

Nuclear Power as Cultural Heritage in Russia

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In the last decade, nuclear heritage (in Russian, *atomnoe nasledie*) gained extraordinary visibility in the Russian public sphere. In 2015, the State Atomic Energy Corporation Rosatom, the successor to the Soviet Ministry for Medium Machine Building (Minsredmash), marked the seventieth anniversary of the national nuclear industry with a major exhibition at the Manege exhibition hall near the Kremlin. This exhibition was organized by Rosatom's Centre for History and Culture, established in 2013 to develop a heritage strategy for over 100 museums that belong to Rosatom's empire.¹ As nuclear technologies have aged, the veil of secrecy has been lifted off some of them: for instance, the nuclear ice-breaker *Lenin*, whose reactors reached criticality in 1959, was decommissioned in 1989, decontaminated and refurbished as a museum and awarded the status of national cultural heritage in 2016. It is now open to visitors in Murmansk. Obninsk nuclear power plant, put into operation in 1954 and shut down in 2002, was established as a heritage site in 2009. These are just some of the most prominent examples: many more nuclear museums, heritage sites, and expositions have been developed inside the Russian nuclear establishment since the middle of the twentieth century and are only beginning to open their doors to the public.

In this article I trace the major shifts in the presentation of nuclear power as valuable cultural heritage in Soviet and post-Soviet Russia. Drawing on analysis of archival documents, exhibitions, site visits, and interviews, I argue that nuclear cultural heritage-making is an expression of a new form of nuclear culture, which is emerging bottom-up through the initiative of scientific communities and not only top-down, promoting the nuclear industry. The emerging notion of nuclear cultural heritage making can be compared to the nineteenth century idea of Russian national heritage as “stranovedinee,” which referred to studying and preserving the material and cultural legacies of the Russian lands. Nuclear cultural heritage makers reflect on what it means to live in a nuclear country, deal with the legacies of the Soviet past and, by seeking to

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1. It is not possible to provide a full list of these museums as it is classified as internal information at Rosatom. Some of the expositions and collections have informal status and are not registered as formal museums.

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define their identity and gain recognition in the public sphere, claim a position in the future.² I use the concept of nuclear cultural heritage to describe the practices of collection, interpretation, and presentation of the objects, buildings, spaces, and practices that are significant for not only the history of nuclear science and technology, but also for the history of industry, the military, and anti-nuclear social movements.³ Particular meanings of nuclear cultural heritage can differ in different institutional contexts as they are negotiated by scientists, engineers, artists, curators, and heritage professionals.⁴

Focusing on the Polytechnical Museum (Politekh) in Moscow and Rosatom's recent attempts to institutionalize nuclear cultural heritage, I explore the ways in which heritage-making has transformed Soviet nuclear culture.⁵ Scholars like Sonja Schmid and Paul Josephson showed that nuclear power was presented as a source of national security and technological prowess as well as a universal symbol of technoscientific creativity and man's conquest of nature in the official Soviet and Cold War narratives.⁶ These narratives were articulated in many early museums because they fit well with the Cold War definition of "universal," "world" heritage.⁷ This changed in the post-Soviet period, when nuclear cultural heritage-making intensified and embraced a great diversity of objects, buildings, and spaces, a change driven by the lifecycle of a nuclear infrastructure that was becoming technically obsolete but remained culturally relevant. New stories and objects were introduced as part of the evolving

2. Joseph Bradley, *Voluntary Associations in Tsarist Russia: Science, Patriotism, and Civil Society* (Cambridge, Mass., 2009).

3. I approach these practices as heritage making following Rodney Harrison's definition of heritage as a "formally staged experience of encountering the physical traces of the past in the present." See Rodney Harrison, *Heritage: Critical Approaches* (London, 2013), 1.

4. Eglė Rindzevičiūtė, Sam Alberti, Will Bell, Robert Bud, Ele Carpenter, Oliver Carpenter, Wayne Cocroft, Frank Dittman, Philip Greatorex, James Gunn, Rodney Harrison, Jonathan Hogg, Sandra Kemp, Susan Molyneux-Hodgson, Linda Ross, Anna Storm, and Aditi Verma, *Nuclear Cultural Heritage: A Position Paper* (Thurso, UK, 2019), available at nuclearculturalheritage.wordpress.com/nuclear-cultural-heritage-position-paper-2019/ (accessed November 7, 2021).

5. Due to lack of space, this article does not consider civic initiatives to create different versions of nuclear cultural heritage, such as Andrei Sakharov's museum, established by human rights activists in Nizhnyi Novgorod in 1992 or the Sakharov Centre in Moscow. This study is based on research in the Scientific Archives of the Polytechnical Museum (NAPM), observations during the author's visits to the sites in 2016–19, as well as semi-structured interviews with cultural heritage professionals and public relations representatives of Rosatom. The interviews are fully anonymized in order to protect the participants' identities.

6. For key studies of public presentations of nuclear energy in international exhibitions, the Exhibition of Achievements of National Economy (VDNKh) and memorialization of the Chernobyl disaster, see Paul Josephson, "Atomic-Powered Communism: Nuclear Culture in the USSR," *Slavic Review* 55, no. 2 (Summer 1996): 297–324; Sonja Schmid, "Celebrating Tomorrow Today: The Peaceful Atom on Display in the Soviet Union," *Social Studies of Science* 36, no. 3 (2006): 331–65; Tatiana Kasperski, *Les politiques de la radioactivité: Tchernobyl et la mémoire nationale en Biélorussie contemporaine* (Paris, 2020).

7. Corinne Geering, "Protecting the Heritage of Humanity in the Cold War: UNESCO, the Soviet Union and Sites of Universal Value, 1945–1970s," *International Journal of Heritage Studies* 26, no. 12 (September 2019): 1132–47.

professional memory culture, which characterized many significant branches of Soviet science and technology, such as, for instance, the Soviet space program.⁸ Another important impetus was the reforms of Rosatom's corporate governance, which gave rise to a new organizational form of what I call, following Tony Bennett, "the nuclear exhibitionary complex."⁹ These are permanent and temporary exhibitions and sites that seek to make the atom visible in society, which began to include presentations of historic documents and objects alongside futuristic displays of technology. The introduction of cultural heritage in the nuclear exhibitionary complex was an institutional innovation that required the nuclear industry to embrace what were for them new values, hierarchies, and modes of practice from the professional cultural field. This meant that cultural legislation, expertise, and discourses developed in the ministry of culture, national museums, heritage boards, and contemporary art and design institutions that could claim their legitimate place in what has been one of the most specialist and secretive industries.

This institutional innovation entailed not only celebratory, but also critical interpretations of the nuclear past. Existing research detailed how nuclear culture was developed as a source of a positive Soviet and post-Soviet Russian national identity.¹⁰ In some cases, however, nuclear cultural heritage acquired the features of what Sharon Macdonald called "difficult heritage," challenging the "identity-affirmative nature of heritage-making," based on triumphs and achievements.¹¹ This shift from celebratory to difficult heritage is evident when comparing the Promethean atomic expositions at Politekh in the 1960s with its nuclear exposition centered on atomic weapons in the 2010s. The emergence of a difficult nuclear cultural heritage can also be observed in France, Sweden, Japan, the UK, the US, and China. Although space limitations prevent the presentation of a proper comparative analysis of international cases, it is important to note the similar institutional dynamics in the process of nuclear cultural heritage-making. Earlier research into Cold War nuclear cultural heritage, for instance museums and exhibitions of nuclear weapons or nuclear reactors, detailed how the nuclear industry used them for self-legitimation. The nuclear establishments' communication departments controlled the public presentations of narratives, which often caused controversy.¹² In the US and UK, however, as well as in Russia, many nuclear heritage activities were initiated by grass-roots communities, veterans of the nuclear industry, seeking to perpetuate themselves by assembling collections and stories and gifting them to museums. In museum studies, gift-giving is theorized as a political and economic contract, where the donor cements a

8. Slava Gerovitch, *Soviet Space Mythologies: Public Images, Private Memories, and the Making of a Cultural Identity* (Pittsburgh, 2015).

9. Tony Bennett, *The Birth of the Museum: History, Theory, Politics* (London, 1995).

10. Josephson, "Atomic Powered Communism"; Schmid, "Celebrating Tomorrow."

11. Sharon Macdonald, *Difficult Heritage: Negotiating the Nazi Past in Nuremberg and Beyond* (London, 2008), 2–4.

12. Richard Kohn, "History and the Culture Wars: The Case of the Smithsonian Institution's *Enola Gay* Exhibition," *Journal of American History* 82, no. 3 (December 1995): 1036–63.

power relation with the receiving institution.¹³ The meanings attributed to objects by the donors overflow the frames of interpretation imposed on objects by museum curators.¹⁴ In the case of nuclear cultural heritage, the flow of gift-giving from the nuclear industry to the museum creates a situation of power asymmetry, where heritage professionals and curators of nuclear exhibitions and sites depend heavily on the highly hierarchical and secretive nuclear industry, which owns the information and material objects.¹⁵ However, even in this context of highly asymmetric power, cultural professionals are able to introduce new stories and approaches and, as a result, nuclear cultural heritage can assume the role of difficult heritage, a lens for re-evaluating the past.

