hidden in things but in the construction of a new reality that never before has existed.

If I had to give some examples of such a new form of reality then such examples could include gene manipulation, plastics, chips or virtual reality. We can ask what the truth of this new form of reality is and what this new form reality represents. In my opinion the new reality represents our imagination and the truth of the new reality consist of a construction of new reality germane to the conditions that are needed for the realization of these new things.

And again, this new type of rationality does not mean that the preceding form of rationality has finished or even been nullified but only that a new dominance has been established in the scientific approach to the investigation of reality.

The first step of scientists in construction is the choice of how reality could be. This step is elaborated from the functioning of reality and from the conditions that we know. But we have not to know all the detail or all mechanisms of how the reality works. We can use the black box method similar how S. Freud used conception of unconsciousness or how N. Wiener used his method of input and output.

The next steps of science consist in the realization of these imaginings. We can return to ideas about the same object and we can constitute other objects and hence consequently another truth. These, our imaginings are not Plato's ideas but ideas that are inner to our minds.

I mean the ideas that are not entirely independent but ideas that are dependent on the conditions of their occurrence. The construction of new things must always be based on scientific findings but the truth of some theory is also a construction from our ideas and findings. Such construction of truth has not been done arbitrarily, or even capriciously; but scientists must define the conditions that are necessary for the validity of truth.

The Popperian method of falsification supposes that all propositions of science must be testable and all propositions that are not contradictory by means of logic or observations are true. Truth is not only unique one but there could be many true propositions about the same reality; how could exist many worlds, for example micro-world and macro-world, worlds of dreams, of virtual reality and so on?

An observation of reality of the world does not proceed to a construction but every construction proceeds to an observation. Even experiments are constructions. We can find only such observations that we are looking for. A construction is founded by ideas and experience, is only a base and does not mediate stimulus for formulation of scientific hypotheses. Of course, experience is inferred from some form of observation but the role of observation in modern science is changed.

What does observation mean in today's science? J. Fodor gave such example: A professor delivers his lecture in foreign University his assistant is looking at a TV in American laboratory while the apparatus records the motions of rats in some labyrinth. On the next conference the professor will talk: „We observed such motions of rats that prove ...“, etc. Who has been observed and what?

The constructive type of rationality overpasses method of R. Descartes who relies on the transcendental stay of God. The God protects our cognition but the God also is limit for

cognitive processes in science in Descartes conception. Science does not know such stay and limitation nowadays. Modern form of science is not modern enough. But it does not mean that post modern science abominate the scientific findings. Science creates on the base of scientific findings new worlds only.

Descartes supposed that science could help to carry out the mastership over the nature. Contemporary science not only such mastership realizes but science create such things that we cannot to find out in the nature. They are genes engineering, plastics, chips, etc. Post renascence science is focused on cognition of reality but for post-modern science it is not enough and post modern science excepting cognition of reality create the new things perhaps new world.

Contemporary science does not cognize only what is hidden in reality of world but contemporary science oversteps that on the base of knowledge. It means that science is focused in both way. One of that is focused on reality and second one constructs new worlds new things. The principle of universal science is splits to cognition and to play.

Science is very competitive. We can see it on the competition about numbers of articles in prestige scientific journals on the competition on the numbers of quotations, etc. The play is very creative because scientists must react on the actual situation. Despite of that the main task of science remains the same and it is cognition of world and explanation of that.