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About the peculiarities of science in Modern Russia

Abstract

Based on statistical data, the processes of the collapse of science in modern Russia are shown: a reduction in the number of scientists, a "brain drain", a decrease in those who want to get into the field of science. The dissonance is revealed, which consists in the fact that the number of representatives of the socio-humanitarian branches of science tends to increase both in absolute and (especially) relative terms. It is shown that this trend is based on a general decline in the quality of scientific research, as a result of which pseudoscientific or pseudoscientific publications prevail in these areas of science. The most important reason for this phenomenon is the removal by the state of the function of the main customer of scientific research. The author suggests restoring this function.

Keywords: science, social sciences and humanities, artificial intelligence, pseudoscience, organization of science

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Introduction

Only the pathologically lazy did not write or talk about the sad state of modern Russian science. Indeed, of all more or less developed countries, Russia is the only one in which the number of research institutions and, accordingly, the number of scientists has been steadily decreasing for more than thirty years. According to Rosstat, since 1991, the country has lost 66% of researchers: at the beginning of 2022, 340,000 out of 990000 researchers remained. The number of Russian scientists leaving their homeland every year is also inexorably growing. Over the past ten years (since 2012), it has increased from 14 thousand to almost 70,000. Leaving, as you might guess, the best.

The total losses from the "brain drain" and highly qualified specialists (these are, first of all, IT specialists) from Russia for the period 1992-2016, according to experts, reach 2.5 trillion dollars. This is quite comparable to the losses from the direct "flight of capital" and unequal (colonial) trade exchange. This is on the one hand. On the other hand, the number of people wishing to enter the field of science and engage in research activities is rapidly decreasing. Table 1 illustrates this process quite clearly.

Table 1 Graduate postgraduate study in the reporting year

Years	Total	Including the defense of the dissertation	
	(person)	Total	%
2010	33763	9611	28,5
2015	25826	4651	18,0
2020	13957	1245	8,7

Source https://rosstat.gov.ru/statistics/science.

As can be seen, the graduation rate of postgraduate students is decreasing at an accelerated pace, and the number of those who complete their studies in postgraduate study with a thesis defense is decreasing even faster.

At first, Russian officials explained this trend by the fact that the requirements and, accordingly, the quality of the defended dissertations allegedly increased, the foam "went away," etc.[1] However, quite quickly even they realized that this process is more like the death throes of domestic science. The reaction to the realization of this fact was, as is customary in a "legal" state, legal: amendments were made to the federal law "On Education in the Russian Federation" (No. 517-FZ of December 30, 2020). Their meaning boiled down to the fact that federal state requirements for the structure of postgraduate training programs were approved. In addition, the number of budget places in postgraduate studies has been noticeably increased: 17,500 are planned for the 2022/2023 academic year, in particular. This means that postgraduate study becomes almost completely free. However, there is no reason to hope, in this regard, for any positive changes in the field of replenishment of science with research personnel. And here's why.

It is possible to engage in science fruitfully and effectively only when it turns into the main internal need of a person, when conducting scientific research becomes the most important content of his whole life. If we recall the experience of the Soviet Union, when the profession of a scientist was among the most respected and prestigious, then it can be argued that this habit is formed from early childhood in the process of human socialization. The whole daily life of people of that time was permeated with the achievements of science: grandiose successes in space exploration, nuclear power, computer technology (at the end of the 60s, the most powerful and advanced computers in the world were created in the USSR), etc. The entire school curriculum was built on the university principle, according to which each discipline was revealed as a scientific direction. In the palaces of the pioneers there were many circles and sections of a scientific profile (astronomers, radio engineers, young scientists, etc.). There were many forms of popularization of science with the help of mass media: the most interesting programs with the participation of outstanding scientists were broadcast on television and radio, many popular scientific journals were published in huge circulations ("Science and Life", "Knowledge is Power", "Technology of Youth" and many others). Scientists of that time rightfully constituted the elite of society. The profession of a scientist was shrouded in romance, it was promising and very well paid. All this attracted young people. Therefore, admission to graduate school was difficult, but prestigious, and the share of graduates who defended their dissertation was close to 100%.