The article begins with the history of nuclear expositions at the Polytechnical Museum, the oldest museum of science and technology in Russia, tracing their transformation from the Soviet to the post-Soviet era. Then it considers Rosatom's activities in the field of nuclear cultural heritage, exploring the range of different material and semiotic approaches in the museums and heritage sites, which are both open and closed to public access.

Politekh Goes Nuclear

The buildings of the Polytechnical museum (Politekh) and the headquarters of the Federal Security Bureau (FSB, the former KGB, *komitet gosudarstvennoi bezopastnosti*), face each other across Lubyanka square in the very center of Moscow, with Politekh symbolizing intellectual freedom and invention and the FSB the repressive Russian state. Like in western Europe, the idea of establishing a Russian museum dedicated to science and technology was proposed by a learned society, the Society of Amateurs of Natural Sciences, Anthropology and Ethnography (est.1863). The predecessor of Politekh, the Museum of Applied Knowledge was founded by a decree of Tsar Aleksandr II following the all-Russian industrial fair and opened its doors in 1872. This new institution was developed to resemble the South Kensington museums in London: to improve technical engineering and design competence.¹⁶ The industrial fair's exhibits formed the basis for the permanent collection, which

13. Samuel J.M.M. Alberti, "Objects and the Museum," *Isis* 96, no. 4 (December 2005): 559–71.

14. This process has been theorized by Sharon Macdonald, who proposed to use Michel Callon's concept of overflow to study museum practices. Sharon Macdonald, *Behind the Scenes at the Science Museum* (Oxford, 2002). For the use of the overflow concept in the context of post-Soviet difficult heritage, see Eglė Rindzevičiūtė, "The Overflow of Secrets: The Disclosure of Soviet Repression in Museums as an Excess," *Current Anthropology* 56, no. S12 (December 2015): 276–85.

15. Samuel J.M.M. Alberti, Elsa Cox, Tacye Phillipson, and Alison Taubman, "Collecting Contemporary Science, Technology and Medicine," *Museum Management and Curatorship* 33, no. 5 (July 2018): 402–27; Tony Bennett, Fiona Cameron, Nelia Dias, Ben Dibby, and Rodney Harrison, *Collecting, Ordering, Governing: Anthropology, Museums, and Liberal Government* (Durham, 2017); Tony Bennett, *Making Culture, Changing Society* (London, 2013), Alison Boyle, "Modern Physics in the Museum: Shaping a UK National Collection in the Twentieth Century," *Journal of the History of Collections* 31, no. 3 (November 2019): 485–502.

16. For a detailed discussion of the civic society roots of the Polytechnical museum in the nineteenth century, see Bradley, *Voluntary Associations*, chapter 4.

grew and required a new building. The building's construction, funded by Moscow city council and different entrepreneurs, took three decades. The museum was designed by local architects, who combined an ornamental neo-renaissance style with traditional Russian forms to spectacular effect.¹⁷ In the wake of the Communist Revolution, Politekh was nationalized and, in 1919, placed under the People's Commissariat of Enlightenment (Narkompros).¹⁸ In the 1930s, Politekh's expositions were reorganized to represent different economic sectors, not the stages or fields of the history of science and technology: a response to Stalin's harsh measures to subjugate all science to the economy and "catch up and overtake the West." After World War II the museum was transferred from Narkompros to the Society for Dissemination of Political and Scientific Knowledge (Znanie, est. 1947). The ideological control of the museum somewhat relaxed after the opening of the Exhibition of Achievements of National Economy (VDNKh, est. 1939), the central display of economic and technoscientific propaganda in the Soviet capital.¹⁹ Between the 1950s and 1980s Politekh combined the functions of a scientific, collection-based museum and a center for propaganda, an instrument of Soviet social modernization. Politekh's main competitors were the nuclear energy pavilions at VdNKh, which opened in 1956 and 1959.²⁰ While VDNKh was a favorite leisure destination for visitors wishing to spend a day strolling in its ornamental gardens, Politekh had to constantly reassert its relevance to both the nuclear industry and wider society. In the eyes of the ideologues, the museum was not the most efficient tool for scientific propaganda: too slow, too limited in mass outreach compared with the press, film, and television.²¹ Like VDNKh, Politekh organized guided tours, public lectures, and talks to encourage young people to choose science and engineering professions, in this process explicitly co-identifying scientific achievements with the ideological mission of communism.²² However, unlike VDNKh, Politekh was a museum, which collected and preserved objects for the future, conferring on them cultural and historical values. It operated in the field of cultural policy and cultural heritage, as well as science and technology.

17. Vladimir Sedov, "Arkhitektura Politekhnicheskogo muzeia," in S.G. Morozova and Mariia Buras, eds., *Politekh* (Moscow, 2012), 106–15.

18. Politekh's administrative status was also changed from the museum to the institute of polytechnic knowledge. Morozova and Buras, *Politekh*, 160. For links between the Imperial and Soviet popularization of science, see James T. Andrews, "An Evolving Scientific Public Sphere: State Science Enlightenment, Communicative Discourse, and Public Culture from Imperial Russia to Khrushchev's Soviet Times," *Science in Context* 26, no. 3 (July 2013): 509–26.

19. Liudmila Ulitskaia, "Muzei, kotoryi nuzhen nemedlenno," in Morozova and Buras, eds., *Politekh*, 10–15.

20. Schmid, "Celebrating Tomorrow."

21. Similarly, collection-based British museums of science and technology struggled to compete with interactive science centres. Macdonald, "Behind the Scenes," 39.

22. These forms of public engagement were part of the explicit mission of Politekh since its establishment in the nineteenth century, see Bradley, *Voluntary Associations*. For VDNKh see Schmid, "Celebrating Tomorrow," 338. Although Soviet statistics is notoriously unreliable because of widespread practice of inflating actual numbers, reports suggest Politekh was well visited (1.2 million in 1981). NAPM, f. 1 d/1, d. 22, l. 63 (correspondence, 1981).

The Soviet state adopted a wide range of cultural and educational policies to make what they saw as the highest achievements in culture, science, and technology available to all social classes.²³ Museums and heritage sites were seen as key institutions in this context: they consecrated cultural value on the objects by entering them in their displays and collections and molded visitors into enlightened and disciplined citizens.²⁴ Nuclear power became part of the heritage process as early as the 1950s, when an international debate on the museumification of nuclear power was launched at the Geneva conference on Peaceful Uses of Atomic Energy (1955).²⁵ In the 1950s, the Soviet Union joined UNESCO and the International Council of Museums (ICOM) and, in the 1960s, signed the important Venice Charter of heritage protection and joined the International Council of Monuments and Sites (ICOMOS). According to Corinne Geering, between the 1950s and 1980s the discourse of Soviet cultural heritage policy was deeply entangled with foreign policy: the commitment to register, classify, preserve, and protect cultural values of the past was framed as part of “the struggle for peace.”²⁶ In practice, the commitment to safeguard heritage was marred by a chronic lack of funding and inadequate work conditions, even at the prestigious Politekh. For more than fifty years its directors fought to move out tenant organizations from the museum’s building and struggled with damp storage halls, which were increasingly unsuitable for holding the treasures of national science and technology.²⁷ Workshops were late to deliver commissioned exhibits; those which were delivered malfunctioned and broke down. In the mid-1960s museum workers complained that their lecture materials were 10–20 years out of date. Documents reveal slow and painstaking attempts to reorganize what were described as “chaotic” displays, the haphazard legacy of industrial fairs, into a coherent narrative of the role of science and technology in the advancement of the Soviet economy.²⁸ Thematic exposition plans were either not implemented or delayed for years due to shortages of materials and staff, who were often absent from work.²⁹ Inadequate space prompted discussions about constructing a new museum building, with reference made to the world’s most influential museums of science and technology in Chicago, London, and Munich, and arguing that Moscow should have a venue of at least 50,000 m² space. In 1965, the Moscow

23. Sheila Fitzpatrick, *The Commissariat of Enlightenment: Soviet Organization of Education and the Arts Under Lunacharsky, October 1917–1921* (Cambridge, Eng., 1970); Eglė Rindzevičiūtė, *Constructing Soviet Cultural Policy: Cybernetics and Governance in Lithuania After World War II* (Linköping, 2008).

