“Dust in the Eyes”. Converging Technologies

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Abstract: Social division of labor is the source of the forces of humanity. If the force of technification of humanity is being the main vector of the development, then the person can lose its orientation on the cultural development. The complexity of culture is that it requires a connection of the physical and mental labor in each of the social partners simultaneously. Landmark force, taken along the lines of technical excellence, enhances the destructiveness of social processes (environmental crisis). Technological achievement is bodily, materially, has no self-restraint, inherent to the human culture. Nanotechnology offers new scope of tasks: creation of converging technologies. In these complex relations of social institutes the profession of engineer is becoming a new social institution with the task to restore the cultural integrity of mankind.

Key words: Nanotechnology • The environmental crisis • Technification of humanity • Technicalized man • Engineer as a social institution • Culture • Engineering system • Converging technologies • Synchronism in the functioning of the engineering community

INTRODUCTION

The word “ecology” does not cause intense attention. The disaster associated with the loss of a breadwinner earning (economic crisis), or accident, or military action – look far more bloody and terrible than what people used to call to the environmental crisis [1. See introductory essay]. However, all these terrible, disturbing things are mutually conditioned. An environmental hazard entered directly into the house, into the home, to a man making his way in the baby's crib. An environmental hazard destroys the health of the nursing mother, but the father’s health is also in danger; we talk about the destruction, breakdown of the whole family: nevertheless, – with good or bad behavior of its members. The house is under the invisible threat. City, like the jungle, is fraught with invisible danger and yet very few people realize danger. Danger for each resident, without exception, is. It is the Global danger.

At the time the medicine not only explained the causes of many diseases, but it also changed the modern man’s way of mind. Not necessary to study at medical school to understand the viral- microbial infiltration into the human body. Commonplace is colored to scientific terminology. Scientific explanations inevitably convert numerous dangers into the usual phenomena. TV programs are educating the masses, teaching understanding and application of scientific discoveries. Science is not hidden from man, nevertheless the situation with the health of the nation remains alarming. Immunity changes dropping damaged by virus attack directly aimed at the destruction of the system of protection of health of the organism. AIDS is reproduced in multiple hazardous forms that are more terrible than original because are not yet familiar to basic health staff working with the population. An enterovirus itself (a group of viruses that multiply in the human intestine) is well known, it is with good or bad behavior of its members. The house is under the invisible threat. City, like the jungle, is fraught with invisible danger and yet very few people realize danger. Danger for each resident, without exception, is. It is the Global danger.

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areas had reported laboratory confirmed pandemic influenza A (H1N1) 2009 cases. From April 2009 to July 2010, more than 250,000 cases and 1800 deaths from laboratory-confirmed pandemic influenza A (H1N1) 2009 were reported from 34 countries and areas in the Region. (This is a summary of the article, which we need for the formulation of the problem: the attack of viruses and other environmental factors on the active humanity continues despite strengthening the power of the person as in the medical field and in other areas).

To reiterate: the causes of diseases are clear, vaccinations are carried out, hands are cleaned, there is an antibiotic action, but diseases “become younger” and still continue to kill people. We were told that the evolution in the world of viruses and pathogens always continues, but all the laws of biology should disappear to allow the primitive culture of microorganisms to defeat the man in the evolutionary confrontation where a person stands a winner all advanced species. Law of subordination of less adapted species by more adapted has not been canceled. Therefore, Homo sapiens itself is the main cause of the intensification of pathogenic flora and fauna.

What are the directions of development of civilization, its urbanity as the main loci transformation of biogeocenose lead to aggressive strengthening of pathogenic factors? What is the main common reason of new pandemics characterized scrapping immunity barrier to disease, manifesting suppression functions of the human body? Common man-made chemical pollutants include pesticides, fertilizers, heavy metals, detergents, oil, sewage, plastics and other solids [3] (the United Nations Environment Programmer (UNEP) is the organ of the UN General Assembly, established in accordance with resolution 2997 of December 15, 1977 and the recommendations of the UN Conference on the Environment (1972, Stockholm, Sweden ). UNEP headquarters is based in Nairobi (Kenya).

We are interested to know what is the main reason of choosing namely this line of development. We put forward the version of invisible effects of mechanization of nature by man of the information age.