However, with the advent of "democracy", all of the above, which contributed to the formation of young people's interest in scientific activity, was immediately firmly and strikingly effectively rolled under the asphalt of "market" "reforms". The consciousness of young people has been radically reformatted. As a result, two generations have grown up and formed in modern Russia, for whom science as a concept and as a kind of activity is generally absent from the alignment

[1]See the reasoning of the Chairman of the Higher Attestation Commission of the former Minister of Education V. Filippov about this:

of their life interests.[2] And what interest can a young Russian person have, oriented in accordance with the "market" model of the entire system of education and upbringing to get "money", to people who spend enormous intellectual efforts to acquire a degree in order to then live on a beggarly salary!

It is quite obvious that no laws and decrees, state requirements, etc., legal gadgets, no whips, gingerbread and sophisticated technologies of the so-called "personnel management" cannot teach people to engage in scientific activity, to instill in young people an interest in science in a regulatory manner. It is impossible to simultaneously redraw the ideological "market" matrix formed over many decades of "democracy" in the opposite direction. Especially in conditions when it continues to be intensively introduced into the public consciousness and reproduced in full and content by the entire life structure of modern Russia. And in general, it is rather tactless to expect from a graduate of a bolonized Russian university (there are practically no institutes left now – only "universities"), who honestly purchased a certain set of educational services in this educational supermarket, an unknown service to science for him!

So, it is absolutely clear that it is not necessary to count on the expansion of the research building in the foreseeable future, and it is necessary to proceed from the little that has been preserved. Currently, the share of those with an academic degree in the total number of researchers is 28.7%. But even for this small group of enthusiasts, the authorities cannot provide conditions for full-fledged research activities. It is not surprising that, ranking 47th in the world in terms of financial costs per scientist, Russia files 16 times fewer patent applications than the United States, and 38 times less than China.

One can cite many more convincing facts, each of which individually and all together testify to the systematic and purposeful defeat of the sphere of science during the years of "democracy". As a result of such a "breakthrough" "development", Russian science has reached a relatively world-class state in which it was at the beginning of the XIX century.

Against the background of this total pogrom of science as a whole, the situation with social sciences and humanities looks somewhat dissonant. The data given in Table 2 give an idea of it (Table 2).

Table 2 The number of researchers with an academic degree

Years	Total	Including			
		Social Sciences		Humanities	
		abs.	%	abs.	%
2010	105114	7918	7,5	7335	7,0
2015	111533	13308	11,9	8028	7,2
2019	99912	12380	12,4	7747	7,8
2021	97536	12526	12,8	8572	8,7

Source**:** https://rosstat.gov.ru/statistics/science.

It is easy to see that the number of researchers with an academic degree is generally decreasing. However, the number of representatives of these branches of science tends to increase both in absolute and (especially) relative terms. As a result, if in 2010 their share in the total number of defenders did not exceed 15%, then in 2021 it increased to 21.5%. Isn't it a mysterious phenomenon of well-being against the background of the ruins of a dying science!

The fairly obvious factors that determine this situation include the following. The criterion for the success of research conducted in the field of natural, technical, medical, etc. sciences is the acquisition of new knowledge, a new concrete result or new instrumental and methodological or technical means obtained on the basis of evidence-based and (what is extremely important) reproducible (according to K. Popper – falsifiable) empirical data. This requires appropriate equipment, consumables, qualified support staff and much more. In the conditions of systematic critically significant underfunding of science, it becomes problematic to provide and develop the necessary research infrastructure: the old equipment inherited from the USSR has already become obsolete, stolen, become unusable or simply sold by "effective managers", and the acquisition of new equipment encounters almost insurmountable obstacles. It is the lack of the opportunity to realize their potential in the field of non-social sciences that forces scientists of the relevant branches of science to leave their homeland, which leads, in particular, to a reduction in their number.