24. Bennett, *The Birth of the Museum*.

25. Schmid, “Celebrating Tomorrow,” 353.

26. Geering, “Protecting the Heritage.” See also Julie Deschepper, “Between Future and Eternity: A Soviet Conception of Heritage,” *International Journal of Heritage Studies* 25, no. 5 (August 2018): 495–506 (501).

27. For instance, the Ministers’ Council ordered the Committee for Inventions and Discoveries to leave the premises in 1964, but the Committee was still in Politekh’s building in the early 1980s. NAPM, f. 1 d/1, d. 22, ll. 19–21 (“Ob osvobodzhenii ploshchadi,” March 19, 1981).

28. NAPM, f. 100, op. 4, d. 8, l. 2 (report with no date, the 1980s); NAPM, f. 100, op. 4, d. 111 (report, 1946–1950).

29. NAPM, f. 100, op. 3, d. 958, ll. 24–29 (report, 1966).

city council proposed a site for Politekh between the Moscow swimming pool, the site of the destroyed Christ the Savior's cathedral, and the Krimsky bridge.³⁰ Politekh's extension did not happen until the 2010s, however.

Unlike the atomic pavilion of the VDNKh, who's staff saw their mission in developing innovative technical applications and educational approaches, Politekh trod carefully so as not to upset the power balance between the museum and the nuclear industry. In 1981 the deputy director for research explicitly stated the museum's subordinate status: "the museum should never try to engage with problems on the abstract, philosophical level," and under no circumstances was Politekh to "duplicate" the work of research institutes and pursue their own research.³¹ Instead of developing its own competencies, Politekh cultivated relations with the institutes of the Soviet Academy of Sciences, the Lenin library, the Informelektro Library, and the State Committee of Science and Technology (GKNT), as well as various ministries.³² The Soviet atomic complex where they hunted for stories and exhibits was the curator's field: the archives contain many letters in which Politekh directors asked for statistics, information on nuclear devices, access to laboratories, and permission to display objects and posters containing technical descriptions. These were addressed to Minsredmash, the Lebedev Institute of Physics, the Kurchatov Institute, the G.M. Krzhanovskii State Institute of Energy, the Ministry of Energy and Electrification, and the Central Statistics Agency.³³ Exhibits were ordered from branch industry factories, which produced models and full scale mock-ups for industrial fairs (in Russian, *makety*).³⁴ These documents are evidence that Politekh's curators accepted that they were not in a position judge the authenticity and scientific and cultural value of the objects that were coming into the museum. Their professional autonomy was limited and subordinate to the nuclear sector. From the 1950s to the 1980s Soviet nuclear cultural heritage making was but an extension of the nuclear industry's information policy.

Politekh's first permanent exposition of nuclear energy was planned as early as 1947, when an engineer, Mikhail Ivanov, was commissioned to develop a thematic plan.³⁵ The title of this small temporary exhibit, "The Corner of Atomic Energy," referred to the communist versions of Orthodox shrines, the so-called red corners containing propaganda materials, which were widely installed in schools and public venues.³⁶ Thematically, the materials presented in the atomic corner outlined the principles of atomic and nuclear physics, emphasizing transition from the military to the peaceful atom ("51 years to nuclear physics and the physics of the atom, 1896–1947," "From nuclear bomb

30. NAPM, f. 1 d/1, d. 957/19, ll. 10–11 (correspondence, 1963–1967).

31. NAPM, f. 1 d/1, d. 22, ll.79–80 (report, November 25, 1981).

32. NAPM, f. 1 d/1, d. 32–42, l. 51 (correspondence, March 1, 1984); NAPM, f. 185, op. 1, d. 84, ll. 1–2.

33. NAPM, f. 1 d/1, d. 1346/424, l. 10 (correspondence, 21 July 1981); NAPM, f. 1 d/1, d. 1375/425, l. 45 (correspondence, September 30, 1982); NAPM, f. 1 d/1, d. 1375/425, l. 47 (correspondence, November 12, 1982); NAPM, f. 1 d/1, d. 1404/426, l. 6 (correspondence, April 7, 1983); NAPM, f.1 d/1, d. 429, l. 36 (correspondence, August 15, 1989).

34. NAPM, f. 1 d/1, d. 1431/427 (correspondence, December 19, 1984).

35. NAPM, f. 100, op. 34, KP 32824/6, 94 (plan "Ugolok atomnoi energii," 1947).

36. Anya Bernstein, "Caution, Religion! Iconoclasm, Secularism, and Ways of Seeing in Post-Soviet Art Wars," *Public Culture* 26, no. 3 (Fall 2014): 419–48.

to nuclear energy,” “Uranium—the future fuel, to replace coal and oil”).³⁷ Both Soviet and western research were presented, including pioneering Russian scientist Igor Kurchatov’s report on the controlled chain reaction and articles from the western journals *Science* and *Power*. The exhibits included a scheme of a Wilson cloud chamber, a Geiger meter, samples of radium, and models of the first reactors.³⁸ In line with the Soviet Cold War ideology of pacifism, the atomic corner contrasted the US production of plutonium for weapons with what they described as the Soviet aim to harness nuclear power for economic needs. Visitors were reassured that the Soviet Union possessed “the secret of the nuclear weapon,” but no details about the nuclear weapons program were presented.³⁹ Although the documentation about this early period is scarce, the archives contain evidence of keen public interest in the preservation of nuclear material culture even during this postwar period, marred by Stalinist repressions: in 1946, S.M. Beliaev wrote to Politekh offering a sample of “radioactive powder, produced by the Russian scientist Vorodovskii and given to me in 1908. This material has lost its medical significance, but it can be demonstrated to a small audience. It radiates blueish light, which has not changed its intensity during the last 43 years.”⁴⁰

The first major permanent exposition of nuclear energy, installed at Politekh in the early 1960s, was much better documented. Occupying an entire hall of the Energy Department (nuclear power was moved from the Physics to the Energy section), the display offered a clear narrative of the triumph of nuclear power as a driver of Soviet progress. The hall featured a large poster depicting a muscular Prometheus, the conqueror of fire, the element of nature. Promethean nuclear energy was presented as a peaceful, progressive technology, a source of prosperity for the Soviet people.⁴¹ The historical narrative started with the GOELRO, the first large scale infrastructural project of the unified electric grid in the Soviet Union, which led to the establishment of the state planning committee (Gosplan) that would become the core of Soviet identity. The construction of the first nuclear reactor was presented as a teleological conclusion to the electrification of the country. The weapons program was omitted. This exposition was divided into two sections: theoretical nuclear physics and civil applications of nuclear power and radioactive isotopes. Visual materials included a model of the nuclear icebreaker *Lenin*, which was earlier shown at the Brussels Expo in 1958.⁴²

37. NAPM, f. 100, op. 34, KP 32824/6, 94 (plan “Ugolok atomnoi energii,” 1947).

38. NAPM, f. 100, op. 34, KP 32824/6, 94 (plan “Ugolok atomnoi energii,” 1947); NAPM, f. 100, op. 4, d. 8, l. 302 (report, no date).

39. NAPM, f. 185, op. 1, d. 132 KP 29539/84 (exhibition materials, 1952–1956).

40. NAPM, f. 100, op. 4, d. 50, l. 1. Samples of radioactive materials, such as radium and uranium ore, were displayed in VDNKh, but I could not find any records if they were displayed at Politekh. Schmid, “Celebrating Tomorrow.”

41. I.D. Martynenko, *Politekhnicheskii muzei: Soderzhanie i printsipy postroeniia ekspozitsii* (Moscow, 1962). Nuclear power was eventually moved from the nuclear physics to the energy department, where it was displayed next to hydropower and fossil-fuel energy.

42. Lewis Siegelbaum, “Sputnik Goes to Brussels: The Exhibition of a Soviet Technological Wonder,” *Journal of Contemporary History* 47, no. 1 (January 2012): 120–36 (130).

Visitors could examine models of the Obninsk, Voronezh, and Beloiarsk reactors. Politekh sourced these exhibits proactively: in 1957 Politekh's director wrote to the deputy minister of the Ministry of Ship Building Industry requesting models of nuclear reactors and of the icebreaker *Lenin*.⁴³ Other exhibits were produced by enterprises from the nuclear industry: *Znanie* and art organizations, such as the Art Fund and the Artistic-Industrial Workshop,⁴⁴ as well as acquired from industrial fairs.⁴⁵ In 1966, the exposition was updated with information on the thermonuclear reaction ("to mark the 50th anniversary of the October revolution").⁴⁶ Politekh's curators, like their VDNKh colleagues, described these exhibits as presentations of the future, not the past. For instance, a curator wrote in 1966 that as nuclear energy symbolized "the frontier of contemporary science," it should "attract the interest of the widest mass of museum visitors."⁴⁷ However, the most spectacular and captive imaginary of Cold War nuclearity, the bomb, would remain absent from Politekh between the 1960 and 1980s.⁴⁸ In this respect, Politekh did not differ from, for instance, London's Science Museum where "peaceful," industrial applications of nuclear power prevailed in exhibitions in the 1950s.⁴⁹

Nuclear risks were not extensively addressed, neither before nor after Chernobyl's disaster in 1986. For instance, the meeting minutes of the Energy department in October 1986 contain reflections on the displays of thermonuclear energy and GOELRO, but nothing on how the disaster could be addressed in the museum.⁵⁰ The museum workers recalled visitors asking for guidance regarding their safety, but Politekh was of little help here, because Minsredmash did not brief them.⁵¹ References to Chernobyl remained minimal in Politekh's future exhibitions.

