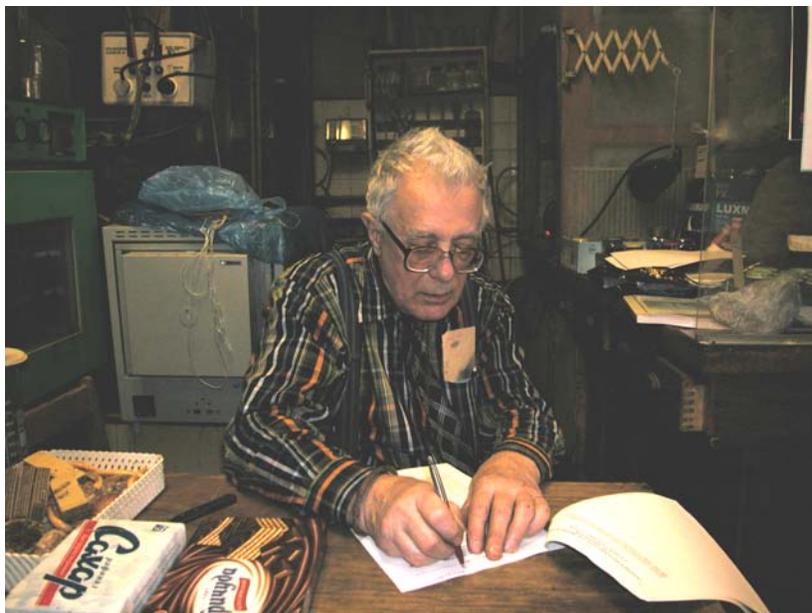


OBITUARY: LEOPOLD DMITRIEVICH SULERZHITSKY (1929–2012)



Leopold Sulerzhitsky at work in his lab in the early 2000s (photo courtesy Evgeny Ineshin)

On 24 January 2012, Leopold D Sulerzhitsky, the best-known Russian radiocarbon scientist and author of more than half of the radiocarbon dates in the former USSR, passed away after a long and serious illness.

Leopold Sulerzhitsky was born into a Muscovite artist family. His father worked as stage designer, one of his grandfathers had been a well-known theater employee and public figure of the late 19th–early 20th century, and his other grandfather had been an actor at the famous Moscow Academic Art Theatre. Since childhood, Sulerzhitsky showed an outstanding talent for music; he studied piano in the music school of the Moscow Conservatory and in the Gnesin Academy of Music. It thus appeared as if a musical and artistic career was predetermined for him. However, in 1952 he participated in his first geological expedition—and since that time he was lost for the world of art. During the next few years, he was still hesitant in his choice of profession: in winter he played music in the Scriabin Museum, and in summer he worked as a collector in the geological expedition. He finally parted ways with music in 1953 and joined the Geological Institute of the USSR Academy of Sciences, in which he worked for the rest of his life.

In his first years in the Geological Institute, Leopold Sulerzhitsky worked under the guidance of A A Arseniev, with whom he spent a number of long field seasons in the remote, hard-to-reach areas of eastern Siberia. In 1959, he was offered to become involved in the organization of the newly established Radiocarbon Laboratory, and this appeared to be an extremely good choice. In the following 50 years, Sulerzhitsky was the soul, the heart, and the hands of the radiocarbon laboratory. Together with colleagues, he worked on the development of techniques and enhancement of the laboratory's instruments and equipment, making use of his excellent knowledge of physics, organic chemistry, and soil science as well as his outstanding organizing ability. His remarkable responsibility and love for his work allowed the Radiocarbon Laboratory of the Geological Institute to combine such seem-

ingly incompatible properties as extremely high productivity with the utter reliability of dates. Over the 50 years of its existence, the laboratory has produced more than 14,000 dates in total, most of which were published in Russian and international journals.

Leopold Sulerzhitsky, as an artist, undoubtedly derived great pleasure from this well-organized and smoothly running laboratory with its peat samples boiling in buckets with alkali, bones bubbling in acid solution, and samples of frozen benzene, which he used to thaw in his hands. Sulerzhitsky was not only an analytical worker, he took an active part in all the aspects of the scientific process: from field research to data interpretation and studies on a range of important theoretical problems related to application of the radiocarbon method.

