

My aesthetics as a scientist



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I had spent much of my life being involved in science and technology. As a person who has been making a living as a scientist, I have some specific views about science, although sometimes I went against my views for practical reasons in everyday life, pretending to be convinced that bending my views made sense at times. I would like to explain some of these views through self-reflection.

1. Science and humans

It is believed that the truth and the laws of the universe exist beyond space and time, irrelevant to human existence. However, it was humans that figured out and expressed the truth and the laws of the universe. In this sense, the truth and the laws of the universe were established by human beings. Therefore, there is an idea that humans play the central role in science. I initially believed in the former idea without a doubt. However, I gradually started empathizing with the latter idea. In fact, immeasurable progress in human welfare was brought about through advancements in science and technology. This clearly shows that humans are the master and science and technology is the servant.

However, the consequences of progress in science and technology have become uncontrollable and this has put dark clouds over the future of human society. An increasing number of people started calling for stricter scientific ethics. This situation is a result of the arrogance of humans, who placed too much confidence in the idea that science and technology is the servant of human beings. We need to caution ourselves against our arrogance.

2. Intellect and sensibilities

Human intellect is objective and universal. On the other hand, human sensibilities are subjective and individual. It is generally believed that science is created by human intellect and art is created by human sensibilities. However, if humans play the central role in science as I mentioned above, and if science is created by

humans' creativity which is based on their free spirit, science can be considered to be the synergy of intellect and sensibilities. I had an opportunity to listen to a speech titled "Chemical Beauty" by Nobel laureate Professor R. Hoffmann. The idea that science and art, intellect and sensibilities are intrinsically two sides of the same coin has been discussed by many great scholars, and I feel strong empathy with this idea.

When realizing that a human is merely a dot in the infinite universe and that a human life ends in a flash when compared to the eternity of the universe, anybody would feel an aspiration for the magnificent, mysterious and unknown universe. This emotion is motive power for creation.

3. Education and research

As a person who has worked in educational institutes, I have continuously stressed that education and research are inseparable. It is my strong belief that only a good researcher can provide good education. However, the present university educational system, which merely transfers knowledge and information, is questionable. Education to foster researchers should not only teach know-how. Good research is achieved through the integration of various human qualities including a passion for research, curiosity, imagination, commitment, dreams and observations. Therefore, education to train researchers should be a holistic education to influence students' personalities from different directions. This means that education for researchers must involve personal interactions. This type of education can be found in the training process for masters in old days and the Bauhaus educational style, for example.

These are some of my views on science. I called them "my aesthetics" in the title of this piece, hoping that these issues will be taken into consideration in future science, although I also self-reflect that I was not always able to follow these views.