Post-Soviet Revisions: Nuclear Pasts

Following the break-up of the Soviet Union in 1991, Russian museums could enjoy a greater autonomy from political control, but their activities were severely constrained by the economic crisis of the 1990s.⁵² Although Politekh remained dependent on the nuclear industry as the main donor, there were new social and cultural developments in the industry itself that created new

43. NAPM, f. 100, op. 3, KP 30049/605, l. 2 (correspondence, December 13, 1957).

44. NAPM, f. 100, op. 3, KP 30049/605, ll. 4–5 (correspondence, December 13, 1957).

45. NAPM, f. 100, op. 3, KP 30049/605, l. 6 (correspondence, December 6, 1957).

46. NAPM, f. 100, op. 4, d. 111 (report, 1962–1967).

47. NAPM, f. 100, op. 3, d. 958, ll. 24–29 (report, 1966).

48. P. Guzman, *Po zalam Politekhnicheskogo muzeia* (Moscow, 1967), 18.

49. Alison Boyle, "Banishing the Atom Pile Bogy": Exhibiting Britain's First Nuclear Reactor," *Centaurus* 61, no. 1–2 (February 2020): 14–32 (27). In the US nuclear energy was also initially publicly presented by the government as a peaceful technology. Daniel F. Ford, *The Cult of the Atom: The Secret Papers of the Atomic Energy Commission* (New York, 1982).

50. NAPM, Direktsiia (1986–1992), ll. 46–47 (protocol, 23 October 1986).

51. Interview no. 8, Moscow, May 15, 2017.

52. Vitaly Kurennoy, "Contemporary State Cultural Policy in Russia: Organization, Political Discourse and Ceremonial Behavior," *International Journal of Cultural Policy* 27, no. 2 (April 2021): 163–76.

conditions for cultural heritage. In the 1990s the Soviet nuclear industry began to acquire a patina of techno-scientific heritage: formerly revolutionary reactors and weapons aged and were being decommissioned. So did the people: the postwar generation of industry veterans began to retire. The professional nuclear communities desired to preserve their stories and material culture for the next generation of scientists and engineers and the wider society. This social dynamic, which characterized not only the nuclear sector, but also other fields, such as, for instance, the Soviet space program, echoed the development of nineteenth century civil society, when learned societies created museums to preserve the national heritage.⁵³ Thus in 1989 a professional association, the Soviet Nuclear Society (the Nuclear Society of Russia from 1995), nominally independent from Minsredmash and, later, Rosatom, was formed. Industry veterans pressured the state nuclear authority to declassify parts of old nuclear weapons, allowing them to be publicly displayed. This was a slow process: the permission to display the first atom bomb, RDS-1, was only received in 2001.⁵⁴ Their heritage-making efforts cohered with Rosatom's corporate scheme to invest in cultural heritage as part of an internal communication strategy for fostering loyalty among new and existing employees. Nuclear power suddenly acquired a social, cultural, and material history, as well as new chronologies and locations: it was becoming a genuinely public technology.⁵⁵

In 1992 the first exposition of nuclear weapons was opened by Boris El'tsin in the Russian Federal Nuclear Centre (RFNC), previously known as "Arzamas 16," in Sarov.⁵⁶ This was a significant, if belated event: atomic weapons museums, memorial or celebratory, opened in Hiroshima in 1955 and in Los Alamos in 1962.⁵⁷ Indeed, the Soviet nuclear weapons community had dreamt about creating a "hermitage museum of nuclear weapons" since 1978.⁵⁸ In 1995 Politekh organized a large temporary exhibition and a series of public events to mark the fiftieth anniversary of the Russian nuclear branch,

53. Bradley, *Voluntary Associations*; Gerovitch, *Soviet Space Mythologies*, 156.

54. A.A. Kuznetsov ed., *Atomnyi vek: Khronika i fotografii* (Moscow, 2015), 334, 354; Viktor Luk'ianov, "Ob istorii muzeia iadernogo oruzhiia RFIA-Ts-VNIIEF," in *Materialy nauchno-prakticheskogo seminara: Sovremennyy korporativnyi muzei* (Moscow, 2016), 13, 17. On internal dissent within the nuclear sector see Roman Khandozhko, "Dissidence behind the Nuclear Shield? The Obninsk Atomic Research Centre and the Infrastructure of Dissent in the Late Soviet Union," *Jahrbücher für Geshchichte Osteuropas* 66, no. 1 (April 2018): 65–92.

55. Gerovitch traced a similar development in the Russian space industry, which presented the history of Soviet space program in the newly created corporate exhibitions and museums: Gerovitch, *Soviet Space Mythologies*, 156–57; Helmuth Trischler and Robert Bud, "Public Technology: Nuclear Energy in Europe," *History and Technology* 34, no. 3–4 (February 2019): 187–212.

56. I.S. Drovenikov, "V muzee iadernogo oruzhiia," *Voprosy istorii estestvoznaniia i tekhniki* 4 (1994): 107–10.

57. Alison Fields, "Narratives of Peace and Progress: Atomic Museums in Japan and New Mexico," *American Studies* 54, no. 1 (Spring 2015): 53–66; Steven Dubin, *Displays of Power: Controversy in the American Museum from the Enola Gay to Sensation* (New York, 1999); Matt Wray, "A Blast from the Past: Preserving and Interpreting the Atomic Age," *American Quarterly* 58, no. 2 (June 2006): 467–83.

58. Luk'ianov, "Ob istorii," 14.

in cooperation with *Znanie* and the Ministry of Atomic Energy (Minatom).⁵⁹ The invitation to the exhibition featured a photograph of Kurchatov, who was also quoted as saying “I am happy that I was born in Russia and dedicated my life to nuclear energy.”⁶⁰ This quote would be reproduced on every important occasion since. The atom, both military and peaceful, was no longer a sign of Soviet power and internationalism, but a symbol of the Russian nation. At the same time, the human costs were acknowledged and detailed: a publication accompanying the exhibition paid homage to Russian nuclear pioneers who died in their thirties due to their exposure to plutonium; Kurchatov himself died prematurely at fifty-seven.⁶¹ This narrative, like the one articulated by the Soviet space heritage-makers, included some critical reflections, but maintained the overall celebratory, heroic structure.⁶² After the end of the exhibition, Minatom donated a full scale mock-up of the bomb RDS-01, supplied by the former secret Design Bureau-11 (now RFNC) to Politekh. The RDS-01 was installed in the main entrance hall.

A search for new narratives acknowledging the nuclear weapons program and addressing Stalin’s repressions accompanied the arrival of new exhibits. Politekh commissioned the prominent feminist artist and curator Irina Aktuganova to develop a new conceptual rationale and display architecture for the nuclear power department. The new display was implemented fully after the museum closed for refurbishment and installed its permanent exposition in the 26th pavilion at VDNKh, where it was open to the public from 2014 to spring 2020. In what follows, I present a description of this exhibition on the basis of my visit in 2016 and analysis of published and online materials.⁶³

In contrast to the fifty years of Soviet expositions, nuclear testing and the military origins of nuclear power were now acknowledged and placed at the center, both conceptually and materially. The entire nuclear section is called RDS, an acronym of the code name “special jet engine” (*reaktivnyi dvigatel’ spetsialnyi*). The curator proposed that RDS could also be read as “Russia makes it herself” (*Rossii delat sama*), accordingly, re-framing the history of Soviet nuclear technoscience as specifically national Russian. The mock-up of RDS-01 was presented in the center of the exhibition hall, surrounded by supporting exhibits: touchscreens, video footage, and interactive objects that replaced the Soviet repertoire of posters and malfunctioning models. The bomb itself was interactive: visitors could experience a simulation of a nuclear

59. Olga Tarkhova, “The Representation of the Russian Nuclear Industry in the Collection of the Polytechnic Museum,” in *The 2nd International Conference Corporate Museums Today on the 70th Anniversary of the Nuclear Industry. Collection of Conference Reports* (Moscow, 2015), 107–9.

