



View of the last 400 million years of the installation showing containers for sidewalk chalk for inspired viewers to use

by students at Van Hise Elementary and Velma Hamilton Middle Schools in Madison. The children's renditions show their engagement in the materials and their creative responses to the idea of the evolution of life. Perhaps the most interesting are the drawings at the last station of the installation where children speculate artistically to create their answers to the question: "What's next?"

A second added dimension is an invitation for those experiencing the exhibit to stop and draw their own impressions on the sidewalk next to the exhibit. Schweitzer provided a container with several large sticks of sidewalk chalk for this purpose. During the several visits that I made to the exhibit, there were always fresh drawings — and it may be serendipity that the chalk used to make the drawings was itself made from the preserved remains of organisms featured in some of the installations' stations. One of these visitors' drawings can be seen on the cover of this issue.

Exhibits of this type are temporary, so there will soon be no trace of the installation. But the work of the children who were a part of the exhibit and the drawings on the sidewalk alongside the installation both clearly show how successfully this artist connected the idea of evolution and the deep history of life on earth with several audiences. This exhibit certainly makes it clear that innovative, creative ways of helping children (and the general public) engage and understand evolution are valuable — even without a giant carnivorous dinosaur or a fossil hominin to excite and amaze.

Schweitzer's exhibit, by contrast, was almost contemplative in tone, inviting the viewer to stop and commune for a while with ancient life forms that lived in a world we can only imagine.

[For readers not able to view Schweitzer's exhibit in person, there are photos of the exhibit available on-line at <<http://www.uwm.edu/~ajpetto/Rennebobm/Rennebobm.htm>>. There are two virtual tours of the original "Walk Through Time", which lack the kinesthetic dimension of walking the history of life, but show the main graphics and text and give some of the history of the Walk. Visit <http://conexions.org/wtt/walk_menu/3700.html> or <http://www.globalcommunity.org/wtt/walk_online.shtml> to take the virtual Walk.<.]

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Creationism in the Russian Educational Landscape

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Two symbolically connected events took place in different parts of the world in 2007. In

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the United States, Petersburg, Kentucky, was the site of the newly created "Creation Museum", while at approximately the same time a federal court in St Petersburg, Russia, tried a case in which a school girl, Maria Schreiber, demanded that the ministry of education must allow an "alternative" to evolution to be taught in high school biology classes. The St Petersburg case would not deserve much attention, if it did not reflect the tensions which have accumulated in Russian society after the breakdown of the USSR in 1991.

Even though most RNCSE readers think of creationism as a North American phenomenon, advocates of so-called "scientific creationism" are currently very active worldwide. This movement was imported to Russia after perestroika. Important books in the American and Western European "scientific creationism" tradition have been translated into Russian. In Russia, representatives of both the Russian Orthodox Church (ROC) and of some Protestant churches advocate creationism, even though both confessions arrive at this position independently and remain faithful to their theological doctrines. The ROC (to which 58% of the Russian population belongs) has no officially declared position towards "scientific creationism". The latter plays no significant role in official theological discourse, but unofficially remains a significant part of the Orthodox theological landscape. The ROC, of course, has a strong centralized organization, but Protestant denominations have also founded creationist centers throughout the former Soviet Union.

The story of the St Petersburg case began as Maria Schreiber went to court to force the Ministry of Education to allow an "alternative" to evolution to be taught in high school biology classes (Levit and others 2006). The journal *Gazeta.ru* (2006 Oct 27) reported from the court that one issue was the textbook used for senior high school biology, *General Biology* by Sergei Mamontov, in which the biblical creation story was called a "myth". Schreiber (through her lawyer Konstantin Romanov, a remote descendant of the last Russian Tsar, Nikolai II) demanded an apology from the author and from the

Ministry of Education. In a comment, Andrei Fursenko, the Russian Minister of Education and Science, expressed his support for the creationists in that he welcomed the teaching of “alternative ideas” in school (*Rosbalt*, 2007 Jan 3).

