
Why Is Pseudoscience Dangerous?

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The growth and influence of pseudoscience in Russia has become serious. Many pseudoscientific devices and schemes have gained influence within governmental organizations. A special Commission of the Russian Academy of Sciences against pseudoscience has had some effect in addressing the problem.

EDWARD KRUGLYAKOV

The end of the twentieth century was marked by a boom of astrology, mysticism, and occultism in many countries. In the USSR (during the last years of its existence) and then in Russia the situation was even worse in a sense. The system's collapse and the wreck of old ideals—along with the absence of new ones—caused many people to hope for some kind of miracle. The mass media contributed to this tendency. Through their irresponsibility, pseudoscience has filled newspapers, magazines, radio, and TV.

In recent years a new phenomenon has arisen. Pseudoscience has become a powerful, well-organized force. Over the last decade in Russia, about 120 academies have appeared, many of which don't deserve the name "academy."

Some of them give their stamp of approval to professionally inadequate doctors of science in various fields. Others do the same in pseudoscientific disciplines, giving diplomas to astrologers, UFOlogists, and others of the sort.

In Russia, even research institutes with pseudoscientific tendencies have appeared. I'll give only two examples: the International Institute of Space Anthropology and the International Institute of Theoretical and Applied Physics. The first has even managed to attain state accreditation with the help of the Russian Ministry of Science. The second has received financial support both from the Ministry of Science and the Ministry of Defense for the well-known swindle of torsion fields.

Peaceful coexistence between science and pseudoscience is impossible. From time to time, science attempts to unmask pseudoscience. The latter fights back with fierce hatred. Pseudoscientists are anxious to settle accounts with the Academy of Science, because the Academy is a great obstacle to these newly half-baked "scientists." Here are a few quoted statements of such people:

- "By the end of the twentieth century, on the periphery of official academic science, such a substantial arsenal of facts, conceptual guesses, and extravagant technologies was compiled, demanding an integral and unpreconceived comprehension, that it encourages many scientists to expect a new scientific paradigm in the beginning of the third millennium."

- "The scientific paradigm is hopelessly obsolete. The epoch of materialistic science, which does not recognize this, is finished." Meanwhile, according to the statements of such "scientists," "the influence of thought on the composition of liquid chemicals was proved." Furthermore, "The world's leading physicists and philosophers warned of an inconsistency between the modern paradigm and the fundamentals of physics."

Thus pseudoscience predicts the full breakdown of science unless the scientific paradigm is changed. Meanwhile, according to a statement of academician Z.I. Alferov, recently awarded the Nobel Prize, "... the crisis in quantum physics is not observed. For the most part in the physics kingdom, it is calm now."

The Emergence of Antiscience

Where does this passionate desire to replace a scientific paradigm stem from? Here is what one of the pseudoscientists said: "Up to now the broadly spread dogma of experimental studies of the nineteenth century is to recognize as 'scientific' only one such

Edward Kruglyakov is a head of laboratory and deputy director of the largest institute of the Russian Academy of Sciences (Budker Institute of Nuclear Physics). He is the State Prize (1986) and Artsimovich award (2001) winner. He is chairman of the Russian Academy of Science Commission on the struggle against pseudoscience. He is also author of a book whose title might best be translated into English as Pseudoscientists of the Modern Era. E-mail: E.P.Kruglyakov@inp.nsk.su.

technique, which provides reproducible experimental results irrespective of whenever and wherever they could be obtained."

What a fertile ground for antiscience if this "dogma" is canceled. There will be no need for explanations or repeatable evidence.

Here is what one of the main theorists of the so-called science of torsion fields, "academician" G. Shipov said: "Now there is no doubt in the existence of telepathy, levitation, clairvoyance, retrovision, or that energy of consciousness plays some certain role in physical processes." And since science does not recognize this, therefore, "official science lags behind the new developments."

Science has long been too indulgent to pseudoscience. This cannot continue. Pseudoscience becomes dangerous for both science and society. The bacchanalia of parascientific delirium has even begun to affect the highest echelons of power. Pseudoscience has begun to gain the favor of officials representing the supreme authorities of the country.

In the 1980s, for example, Chumak and Kashpirovsky forced their way onto television in spite of the fact that during those years TV was controlled by the state! This means that paranormalists have appeared on TV with the consent of the supreme officials. These officials might wish to know at least that Mr. Chumak is not original. His trick with "charging" water was unmasked in the beginning of the twentieth century by American physicist Robert Wood.

