NYMPHAEA Folia naturae Bihariae	67-88	Oradea, 2023
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List of sirenian fossils housed in the "Bethlen Gábor" College in Aiud, Romania

László VERESS^{1,3}, Vlad A. CODREA^{1,2,3,4}

^{1"}Babeș-Bolyai" University, STAR Institute, Faculty of Biology and Geology, Paleotheriology and Quaternary Geology Laboratory, 1 Kogălniceanu Str., Cluj-Napoca, Romania

²Mureș County Museum, Department of Natural Sciences, 24 Horea Str., Târgu Mureș, Romania

³Țării Crișurilor Museum, Department of Natural History, 1/A Armatei Române Str., Oradea, Romania

⁴Speleological Institute "Emil Racoviță",5 Aleea Borsec Str., Cluj-Napoca, Romania

Abstract. A museum collection represents an assemblage of cultural and natural goods which can be accessible for both the wider public as well as researchers. The sources which represent the origins of the objects that make up a collection can originate from donations, acquisitions or discoveries resulting from systematic studies in the field. The discovery of a new collection which resides in a museum's depository represents a momentous occasion. The Fuchs Herman Collection, while of a smaller size, contains several sirenian fossil remains discovered in areas inside and around Cluj-Napoca by the

respective paleontologist, a former teacher at the "Babeş-Bolyai" University. The collection itself is of great importance, because it is a part of the "Bethlen Gábor" College school museum's patrimony, from Aiud. To this extent, the collection can help in ensuring the use of new, alternative teaching methods, the consolidation of knowledge and offers the possibility for the development of the students' desire to learn. The sirenians from this collection are documented by fragmentary ribs and vertebrae, therefore an assignation from systematic viewpoint below the order level is not possible. The target of this paper is the inventory of the sirenian fossils from the Fuchs Herman Collection, thereby contributing to the development of the scholar museum.

Key words: Paleogene, paleontological collection, "Bethlen Gábor" College Aiud, Sirenia, museum, Romania.

Introduction

The museum collection means, according to the law of museums and public collections from Romania, 'the assemblage of cultural and natural goods, constituted systematically and coherently by physical entities and legal entities under public or private law' (Law nr. 311). The sources from which these objects originate can be donations, acquisitions or discoveries resulting from field research. Their evidence is performed with the help of the Registry for the analytical evidence of cultural goods (Methodological Norms, 2000). Researchers' consultation of these registries is a difficult procedure, almost impossible in the case of museums which house dozens upon thousands of objects. While in the European countries there is a permanent preoccupation to facilitate access for the public, as well as researchers in the digital culture, in Romania however such a national systematic program for digitalizing of the museum patronage does not exist yet (Collection management).

In the XVII century Comenius (Jan Amos Komenský, 1592-1670) has shown in his work '*Orbis Sensualium Pictus*' the didactic importance of a space for collecting in schools, named 'museum', so that students can obtain knowledge, not just from books (Nagrineac, 2019). Later John Dewey (1854-1952) underlined

the importance of the existence of a museum in each school, in which along with a library, a laboratory and the workshops the students will be prepared for their futures (Koltai 2012, Veress & Codrea 2021).



Figure 1. The "Bethlen Gábor" College in Aiud, Romania. Source: https://reformatus.ro/iskolak/nagyenyedi-kollegium

Recognizing such aspects, the discovery of a new collection in the museums' storages is a particular event. Herein, we present the Fuchs Collection, which belongs to the Bethlen Gábor College's scholar museum from Aiud (Romania), which we have discovered by chance, thanks to an article from a newspaper and which we were able to inventory (Kerekes 2022).

The Aiud Museum of Natural Sciences

It is the oldest museum of natural sciences opened for the public in Romania. It subordinates to the Aiud town hall, and it is located in the same building with the "Bethlen Gábor" College (Fig. 1) since 1622. The oldest evidence for a fossil and mineral collection can be found in the manuscript of 'Catalogus Raritatum et Benefactorum', courtesy of professor Benkő Ferenc and Nagy László

(Veress & Codrea, 2021). Also, from this source we find the year in which the museum was officially founded, namely 1796, by the name of 'Raritarum et Rerum Naturalium Museum' (Codrea & Morărescu 2008). Throughout its long history, the museum's collections, aside from the scientific contributions, have offered support not only to the didactic activities of the College's students, but also to the activities of the geology students of the "Babeş-Bolyai" University, who have paid many scientific visits there (Veress & Codrea 2021).





Figure 2. The Small Museum at the "Bethlen Gábor" College in Aiud, Romania. Photo by Veress László.