The defense pointed out that Mamontov’s textbook does in fact mention creationist concepts, such as the ideas developed by the French comparative anatomist Georges Cuvier (1769–1832) in the early nineteenth century. It was also pointed out that the textbook corresponds to the secular nature of the Russian educational system in that it does not contain religious teachings and that a scientific theory by its very nature cannot hurt religious sensibilities. Even though the court turned down Maria Schreiber’s complaint on February 21, 2007, it is clear that the St Petersburg case shows many similarities to the recent lawsuits in the US. In both countries, creationists have attacked a secular school system because they wanted “alternatives” to evolution to be taught. In both cases the courts have prevented the integration of biblical stories into the teaching of science in school, and thereby defended the secular nature of the state school systems.

However, unlike in the US, where criticism of evolution and demands for “equal time” for the biblical creation story in schools are articulated mostly by evangelical groups, in Russia the traditional Orthodox Church also supported this attack on the secular education system. During the legal proceedings, the plaintiff suggested a replacement for Mamontov’s textbook, written from an “Orthodox” creationist position by Sergej Vertjanov (2005), in which the biblical story is presented as an alternative to evolution. And this is just one of a number of “Orthodox” and non-Orthodox creationist textbooks currently on the market in Russia. His Holiness Alexij II, Patriarch of Moscow and All Russia, recently stated in a lecture in the Kremlin: “Those who want to believe that they are descended from apes, should do so, but they should not force their opinion upon others” (*Die Presse.com*, 2007 Feb 6).

“ALTERNATIVE” TEXTBOOKS

The publication of creationist literature in Russia was pioneered by Protestant churches, which serve only about 2% of the Russian population. In the 1990s translations of several creationist biology textbooks appeared. The publishing house The Protestant alone has translated books by European and American creationists (for example, Gish, Ham, Snelling, Wieland, Morris, Clark, Junker, and Scherer). Most of the books achieve copy runs of about 10 000, which is a lot by Russian standards.

One of the non-Orthodox creationist textbooks published was a translation of a “critical textbook of evolution” originally written in German by Reinhard Junker and Siegfried Scherer (1997; see Kutschera’s “The basic types of life”, *RNCSE* 2006 Jul/Aug; 26 [4]: 31–6). This book repeats some statements from “ordinary” textbooks of evolution, but at the same time calls into question the major claims of modern evolutionary theory. For example, it repeats the creationist conception that microevolution and macroevolution are separate, unrelated processes and that even the most primitive living organisms are so complex that they cannot have evolved by random mutations and natural selection. At the same time, this book, as is characteristic of the works by the “intelligent design” movement targeted at the general public, contains no direct appeals to confessionally determined statements: although the reader is given the impression that science is impotent and incomplete without religious beliefs, specific appeals to particular religious doctrines are difficult to pinpoint.

By contrast, the Orthodox creationist writers, who became active in the second half of the 1990s, have chosen another tactic. They very clearly articulate positions in keeping with Orthodox theology. One of the early attempts to present an Orthodox view on school biology was articulated, for example, by Father Timofej Alferov, whose book bylines simply read “Father Timofej” (Alferov 1996, 1998a, 1998b).

The books were strongly criticized by scientists (for example,

Eskov 2000; Borisov 2001; Surdin 2001). In addition to pointing out that the books spread religious ideology in the guise of a science text, the critics also identified many factual errors in the textbooks. This is not surprising, since Alferov, who holds a diploma in thermal physics (in addition to his theological credentials), clearly writes about biological issues from outside his field of competence.

Vertjanov’s textbook (2005), presented during the Schreiber proceedings, illustrates the newest generation of creationist textbooks in Russia. The book concentrates exclusively on biology, is well illustrated, and combines “Orthodox” interpretations with quite traditional biological passages. The structure of the textbook copies the structure of secular textbooks and corresponds to Russian educational standards. The difference between “Orthodox” and secular views becomes evident only in the final sentences of each chapter, where one can read, for example, “[the] wonderful properties of the DNA should induce us to think about the Creator” or “biocoenoses [ecosystems] present harmonic systems of organisms, where certain species and communities cooperate wonderfully with the others demonstrating the wholeness and interconnectedness of the blessed world” (Vertjanov 2005: 301). The textbook also includes a supplement with quotations from the Holy Fathers, which can be related to biological problems.