In the social sciences and humanities (SGN), all science, including its results, is reduced to texts. Conducting research within the framework of the SRS overwhelmingly does not involve the use of sophisticated equipment, specialized technical means, any special materials, trained technical personnel, etc. Representatives of the SRS are not aware of exhausting experimental work, painful reflections on the causes of numerous failures, bitter awareness of the need to revise the original concepts, etc. With the exception of sociology, in which reliance on empiricism has been elevated to the rank of an immutable imperative, such "arguments" are usually used in these sciences to prove the validity of any statement: "in our opinion", "it seems", "obviously", etc. argument: "one woman said." The "strongest" argument is considered to be a reference to the opinion of some "generally recognized" authority in this area of science, which, in accordance with the norms adopted in the SRS, excludes any doubts. And although in general in science it is believed that copious quoting is a sure sign of emptiness of content, in the field of SRS they adhere to the opposite position. The most striking examples of this genre of pseudoscientific literature should include the texts of I.V. Ponkin.[1,2] We must pay tribute to the author: he masterfully owns the technique of quoting. However, as you know, any publication claiming scientific status must (by definition) contain a new scientific result, new knowledge about the subject. It is this new knowledge that is almost impossible to detect in the texts of I.V. Ponkin. And the very abundance of diverse products of this author in periodicals of the corresponding profile inspires suspicion of their lightness.

However, if we consider the entire socio-humanitarian part of science as a whole, it is easy to make sure that the overwhelming number of publications here looks quite scientific in form: the problem is identified, difficulties are noted and various concepts and approaches to eliminate it are considered, and, finally, the most correct ones are reported (sometimes with argumentation), according to the author, methods and technologies of its resolution. It does not bother anyone that the interpretation of the meaning of the same problem in the interpretation of another author looks different (sometimes significantly), and the methods of overcoming it, respectively, are completely different.

The unsubstantiated content is combined by representatives of these genres of SGN with the unsystematic and scholastic way of presenting the material. This is, as a rule, unmistakable evidence of the absence of any content at all! In this case, the emptiness of the content is clothed in copious word-utterance, often in forms that are difficult to understand. At the same time, the authors are firmly convinced that this is what science is all about.

It is absolutely clear that the processes and phenomena of social life, issues of spiritual development are multifaceted and contradictory.

[2]See more about this

Therefore, they cannot be described by means of unambiguous conceptual constructions and, moreover, formal logical constructions. However, it is also clear that the evidence base for considering the subject of research and methods for solving emerging problems should not be limited to the opinions and/or guesses of the author. It must necessarily include a representative empirical texture, rely on the consistent logic of its analysis, and conclusions and constructive proposals must strictly correspond to the results of this analysis, and not arise out of nowhere.

An avalanche-like growth in the volume of pseudoscientific products performed in these genres has occurred over the past ten years, when science, after the defeat of the Russian Academy of Sciences, was moved to higher educational institutions in a directive manner, copying the West with schoolboy zeal. Teachers were charged with publishing a certain number of articles annually, preferably in Western journals. This, however, was not accompanied by either research orders or funding. A Russian teacher, having a teaching load that is an order of magnitude higher than the load of his Western colleagues, must simultaneously "move science" for his money. The teacher's rating and a certain part of his salary are directly dependent on how he will "move" it. At the same time, the effectiveness of his scientific activity is determined not by the quality of the scientific result (new knowledge), but by the notorious "citation index". It is quite obvious that this "index" will be the higher the more outrageously the text is constructed. Hence the tendency to exotic quoting and the confusion of the presentation of the material. As a result, there is a landslide growth of scientific waste paper, which no one reads, but its authors have high values of the "Hirsch index" – the main tool for assessing the "success" of a teacher's scientific work. A whole industry of "helping" teachers to increase the values of this index has been formed (of course, on a "market" basis). One does not need to have seven spans in the forehead to understand that such an evaluation apparatus refocuses the researcher from the main direction of science – the search for truth – to another: the production of speculative, spectacular texts that, as a rule, do not contain any scientific result.