It is worth mentioning the sad fact that Mr. Kashpirovsky pushed his ideas on members of the state Duma, and Mr. Chumak also has tried to do this.

Here is another case, involving M.D. Maley, chairman of the Interdepartmental Commission on Scientific and Technical Problems of the Industry of Defense of Security Council of the Russian Federation. The purpose he pursued looked rather reasonable: "From the viewpoint of the Security Council, our task is to filter correctly the basic directions and orient the present and future management of the country with respect to a launching position of Russia in this scientific-technical revolution."

To prepare for scientific breakthroughs, Mr. Maley created a "Large State Research Center." This is praiseworthy in itself; a high-ranking government official facilitates the development of a science. Alas, when one hears the purposes, you can't help being horrified at the ignorance of the official: "Replacement of the concepts of quantum physics by neutron physics, vacuum as emptiness by the concept of neutrino fields is in prospect for us . . . We have some works at the R&D [research and development] stages that contradict common sense and cannot be described by any equation."

One can add to this many other "pearls" characterizing the activities of the Center, but it hardly seems worth mentioning. But I would mention that the Secretary of the Security Council of Russia, heading the Council in the first years of existence of the new Russia, O. Lobov, has managed to

distinguish himself. He patronized the introduction to Russia of the scandalous doomsday cult Aum Shinrikyo.

Bad Science in High Places

Astrologers, claimants of extrasensory powers, and newly appeared "scientists" of other "professions" more and more actively push themselves through into the State Duma, ministries, and even into the President's circle. Here are recent examples:

- In the Ministry of Emergency Measures, a laboratory of "extrasenses" was arranged, and though no results have been reported yet, the laboratory nevertheless exists and is financially supported.

- At the Ministry of Defense, a military astrologer is employed. In addition, the Ministry has created a specialized military unit manned with psychics and others who claim special powers. The research is conducted secretly. Such senseless secrecy is advantageous only to dishonest officials. It raises the possibility of corruption and the absence of outside review and control.

- At the Ministry of Defense, the Extreme Medicine Center was created. At first glance, this seems quite reasonable. However, listen to what they do there, as described by the head of the Center, Professor P. Shalimov: "We test charged water, study man's aura." Quite frequently in the mass media we hear complaints about the lack of funds for the army. At the same time, inside the Ministry of Defense large amounts of money are spent supporting various programs with a pseudoscientific orientation.

- The deputy chief of the President's Security, General G. Rogozin, in addition to his main duties, was involved in astrological forecasts and occultism. At the end of 1998, Mr. Rogozin, on the basis of his analysis of Nostradamus prophecies, predicted the beginning of nuclear war in July and August 1999. Fortunately, today this person is out of the President's circle.

- One academician of the Academy of Natural Science, G. Grabovoy, carried out a psychic check of the readiness of President Boris Yeltsin's airplane. And recently, the *Rossiyskaya Gazeta* (a Russian newspaper) revealed to readers how Mr. Grabovoy took part in underground tests of nuclear weapons in Semipalatinsk where he supposedly investigated the influence of some device, "a crystalline module," on a nuclear explosion. It was asserted that switching on the device makes the force of a nuclear explosion two times lower. But if one can use several such devices simultaneously, the force of explosion could be "nullified." Under present conditions, it was said the device could be used on atomic power stations to serve as a guarantee against accidents.

This entire swindle is apparent to any physicist at once. Nevertheless, I had to carry out the official investigation. It revealed that Mr. Grabovoy never took part in tests of nuclear weapons in Semipalatinsk. Therefore, he did not test "a crystalline module" there. At the same time, it was revealed that this "doctor of technical and phys-math. science" has never

defended any theses. In lists of the Italian Academy of Science, "academician" Grabovoy was never mentioned. It is sad that the governmental *Rossiyskaya Gazeta* misled its readers; alas, not for the first time.

In the previous State Duma, a rather strange exhibition was arranged, in which the main subject was the so-called *sofa-extrasens*, which was said to cure nearly a hundred diseases including impotence and frigidity. The same Duma has arranged debates on the problems of the UFOlogical safety of Russian people. To understand how this could happen, I cite the statement of the deputy chair of the State Duma Ecological Committee, doctor of technical science (!) V. Tetelmin:

Science revealed a sufficient number of examples of natural bioresonance processes affecting the human organism. For example, at the Earth, there are many well-known geopathogenic zones. Their basic property is that there, the procession of time is changing. So scientists detected that precise watches failed in the region where the Tunguska meteorite fell, in regions of nuclear weapons tests, near Chernobyl, and in other "fatal" places. . . . It was noticed that places with anomalous proceeding of time are located there, where there are flows of large amounts of water along the circle.