The most outright creationist part of the book is found in chapter 4, which is devoted to the origin of life and includes a section entitled “The Hypothesis of Evolution and the Creation of the World”. As in other creationist books, the author argues that there are no “transitional forms” in the fossil record and that there is a “plan of creation” that determines the real course of “evolution”. The intention of the chapter is evidently to discredit the theory of evolution and the “materialistic worldview” using both theological and “scientific” arguments. “There are a few qualified biologists who are still convinced of the evolutionary-materialist version of the origin of life” (Vertjanov 2005: 198). Just like his American and European colleagues,



Vertjanov argues that the earth was created in six days. Summarizing the ages of all 23 generations from Adam to Joseph, he concludes that the earth is about 7500 years old. The author also claims, without showing any evidence, that “contemporary science slowly comes to the acceptance of every word of the Holy Bible” (2005: 224).

Like his colleagues from the American Creation Museum, Vertjanov also claims that dinosaurs co-existed with ancient humans. Vertjanov also contributes to the “scientific” description of the world before the Fall when he reconstructs the food chains in Paradise. One of his ideas is that mosquitoes before the Fall obtained necessary hemoglobin from plants (instead of animals), which “should have been very rich in it”. Although Vertjanov’s textbook was not recommended by the Ministry of Education, it is used both in private schools and in some state schools. For example, it is used in Moscow in the private grammar schools Jasenevo and Saburovo and, as an experiment, in State School Nr 262 (Zheleznjak 2005).

It is notable that Vertjanov’s textbook was subject to criticism not only by scientists (Mamontov 2005) but also by some Orthodox theologians. At present, conflicting positions regarding evolution seem to exist within the ROC. So-called “Orthodox creationists” reject the theory of evolution completely based on theological and pseudoscientific arguments. The “Orthodox evolutionists” interpret evolution as the continuation of divine creation. The transition from the lifeless to the living world and from animal to human are interpreted as acts of direct divine creation (Levit 2003, 2006). Even though neither of these schools of thought actually welcomes Darwinism and the theory of natural selection, the difference is that “evolutionists” do not reject evolution, but give it another (partly theological) explanation that would be comparable to the position of many “theistic evolutionists” in the US. The radicals, like Vertjanov, deny the very fact of evolution.

THE ROC WEIGHS IN

The first author interviewed the

archpriest AV Skripkin, who represented the Orthodox Church during the Maria Schreiber proceedings in St Petersburg, to learn more about the position of the Church towards creationism in schools. The archpriest is generally very positive towards the initiative of the schoolgirl and her lawyers. In his view Darwinism is a kind of pseudoscientific mythology. It is responsible for the positivism and progressivism in the modern worldview and therefore also for the anti-human catastrophes of the twentieth century. The problem of Darwinism is not a scientific issue, Skripkin continued, it is a worldview. The choice between creationism and Darwinism is the choice between “divine humanity” and “human animality”.

At the same time, Skripkin emphasizes that the Bible never has been, and never will be, a chemistry textbook. There must be a borderline between science and religion and each should do its job. Skripkin, however, welcomes Vertjanov’s textbook and maintains that this textbook can be used not only in Orthodox but also in state grammar schools. It is his personal view, Skripkin stressed, because the Church has no ultimate doctrine about this issue.

Skripkin, along with many other Orthodox leaders, wants a high profile of Orthodox religiosity in all schools. In addition to trying to squeeze religious beliefs into the biology classes, the Orthodox Church also tries to make religious teaching compulsory in state schools. The most debated issue in this respect is whether to introduce a new course, “The Basics of the Orthodox Culture”, in Russian schools. In 2002 the federal Ministry of Education published a letter to the education departments of the local governments with recommendations on how to establish the new optional course “The Basics of the Orthodox Culture” (Ministry of Education 2002). The course should be taught at all stages of the school system (from elementary to high school) and include issues such as “The Orthodox worldview”, “The Orthodox way of life”, “God and Creation”, “The Natural and Supernatural Worlds”, and so on.

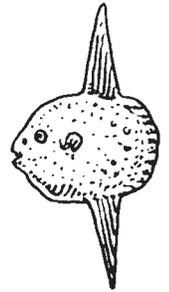
Proposed test questions include, for example, “What did God create first?” Although this course caused sharp debates in Russian society, it was established in many schools. For example, in 2003, 70% of the schools in the Belgorod region already had the new course in their curricula.