For all the perniciousness and destructiveness of the considered forms of organization of social and humanitarian research, there is an even more harmful variety of them, which for brevity can be defined as pseudoscience. If the first two only imitate scientific work, giving practically nothing "at the exit", then pseudoscience, on the contrary, introducing false ideas and stereotypes into the mass and specialized consciousness, blocks critical thinking in people, replacing it with faith.

The ideological vacuum formed in Russia after the onset of "democracy" has created a favorable ground for the penetration of various kinds of charlatans, fraudsters, healers and other riffraff into science in order to impose a "new" science on people who have lost self-confidence and have lost their orientation. The so-called postmodernism is declared the basic foundation of this "new" science. According to him, "official science" has already outlived its age, has become an anachronism, the era of a new, "esoteric" knowledge has come, there is no objective truth, and science itself is nothing more than a conventional construction, a certain text, words that can be given an arbitrary meaning. The pseudo-scientific charlatanism that reigned as a result has turned into a rather powerful destructive phenomenon that has a systemic character.

As an example, we can consider the publication of two authors who are particularly successful in this "scientific" direction.[3]

The article discusses "the possibilities of reproducing human emotions and sociality in AI agents" in order to "identify and justify the limits of the development of AI technologies in this direction." At the same time, by AI agents, the authors mean "a device whose activity mediates and records the manifestations of artificial intelligence." It is not difficult to notice that both in the definition of the object of consideration, and in the goal set, and in the rather vague definition of "AI agents", they proceed by default from the implicit assumption of the existence of some kind of artificial intelligence. That is, the authors at the very beginning of the text (like real magicians!) they perform an imperceptible trick: they do not even discuss the main premise of the article, but simply offer the reader to take it on faith. This premise consists in the fact that there is supposedly a real technical (computer, cybernetic, etc. a device (let's use their term) that has cognitive ability, that is, it is able to perceive, understand, explain and predict processes and events of the surrounding world that are important for its vital activity and, on this basis, make (if necessary) decisions aimed at ensuring its own stable position in this world, set tasks and determine strategic, tactical and operational goals of its activities, as well as to develop criteria for evaluating the effectiveness of the decisions themselves and the quality of their implementation. This ability assumes that this device has the ability to memorize and analyze its experience, draw useful conclusions for itself (that is, to think and learn), understand existing and generate its own abstract concepts of what is happening, and much more. These are the main ones (at a minimum) properties that the intellect should possess. But there is no device in which at least a small part or one of the above would be implemented!

Those American scientists (the original "founding fathers") who proposed this metaphorical term in 1956 understood perfectly well that there is no intelligence in the systems and structures they create and cannot be in principle. However, the general public, the townsfolk and, in particular, representatives of the so-called "creative" professions took this term literally, and since the late 1950s, serious passions and phobias about the replacement and displacement of people by robots, robots getting out of control, have flared up with the filing of not very literate visionaries and science fiction writers in this subject Since then, a lot of special and popular literature has been published, which explained the absurdity of these phantasmagoric scenarios, the fundamental impossibility of creating artificial intelligence. It clearly followed from it that AI is a chimera, that it is fundamentally impossible to simulate or reproduce even the smallest elements of natural intelligence with the help of computer technologies and devices, that it would be more correct to decipher the abbreviation AI as "imitation of intelligence", as the founders of this direction understood it.

However, the hoaxes around AI turned out to be very tenacious, and speculation on this topic has never disappeared. The exuberant heyday of charlatanism in modern Russia, especially in the field of SGN, created favorable ground and in a certain way stimulated another wave of unimaginable pseudoscientific gibberish on this topic. To a large extent, excessive propaganda also contributes to this. the so-called "digitalization", the true meaning of which is hidden behind seven seals.

