

A Nobel Laureate Confronts Pseudoscience

A distinguished Russian physicist (co-winner of the 2003 Nobel Prize in Physics) battles the pseudoscience and charlatanism that he feels is duping his country's population. Two articles follow.

I. Demagogues against Scientific Expertise

VITALY L. GINZBURG

The fall of the totalitarian Soviet regime brought with it the elimination of censorship, among other things—a great achievement of democracy. But it is a great pity that the new freedom of the press very often turns into the poisonous propaganda of pseudoscience.

In 1998 a Commission to Combat Pseudoscience and the Falsification of Scientific Research was created in the Russian Academy of Sciences (RAN) as a step in this direction. The mission of the Commission is clear from the appeal of the Academy Presidium that was adopted. It begins thus:

At the present time in our country parascience and paranormal beliefs are widely proliferated and propagandized: astrology, charlatanism, occultism, etc. Attempts continue to carry out various senseless projects at state expense, like the creation of torsion generators. The Russian population is being duped by TV and radio programs, articles, and books with openly anti-scientific content. The orgy of wizards, magicians, soothsayers, and prophets in Russian government and private media is unceasing. Pseudoscience is trying to penetrate all levels of society and all its institutions, including the Russian Academy of Sciences. These irrational and basically amoral trends doubtless present a serious threat to the normal intellectual development of the nation. The Russian Academy of Sciences cannot and should not view the unprecedented onslaught of obscurantism with equanimity and is obliged to give it a fitting rebuke.¹

Unfortunately, the Academy's Presidium did not give the Commission sufficient attention. The entire "staff" of the Commission consists of a single employee who is often occupied with other work. I can also point to the publication of a book of the Commission's chairman, Academician Ed. P. Kruglyakov, *Swindlers Posing as Scientists* (2001), but in a laughable edition of only 2,000 copies. Of course, as we all know, the amount of money given to science in Russia right now is absolutely insufficient, but all the same this is billions of rubles a year. Somehow there should be enough to publish this book in a large edition, with free distribution to higher educational institutions, schools, etc.

My public and repeated appeals to add Ed. P. Kruglyakov to the large RAN Presidium and entrust him with creating a functioning Commission responsible for all such efforts have not as yet been heard.

Commission members HE. B. Aleksandrov, Ed. P. Kruglyakov, and myself have addressed a letter to the president of Russia, V. V. Putin, describing the current situation and concluding with the following suggestions: "1. Have an expert analysis with the aid of the RAN of any project based on the use of new laws of nature unknown to science (antigravity, torsion fields, etc.); 2. Develop a code preventing fraud and the duping of people through the mass media, the creation of an oversight council operating openly, but entrusted with the authority to put careless journalists in their place; and 3. Support the publication of popular science literature at the governmental level."

At our request, the president of the RAN, Academician Yu. S. Osipov, delivered this letter to the President's chief of staff in March 2001. We have not received a reply.

I hope all the same that something positive will be done about pseudoscience in the Russian Academy in the near future. Right now I want to make several comments clarifying some aspects of the issue of pseudoscience and the need to combat it. Personally, I have already tried to do this in several articles included in my book, *O Nauke, O Sebe, I O Drugikh* (*About Science, Myself, and Other Things*) (2001), and in the article "About Pseudoscience and the Need to Combat It,"² HE. B. Aleksandrov's article, and my own "About Pseudoscience and its Propagandists."³ By the way, the latter has had an interesting fate. We had to place it in a low-circulation publication because a number of newspapers didn't want to publish

it, inasmuch as one of the shameless propagandists of pseudoscience was named in it and "journalistic ethics" apparently prohibits newspapers from carrying such criticisms.

Suspicion sometimes arise among even respectable but uninformed people that promoters of new, productive ideas can suffer if scientists struggle against pseudoscience too strongly. In other words, "who are the judges?" and who are some elderly academicians to judge what is pseudoscience? For in the history of science, there are known cases when progressive views and new ideas have encountered sharp objections. However, such suspicions of ignorant people (the discussion is especially about demagogues) are the fruit of the purest misunderstanding. The problem is that all reasonable people (in any case, all members of the RAN Commission) understand pseudoscience as something that contradicts only firmly established truths and not merely controversial issues, new theories, etc. For example, in the case of the most well-known pseudoscience, astrology, it has been repeatedly proven that its horoscopes are obvious charlatanism.⁴ And the same is true of pseudoscientific "perpetual motion" designs—in general, any mechanism whose operation contradicts classical (Newtonian) mechanics, which has been verified for 300 years (we're not talking here about relativistic and quantum allowances, which are also well known).