As a reaction to the growing clerical influence on education, ten Full Members of the Russian Academy of Science — including two Nobel Prize winners (Vitaly Ginzburg and Zhores Alferov) — published a letter to President Vladimir Putin that warned against making “The Basics of the Orthodox Culture” a compulsory element of federal education programs (BBC Russian Service 2007). The academicians not only argued that theology is mixed with science, but also pointed out that making such a course compulsory in a multi-confessional country would lead to ethnic tensions.

Indeed, Orthodox creationism in all its forms is confronted not only by atheist movements and scientists, but also by the Muslim communities. Thus Nafigullah Ashirov, chairman of the Moslem Board for the Asian part of Russia, criticized the plans of the Orthodox Church sharply, arguing that it could lead to ethnic conflicts as well.

CONCLUSIONS

Our overview of the modern Russian educational landscape reveals several trends relevant to the understanding of creationist movements in modern societies based on science and technology. We distinguish two major types of creationism, which we conditionally label “scientific creationism” and “clerical creationism”. The ordinary “clerical” creationism assumes that the entire world and its biological diversity is a result of supernatural activity and thus makes any discussion of natural causes meaningless. “Scientific creationism”, in contrast, tries to incorporate religious elements into scientific theories as an auxiliary but unavoidable element of explanation. It is characteristic of this kind of proposals that they include elements immune to any kind of scrutiny or criticism. “Scientific creationism” in



Russia attempts to act in a “confession-neutral” manner as, for example, the adherents of the ID movement do. It is, however, common for authors to propagate a particular religious view in educational texts. The purpose of “scientific creationists” is to “infect” the reader implicitly with the idea that science is helpless when faced with the “ultimate questions” related to the meaning and purpose of life and our existence. Biology, they want to prove, is even incapable of explaining biological evolution, that is, of fulfilling its most fundamental purpose.

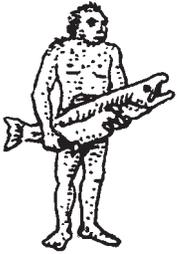
“Scientific creationism” initially came to Russia in the form of translated texts by Western Protestant creationists and members of the ID movement. Because the most important creationist arguments are of a universal anti-scientific nature, they are easily converted into any cultural context and were able therefore to influence the Orthodox creationists, who saw

them as useful in their doctrinal attack on secular education. They can nevertheless be seen as a part of the international creationist movement and their arguments are directed towards the broadest possible audience.

Encouraged by the successes of the “scientific creationists” and by the growing influence of the Orthodox Church in Russia, the ordinary “clerical creationists” also strengthened their efforts to give Russian education clear confessional colors, thereby changing the educational landscape. The “clerical creationists” apply a different strategy than the “scientific creationists” consisting of two parallel tactics. The first tactic is trying to make religious education with an Orthodox bias part of the *compulsory* curriculum. The course “The Basics of the Orthodox Culture” for ordinary schools is an example of this tactic. The second tactic is intervention into areas of science important for shaping the world-

view of modern man. The production of new “Orthodox” science textbooks and participation in the Maria Schreiber trial are examples of this second tactic.

Thus to a certain extent the strategies of the “scientific creationists” and the “clerical creationists” do not contradict each other and can co-exist peacefully in the same educational context as long as they face a common enemy: evolution. Both in Europe and in North America, it is biology — and particularly evolution — that is the primary target of creationism. Since the creation story takes up only a few pages of the Bible, and the rest is the history of the “holy people”, one might therefore expect that the main attack would be against secular *historical* education, not against one of the natural sciences. But the crucial role biology, and especially evolutionary theory, plays as part of the modern scientific worldview has made it into an arena for major educational battles.



D JAMES KENNEDY DIES

D James Kennedy, the megachurch pastor and religious broadcaster, died on September 5, 2007, at the age of 76 in Fort Lauderdale, Florida, according to the *Washington Post's* obituary (2007 Sep 5). Born in 1930 in Augusta, Georgia, and reared mainly in Chicago, he was managing a dancing school in Tampa when he experienced a religious conversion, leading him to earn a divinity degree from Columbia Theological Seminary in Decatur, Georgia. (He later also earned a master's degree in theology from the Chicago Graduate School of Theology and a PhD from New York University, with a 1979 dissertation on the history of Evangelism Explosion, a program which he himself developed for training laypeople to spread the gospel.) In 1959, Kennedy returned to Florida, where he founded Coral Ridge Presbyterian Church, now housed in a 2500-seat edifice in Fort Lauderdale. He expanded his efforts to the airwaves with the founding of Coral Ridge Ministries in 1974; it is currently claimed to reach three million people across the United States. He also was responsible for Knox Theological Seminary (founded in 1989), the Center for Reclaiming America for Christ (founded in 1996 and disbanded in 2007), which aimed to recruit conservative Christians for grassroots activism, and the D James Kennedy Center for Christian Statesmanship (founded in 1995), which engages in outreach to public servants in Washington DC.