Part I. Interaction of the Human Immunity with the Reconstituted Environment. Ontological Causes of Distabilization of the Immune System: Immunity is the result of the evolution of the organism in the environment, a significant element of self of the strongest species. “The fabulously complex immune systems of humans and other mammals evolved over hundreds of millions of years-in sometimes surprising ways” [4. P.60]. Immunity allow to neglect many pathogenic factors of the environment, but only as long as it remains under the protection of the integral (opened, systemically harmonious) organism. There are a lot of autoimmune diseases today. Caused by what are they?

Water is the main element of organics, the environment for the evolution of organogens. It is the most complex chemical element by the number of possible connections in the human environment.

If the one moves on the contrary, from the advances, made in purely technical areas far from medicine, back to the issue, new sections are discovered, unseen before. Hazards can be removed from the environment. Humanity tried to remove the most obvious pollution rather for aesthetic reasons at first, then, with the invention of the microscope, the struggle for purity, for the desinfection of wounds, for the sterilization of instruments, facilities, for the purity of the hands of the doctor began. Transformation efficiency criterion is a purely quantitative. “Air pollution – nitrogen oxides NOx – can be removed from emissions at a low price to a certain value, however, for high degrees of purification costs begin to skyrocket” [5. P. 248]. Quantitative approach leads to the fact that this path for humanity in its interaction with the environment is extremely unattractive.

Life expectancy dramatically increased. However, the same technical process, which defeated the natural dirt, became responsible for a fundamentally new, far more dangerous industrial dirt, invisible nano- femto-dimensional – dust. Man discovered nano-size dust (comparable to 100 nanometers), opened through further penetration into the microcosm, creating new tools to strengthen the power of the eye, e.g. laser technology. However, the number (and quality) of natural and manmade micro- nano-particles have multiplied dramatically in spite of our desire to meet the growing technical process.

“Safety is just as important as the development of products and processes. In fact, it is part of the product itself, in other words, the product needs to be designed for safety”, – says Christos Tokamanis, Head Of Unit for Nano-and Converging Sciences and Technologies, Directorate G, Directorate-General for Research and Innovation [6. P. 12] in his interview.

This obvious rule is violated everywhere. Just remember the fumes in cities and only acquired dust from vehicles.
In such well-known productions as chemical paint, steel with manufacturing materials with predetermined properties, a new dimension of invisible airborne of dust flows and fine aerosols is formed. The novelty of Microsystems contains in its penetrating power. Qualitatively new very expensive productions, feasible only because of the STR, are the usual suppliers of new micro-, nano-, femto- dimensional components of the environment and of the air that we breathe. Not only the military waste is dangerous today because of elements of nuclear processes. The processes of waste disposal are changed due to the increasing use of remote nature (new industrial) materials, today the usual furniture manufacturing and other sectors of light and heavy industry acquire such qualities with which bio-geocenose water-circulation system of air currents of the planet does not cope, unable to cope. It is known that the dust is a traditional carrier of micro-fauna and micro-flora. Nano-scale dust can penetrate for strong and very dense “locks”. Femto-dimensional technology has permeability, comparable to radiation. In this article we raise the question of the establishment of alien bio-systems: new bio-system of dust and the possible relationship of this process to the collapse of the human immune system.

The most important thing has been missed in arrogance: I can do everything! Caution can only dream of. Mechanisms STR thanks to techniques transformation of the environment is not just comparable to planetary but cosmic scale reciprocating oscillating pendulum processes (cyclings of matter in nature, the rotation of the planets and stellar cycles conversions). If we examine the slice of real transformations, the anthropogenic chemical processes in terms of the composition of matter and updates ways to surpass its reactivity space (do not specify how much). Charged fields and waves create artificial ionizing environment impacts on natural reactivity. Inductive reactance massively is produced in inductive activity induced charge technology...