I hope that it is now clear who could organize such an exhibition and who could try to push through a law on the protection of the "energy-informatic" safety of the population. To the credit of the present Duma, it does not do anything like that.

Alternative medicine has dramatically developed. It is attracting numerous unscrupulous swindlers, robbing sick people who cannot find help from traditional medicine. New medical devices claiming to cure patients of any illness are appearing on the market.

A device called "New Cardiomag" recently became available at a price of only 500 rubles (about \$16). It supposedly helps with hypertonia, ischemia, arterial hypertension, stenocardia, and headaches. One might question the honesty of developers of the device since one of them, doctor of medical science A.P. Naumov, has written in an advertisement for the "Cardiomag" the following: "This is an ecologically pure autonomous source of gravitation field, pulse bipolar current, and direct magnetic field with special energy characteristics" (*Izvestiya*, March 14, 2001). In *Izvestiya* of July 24, 2001 a device called "Vita" was described. Do not think that the device is so different from many other useless devices. The one thing that was different about "Vita" is that it had direct lobbying on its behalf by high-ranking officials. The Deputy Minister of Labor and Social Development, V.A. Yanvarev, requested Federal Organs of Executive Power of Federal Subjects "to facilitate head sanitary physicians in introducing the device 'Vita.'"

And a deputy head of sanitary physicians, professor E. Belyaev, impudently recommends "the use of the bioenergetic safety device 'Vita' as an individual protection against electromagnetic radiation at plants and establishments, on the ground, and air transport. . . ." Even if this device could really

protect against electromagnetic radiation, it is improper for high-ranking government officials to be engaged in lobbying. And as Mr. Belyaev ends the letter with the words, "With questions on purchasing the device 'Vita' please address to . . .," (and then the address and phone of a commercial firm follows), there is a suspicion that the official does not do all this with much objectivity.

Two conclusions can be made about the device: The product "Vita" is not a means of protection against biological action of electromagnetic fields; and the offered technical information and advertising mislead potential customers.

It is incomprehensible why the Academy of Medical Sciences keeps silent about such fraud. It is time to express its opinion about that. The ever-growing activities of pseudoscience attempt to get money from the government, consumers, and industry while avoiding the standard procedures of review by experts. There are many examples of pseudoscientists managing to get money from state sources.

The most well known is the swindle based on so-called torsion fields. In addition, there are some "studies" on anti-gravity, and on transmutation of elements with an attempt to obtain gold (not involving the known method of nuclear reactions but instead a modern version of alchemy).

In such an atmosphere, at the end of 1998 the President of the Russian Academy of Science, academician Yu. W. Osipov, arranged a special Commission Against Pseudoscience and the Falsifications of Scientific Studies. One of the commission's very first actions was to prepare a special appeal that was considered and accepted by the Presidium of the Russian Academy of Sciences. This appeal

was published in many Russian mass media outlets.

Members of the commission appeared many times in newspapers and magazines and on radio and TV, addressing the government with suggestions. I think I can say that this commission and its work with the mass media resulted in some corrections of the situation. Some allies appeared among journalists, astrological forecasts vanished from some newspapers, and some science sections appeared. In addition, scientists more frequently were asked to be guests on TV programs. However, these are only small steps. A victory over pseudoscience is still far away.

To conclude, I would like to recall one more story. About twenty-five years ago, fringe-science swindlers pushed through to the level of the government of France an idea of ever-penetrating rays for finding oil deposits. (How similar it is with our torsion fields!) This speculation was blocked by the president, Valéry Giscard d'Estaing, by his words: "Assume it is necessary to find expertise aimed at revealing the possibilities of falsification."

Recently, several members of the 1998 commission (academicians E. Alexandrov, V. Ginzburg, and E. Kruglyakov) sent a letter to the president of Russia, Vladimir Putin. They drew the president's attention to the dangerous growth and influence of pseudoscience in Russia. The first of many suggestions and measures was to seek the expertise of members of the Russian Academy of Sciences in applying the fundamental laws of nature to evaluate projects. We hope that the president of Russia will follow the example of the president of France and apply thorough scientific expertise in examining proposed ideas. If that happens, we will have a chance to witness a cleansing of science from the shameful prevalence of pseudoscience. □

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