60. NAPM, f. 100, op. 8 (report, 1995).

61. Judging from the report of the accompanying conference, Chernobyl was not extensively discussed on this occasion. I.S. Drovenikov, “Iadernyi iubilei v Moskve,” *Voprosy istorii estestvoznaniia i tekhniki* 4 (1995): 3–17.

62. Gerovitch, *Soviet Space Mythologies*, 156.

63. The exposition was organized around seven thematic blocks: Beyond the Boundaries of the Earth, Plasma Energy, Nuclear Energy, Radio, Illusions, The New Anthropogenesis, and The Analogues in Nature.

explosion, launched upon request.⁶⁴ Indeed, interactivity was attempted in the Soviet displays too: for instance, a small reactor, submerged in water, was indeed operational at VDNKh from 1956 to 1962.⁶⁵ At Politekh, the model of Obninsk nuclear power plant (Obninsk NPP) contained movable parts, revealing different components of the structure, and the model of the first Soviet pile reactor (the F-1, added to the exposition in 1967) simulated its slow-down: parts of the graphite core would redden while an intensifying sound signaled a change in the reactor's performance.⁶⁶ It is unclear just how much the audiences engaged with these exhibits, however.⁶⁷

The simulation offered by RDS-01 appealed to all senses: the lights were dimmed, sirens howled, then the floor shook violently, the light imitating the blast flashes, and the wind blowing into the visitor's face. I saw excited children who inevitably demanded to be "exploded" time and again. The experience was designed to be somber, to deliver a pacifist message and not as light-hearted entertainment. Military nuclear testing was also presented through a model of a nuclear test control panel that was used in Semipalatinsk polygon, Kazakhstan, donated by Rosatom. The visitor can press a button that launches a virtual bomb test: a monitor screen shows black and white documentary footage of the first Soviet nuclear test explosion in 1949.⁶⁸

The new exposition contains elements of the Cold War internationalist and pacifist narratives that pervaded Soviet nuclear discourses. Homage is paid to Hiroshima through an exhibit dedicated to Sadako Sasaki, a Japanese girl who made 1,000 origami cranes before dying from radiation sickness, a story which features prominently in the Hiroshima Peace Memorial museum.⁶⁹ Soviet nuclear testing is justified by shifting the responsibility to the US: the history of the Soviet-American arms race, including espionage, is presented through documentary footage. While this is a clear attempt to rehabilitate and legitimize the Soviet atomic program, the next section, entitled "The bomb, people and life," addresses the repressive system of Stalinist science: several screens stream archival video footage illustrating the life of nuclear scientists

64. The technique of engaging visitors through hands-on experiences, presenting moving rather than stationary objects, was developed by US behavioural psychologists for industrial marketing in the 1930s and adopted by science museums during the Cold War. Jaume Sastre-Juan, "If You Tilt This Game, Will It Explode?: The Politics of Nuclear Display at the New York Hall of Science (1966–1973)," *Centaurus* 61, no. 1–2 (February 2020), 33–50.

65. Schmid, "Celebrating Tomorrow," 343.

66. NAPM, f. 1 d/1, d. 957/19, l. 28 (report, August 1, 1967).

67. A visitor remembered that in the 1970s Politekh's expositions were so uninteresting that "even the Museum of Revolution was more attractive, because it displayed *mausers* and other Bolshevik attributes. Those few who did visit Politekh, went there to see Lenin's Rolls-Royce, which had skis attached to it to cope with the Russian winter." Aleksandr Kabakov, "Muzeinnye tsennosti," in *Politekh*, 6–7.

68. The teleology of progress is no more unbounded energy, but the digital future: the bomb project is linked with the invention of the first Soviet computer, created by Sergei Lebedev in 1948. Surprisingly, there is no mention of the Soviet contribution to computer simulation of the environmental effects of nuclear war (1983), which predicted that nuclear war would cause climate change and lead to a nuclear winter. Eglė Rindzevičiūtė, *The Power of Systems: How Policy Sciences Opened Up the Cold War World*, (Ithaca, 2016).

69. Fields, "Narratives of Peace," 60.

in research laboratories, which were built by Gulag prisoners.⁷⁰ This was reflected in film footage, alongside historical and recent oral history interviews with prominent scientists and engineers from the nuclear weapons program, such as the chief designer Iulii Khariton, Andrei Sakharov, A.I. Korablev, B.A. Manakova, and I. Puzhliaev. The disarmament movement was presented in a set of videos called “The World after the Bomb,” which featured statements by Norbert Wiener (the father of cybernetics and a pacifist, who was very popular in the Soviet Union), Nikita Khrushchev, and Ronald Reagan.⁷¹

It should be clear by now just how different the narrative presented at the post-Soviet Politekh is: it explicitly includes the political and social contexts of nuclear technoscience. The presentation of nuclear power as Cold War and Soviet heritage encourages the visitor to consider its ambivalent character. This heritage perspective disturbs what Josephson described as the Soviet tradition of nuclear enthusiasm.⁷² According to the curator, nuclear techno-optimism is a matter of the historical past: “today, after Chernobyl and Fukushima, it is difficult to imagine the kind of enthusiasm over atomic energy that prevailed in society back in those early days.”⁷³ Moreover:

How does one read the title of this exposition, which is dedicated to selected moments from the history of Russian science? Is it not excessive and pathetic? What kind of affect does the reading of “Russia makes it herself” suggest? Is it pride? This could be a possibility. Russian science can boast some basis for pride. However, in order to read this phrase appropriately, one should remember that “Russia makes it herself” is an unofficial name of the first Soviet bomb RDS-1, awarded by its creators. Only they alone knew to what extent Russia made it herself and at what cost. This title, therefore, contains different meanings, ranging from irony to pride, from grief to gentleness. . . . During the three centuries that are covered in the exposition, Russia has been undergoing many essential changes, but many things that are known by everybody and that have remained stable are: the width and globality of thought, the orientation to the future, idealism, the absence of attention to details and people, the neglect of everyday matters, the inability to live in the present, the absence of love for serially produced objects, the crude production of technical devices, and underdeveloped electronics, regardless of two Nobel prizes in the field of semiconductor physics.⁷⁴

70. The construction of the Soviet atomic project and the Stalinist system of repression intertwined: as Asif Siddiqi noted, the NKVD’s Glavpromostroi mobilized over 100,000 inmates to build 35 atomic facilities in 1946–1949. Asif Siddiqi, “Atomized Urbanism: Secrecy and Security from the Gulag to the Soviet Closed Cities,” *Urban History* (February 2021): 1–21, 11–12. See also Zhores A. Medvedev, “Stalin and the Atomic Gulag,” *Spokesman* 69, (August 2015): 91–111, at republicofmining.com/2015/08/24/stalin-and-the-atomic-gulag-by-zhores-a-medvedev/ (accessed November 3, 2021)

71. I base this description on my notes and the presentation slides prepared by the Polytechnical museum, 2015. I was told that the exhibition narrative was also informed by Vladimir Gubarev, *Iadernyi vek: Bomba* (Moscow, 1995) and Evgenii Negin, *Sovetskii atomnyi proekt: Konets atomnoi monopolii* (Sarov, 2000).

72. Josephson, “Nuclear Culture.”

73. “Russia Does Itself,” *Agency 21*, at scimuseum.ru/rds#three (accessed November 11, 2021).

74. “Russia Does Itself,” *Agency 21*, at www.scimuseum.ru/rds (accessed November 11, 2021).

Here the curator proposed to focus on “ideas and experiments” as one of the few distinct and positive aspects of Russian science. However, this revisionist approach is intertwined with a defensive Cold War narrative that seeks to justify Soviet adoption and development of nuclear weapons.⁷⁵ Emphasizing the self-sacrifice of Soviet nuclear pioneers, this revisionist approach integrates Stalinist repression, pacifist messages, and heroic science with the master narrative about the great suffering of the Russian nation.⁷⁶ The nationalization of nuclear culture as heritage is done through selective chronology and geography. The history of nuclear weapons stops at the 1950s–60s. Although nuclear technology acquired faces and voices through oral history interviews and documentary footage, it is still presented as universal science and technology: there is little information about the social and cultural spaces where the Russian nuclear complex is localized. The hazardous legacies are excluded: one does not learn much about nuclear accidents, polygons, uranium mines, or nuclear waste. Nuclear cultural heritage emerges as “difficult heritage” only in the documentary footage, which presents a very clear and critical picture of Soviet secrecy and repression, where the histories of the bomb project and Gulag intersect.