Reason would be lying on the surface if we consider the system of accumulation historically. We know that the probability of large-scale fluctuations increases with the size of the system, “one could argue that it is not repetitive phenomena in complex systems, … in complex systems to ensure repeatability are impossible …” [7. P. 27]. However, it is possible to get to the bottom of our manmade disasters through the study of accidents. In the evolution of nature there is many life-saving units to protect against degradation are produced. Self-limiting nature of living (the weakest dies, the fittest survives) is much more self-restraint, balance in the world of chemical transformations. Chemical carriers until contribute to the implementation of reactivity until the concentration of necessary materials is reduced below a certain critical level. Activity of chemistry reagents from omnivorous wins, but the possibility of improving the chemical catalyst system to their own kind of closure replication is realized only in living organisms (clear spatial replication of catalytic systems by reading the information from RNA carried out in the synthesis of protein molecules of the body) [8. pp.100-112]. That is the winning system as it was done, where system activity is limited within, or self-limiting. You can designate a limiting yourself reactivity as “caution”.

In living systems, even the death of the parents, their genotype after a “reset” (the creation of fertile offspring) is a powerful impetus for distribution in biogeocenose for a possible victory in the competition with other species of animals and plants.

Investigate further the process of self-restraint integral activity, which we have called for image perception caution or temporarily stop activity. Not just any random direction system may have emerged for a cause drastic changes in the bifurcation point, but only those changes that correspond to least active adaptive intraspecific game.

In man for engineering thinking in an environment characterized by increasing competition some engineering arrogance: I can do everything! Caution can only dream of. Instead powerful internal limiting activity trend prevails extremely explosive physical activity: chopping, acceleration, inductive activity induced charge technology...

Mechanization usually is perceived in two ways: either as a purely positive phenomenon or by the way of antiscientism. However, in the technical nature of the elevation of mankind lies opportunity information: not control nature through the machines, mechanisms and with weak signals, weak power, temperature, voltage “a weak man's word is able to drive the powerful army”
The essence of informatization Professor M.B. Ignatiev defines exactly. And despite the possibility of a new era in relations with nature, brute force is dominated, without a hint of self-restraint on the power exerted influence.

If not all, but many of the technical inventions and implementations are similar to opening a Pandora's box, because there is no self-limiting rod. It appeared taken out of nature and yet by and large does not demand. To the credit of mankind should recognize managed to ban ground testing of nuclear weapons, other weapons of mass destruction are also under political control. Suppose, political ban on arbitrary decisions made world leaders and so in many cases. Forces of nature continue to monitor objectively excessive activity of its components so as to ensure the safety of the most complex and valuable self-assembled systems for meaningfulness. Such systems are far genomes of living organisms and nature makes all to stay on the attack is the brainchild of its evolution from the autoaggressor. Man, generated by nature by self-restraint is again under the last powerful blow elements.

Part II. Can the Man Manage the Progressive Development of the Natural Environment?: If you deal with the consequences of degradation parameters of the environment, but not act on the causes of depletion of flora, fauna, clean water and fresh air, the problem will not be solved. Is it possible to make the protection of nature in parallel with the production of harm in it? Where should introduce urgent human production activity limitation if overall economic growth to stop not only impossible but also inappropriate.

“Nanomembranes might potentially help meet Europe's CO2 reduction targets” [6. P. 13]. However, if we consider that the production of nano can make unmanaged collapse particle fluxes in the Earth's ecology before self-cleaning, then should not disassemble the rubble almost finished first implementations in nature, before moving into new improvements? If there is no production in each case the second half: deliverance from harm, how we can continue to introduce new technologies?.

Today what traditional civilizational activity is considered as a defense of human element, is in itself evil, dangerous, scary. We are talking not about catastrophes like Chernobyl or Fukushima NPP accident. We are talking about new destructive forces of nature created a violation of caution, the instinct of self-preservation, which allowed people to zealously striving for self-actualization its capacity (ability), which recently (STR) have fundamentally new and aggressive. Under the aggressiveness we mean excessive activity, penetrating and provocative, yet inherent physical layer of nature. Such an aggressive nature objectively activity was overcome by enclosing the charged particles inside of atoms and molecules, limiting heat dissipation by putting a barrier effect of the second law of thermodynamics.

More than 50 000 compounds are used commercially, hundreds more are added annually and global chemical production is projected to increase by 85 per cent over the next 20 years. Environmental exposure causes almost a quarter of all diseases. More than two million people worldwide are estimated to die prematurely every year from indoor and outdoor air pollution [9. P. 5].

The man returned to its former nature boundless aggression, provocation, paying for their health and the health of his children. Light electricity of XXI century fills city streets and terrible danger still lurks in the shadow of the growing chaos of the elements of the microcosm, as once lurked in the shadows, rejected by light of cave fire.