Sulerzhitsky had an extremely wide scope of academic interests. He conducted works on radiocarbon dating of glaciations and marine transgressions, of archaeological sites and animal migrations, of volcanic eruptions and tsunamis, of climate changes and alteration of biocenosis. He radiocarbon dated sunken ships, antique furniture, and many other objects. The geographical range of the samples is also very extensive, stretching from the Antarctic in the south to Iceland and Spitzbergen in the north and from Nicaragua in the west to Chukotka in the east. On his travels, Leopold especially loved the northern areas of Siberia and the Far East. His photography equipment was always at hand, which allowed him to produce a great collection of wide-format slides with views of his favorite places and the geological sections on which he worked.

Ten field seasons Sulerzhitsky passed on the Taymyr Peninsula in northern Siberia, where he had gathered and dated a huge collection of samples of bones of the “mammoth fauna,” of buried peat and wood. Unique data were obtained on chronology of the Late Pleistocene glaciations and marine transgressions in this peninsula. He developed a new method for the dating of bone material, which allowed using bones as a reliable object of radiocarbon studies. Even until the present, the Taymyr Peninsula remains one of the areas with the largest amount of mammal bone dates.

Over the long years of his work, Leopold Sulerzhitsky performed radiocarbon dating of numerous samples of the North Eurasian megafauna. These pioneering studies provided fundamentally new information on the late glacial and early Holocene history, as well as on the animal migration routes. The dates of bones collected on many important archaeological sites such as Avdeevo, Zaraisk, Kostenki, Sungir, and Malta allowed Sulerzhitsky to reconstruct the dynamics of habitation and diffusion of the northeastern Eurasian territory by Paleolithic humans.

Sulerzhitsky worked in Kamchatka and the Kuril Islands for more than 20 field seasons. With his direct involvement, extensive work has been carried out on dating of the Late Pleistocene–Holocene volcanic deposits in this area, which made it possible to resolve the fundamental problem of the reconstruction of volcanic activity in Kamchatka within the last 10,000 years. Due to the efforts of Sulerzhitsky, over 3000 radiocarbon dates have been obtained for this area, which makes the Kamchatka Peninsula the region with the most detailed dating coverage on Earth.

Over the course of many years, up to his fatal illness, every day including holidays and weekends, Leopold Sulerzhitsky came to the laboratory created by him, and devoted himself to routine work: he switched on heaters, pumps, and centrifuges; boiled the samples; reloaded counting assemblies; and checked the figures on the recorder strips. In the meantime, he was often joking with colleagues or telling an amusing story. This is the image of Leopold Sulerzhitsky that will remain in the memories of those who had the luck to work side by side with him for many years. Archaeologists, volcanologists, paleontologists, stratigraphers, and many other scientists will continue to use the radiocarbon dates obtained by Sulerzhitsky in their articles for many years, securely knowing that these are really “absolute ages.”

And we, his scholars and colleagues from his Laboratory for Isotope Geochemistry and Geochronology, remember Leopold Sulerzhitsky:

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Maria M Pevzner, leading research scientist
Nataliya E Zaretskaya, senior research scientist
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After almost 60 years of scientific research, Leopold D Sulerzhitsky, who may be called “the last Russian romantic of radiocarbon,” passed away on 24 January 2012 at the age of 82 after a long illness.

Born into a well-known artistic family (his grandfather, also Leopold, was the stage director of the Moscow Art Theater and a human activist closely acquainted with Anton Chekhov and Leo Tolstoy; and his father Dmitry was an art historian and painter), he attended musical college for talented teenagers and studied piano. Later on, according to the story that was told to us and other people, he became tired of the bohemian-like music and artistic society and became interested in geology.

Leopold Sulerzhitsky began his distinguished career in the early 1950s when a “diamond rush” broke out in Yakutia, a remote part of Siberia. He participated in the pioneering search that eventually resulted in the discovery of the first kimberlite diatremes with diamonds in 1954–5. In 1953, he was hired at the Geological Institute of the USSR Academy of Sciences in Moscow, and remained there until his death. Without a formal higher education in geology or physics, Leopold Sulerzhitsky achieved much more than many people with advanced academic degrees. Since 1959, he worked in the Radiocarbon Dating Laboratory, and became a leader of the Radiocarbon Group in the early 1980s. The first dates were produced in 1961; and up to recently, about 14,000 radiocarbon measurements were made. This is the most productive radiocarbon dating laboratory in Russia and the entire former USSR.