Rosatom Museums: Corporate, National, and Local Heritage

There is a significant difference between the Soviet museumification of nuclear power and the emerging Russian nuclear cultural heritage. The themes of Cold War division such as the “peaceful atom,” internationalism, and industrial modernization emphasized in Soviet narratives remain salient. However, Rosatom’s nuclear exhibitionary complex includes not only official and formal exhibitions, but also what I call “museums of the local nuclear lore” (*muzei atomnogo kraevedenie*), which collect and present the material culture of laboratories, research institutes and enterprises and which are mainly intended for the preservation and internal communication of organizational and social memory.⁷⁷ These museums of local nuclear lore present the nuclear past as part of social and political histories, which are deeply embedded in particular localities and expressed through a richly heterogeneous material culture involving not only models, mock-ups, authentic technical devices, and

75. According to this story, which is told in the exposition as well as in accompanying printed materials, and was recited to me by Russian nuclear heritage specialists, Rosatom’s PR staff, and scientists, the Soviet Union had no option but to protect itself from the new catastrophic threat that US nuclear weapons posed; it was forced to develop its own nuclear weapons. All this is presented as a heroic duty. Politekh’s catalogue, for instance, integrates the history of nuclear physics and the bomb with the narrative of World War II under the heading “The War: The Era of the Split Atom,” see *Politekh*, 224–31.

76. It binds together into one story the very different elements of the exhibition: the documentary footage and oral history interviews on Gulag prisoners building the facilities for the first atomic bomb research, the rudiments of the “atoms-for-peace” approach that are still present in the form of mock-ups of reactors, and a promotional animation cartoon provided by Rosatom, that shows a cheerful household surrounded by a green landscape and a nuclear power station providing Russian children with a good life.

77. I thank Katia Handrabra for the suggestion to compare Rosatom museums with local lore museums.

architectural structures, but also objects used in everyday life by scientists, engineers, and local residents. The diversification of heritage-building is not unique to the nuclear sector, it characterizes other priority areas of the military-industrial complex, such as the Soviet space program, where, as Slava Gerovitch showed, alternative stories emerged alongside the official narratives glorifying the past. These alternative stories, mainly expressed in autobiographies and memoirs, reveal internal competition in the space program and pervasive mismanagement, thus challenging the ideological imaginary of national unity and efficiency of communist labor. As Gerovitch suggested, however, even these critical stories continued replicating the Soviet master narrative centered on the founding fathers of the industry and Cold War competition.⁷⁸ The same applies to the post-1990 nuclear exhibits analyzed in this section. In the context of the nuclear industry, however, the sheer diversity of material artefacts and the extension of antiquarian interest to include not only nuclear technical devices, but also objects, architectures, and even landscapes pertaining to the everyday life of Soviet nuclear scientists is an important innovation that makes evident the political and social aspects of nuclear power. Moreover, the assemblage of nuclear cultural heritage takes place through “highly individualized pathways,” where multiple grassroots agencies contribute stories and objects.⁷⁹

Rosatom deploys cultural heritage to enhance its own status as a guardian of Russian national sovereignty as well as to reinforce corporate identity. Like Minsredmash, Rosatom calls itself “a nuclear country” (*strana Rosatoma*): it employs about 270,000 staff and competes both in domestic and international energy markets with other “parastatal companies,” such as Gazprom and Rosneft.⁸⁰ In 2013, Rosatom founded the Historical and Cultural Centre, which recruited young and highly qualified cultural professionals to take stock and integrate the corporation’s cultural assets. This center was the result of the convergence between Rosatom’s institutional orientation toward greater, although still extremely restricted transparency and the growing authority and status of professionals of cultural and heritage management in Russia.⁸¹

Following the collapse of the Soviet Union, the governance of the Russian nuclear industry underwent many changes in response to domestic and international pressure to improve safety of the nuclear arsenal, power plants, and treatment of radioactive waste.⁸² In 2005, the former Prime Minister Sergei Kirienko was appointed as the new general director of the Federal Agency for Atomic Energy (Minatom, from 2007–Rosatom). Kirienko tapped into the idea of a Nuclear Renaissance, launching a set of reforms and appointing a

78. Gerovitch, *Soviet Space Mythologies*, 157–59.

79. The social dynamic of many Rosatom agencies’ museums is similar to the Chernobyl museum in Ukraine; see Anna Veronika Wendland, “Ukrainian Memory Spaces and Nuclear Technology: The Musealisation of Chornobyl’s Disaster,” *Technology and Culture* 61, no. 4 (January 2020): 1162–77 (1172).

80. Veli-Pekka Tynkkinen, “Energy as Power—Gazprom, Gas Infrastructure, and Geo-governmentality in Putin’s Russia,” *Slavic Review* 75, no. 2 (Summer 2016): 374–95.

81. Kurennoy, “Contemporary State Cultural Policy in Russia.”

82. Tatiana Kasperski, “Nuclear Dreams and Realities in Contemporary Russia and Ukraine,” *History and Technology* 31, no. 1 (July 2015): 55–80.

prominent Russian cultural management consultant, Petr Shchedrovitskii, as a deputy director of strategy.⁸³ The same year, the young media specialist Sergei Novikov was hired as a consultant and appointed as the head of Public Relations in 2008.⁸⁴ Kirienko, Shchedrovitskii and Novikov had strong links with key professionals in the cultural and heritage sectors and saw an unexploited opportunity in the strategic use of existing cultural resources and the potential to create new ones to adjust the former Minsredmash to the Russia of the twenty-first century.⁸⁵ In September 2015 Rosatom opened a large exhibition “70 Years of the Nuclear Branch: A Chain Reaction of Success” at the Manege exhibition hall, located in the very heart of Moscow, next to the Kremlin.⁸⁶

Once again, the centerpiece was a bomb from the past. A full-scale mock-up of AN602, weighing 2.5 tons, was transported through Moscow at the crack of dawn to avoid traffic congestion, but also to avoid attracting unnecessary attention. Nicknamed “Kuz’kina mat’” after Khrushchev threatened Nixon that he will show “Kuzka’s mother” to the Americans in 1959, AN602 was a thermonuclear bomb whose test yielded 100Mgt in 1961, making it the biggest test explosion in history. The exhibition also paid homage to the AN602 chief designer, Andrei Sakharov, who later became a prominent anti-nuclear and human rights dissident. The organizers liaised with the Sakharov Centre, who lent several objects for the exhibition. The Manege exhibition presented a lot of objects that were shown to the public for the first time, collected from the many research institutes, design bureaus, factories, and plants. This official presentation of the Soviet nuclear past was veiled with nostalgia for the 1950s–60s’ lifestyles: for instance, visitors could sit on 1950s benches were borrowed from Mosfilm studios; the entrance to the exhibition was painted gloomy grey, with lowered ceilings aiming to recreate the claustrophobic

83. Eglė Rindzevičiūtė, “The Future as an Intellectual Technology in the Soviet Union: From Centralised Planning to Reflexive Management,” *Cahiers du monde russe* 56, no. 1 (January 2015): 111–34.

84. The first Rosatom public information center was opened in Tomsk in 2008; several information centers exist today. Rosatom tries to reach out not only to the general public, but also to young people, encouraging them to consider careers in the nuclear industry. Campaigns often deploy forms of amateur and participatory culture, such as drawing competitions and performance arts: consider, for instance, Novikov’s own initiative, “The Nuclear Kids,” launched in 2009.

85. Interview no. 3, Moscow, May 26, 2016; Interview no. 4, Moscow, May 27, 2016; Interview no. 5, Moscow, May 27, 2016; Interview no. 6, Saint Petersburg, June 1, 2016. Rosatom’s nuclear cultural heritage-making was reinforced by the worldwide trend for corporations to develop what they saw as their internal values and communicate them through cultural institutions rather than through human relations departments. Since the 1990s the corporate archive and the museum became necessary attributes of a mature, established business, both in western countries and Russia. Companies use their history and material heritage for both internal and external corporate communication. See: *The 2nd International Conference Corporate Museums*.

86. The 70th anniversary exhibition, the largest attempt to take stock of the history of the Soviet and post-Soviet nuclear complex, was organized in collaboration with many museums and heritage sites. This entailed complex logistics to identify, locate, and transport the exhibits to showcase the key moments in Russian nuclear history. For instance, the famous blue book that contained the original designs for the first Soviet nuclear bomb was discovered in the archives of the Khlopin institute in preparation for this exhibition.

atmosphere of the secret Soviet nuclear program during the early Cold War. The exhibition was well attended, attracting over 100,000 visitors; 769 guided tours were conducted by volunteers and students of the National Research Nuclear University (MIFI).⁸⁷

The second major landmark of Rosatom's official nuclear cultural strategy is a new pavilion of nuclear power, built on the site of VdNKh in Moscow and approaching completion in 2021. Initiated in 2014 and approved in 2015, the pavilion's design concept suggests an elegant and minimalist, clean, white, open structure, surrounded by mature trees and green lawns, inviting visitors to have a picnic.⁸⁸ Here the message of Rosatom's public relations is clear: nuclear power should be associated with the values of openness and care for the environment. This promotional project does not reflect the dire situation in many underfunded Russian nuclear establishments, to say nothing of the nuclear waste sites. This dedication to public engagement, however, creates a window of opportunity for the very different, bottom-up development of nuclear heritage that is happening in the industry.