So, the basic premise, which the magicians-authors did not want to disclose, but on which the entire publication is based, turned out to be false. Thus, its entire text (quite voluminous), generously equipped with quotations from Western "gurus" (where without them!) and your loved ones, loses any meaningful meaning and turns into empty verbal waste paper. It becomes clear that the whole idea of the authors

with the publication of this text is to once again drag through and introduce into science their long-standing pseudoscientific fantasy about "artificial sociality" in the flow of verbiage. A detailed analysis of the content of this phantom is given.[4]

To complete the picture, it should be mentioned that the authors have signs of professional ignorance. From their previous publications, it can be concluded that they are unaware of such a fundamental concept for researchers and, first of all, for sociologists, as they consider themselves to be, as "representativeness" (more on this in.[4] It can be seen from the text of this publication that they have rather vague ideas about measuring scales. In particular, they confuse the classical ordinal scale with the quantitative one. It is not necessary to expect any scientific achievements from people who do not own a research tool.

Thus, the paradox of the heyday of the social sciences and humanities revealed above against the background of the decline of science as a whole turned out to be imaginary. There is no "flourishing". On the contrary, the regression of science in this area, in the absence of deterrent mechanisms, has a massive character and resembles a pandemic in breadth of coverage. The fact is that in the natural and technical sciences, any scientific result admits the possibility of refutation (the very "falsification" that K. Popper spoke about), which is an almost insurmountable obstacle for various kinds of charlatans. The results of pseudoscience in the social and humanitarian sphere are, as a rule, irrefutable. It is the indisputable truths, as well as the negligence and/or inarticulacy of the origin of the empiricism that caused the result to be obtained, that are a characteristic feature of pseudoscientific products in this area.

A convincing manifestation of the current era of gloom-enraging is the recognition in 2021 of refined, unadulterated pure delirium[5] as the "best theoretical work" of the Annual B.A. Grushin Sociological Book Award organized by VTsIOM. Instead of studying really actual real problems (for example, the influence of LGBT communities and other forms of invasion of human nature, the social consequences of total "digitalization", the use of AI technologies for manipulative influence on mass consciousness, etc. false "gender" studies are conducted through and through, various forms of "innovative" development, improvement of legal culture, "problems" of ensuring human rights and other useless nonsense are studied.

There is, of course, a fourth type of publications in which really relevant social problems are identified and investigated on a completely scientific basis. But these publications are vanishingly few (in the range of 5-7%), they are drowning in an ocean of scientific textual waste paper. In general, the current criminally corrupt Russian state does not need genuine science. Therefore, it, as in other important areas (culture, education, social protection, etc.), has been replaced by its imitation, by pseudoscience. Instead of genuine research work, which has topical social problems as a subject, the main form of organization of science has become a grant system. The main drawback of this form is that the tasks and problem space of science are determined not by the state, but by the so-called "sponsors". Accordingly, the financing of scientific research is carried out not from the state budget, but from the generosity of these "sponsors". The vast majority of grants are focused on obtaining a certain result and have extremely short deadlines (1-2 years). In addition, research is decentralized, fragmented, uncoordinated, and random. This means, firstly, a death sentence to fundamental science, its transfer to the applied level and, secondly, forces researchers to adjust the results of their work to the requirements of the customer (that is, to distort), since otherwise they could lose funding. As a result, science has become unprofitable from a potentially powerful development resource: its profitability is -3.1%. By now, this strategy has exhausted itself and entails the threat of the final loss of the subjectivity of the country.

Vast historical and practical experience convince us that the fruitful development and functioning of science is possible only when it has a reliable external customer who is interested in the real results of the research and is ready to finance them for the necessary time and in the required amount. The state has always been such a customer for science and its development. The removal of this function by the state is the main factor in the degradation of modern Russian science. The conclusion is obvious: it is necessary to restore the classical scheme of its functioning.

It is also necessary to transform a graduate of Russian universities from a passive philistine, a "qualified consumer", into a seeker, inspired by the search for truth, whose motto of life is "knowledge is power".

The tasks are quite solvable: only political will is needed. Will it be manifested?

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