Now, however, “in the air of shadows” there are the glimmers of ideas of ethical responsibility of scientists for the system technology. Neutrality of the accelerate scientific inventions in terms of good and evil in general put into question (the idea of the Golden billion).

“The main disease of philosophy of our time – it is an intellectual and moral relativism. The later at least partially based on the first” [10. P.379]. Under relativism Popper has in mind the concept that the choice between competing theories is arbitrary, outrage, for those who think that objective truth is impossible.

If you continue to follow the path of moral neutrality of scientific inventions, the impact is likely may be directed to the person. And boomerang has already run.

To build an adequate security system we will formulate the main question: why, with built-in units throughout the technical security, protection from the harmful effects of engineering, cannot achieve the desired overall: reduce the harm technicalized environment so that our common home – planet Earth – became a solid cradle of humanity?

Cause of unsuccessful security of manmade culture of shell of the Earth, we formulate an incorrect principle of modeling human consequences. Words of Ortega-y-Gasset, the power of the executive power of the state is required to rethink relative to the main productive force of society, each person: “We are emergency power, born of
extraordinary circumstances. That is topic of the day and not beyond” [11. P.49]. It is out integral worldview underlies the inadequate control of natural changes. Outside holistic worldview people, not seeing (not wanting to see!) Boundaries around emerging new systems, feels lost. “Instead of a single set of trajectories is given to us and we therefore doomed to choose yourself. Unthinkable premise! Live - means forever be condemned to freedom, always decide what you will be in this world. And solve tirelessly and without respite. Even hopelessly surrendering to chance. So, we decide - not to decide”[11. Pp. 47-48].

Part III. Systematic, Converging Technologies and Social Institution of Engineers in the Information Society:
Closure of any project on a purely technical result, abstract isolation. Abstraction is an irreplaceable part. Because of the focus on the discreteness we do not see a protective belt integrity. If the integrity of the human-nature-technology persists, then no thanks and often contrary to the intervention of society. In this case, there are the following consequences of the introduction:

- Closed systems in nature do not exist. Conditionally closed system until correspond to the interests of designers and conservationists as technology remained fairly primitive [12] in order to not directly change the natural cycle of the substance flow;
- As the main object of planning threats to mankind proved waste heavy engineering (primary production). Waste subjected to further transformation in order to enhance security are displayed in lying about living systems , thus leaving out the production line control system security;
- Closed systems as a mathematical model of production were the standard for conversion subsystems recovering waste growth. Closure became the only indicator of “tipping” the protection of the environment. Inaccessibility of this request was already second-order closure of the inlet and outlet isolation, considered as baseline costs undertaken in order to develop the economy and infrastructure of cities, regions and countries. Growth state technocratic society, with increasing problems of social satisfaction in terms of linearity simultaneously leads to a crisis as a result of accumulation of errors and system degradation, exacerbated by an injection and emission of hazards.
- State, acting, unlike the economy, as a subjective kind of mechanical system of separated powers, was proved objectively interested in the connectedness of regions, countries to deal with techno - waste by-side through the creation of industries, economically subservient center (economic tax added tax on production safety, supported by the legislative framework).
- To engineers, professionally responsible for the progressive nature of the economic transformation of the line, there is no security practice, uniting people in this profession, this social institution, into a coherent whole. No social institution called “Engineer”. Specialization occurs only in this formation and instead of an objective social institution until his role carry on the specially organized unions as AEER (Russian Association for Engineering Education), an international seminar Agreement (ISO / IWA) and manual ISO (ISO Guides). Their disadvantage is not only subjective artificially early, but in the narrow territorial professional or narrowly limited. Of course, these organizations need to be effective and promising. However, objective social institute of engineers does not coincide with any of these organizations by problems or feature.