Many museums that now are part of Rosatom Corporation were not created by top-down decisions, but grew incrementally, bottom-up, with many of them having roots in the Soviet period. Some are based on scientific collections gathered for strictly internal use. This is the case for the fascinating collection of uranium ore, which was established in 1953, at the Moscow headquarters of the Institute of Chemical Technology (VNIKhT), an industrial giant that supervises the whole uranium cycle, from scoping and mining to the production of uranium fuel and reprocessing. This collection, which I visited in 2019, is located in a well-ventilated basement of one of the buildings constituting the sprawl of the Institute, located near to the picturesque Kolomenskoe Park. The display of 8,446 samples of uranium ore are organized in a traditional, systematic way reminiscent of nineteenth century museology: uranium-rich rocks are arranged by their source on shelves in wooden cabinets, behind glass doors to shield the visitor from radiation. One cannot help leaning closer to explore these fascinatingly diverse and beautiful rocks (large specimens are shielded by lead glass and it is not allowed to spend more than four hours in the exposition hall). The most stunning artefact is an ornate chest with samples of uranium ore, presented as a gift to Stalin in 1949 from the Soviet-East German mining company Wismut (known for using the forced labor of German war prisoners and, later, Czechoslovak political prisoners).⁸⁹ The

87. Interview no. 4, Moscow, May 27, 2016. Iulia Velikaia, "Vzaimodeistvie arkhivov predpriatii s muzeiiami v formirovanii naslediiia atomnoi otrasli," in *Materialy nauchno-prakticheskogo seminara*, 52.

88. Irina Kireyeva, "Presentation of the International Competition to Develop the Architectural Concept of the Atomic Energy Pavilion at the Exhibition of National Economy Achievements," in *The 2nd International Conference Corporate Museums*, 61–65.

89. Wismut was a code name of a secret mining company established by the Soviet Union in 1947; its first director was a NKVD major general, previously responsible for prison camps in Vorkuta and Pechora. See, Eiichi Kido, "The Legacies of the Uranium Mining Company 'Wismut' in East Germany," *Asian Journal of Peacebuilding* 7, no.1 (May 2019): 55–72; Caitlin E. Murdoch, "A Gulag in the Erzgebirge? Forced Labor, Political Legitimacy, and Eastern German Uranium Mining in the Early Cold War, 1946–1949," *Central European History* 47, no.4 (December 2014): 791–821.

uranium ore mined from the Erzgebirge / Krušnéhory mountains formed the crucial part in the success of the Soviet atomic bomb project (this historically rich and complex area was listed as a UNESCO World Heritage Site in 2019). The story goes that Beria, aware of radiation risk, advised Stalin against keeping the chest in his quarters. Although VNIKhT's uranium ore collection is highly radioactive and the public cannot be admitted to see it, Rosatom's heritage officers are debating the collection's public value and heritage potential.

The uranium ore collection was a necessary part of the research and development process at the institute. Other museums were created to address the promotional, educational, and memory needs of atomic institutions. Such museums were typically initiated and organized by nuclear scientists and engineers. As they are not radioactive, the general public can be admitted. The nuclear icebreaker *Lenin*, moored in Murmansk harbor, is a good example (Figure 1). *Lenin* belongs to Rosatomflot, the branch that is in charge of icebreakers and submarines. It was decommissioned in 1989, having served thirty years from its launch in 1959. The last captain, Boris Sokolov, initiated a campaign to preserve *Lenin* as a heritage object; such luminaries of Soviet science as the mathematician Gurii Marchuk and physicists Evgenii Velikhov and Anatolii Aleksandrov lobbied Mikhail Gorbachev not to salvage the icebreaker. In 2009 the ship was decontaminated and work on developing and installing a museum exposition began. At the time of my visit in 2019, work on the exposition was completed. Some areas of the ship were restored to illustrate the everyday life of its crew in the 1950s–60s; as part of the refurbishment, curators sourced furniture and other objects representative of the period, for instance, a surgery table for the medical cabin. It is possible to walk through the turbine hall where a sound recording is played to communicate the impression of the noise level when the icebreaker was operational.



Figure 1. A dining canteen, the icebreaker *Lenin*, Murmansk, Russia. Photo: Egle Rindzevičiūtė.

One cannot enter the former reactor hall, but it can be observed through a window from the turbine hall. A large area is dedicated to an interactive multimedia exposition, “The Atom in the Arctic,” which actually contains a lot of information about the geology, flora, and fauna of the Arctic Ocean. The icebreaker is a popular tourist destination.

A third type of museum is located in high security zones with restricted access, especially to foreigners. One example is Arzamas-16 in Sarov, the first exposition of declassified nuclear weapons (mock-ups, models, and possible casings) opened in the Factory of Machine Construction (PSZ) in 2010.⁹⁰ The aura of secrecy can be an asset for a museum, but is a constraint in reality.⁹¹ Arzamas-16 attracts only about 10,000 visitors annually. Unlike Arzamas-16, the F-1, the first Soviet pile reactor at the Kurchatov Institute in Moscow, and Obninsk NPP, are open to visitors. The F-1 building houses the intact graphite pile reactor, its control panel and a range of equipment used in the early days of nuclear power. It also contains informational displays—pictures and text printed on glass, so that these stands do not block the view of the architecture—which detail the history and diversification of nuclear technology in Russia, placing it in the international context. The principle of the preservation and exhibition of Obninsk NPP are similar to F-1, but while F-1 was curated by professional art curators, Obninsk was taken care of by home-grown scientists. During Soviet times, the plant served an ideological function in Cold War competition and was open to prominent foreign visitors: between 1954 and 1974 it was visited by 2,200 delegations.⁹² During my visit in 2017, the decommissioning of Obninsk NPP was not yet fully complete, but it was possible to walk its floors, visit the control room and to walk on the reactor floor. The site is mainly visited by school children and corporate guests of the Institute of Nuclear Power Engineering, in whose territory it is located. However, to access Obninsk NPP, or F-1, foreigners have to apply for security clearance: although the objects are declassified, they are situated in high security zones, literally behind barbed wire. Moreover, the Arzamas-16 museum, in addition to the exposition open to Russian audiences, has an additional exhibit, which is classified as top secret and accessible only to some Rosatom employees and special guests.⁹³

Another widespread form of nuclear cultural heritage is the memorial office of the organization’s founder, usually accompanied with expositions

90. Luk’ianov, “Ob istorii,” 14.

91. Anna Storm, Fredrik Krohn Andersson, and Eglé Rindzevičiūtė, “Urban Nuclear Reactors and the Security Theatre: The Making of Atomic Heritage in Chicago, Moscow, and Stockholm,” in Heike Oevermann and Eszter Gantner, eds., *Securing Urban Heritage: Agents, Access and Securitization* (London, 2019), 111–29.

92. Mikhail Gaidin and Inna Mokhireva, “From Academic Museum Concepts to Projective Concepts: The Museum of the First Nuclear Power Station in the World—The Museum of the Third Millennium,” in *The 2nd International Conference Corporate Museums*, 110. For the impact of Shchedrovitskii’s approach to cultural management and the nuclear sector, see Rindzevičiūtė, “The Future as Intellectual Technology”; Roman Khandozhko, “Interaction of Unofficial Philosophy and the Scientific and Technical Community in the Late USSR: The Case of Obninsk,” Working Paper 051706 (Moscow, 2017), 1–34.

93. Anatolii Agapov, “Vzaimodeistvie zakrytoi ekspozitsii i muzeia iadernogo oruzhiia RFiaTs-VNIIEF,” in *Materialy nauchno-prakticheskogo seminaru*, 40–42.



Figure 2. Memorial office of Vitalii Khlopin, V.K. Khlopin Institute of Radium, Saint Petersburg, Russia. Photo: Egle Rindzevičiūtė.

presenting the history of the scientific and technological field, displaying historic objects, and celebrating key workers and their achievements (Figure 2).⁹⁴ In the nuclear branch many of these museums are run very professionally by committed insiders who approach the task with the utmost ethnographic seriousness. Good examples are the museum at the V.K. Khlopin Institute of Radium in Saint Petersburg, the Igor Kurchatov Memorial House Museum in Moscow, and the memorial office of Efim Slavskii, the founding minister of Minsredmash, at Rosatom's headquarters. These museums are examples of the "local lore" of Rosatom, as they combine the grand narratives of the history of nuclear physics and engineering with vernacular stories about the history of the institute, as well as biographies of people and everyday objects that are not limited to samples of technology. For instance, the Khlopin institute's museum is situated in the original building, which has remained largely intact since the first experiments with a cyclotron. Some doors to offices still have a hole used by the NKVD for surveillance in the 1930s. The history of the pioneering radium research is entangled with stories of the Leningrad blockade, when the institute's scientists extracted radium from the plaster on the walls, which were irradiated during the original experiments with the cyclotron to make luminous markers that people could wear in the dark nights. Although

94. To commemorate a director was a long-standing tradition of Soviet enterprises: many Russian factories and research institutes boast such small and often amateur museums.

the premises of the museum are no longer radioactive, they perform an important function in the rituals that confer legitimacy and high status to the organization: important visitors and strategic partners are shown around these expositions; museums host celebratory meetings and are also used for the induction of new staff. These memorial museums, reminiscent of *kunstkameras*, are part of the tissue of the organizational life of nuclear enterprises.