However, to expose these and similar pseudoscientific opinions and concepts we don't need the RAN Commission; competent engineers and specialists are quite sufficient for this purpose. The main task of the Commission is to critique more specialized and lesser-known issues. The projects using torsion fields are a good example. Modern physics knows of four types of fields: gravitational, electromagnetic, and the so-called "weak" and "strong" forces. In theory, other fields could exist, in particular, the so-called torsion field (or twisting field). A similar possibility has already been discussed for many years within the framework of the General Theory of Relativity. Appropriate experiments were set up in the U.S.S.R. and abroad which showed that torsion fields either do not generally exist in nature or are so weak that they could not be detected even with the most sophisticated measuring apparatus. Accordingly, they could not possibly be used for communications equipment or other practical ends. But there were charlatans who, shrouding themselves in secrecy, deceived military and KGB officials and received a large amount of money from them for their own (if one can call them) projects. All this has been described in detail in the literature cited above. The Commission (and specifically its members mentioned above) have been fighting and are fighting these charlatans.

It would seem that the situation is as clear as possible, but the "torsioners" are finding newer and newer defenders. One of them is Eh. V. Vaytsman, who published an article in September 2002 titled "Reactionaries Against Charlatans," and subtitled "Ordinary authors of scientific articles need to be protected against the caprice of 'underhanded opponents'." It has been a long time since I have had to contend with such demagogic rhetoric. Mr. Vaytsman also protects "torsioners," although he notes that "he is quite far from this problem"

(and, as I am convinced, doesn't even know what torsion fields are), but, on the other hand, instructs: "In fighting opponents it is unsuitable for academicians to use an academic administrative resource, including a so-called 'qualified body of experts.'" But all of our "resources" in this case are just the knowledge of physics, which allows us to warn officials who are not skilled in it not to use government resources to support obviously worthless projects.

Each and every phrase in Vaytsman's article is a falsification or manifestation of arrogance. For example, he suddenly states that all three of us (Aleksandrov, Kruglyakov, and myself) enjoy high-quality free medical services. He should be disappointed (or, on the contrary, glad?): I enjoy the services of the academic polyclinic, which is vegetating in poverty, and my colleagues who don't live in Moscow also are obviously not registered with the Kremlin Polyclinic. More important, what does this have to do with the issue of pseudoscience?

Scientific Works and the Review Process

I don't intend to hold a discussion with opponents of Vaytsman's type, but I consider it useful to illustrate one more way in which people are deceived. This is about the publication of scientific works; the assertion is that capriciousness is supposedly allowed in this matter, hindering the expression of new ideas. Accusations about the anonymity of reviewers, whom "fighters for justice" call "underhanded opponents," are especially popular.

What is the process of publication of scientific works accepted throughout the entire world, including Russia? It is the same more or less everywhere, but to be specific and to avoid any inaccuracies I will describe how work is conducted in the journal *Uspekhi Fizicheskikh Nauk* (*Successes of the Physical Sciences*), where I am editor-in-chief. Any article coming to the editor, including articles by members of the editorial board, myself included, are sent for review. The reviewer can be a member of the editorial board, but most often he plays the role of just one more reviewer. If the review is favorable but contains various critical comments, it is sent to the author for revision, then is usually sent to the reviewer again or to the appropriate member of the editorial board. As a result, if the article is chosen for publication, they edit it and send it to be printed.

Can it be done otherwise? Of course not. In the process, the author is obliged to accept the corrections, both in the Russian and the English versions (our journal is translated into English). All this is a quite laborious process, done by the entire editorial board and translators. If the review of the article is negative and the member of the editorial board who oversees this field and I agree with the negative conclusion, the author is informed that the article is rejected. Often the author does not agree with our conclusion and informs us of his counterarguments, and then the article is sent for comment to another reviewer and is considered again. Finally, sometimes after a second negative conclusion and my negative conclusion but when the author has new objections, the article is discussed at a meeting of the editorial board. In the course of this process the surname of the reviewer is given to the author only if the reviewer

informs the editorial board of his agreement in writing.