Basing on these five positions we can offer (draw) the following information model and the output path of the Earth ‘s orbit on fertile human noosphere, which Vernadsky said:

Each production system is opened, self-sustaining, with the bifurcation points and other properties of fractal self-contained systems. Actions permeability nano-sized and femto-sized particles, reproduced in modern technological processes, increase and accumulate contradictions environment, of man. Thus, “the nanoparticles are able to interact with DNA both chemically and physically , that explains the development of cardiovascular disease, vegoto-vascular dystonia, chronic pharyngitis, bronchitis , as well as the propensity to SARS” [13. P.3]. Toxicity of microparticles “is directly related to their size, high surface area, which results in high chemical activity” [Ibid: 13.P.3]. Furthermore, the nanoparticles are capable of absorbing and transporting hazardous substances because of their high specific surface area. There are risks of coexistence matrix (normal values of components), both because of the speed of technological processes and because of the
temperature, pressure, composition and the aggressiveness of the environment, the human factor and other. What contradictions sharper, the more open and randomized becomes any production system. As in microcosm of particles penetrating ability has neutrinos and elements of the newly created systems most piercing shrill influence a person possesses. First of all, it should be noted that the knowledge engineers, despite the internal depth and professional culture of the average representative of the community in general sparse. This is due to special demand of the knowledge that is used in innovative technology that allows for fast profits [14. P.18]. Information exchange between engineers is meager, is limited, while living conditions of self-sufficiency of new technique and participation in the human factor is accompanied by a certain synchronicity condition. In particular, electroplating, using acid (aerosols) resulting from the development of the border state of the environment “liquid – gas” active aerosols weak acids, are not currently used in production, falling directly into the atmosphere as a new quality of precipitation (acid rain). The existing scheme to reduce the density of so-called waste (emissions soaring dust , in particular) and the withdrawal of these elements of the outside leads to uncontrolled self-developing systems in nature with man-made substance (“yield of hiddenness”, Heidegger) [15. P. 222]. Logically synchronism in the functioning of the engineering community needs most of all as an essential prerequisite of progress of the new environment, a new society.

We are not talking here only about the abstract requirements of morality and responsibility, we are talking about specific urgent problems. So, for the reference opening additional facilities for use of fundamentally new materials currently considered waste and to replace the primitive processes for recycling processes for updating production matrices requires only economically feasible to find customers who are interested in re-start production. In this case, there are three new managers of industrial relations: the distribution, exchange, consumption. Theoretically, it is obvious that the more processes are involved in a single point, the more complete and balanced autonomous (self-sufficient) become a system of industrial production. Engineers, “fishers of men shower”, perform a single professional “front” only if it is executed the first principle of evidence. This principle, like the Hippocratic Oath or Oath of allegiance to the Motherland, will perform the role of initiating the sacrament, on the one hand, educational, spiritual practices of modern engineering fraternity, on the other hand. In this case, the principle of moral responsibility would be under the control of the social institution of the profession. Ritual, thus creating a conditional criticality – is another center of perception, non-economic, by which the Universe will be kept under social control.

“Currently a new form of material labor is intensively developed of material – universal labor. Externally, it has similarity to the mental and generally identified with the later. A deeper analysis shows that this is a special, a qualitatively new form of work that combines, in particular, a number of features of mental labor and physical labor. Formation of universal labor is probably the most promising way to overcome the historical gap, the antithesis between mental and physical labor” [16. P. 23].

State in place of article of tax control (executive branch), will receive a full weighty elements bound economy with all the signs of self-preservation and sustainable development. Small and medium businesses, built into the existing social division of labor, strengthening the legislative, legal soil development of political literacy. Not only decreases the amount of aggressive emissions in environment, but the number of aggressive anarchistic moods population. Area “forever” soaring uncontrollably supplied femto- and nano- particles and aerosols, oppressing the human body becomes the new Klondike, which is interested in the implementation of the thinking spirit engineers-professionals.

For a unified picture of the proposed model of strategic change in the system of education deal with the last point: the requirements necessary to control the emergence of a social institution of engineers in the economy. We must not only think, but first open until veiled quality, without which the system of engineering education in the information society is not self-sustaining, but only controlled from outside. Technical culture generates the culture of criticality (normal parameters), which justifies itself out of caution and security development.

What does the principle of the first witness say?

