

ПАЛЕОНТОЛОГИЧЕСКИЕ И ЗООЛОГИЧЕСКИЕ ИССЛЕДОВАНИЯ СЕВЕРО-ВОСТОКА СИБИРИ

Материалы Всероссийской научной конференции
с международным участием, посвящённой 50-летию со дня рождения
Григорьева Семена Егоровича, кандидата биологических наук,
заведующего лабораторией «Музей мамонта им. П.А. Лазарева»
НИИПЭС СВФУ с 2011 по 2020 г.



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Палеонтологические и зоологические исследования Северо-Востока Сибири [Электронный ресурс] : материалы Всероссийской научной конференции с международным участием, посвящённой 50-летию со дня рождения Григорьева Семёна Егоровича, кандидата биологических наук, заведующего лабораторией «Музей мамонта им. П.А. Лазарева» НИИПЭС СВФУ с 2011 по 2020 г. / [Сост. М.Ю. Чепрасов]. – Якутск : Издательский дом СВФУ, 2024. – 1 электрон. опт. диск
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В сборнике опубликованы материалы докладов, прозвучавшие на Всероссийской научной конференции с международным участием «Палеонтологические и зоологические исследования Северо-Востока Сибири». Материалы освещают результаты полевых, лабораторных, фондовых и архивных исследований по мамонтовой тематике.

Предназначен для научных сотрудников, аспирантов, магистрантов и студентов естественно-научного направления, краеведов, интересующихся четвертичной палеонтологией.

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A PORTRAIT OF *S. KIRCHBERGENSIS* (JÄGER, 1839) (MAMMALIA, RHINOCEROTIDAE): 700 THOUSAND YEARS OF A RHINOCEROS HISTORY WITH A FOCUS ON ITS THREE RECORDS IN THE SAKHA REPUBLIC (YAKUTYA, RUSSIAN FAR EAST)

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Stephanorhinus kirchbergensis was first described by G.F. Jäger on the basis of two upper molars and one upper premolar (SMNS 34000-1/2/3) found at Kirchberg an der Jagst (Schwäbisch Hall, Stuttgart, Baden-Württemberg, Germany) (Jäger, 1835-39, Pl. 16-figs 31, 32, 33). The three specimens are preserved at the Staatliches Museum für Naturkunde in Stuttgart. The generic name “*Stephanorhinus*” was proposed by M. Kretzoi (1942), in honour of the Hungarian king Stephen I.

Some *S. kirchbergensis* reconstruction attempts are known. Two of them are presented here (fig. 1): that by Flerov (Flerov & al., 1955) and that by Chen Yu (a palaeo-artist of the Chinese Academy of Sciences, in Beijing, who made this reconstruction in 2010). The author decided of choosing these two pictures among the others as – in his humble opinion from a purely anatomical point of view – they should probably be the closest to reality.



Fig. 1 – *Stephanorhinus kirchbergensis* (Jäger, 1839); two reconstruction attempts: (left) after K.K. Flerov (in Flerov & al., 1955) and (right) after Yu Chen, Beijing (2010, personal present; this illustration is used here through the courtesy of the artist, all rights reserved)

S. kirchbergensis is a tandem-horned rhinoceros – sometimes large or very large in size – with a graviportal skeleton and a predominantly browsing mode of feeding.

Although it has always been considered a taxon of Asian origin, this point has not yet been clarified. While admitting the difficulty in determining the origin of the Chinese Quaternary rhinoceros fauna, Tong (2012) proposed a European origin for all the non-*Coelodonta* Dicerorhinae.

S. kirchbergensis is one of the Pleistocene rhinoceros species that has very often been a victim of diagnostic confusion. Based on the author's previous experience, this is also due to the synonymy regarding this species. This appears to be truly vast: in the course of over twenty years of investigations the author exhumed 35 specific names (Billia, 2011). Probably, this never occurred for any other species ...

S. kirchbergensis inhabited Eurasia – albeit with extremely point-like characteristics – throughout the Middle Pleistocene.

Among the whole Chinese localities which gave back *S. kirchbergensis* remains, the earliest occurrence is presently considered that of Zhoukoudian-Loc. 13 (previously Choukoutien-Loc. 13, contracted CKT-Loc. 13) (39°40'47" N – 115°56'46" E; Fangshan District, Beijing, N-E China) better known as "The Peking Man Site". CKT Loc.-13 – which brought to light remains of 36 mammal species – is dated about 0,78 Ma B.P. (early Middle Pleistocene) (Tong, 2012).

In this case, due to their very ancient age, the *S. kirchbergensis* remains from Zhoukoudian represent the oldest ones of this species ever found in all of Eurasia.

