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# “Choose Freedom”

**Prof. Włodzimierz Zawadzki**

Institute of Physics, Polish Academy of Sciences, Warsaw



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It may seem that these days science is a domain of freedom. After all, long gone are the days when the Inquisition burned Giordano Bruno at the stake, and forced Galileo to revoke his support for Copernicus's theory that the Earth orbits the Sun. Gone too are the more recent times when our eastern neighbors condemned the fields of cybernetics and genetics as bourgeois inventions. Although some in Poland have tried to prove the legendary Dragon of Wawel Castle was actually a dinosaur and to deny the evolution of plants, animals and humans, but few take these attempts seriously. So it seems that these days scholars are independent, free to do what they want and proclaim whatever their mind dictates. And yet...

There are two main reasons, one external and one internal, for why the freedom that scientists enjoy is still limited. The external one is obvious: money. In experimental science today not much can be done without serious funding, which is in the hands of the state or corporations. The state decides on the amount of money that will be allocated to science and how much of that will be channeled to basic research, as opposed to applications. Within these two categories, more detailed decisions are made, such as which specific research subjects will be supported and which ones will not. If a researcher is applying for a grant in a non-supported subject, he has little chance of receiving it. In basic sciences there is more freedom, but less money, because the state is reluctant to finance ideas that fail to deliver practical results. Of course, those who apply for grants know where the goodies are and don't always follow their hearts, but rather go for what gives them a better chance of funding. It is hard to blame them – as I mentioned, these days it is impossible to conduct serious experiments in physics or medicine without money.

The state authorities can also use funding to intervene in the social sciences, history or economics, by supporting specific authors or topics of their choice. Recently, this sort of interference has intensified in Poland. However, even in the worst of times, there was no censorship in the hard sciences, because no official or censor actually had any understanding of what we were publishing. If it is a company that is financing the research, the freedom of scientists is limited by the specific innovations that are of interest to its owners.

In general it can be said that society pays for science and thus wants to have a say on how it is used. Besides obvious cases of abuse, this is hardly surprising.

But there is also an internal reason: scholars sometimes limit their own freedom. We are only human and many of us feel better in a group than alone. When a discovery or an important idea emerges, throngs of scholars hurtle themselves at it. There is seemingly nothing unusual about that, because science is about producing novelty. However, many people are mainly driven by the desire to bury themselves in the safety of a group. In other words, if a lot of people are doing something, they surely must know what they are doing. A few years ago this kind of “rush” resulted in the discovery of graphene.

A really damaging part of this phenomenon, however, is that scholars may suppress thoughts that challenge standard opinions. A French colleague of mine at the University of Montpellier for years could not publish his work offering an alternative view on an important effect in the physics of semiconductors, because all the negative reviews began with the words “As is widely known,...”. Twenty years later they said he was right after all. I myself have tried to publish an original idea along with a doctoral student, to which a reviewer responded, without providing any arguments: “This work should not be published, not only in our journal, but anywhere!”

It seems that science is an ideal field where the Marxist principle of “doubt everything” should apply at all times, a field where we should support those who go against the grain. Often, however, human motives are stronger than right principles. Fortunately, today it is possible to post articles in unreviewed, Internet journals available to everyone online, which greatly expands scientific freedom. Unfortunately, such works are labeled “unpublished” in citations.

As the background image on my computer's desktop, I have the words “Choose Freedom.” Sometimes, while waiting for my Internet connection to work, I think about how Fromm's famous words about “escaping from freedom” apply not only to politics, religion and private life. Without going into a difficult analysis of the freedom of choice, it is useful to remember that following one's own path is a kind of loneliness. Not everyone can handle it. ■