In this way, cultural heritage-making adds new types of objects and social practices to the official nuclear exhibitionary complex. Heritage studies emphasizes the importance of communities in defining and managing what can be classified as difficult—ambivalent or dividing—cultural heritage. The nuclear branch is run in a highly centralized and hierarchical manner, where compliance with secrecy and security is paramount. However, the community perspective is the key to understanding the social conditions under which this nuclear cultural heritage has emerged. First, top-down and bottom-up processes intertwine (Figure 3). The idea to create Kurchatov's memorial house as an ethnographic museum—it is an elegant, inconspicuous neo-renaissance villa, nested in a pine grove right in the middle of the National Nuclear Research Centre in Moscow—was proposed by his wife, Marina Sinel'nikova. The museum first opened in 1970 and was professionally restored in 1983. The conservation of the house and the organization of the exposition was directed



Figure 3. Igor' Kurchatov Memorial House Museum, National Nuclear Research Center, Moscow, Russia. Photo: Egle Rindzevičiūtė.

by Raisa Kuznetsova, a professional historian, who has been running the museum with a very sharp eye for every authentic detail: there are even some potted plants that were originally planted by the Kurchatovs. The icebreaker *Lenin* would have been fully decommissioned, if not for the lobby of its last captain commander, Boris Sokolov, who raised funds for the restoration of the ship and the reconstruction of the mooring site in central Murmansk, enabling easy access for visitors. The Khlopin museum was established, maintained and expanded thanks to the efforts of the institute's engineers, who eventually found themselves full-time museum workers.

Second, Rosatom's public relations department does not exert direct control of these grass-roots efforts. The links between these local "nuclear community museums" and the head office in Moscow can be described as benign neglect. At the same time nuclear cultural heritage is employed in lobbying federal and local politicians, who need be convinced of the uniqueness of the nuclear professional community and the economic and symbolic value of nuclear power. For Rosatom's leadership, however, nuclear cultural heritage projects are not only informational channels, but also welfare projects, providing the employees and their families who live in science cities and the so-called "closed administrative territorial units" with access to arts and culture.⁹⁵ The corporate government would like to see a cohesive community of nuclear industry professionals where nuclear cultural heritage acts like a social glue. Nevertheless, these professionals are strongly heterogeneous internally and quite inclined to question their own status quo for many economic and scientific reasons.⁹⁶ Moreover, nuclear industry insiders began to work in new ways with local authorities, particularly cultural and museum professionals, seeking to integrate the physical presence of the nuclear industry into urban and regional development plans by joining the secretive institutions with local history museums and organizations.⁹⁷ Such developments have begun to take place in, for instance, the science cities of Obninsk and Sarov and harbors like Murmansk. The narratives of the Soviet and national histories of nuclear energy, presented in the national museums, are made more complex in these local translations, where different stories and objects—which are sometimes radioactive—begin to overflow the official frames and displays.

In this article I introduced the transformation of the nuclear exhibitionary complex in Russia as it developed from promotional exhibitions of new technology to historical displays of nuclear power as cultural heritage. In her pioneering article, Sonja Schmid linked the atomic pavilion at VDNKh with the history of world fairs as a social and political representation of a national industry, created to celebrate and promote nuclear technology. While these

95. Kuznetsov, *Atomnyi vek*, 88–93; Mikhail Kuznetsov, "The Heritage of Science Cities and Closed Administrative Territorial Units: Cultural Landscape, Agency and Corporate Museums," in *The 2nd International Conference Corporate Museums*, 88–93.

96. For instance, Arzamas nuclear weapons museum hosted meetings of Chernobyl's clean-up workers. Luk'ianov, "Ob istorii," 18.

97. See, for example, the materials of a workshop organized by Rosatom's Cultural-Historical Centre in Sarov, October 2016, in *Materialy nauchno-prakticheskogo seminara*.

goals retained significance in the museum expositions of the 1960s–2010s, the purpose of nuclear cultural heritage was substantially widened. Nuclear cultural heritage was deployed by different actors to different ends: scientists and engineering communities sought to secure their memory for future generations, museum curators to re-assess the Soviet past, Rosatom's public communication department to maintain social cohesion inside the nuclear industry and enhance its competitiveness nationally and internationally. These strategies often intertwined in the creation of what I term as museums of the local nuclear lore, an important expression of grass-root activities in heritage-making from the inside of the nuclear industry.

This article is based on a pilot study and further research is necessary for a comprehensive review of nuclear cultural heritage-making in Russia and its comparison with similar practices in other nuclear countries. My analysis discerned two different institutional paths of nuclear cultural heritage-making, the first one originating in the cultural and museum sector and the second one in the nuclear industry. These two paths began to converge in the post-Soviet period, when new types of narratives were articulated in nuclear cultural heritage. The nuclear industry, as Paul Josephson, Sonja Schmid, Kate Brown, and Gabrielle Hecht have shown, has traditionally employed cultural means to convey identity-affirmative narratives of national breakthroughs, progress, and achievements.⁹⁸ As Loren Graham argued, there is an established discourse linking technoscientific progress and Russian national identity. This link is a source of both pride and frustration: despite Vladimir Putin's investment in R&D, Russia still lags far behind in terms of innovation and productivity.⁹⁹ The loss of the Soviet satellite states and great power status had a traumatizing effect on many living in the Russian space, as documented by Svetlana Aleksievich in her masterpiece *Second Hand Time* (2016). In this context, the history and heritage of such highly politically symbolic fields as the nuclear industry and the Soviet space program appears to offer a resource for solidarity and a sense of continuity, bridging the Soviet and post-Soviet divide.¹⁰⁰ There is still a considerable element of geopolitical confrontation: nuclear cultural heritage embodies Cold War competition in the nuclear stories, objects, buildings, and sites deployed by heritage professionals to assert Russia's technical and creative parity, if not superiority, in the contemporary world. However, even in this respect, Russian nuclear cultural heritage is similar to western nuclear narratives in museums, which, as Alison Fields shows, also revolve around the themes of progress, supremacy

98. Sonja D. Schmid, *Producing Power: The Pre-Chernobyl History of the Soviet Nuclear Industry* (Cambridge, Mass., 2015); Kate Brown, *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters* (Oxford, 2013); Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (Cambridge, Mass., 1998); Paul R. Josephson, *Red Atom: Russia's Nuclear Power Program from Stalin to Today* (Pittsburgh, 2005).

99. Loren R. Graham, *Lonely Ideas: Can Russia Compete?* (Cambridge, Mass., 2013).

100. Gerovitch is more pessimistic about the use of the Soviet space heritage, suggesting that different groups appropriated "space myths to heal their wounds." Gerovitch, *Soviet Space Mythologies*, 159.

and containment, mobilizing notions of “safety, control and technological progress.”¹⁰¹

Nuclear cultural heritage thus conceived has little space for criticism of the damage that nuclear industries inflicted on the Russian people, through inhuman treatment of nuclear branch workers, disasters, and contamination. Nor does such a heritage complex provide room for articulating and discussing future concerns regarding the unresolved issue of the safe disposal of nuclear waste. However, the professionalization of the nuclear cultural heritage complex in Russia has already created new forms of engagement with its nuclear past and the present; the recent expositions at Politekh, the ice-breaker *Lenin*, and the pile reactor F-1 signal clearly that Russian nuclear cultural heritage is opening up to alternative narratives. After all, as Macdonald insightfully observed, heritage is an institution that changes slowly: it evolves not by radical transformation, but by adding new layers like a palimpsest.¹⁰² Nuclear cultural heritage in Russia evolves in precisely such layers, materially and symbolically articulating the many forking paths of the twentieth century’s nuclear modernity.

101. Fields, “Narratives of Peace”; Robin Gerster, “The Bomb in the Museum: Nuclear Technology and the Human Element,” *Museum and Society* 11, no. 3 (November 2013): 207–18.

102. Macdonald, *Difficult Heritage*.