

EUROPEAN ACADEMY OF SCIENCES AND ARTS

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CONFERENCE OF THE ACADEMIES OF SCIENCES AND ARTS OF FORMER YUGOSLAVIA

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Dear Colleagues,

When there is a wine glass with wine in it in front of you, it is a matter of temperament whether you will choose to look at that glass with the eyes of an optimist or of a pessimist. It is only the viewing of an empty glass that offers a single, unique viewpoint. I would like to use this opportunity to offer a brief and personal view of the intellectual situation, particularly in science, in Yugoslavia today. Being an optimist by temperament I should talk about the high points and disemphasize the low points. For all practical purposes, however, the wine glass is empty...

From a position of chaos one can turn to the past -- idolise it, spin nostalgic songs about it or Satanize it, consider that past the root of all evils.

I choose to turn to the future, rather than the past. I feel that the single thing most lacking in the country I come from is vision, both about the near future as well as the longer term prospects. This is true regardless of the fact that one is speaking of politics or of science, of art or of sports. For this reason I would like to reflect a bit on the prospects for science coming from Yugoslavia, and the role that science and scientists may yet play in the shape of things to come in my part of the world. It is more palatable to talk about the uncertain future than about the rather bleak present.

To look chaos in the face is to fight with oneself, to wage a battle against the setting in of severe depression. To survive this battle one needs the tools of science, but also of art. Dante teaches us that there are nine levels of the descent into Hell. Nine is a finite number, something that shouldn't scare the physicist in me. In the past nine years we have certainly passed through as many levels of Hell, and by this simplistic calculation we should be nearing the exit soon. I hope so. Still, we shouldn't forget that Hell has its uses. As a contrast to Heaven it often makes the latter look more shiny than it truly is.

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In the history of science, in fact of all human endeavours, chaos, both at the personal level, as well as at the level of nations, has many times played a key role. There are innumerable examples of this, maybe none better than the role that the plague played in the discoveries of Sir Isaac Newton. His miraculous discoveries of 1666 are regarded as the single greatest achievement of human civilisation. One often associates the image of the apple with his discoveries of the laws of motion and of universal gravitation, yet the more appropriate image to use is that of the sickle of the Grim Reaper hoeing down millions throughout the rat infested cities of Europe. Running from the plague, in desperate isolation, surrounded by news of the deaths of friends -- that is the true setting for Newton's discoveries.

We human beings are cursed. Viewed objectively, we rarely seem that big an improvement over our cousins the apes. Still, at times, some of us soar to unimagined heights. How unfair that these flights of human spirit rarely happen in pleasant and calm settings. Compare the contributions to physics of today's Germany with that of the same country between the two World Wars. The same poverty, frustration, bitterness and chaos that allowed demagogues of all colors to manipulate the masses and in this way bring forth the greatest atrocity the world has ever seen, also proved as the ideal breeding ground for great ideas in science. It is the tired kids trekking all over Germany, carrying food to their families in rucksacks, that gave us the quantum revolution. In contrast, today's well paid, tenured professor, flying from one conference to the next, mainly seems to be contributing to tourism.

So, should one throw away wealth and prosperity, yearn for the simple times, embrace poverty? Certainly not, we are as a world much less naive than we were in the sixties. Poverty and instability do not guarantee creativity, there are far too many examples of this in the world today. And even if we did find a causal connection between the two, would we have the moral right to choose chaos? No.

There are many sites of chaos in the world, one shouldn't wish for more, rather one should consider what to do with the existing ones. What is the world to do? A stupid solution is to cast a gaze from the seeming stability of one's back yard and gloat on the misfortunes of others, or at best to offer empty commiseration. To do nothing is short-sighted, but it is easy. To do something requires vision. To stop the chaos requires vast amounts of money, and even that may not be enough. Also, in order to grow up, a person must learn to solve his own problems, not to rely on others to solve them for him. This is also true of countries and of regions. At the same time, as we have seen, the total eradication of misery and suffering, even if it were possible, might bring about as unforeseen consequences the stifling of many truly novel ideas.

Thankfully, we are not politicians, and this is not our choice to make. The actions we can take are quite different in scale as well as in kind. I believe what we can do is to nurse the creative processes that are being spawned amidst the chaos. This requires almost no investment. Remember, chaos is a foaming broth, and while it is continuously issuing forth new things it is also destroying them at the same pace.

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The price of bringing each and every one of us to this meeting pays for about two months work of six highly trained young people working in my laboratory on a new model for the formation of planetary systems. The modern equipment is there, the people are there, but in order to continue with our work we must find the money to feed our families. I give you this example not so as to solicit money for my younger colleagues and myself, but as a concrete gauge of the success of this meeting. We must, each and every one of us here, through our activity today, contribute more to the fostering of science in regions such as the former Yugoslavia, than those two months of research for six people. If we do less then we have failed. To do less is to foster tourism not science.

It is my firm belief that the calibre of people here is such as to make success possible. I believe that, if we fail, it will not be because a single person here does not resonate with these ideas. If we fail, it will be out of fear of the immense possible consequences of success. We must not be intimidated by the size of the task before us. We do what we must do for a new generation of Europeans.