Leopold Sulerzhitsky’s early scientific interest was the radiocarbon dating of volcanically active regions in the USSR; Kamchatka Peninsula; and the Kurile Islands. Since 1964, he organized and participated in dozens of fieldwork campaigns on Kamchatka and collected first-hand data on the influence of volcanic carbon dioxide on the radiocarbon age of wood (Sulerzhitsky 1970). About 3000 samples were subsequently collected from almost every active volcano on Kamchatka in collaboration with volcanologists in the 1960s–2000s, and this resulted in the construction of the solid Holocene tephrochronology for Kamchatka and neighboring regions (e.g. Braitseva et al. 1993, 1995, 1997a,b; Razjigaeva et al. 1998; Gusev et al. 2003; Melekestsev et al. 2003; Ponomareva et al. 2004). The importance of these studies cannot be overestimated.

At the same time, Sulerzhitsky became engaged in the study of Late Quaternary and Holocene deposits and the geological history of the northernmost part of Eurasia, the Taymyr Peninsula. Ten years of work resulted in about 200 ^{14}C dates, which became a vital part of an edited volume (Kind and Leonov 1982; see also Sulerzhitsky 1997a). Dating the paleoenvironmental records from Siberia and the Russian Far East followed (e.g. Andreev et al. 1997, 2001; Kremenetski et al. 1998; Blyakharchuk and Sulerzhitsky 1999; Korotky et al. 2000; Razjigaeva et al. 2002).

From the 1970s, the dating of Late Pleistocene megafaunal remains, which are plentiful in the northern parts of Siberia, was Leopold Sulerzhitsky's true "love." Subsequently, many papers were written on this subject (Sulerzhitsky 1997a; Sulerzhitsky and Romanenko 1999; Stuart et al. 2002; Sher et al. 2005; Vartanyan et al. 2008; Nikolskiy et al. 2010, 2011), including a pioneering attempt to conduct numerical analysis of large data sets (Sulerzhitsky 1997b). Now the main patterns of megafaunal existence and extinction in northern Eurasia are securely established, and Sulerzhitsky's contribution is widely acknowledged. As a practical application, the highly effective technique of collagen extraction from Late Pleistocene bones was developed and tested (see Sulerzhitsky 1997b) and accepted by almost all Russian laboratories.

In the field of dating archaeological materials, many achievements were also made. Since 1961, about 3000 ^{14}C dates were produced by Sulerzhitsky and his colleagues from samples collected at archaeological sites. The approach was to analyze whole series of specimens rather than randomly collected organics. As a result, at several sites a large series of ^{14}C dates were generated, often in the range of 20–50 values and up to 83 values for some localities! This is an unprecedented case in Russian radiocarbon cultural chronology. The main archaeology-oriented topics were: 1) dating of human bones from Mesolithic–Paleometal burial grounds in northern Eurasia, with more than 270 ^{14}C dates from the Lake Baikal region alone (e.g. Mamonova and Sulerzhitsky 1989, 2008); and 2) dating of the Late Paleolithic, Neolithic, Paleometal (Bronze/Early Iron Age), and Medieval sites in northern Eurasia (e.g. Praslov and Soulerjytsky 1997; Alexandrovskiy et al. 1998; Praslov and Sulerzhitsky 1999; Sulerzhitsky 2004). From a methodological point of view, the concept of "practical accuracy" in radiocarbon dating archaeological sites was put forward (Krenke and Sulerzhitsky 1992).

Several papers were published by Leopold Sulerzhitsky in *Radiocarbon* (e.g. Braitseva et al. 1993; Alexandrovskiy et al. 1998; Razjigaeva et al. 1998; Veksler et al. 1988). We also had the privilege to publish the results of several joint projects with him (Kuzmin et al. 1994, 1998, 2004; see also Jull et al. 1994; Stuart et al. 2002). Being a humble person, he rarely put his name ahead of other coauthors although his contribution was always crucial for the success of the study. For decades, he helped numerous colleagues in getting ^{14}C dates for their samples, mostly free of charge.

Studies conducted by Leopold Sulerzhitsky along with other scholars are well known in the international academic community. According to Thomson Reuter's *ISI Web of Knowledge*, up to late 2011 his papers were cited 613 times, which is an impressive number for any researcher.

It is sad that the radiocarbon community has lost its illustrious associate who will be remembered by many in the years to come. Leopold Sulerzhitsky was one of the last true polyglots in radiocarbon dating.

Yaroslav Kuzmin and Evgeny Ineshin
Novosibirsk and Irkutsk, 29 January 2012

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