A dedicated young-earth creationist, Kennedy

often preached against evolution. In his *Anti-Evolution: A Reader's Guide to Writings Before and After Darwin* (Baltimore [MD]: Johns Hopkins University Press, 1992), Tom McIver describes a 1986 pamphlet based on one of his sermons as “delivered with great confidence and authority, yet ... filled with highly misleading distortions and outright falsehoods.” Between 2004 and 2007, the Creation Studies Institute (founded in 1988 by Tom DeRosa) was part of Coral Ridge Ministries. Kennedy also supported the young-earth creationist movement at large, delivering the keynote address at the 1986 International Creationist Conference and serving as the honorary chairman of Answers in Genesis's Creation Museum. Yet he was open to promoting “intelligent design” creationism as well, featuring Phillip Johnson, Michael Behe, and William Dembski on his radio broadcasts, and selling a variety of “intelligent design” material through Coral Ridge Ministries. Kennedy's diatribes commonly emphasized the evil supposedly due to the evolutionary sciences, culminating in the 2006 polemic *Darwin's Deadly Legacy*, a broadcast featuring “14 scholars, scientists, and authors who outline the grim consequences of Darwin's theory of evolution and show how his theory fueled Hitler's ovens.” The show was denounced as “outrageous and shoddy” by the Anti-Defamation League, and Francis Collins, who was unwittingly interviewed for it, described it as “utterly misguided and inflammatory”.

This is the case in Russia much as it is in the rest of the world. As long as schools teach evolution as a fundamental theme in biology, religious anti-evolutionists will join together as allies in the battle to remove or neutralize it — even when these allies are themselves deeply divided over religious doctrine and theology. Even though the short-term goal of removing evolution causes the coalition to de-emphasize the longer-term sectarian objectives, they are simmering just below the surface and present a clear and present danger to the nature of public education in Russia just as they do in other parts of the world.

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Political Science: Presidential Candidates' Views

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On January 4, 2008, the journal *Science* published a ten-page special report on the views of nine US presidential candidates on a variety of issues that require an understanding and/or application of contemporary scientific research. These nine were considered serious contenders for

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their parties' nominations in late December — although early results from Iowa and New Hampshire seem to have narrowed the fields even more.

The summary began with a report from Jeffery Mervis describing the way in which the information was collected. In most cases, the summaries were prepared based on the comments made by candidates on the campaign trail and by their political advisors. Mervis also wrote that some of the information came from “colleagues, friends and foes alike, who are familiar with their careers (Mervis 2008: 22). The description of the candidates' positions were listed in alphabetical order by the last name of the candidate.

Two of the more intriguing entries were entitled “Other Republicans” and “Other Democrats”, but these contained only the names of seven candidates, three Republicans and four Democrats, without any information on their positions on science policy. By the time of publication, three of the Democratic candidates — Senators Joe Biden and Christopher Dodd, and former Senator Mike Gravel — had withdrawn from the race. Only Dennis Kucinich remained from this group. For the Republicans, there were no positions given for US Representatives Duncan Hunter and Ron Paul, nor for political commentator Alan Keyes.

Most of the candidates tended to be vague on the specifics of their approaches, but there were a few telling indicators. The leading Democratic contenders — Hillary Clinton, John Edwards, and Barack Obama — were positively inclined to increasing funding and placing responsibility for management of scientific research programs with members of the scientific community. Obama, in particular, was described as having an “evidence-based” approach to science-related issues (Bhattacharjee 2008: 28).

Elliott Marshall reported that the Guiliani campaign “successfully discouraged key advisors from speaking to *Science* about specific issues” (2008: 26). Jennifer Couzin reported that Mike Huckabee, despite his stated opposition to