In contrast to the evidence as such, is very important in communication with axiological professional work of lawyers and judges, in particular, the first evidence as the birthright associated with primary responsibility for the entire system. Recall, that the effect of the opening of the engineers may have not only the scale of the planet Earth, but the near-Earth space. You cannot just voluntarily
agree to testify for this discovery, but also voluntarily give and it will be correct. Another thing is that in this case those who are close to you in charge of your case, are obliged to pick up the baton of responsibility. And another important difference from the simple testimony. Here the man himself witness for himself. In order to fulfill this important step and implement their choice in favor of himself as a witness, he must teach himself to go beyond the narrow boundaries of his mind informed and include the ability to all-permeating. Without penetrating power of mind today, in the age of pervasive results and accelerate chemical reactions production, mankind is doomed to collapse and loss of stability of its leadership position within the newly created nature. If to lose the lead, people will not be randomized force organizing the order and chaotizing particle of Universe. This will supposedly return to the old man to the retention times on the world stage, but the regression line. Rose above nature to result again submit its industrial disaster, losing the ability to control the situation created by him. It's a shame. Involuntarily reminded of the words of Marx, told them about the causes of religiosity in the introduction to his work “Critique of Hegel’s Philosophy of Law”, written in 1843, that religion is self-awareness and esteem of man who has either not yet found himself or has already lost himself again [17. P. 271]. With the technical capabilities of protect and itself and the newly created environment the loss of these opportunities because of weak criticality professional engineering activities, is inexcusable. It needs essentially reinstituanization of engineering development. Engineers should be compared with a nobleman of the Russian social structure, because of its major role in directing technical progress. Long process of consolidation (literally at the level of conditioned reflexes and the formation of specific beliefs self-knowledge), without which not fulfill the principle of the first witness, will play a leading role not only in the scale of individual explosive fire hazardous industries or ethically loaded innovations (systems engineering), but also in globally, the whole of humanity. Without this difficult decision of each individual action inventor, producer benefits will exclude individual care responsibility for the profession. And the worst is more common choices and personal environment naïve realism when people fully disclaims any responsibility, since it is not able to capture the connectivity of the actions and activities are actively growing aggressive live a self-sufficient system, the whole matter. Notions of neutrality of science are to protect this position of relationship between science and society.

Analyzing changes of scientific knowledge, the researchers say about the formation of communicative sciences. The report R. Schenk at the IV International Conference on Cognitive Science, suggestions were made to transform the education system, based on the achievements of cognitive science in understanding the nature of thinking [18. Pp. 21]. His program focuses on twelve fundamental cognitive processes: modeling, experiment, prediction, assessment, diagnosis, planning, causality, judgment, negotiation or negotiation skills, influence, teamwork, description. These principles should be taught all the basics as education from an early age.

Under the Reformation, built by us as a model for setting laws of Unity technology, biology, information and cognitive sciences - NBIC - we understand the complex process of changing public consciousness (tab bar). Offhand public consciousness practice the first evidence of engineer cannot be accepted. Only in the new social humanitarianized environment the new value orientations can be accepted and developed.

On the Reformation of the training system: experimenters, designers, engineers, technologists, we need an unified state of technocratic society. In contrast to the narrow “sharpened” elite professionals nationwide background of higher education asks receptive environment for new solutions to global problems. Ability to develop, using the integral experience of the university as self-organized scientific community to not be afraid to solve problems of self-organized systems with feedback that can be integrated into the Universe (quantitative model). As an example in the article is taken industrial dust. Here it is possible to trace the required elements of systems engineering. Application of existing modern equipment for cleaning the air, prevent the accumulation of hazards, encounters many problems. Professional experience of one of the authors of the article allows you to check the proposed recommendations in the article to create the skills of staff work on security, the ambiguous information. Advanced technology is likely to require the consent of the first principle to bear witness.

Dust in the eyes, penetrating and provocative - we still you do not see or see as much as prepared in its development as collect using lasers holograms spacecraft engines. However, apart from winning the sake of which all the technical innovations are the means gathers together the means of humanity and its future generations, there is a danger of losing everything. At the risk of people not accustomed to look. This habit is crystallized in the religious practices of service chosen path and in reckless pursuit of profit in the capitalist era.
Limit their care – is the social nature of man, in the nature of service chosen mission. Thus, limiting ourselves, we rely on the success, not forcing focus on the dangers. A potential of the natural systems that we (humanity) have put themselves at the service will soon become so powerful that it will self-organization. Alien chaos will create a new order in which may not be a place in human society.

So, to enhance opportunities for controlling the transformed nature is necessary that each inventor assumed the function as the first evidence, rebounding from it and getting into another due to the general safety of the world.

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