Can it be done otherwise? Of course not. The review process, if it is honest, is not an easy matter. It is a service the reviewers offer to the editorial board. Naturally, in a majority of cases they don't want to start additional arguments with authors and then be subjected to insults, rebukes, accusations of incompetence, etc., which often happens in the case of uneducated or troublesome authors. Such a review process (which the authors of rejected articles sometimes see fit to call "underhanded") has, I repeat, been adopted throughout the entire world, is unavoidable, and is fair. Articles that are not published in one journal are often published in another, including those in another country. This is also a natural process.

Various journals have various requirements and often their own specific ones. For example, *UFN* is a digest type of journal and we can't even print valuable articles in full, but rather narrowly specialized ones which don't have quite broad content. *There's no discrimination here; the size of the journal is limited and often a great deal of material must be rejected.* In journals that publish only original work the selection criteria are different, of course. Doubtless there are mistakes in editorial work, not to mention controversial cases, but what does this prove? We need to try and work better, but it's impossible to print all the articles that come in. Such journals would hardly be subscribed to and read, the work of many people would be lost, and there wouldn't be enough money to publish thick volumes.

Unfortunately, the development of the so-called electronic press and the Internet are making this problem worse. Authors in a whole range of specialties can, without hindrance or review, place their articles on suitable Web sites. There even exists an opinion and a tendency to move everything to the Internet and stop printed editions. Many (I among them) vigorously oppose such an approach and consider it necessary to have paper journals. The review process and selection of articles by an editorial board are unavoidable. Those dissatisfied with such a method are often demagogues and uneducated people. I can only add that in my more than sixty years of practical work I do not know of an instance where a truly valuable work and idea in the field of physics was not published.

In conclusion, I want to return to the really important issue of the struggle against pseudoscience. Even if the RAN and, to no lesser degree, the Russian Academy of Medical Sciences (RAMN) do their duty to protect science in Russia from pseudoscientists, charlatans, and swindlers by shifting this matter to a Commission, the problem as a whole will not be solved. *It can only be solved if all scientists and educated lay people are uncompromising toward obscurantism and fight against it.*

There are various means available. I will share one of them, which I have adopted for myself. A correspondent from a well-known newspaper called me from time to time asking questions about science. Once I decided to ask whether his newspaper published astrological predictions. The correspondent informed me that, yes, the newspaper did publish them, although neither he nor the editorial board believed in them, but, you see, "the readers request them."

This is a typical case of the mass media duping the public in pursuit of revenue. I informed the correspondent that I would not answer his questions and in general have anything to do with his newspaper while it promoted pseudoscience. The journalist has not called me since. Obviously they continue to publish horoscopes, and unfortunately it's not hard to find more compliant consultants. I think that if the majority of members of the scientific community or at least the members of the RAN and RAMN boycotted the mass media

that propagandize and encourage charlatanism we would achieve some success.

—Translated by Gary Goldberg

Notes

1. For more details, see *Vestnik RAN* (Bulletin of the RAN) N 10, 1999 and the newspaper *Poisk* N 23, 1999.
2. In the magazine *Nauka i Zhizn* (Science and Life), N 11, 2000.
3. *Vestnik RAN* N 3, 1999.
4. See, for example, V. Surdin's article in *Nauka i Zhizn* [Science and Life], N 11, 2000).

This is Dr. Ginzburg's article from a Russian newspaper (Rossiiskaia Gazeta) in reply to an academic who supports pseudoscience and has accused the RAN Commission of seeking to suppress daring ideas.

II. Brave Thoughts Are Still Not the Truth

Scientists often take the bait of swindlers from pseudoscience.

VITALY L. GINZBURG

The Academician N.P. Bekhtereva's article "Censor of All Sciences?" forces me to make a number of comments regarding pseudoscience and my attitude toward it. Unfortunately, there are many obvious misunderstandings, confusion of concepts, and demagoguery about this issue. I have already had to write about this more than once (in particular, in my book *About Science, Myself, and Other Things*, 2003). But I will have to repeat some things.

It would seem that the term *pseudoscience* speaks for itself—it is theories and statements contradicting scientific knowledge. But, you know, they are not static. Science is developing all the time and therefore, to put it bluntly, consists of two parts. First, from firmly established and repeatedly

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Special section "Science and Pseudoscience in Russia," with articles by Paul Kurtz, Yuri N. Efremov, and Edward Kruglyakov and text of a resolution against antiscience, charlatanism, and irrationalism in Russia, SI, July/August 2002.