Always with reference to China, according to Tong & Wu (2010), the *S. kirchbergensis* youngest record (20 ka B.P.) might be that referable to the Harbin site (Heilongjiang, the northernmost Chinese province). However, the most reliable Chinese youngest occurrence of this species is that of the Xiniudong, also known as the "Rhino cave" (Shennongjia, Hubei Province), a site of early Late Pleistocene age which is rich in *S. kirchbergensis* fossils. However, at the moment both them are still conjectures only. If confirmed, these would become the two youngest *S. kirchbergensis* records of the species not only in China, but on the entire Eurasian territory. To these two important sites that of Zhangshan (lower Huaihe River Region, Suqian, Jiangsu Prov., China) (Chen & al., 2020) must

also be added. Unfortunately, for this site the *S. kirchbergensis* remains do not seem to provide certain datings.

At present, as to the Russian territory, the same principle can be applied to the *S. kirchbergensis* find from southern Primorye (Russian Far East) (Kosintsev & al., 2020) which material is not able of providing certain stratigraphic data. Summarizing, in Eurasia there would be no other Late Pleistocene evidences for this species at present.

Instead, the “Yakutyan skull” deserves a separate consideration. If its absolute dating (70±48 ka BP) (Kirillova & al., 2017) would be confirmed, the F-4160 *S. kirchbergensis* skull from the Chondon River valley (Yano-Indigirka area, Sakha Republic) (70°12' N – 137° E) would be the sole evidence of the *S. kirchbergensis* presence in the Late Pleistocene.

Considering the skulls, in Eurasia *S. kirchbergensis* is currently represented by at least fourteen skulls. Six of them were found in Asia (Russia and China). From Russia come that from the “oblast’ of Irkutsk” (so simply called because the location of its discovery has always been unknown) (Chersky 1874; Brandt, 1876; Billia, 2006, 2008, 2010) and the one already mentioned above from the Chondon River valley.

At least four other skulls were recovered in China. Two of them come from Choukoutien (=Zhoukoudjan): the almost complete CKT-20/IVPP V2682 Middle Pleistocene very well-preserved skull provided with all the teeth (Chia & al., 1959; Chow, 1963) as well as the CKT-1/VM 555 damaged juvenile skull (no longer available for a long time) (Chow, 1979). From Anping (Liaoning Province) comes the LA7701 damaged juvenile skull (Xu, 1986) and from Xiniudong (Shennongjia Forest District, Hubei Province) comes the H36 fragmentary juvenile skull (Tong & Wu, 2010).

The remaining eight other skulls come from Europe: those from Daxlanden, Mosbach, Steinheim an der Murr (for their detailed descriptions see in Billia, 2008), and Neumark-Nord (Made v. d., 2010) (Germany); from Spinadesco (Persico & al., 2015; Burkanova & al., 2020) (Italy); from Husnjakovo Brdo at Krapina (Gorjanovič-Kramberger, 1913) (Croatia); from Warsaw (Borsuk-Białynicka & Jakubowski, 1972) and Gorzów Wielkopolski (Stefaniak & al., 2021) (Poland). The vexata quaestio concerning the systematic positions of three of the four German skulls was treated in Billia (2008, 2010).

Skulls apart, *S. kirchbergensis* dental and postcranial material was also collected on Eurasian territory. As far as Asia is concerning, they come

from Russian Federation (Asian area) and China (a fair number of sites each), Kazakhstan (five sites), Azerbaijan (two sites), Tajikistan (two sites).

With regard to Europe, *S. kirchbergensis* remains come from: Russian Federation (European area), England, France, Germany, Italy, Slovenia, Croatia, Hungary, Slovakia, Poland, Romania, Moldova, Ukraine. For understandable reasons of space, it is not possible here to list in detail all the finds attested in Eurasia to date.

A complete, up-to-date list of all *S. kirchbergensis* sites (with detailed descriptions of all remains) can be found in Billia (2011a, 2011b, 2014) and Billia & Zervanová (2014, 2015, 2016, 2022, 2024 [in press]) and other papers all available on the www.rhinoresourcecenter.com site.

At the moment, here we can only state that Russia, Kazakhstan, China (here, the *S. kirchbergensis* remains are relatively abundant, particularly in N-E provinces where the species spread across the Yangtze River [Tong, 2002]), England, France, Germany, Italy, Croatia, Poland, and Romania, can boast the greatest number of sites for each. In the remaining ones, the number of the sites is extremely limited for each country (often, one or two sites only). However, it should be noted that the Russian Federation presents a particular situation. In the time frame 2003-2004, the author carried out a general revision on the whole of the *S. kirchbergensis* material (as well as on other material referred to Pleistocene rhinoceroses that the author himself has accidentally stumbled upon).

At the end of this investigation, it was possible to ascertain that out of a total of twenty-one sites reported in literature that yielded *S. kirchbergensis* remains, only the remains referred to eight of those sites were traced. The material relating to the other thirteen sites was untraceable (unfortunately, it has almost certainly that it was irretrievably lost) (Billia, 2008b). On the other hand – among other material previously attributed to other rhinoceros species – the author found remains that must confidently be attributed to *S. kirchbergensis* (coming from three other Siberian localities). Finally, in Russian museum collections, some other remains attributed to *S. kirchbergensis* – even if discovered on other than Russian territory – were also available.

