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Interview from the Series "Science in an Emergency."

Vassil Simeonov

At a time like today's, it is essential to focus on a topic that is interesting for just about everyone, so I decided to start with a title of a book by a favourite author, Milan Kundera, which I slightly paraphrase: "The unbearable lightness of academic being in an emergency." Of course, there may be other titles that reflect the situation of other favourite authors, e.g. Ian McEwan's *Nutshell* or Julian Barnes' *Nothing to Be Frightened Of*. Anyway, the situation is extraordinary and requires a new type of attitude towards our daily lives. Whether today's science in any way resembles the image that haunted the minds of our distant predecessors, or whether it stands at an entirely new crossroads, the COVID-19 story will likely be unravelled for a long time, and there may be various outcomes.

The science that will be telling us a lot about COVID 19 will be a fresh one, not so much created by urgency as one that has to answer many challenges and questions. Incidentally, speaking of science, we must always keep in mind that it is not a single homogeneous thing, but has long been divided into at least two worlds. Let us recall Charles Percy Snow's famous book on the abyss between the two cultures and the scientific revolution. This is another topic that should excite many people amid quarantine.

Is there an abyss or, on the contrary, are there already enough bridges between the natural sciences and the humanities? This is another fascinating topic we need to think about at a time of involuntary idleness. C. P. Snow assumed that the natural scientists were too rational, while their humanities opponents relied primarily on emotion. However, a careful reading of various stories from the history of science shows that there are plentiful bridges between the two worlds. The famous playwright August Strindberg enjoyed more his achievements in alchemy, which are spurious from a scientific perspective, than his plays, successful all over Europe and beyond. In one of his masterpieces, the Tower of Babel, Peter Brueghel the Elder, apart from illustrating a biblical story, showcases the achievements of the science and technology of his time down the floors of the tower, e.g. cranes and other devices used by the builders, which Brueghel had seen in the port of Antwerp. In his 'mathematical' pictures, the great Dutch graphic artist Maurits Cornelis Escher showed transitions from two to three-dimensional space and tried to represent, perhaps for the first time, an idea of the infinite.

So nowadays we must find a bridge between the two cultures. The natural sciences, e.g. medicine, biology, chemistry, biochemistry, biophysics, etc. are called upon to find an

adequate response to the new coronavirus challenge. But apart from vaccines, clinical treatment and protection against the virus, we need to think about the emotional side. The psychological and mental issues that might be engendered by the pandemic must be carefully figured out and addressed through treatment and policies.

Interest in the natural sciences declined sharply in the 1990s, and this was seen both in the number of student admission and in the attitudes of young people towards them. The crowd-pulling subjects back then were law and economics, while in chemistry, we could only muster a small number of admissions. Same went for physics and biology. I believe today's situation stands a chance to change this disregard towards natural sciences and stir up a new interest in research as it has become clear that nothing else can deal with such a global problem.

What is the role of Bulgarian science in this situation? I have been involved for many years in the so-called econometry, the science that deals with modelling, classification and interpretation of data obtained from monitoring of various objects in the environment. What we do is modelling of soils, of water, of air, of clinical samples, which make it possible to find sources of pollution, to build up predictive models and look for solutions to benefit society at large. Doesn't this all this remind you of the situation we are in today?

How is an econometric survey carried out? A monitoring network with specific points is build up to where samples are taken from the air, soil, water, etc. and, based on the data so collected, a statistical model is worked out. I imagine a corona virus-related study will have a similar structure. This will be an epidemiological study, covering the country with a large data-collecting network to provide the basis for projection models, which will give us information about how long the epidemic will last and how it could be overcome.

We have to appreciate the fact that the reported numbers of both the infected and dead from the virus are so small in our country. Apart from being the result of strict organization of response, this might be due to a genetic peculiarity of the local population. Bulgaria had a smaller number of victims, even during the great Spanish influenza epidemic compared to neighbouring countries. This is also an interesting point that needs to be taken into account in our research.

A lot can be said about whether research-related current policies have been adequate. The National Research Fund has launched a new round of competitions, which is expected to fund COVID 19-related research. At the same time, I wonder why big donors only target

people on the front line. Although they are critical in the fight against the epidemic, we must not forget that our science also needs additional donations to develop its potential. And such potential does exist. So the time of the pandemic, no matter how tough, unsettling and contradictory, still creates an opportunity for a different perspective to both science in general and Bulgarian science in particular.