In this precise context, it is definitely necessary to draw a line taking into consideration in detail only the three *S. kirchbergensis* discoveries that occurred in the Sakha Republic.

Following a strict chronological order, the first find is due to the late Irina A. Dubrovo whom – on this particular occasion – I would like to remember with the deepest respect, infinite esteem and everlasting gratitude. This find dates back to 1951 (Dubrovo 2004, personal communication). Along the left bank of the Vilyuy River (about 63°14'70" N – 120°15'50" E) close to its confluence with the Chebydy River, between the Verkhne-Vilyuysk and Vilyuysk villages, a fourth upper premolar [PIN RAN 750/139] and a second upper molar [PIN RAN 750/140] (both well-preserved teeth) (Fig. 2 – a, b, c, d) were discovered (Dubrovo, 1957).

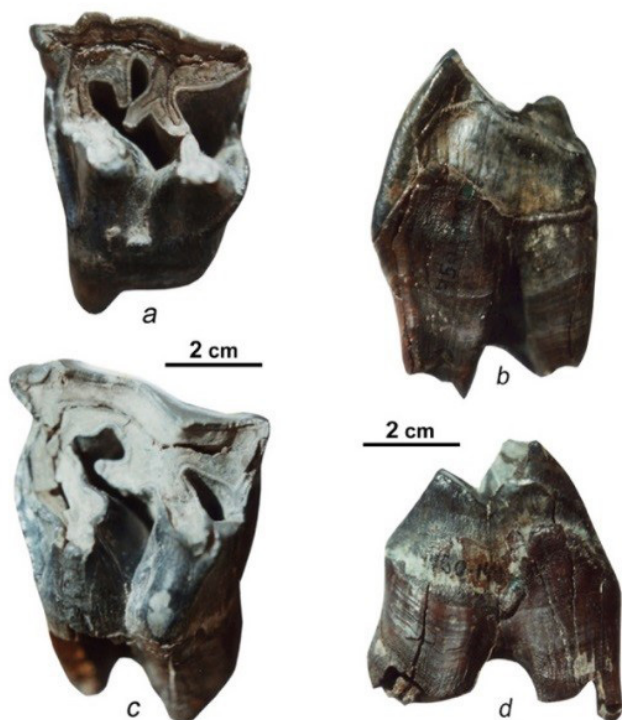


Fig. 2 – *Stephanorhinus kirchbergensis* (Jäger, 1839); Vilyuy River close to its confluence with the Chebydy River between Verkhne-Vilyuysk and Vilyuysk (Sakha Republic); fourth upper premolar [PIN RAN 750/139]: (a) occluso-palatal view, and (b) proximal view – Second upper molar [PIN RAN 750/140]: (c) occluso-palatal view, and (d) distal view

As to the stratigraphy, the same author (Dubrovo 2004, personal communication) suggested the Shaytansky gorizont (W-Siberian stratigraphy = Oksky gorizont; in E-European stratigraphy = Elster; in W-European stratigraphy; MOIS 13). For over 60 years, this find held its latitudinal record firmly.

The two other discoveries are very recent.

In summer 2014, in the Chondon River valley (Yano-Indigirka area) (70°12' N – 137° E) the second *S. kirchbergensis* Siberian skull (F-4160) was found. ¹⁴C dates and geological evidence indicate that the skull dates between 70±48 ka BP (MOIS 4-3) (Kirillova & al., 2017).

Finally, Shpansky & Boeskorov (2018) exhumed a rhinoceros lower jaw (IGABM-400) found by V.F. Goncharov in 1964 and coming from Mus Khaya (70°43' N – 135°25' E), a locality on the lower course of the Yana River. This jaw was previously designated as a paratype of *Coelodonta jacuticus* Rusanov, 1968.

According to both the above mentioned authors, the lower jaw must be attributed to *S. kirchbergensis*. This means that this last *S. kirchbergensis* find in Sakha Republic takes the latitudinal record away from the two other previous finds. The hypothetical dating by both authors: “lower half of the Middle Pleistocene”.

In any case, coming from latitudes between 63° and 70°, the fossil remains from the Vilyuy River, the Chondon River, and Mus Khaya represent the *S. kirchbergensis* northernmost finds on the entire Eurasian territory.

As a conclusion of this brief excursus, we can state that – as yet – *S. kirchbergensis* appears to be relatively few recorded on the vast Eurasian landmass. Moreover, both cranial and postcranial remains are unfortunately very few, often not well-preserved and almost never provided with reliable chronostratigraphic data. Not only – at least at present – the *S. kirchbergensis* material described in literature and assigned to this taxon is only partly available in Eurasian museum collections.

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