Among the most important contributors to the establishment and development of the museum's collection, we mention (aside from Benkő Ferenc and Nagy László) Herepei Károly and Zeyk Miklós, who have assured the development of the museum through their efforts, including donations of personal collections (Codrea & Mărgineanu 2007). After the passing over of the museum to the suborder of the Aiud town hall, a few of the "Bethlen Gábor" College's professors have initiated the establishment of the so-called 'Small Museum' (Fig. 2). These professors are: Józsa Miklós, a professor of Hungarian literature and speech, Kónya Mária and Krizbai Jenő, professors of history, and Dvorácsek Ágoston, a professor of biology. With the support of the then-director of the college, Simon János, they were able to organize a small museum in the college's boarding house building (Fig. 2), as an exhibition of a few objects of unique value which are in the possession of the College: documents and photographs, instruments and old devices, as well as a small collection of minerals and fossils. In the year 2006 the College received a rich donation, which is the collection of the late paleontologist and university lecturer, Fuchs Hermann (1915-1996) (Bakó 2006, Kerekes 2022). This is made up of fossils discovered in the areas around Cluj-Napoca (Leghia, Jebuc, Mera, Cheile Baciului, Somes-dig). First, professor Dvorácsek, professor Wanek Ferenc and the student Karsai Noémi have conducted an inventory of this collection and have also placed some of these fossils in the small museum, as well as write about them briefly in an article for the school's magazine.

Fuchs Hermann (18th of February 1915 – 8th of April 1996)

He was born in Braşov into a numerous and highly religious family. He was orphaned by a father at a young age, which is why he grew up in rough material conditions. He studied at Braşov and at Odorheiul Secuiesc, obtaining his high school diploma at Braşov (Wanek 2001). His passion for Earth sciences began through his grandfather's collection of minerals, who oversaw the mine from Baia

de Arieş, and was prompted by his gymnasium professor, Abrecht József (Ajtai 1993).

He began his university studies at Cluj, at the "Ferdinand I" University (presently "Babeş-Bolyai" University), in 1932. He obtained his graduation diplomas in 1936 at the College of Nature Sciences' geology section, in 1940 at the College of Pedagogics' primarily natural history and secondarily physics-chemistry. In 1941 he graduated from the Unitarian Pedagogic Seminar and in 1942 he received an *absolutorium* in geography at the "Ferenc József" University in Cluj (presently "Babeş-Bolyai" University). Here he began his didactic and research carrier at the geology-paleontology department in 1941, as an assistant of professor Balogh Ernő, remaining almost uninterrupted until his retirement in 1976 (Ajtai 1993, Wanek 2001, 2022). His main preoccupation was the development of the didactic collections for better student teaching.

He published several articles in the magazine of that time, signing towards the end of his life as 'Brassói Fuchs Herman'. His main field of research was vertebrate paleontology, mainly Paleogene sirenians from Transylvania, but he did work in the field of micropaleontology starting from 1955, being the first Transylvanian researcher who adapted biometrics and statistics into the study of foraminifera populations in certain strata (Ajtai 1996).

After his death, his family decided to donate his personal collection, as well as a part of his professional library, to the "Bethlen Gábor" College in Aiud, because he campaigned his entire life for the popularization of paleontology and geology through numerous articles in the press, lectures, and clubs for students (Bakó 2006).

From a geological viewpoint, the fossils were collected by Fuchs himself from classical Upper Eocene and Lower Oligocene outcrops located in the basin of Transylvania, in Cluj-Napoca or in localities from the Cluj District. The deposits the sirenian fossils originated from belong to the Cluj Limestone Formation (Priabonian; Hofmann 1879) and Mera Formation (Rupelian, Merian; Koch 1880, emended by Mészáros et al. 1989). The first one is marine, while the second

illustrates a transition from marine environments to terrestrial ones as transition to the terrestrial Moigrad Formation (Rusu 1970).



Figure 3. Study of the materials Photo by Dvoracsek Ágoston.

Materials and methods

The following section is the inventory and description of each sirenian fossil from the college's collection. Because Fuchs' collection contained five boxes with sirenian fossils, five separate tables were used to inventory the pieces contained in them. In the other boxes there were no sirenian fossils. The inventory of each piece includes: the family to which the fossils belong to, the newly designated inventory number, the location where they were discovered, as well as the age of the location, and lastly the measurements done on each piece; however, certain fossil pieces (e.g., mollusk shells, rock fragments, and bone shards) were not measured. The measurements of a couple of pieces, which were measured in greater detail, were based on the methodologies employed by Zalmout & Gingerich (2012).

The Mera Formation (= Mera Beds) (Box V)

Taxon	New inventory	Fossil	Location/Age/	Measurements
	number		Formation	
Sirenia	BCA-PC ME-1	Bone	Mera, Early Oligocene	
		fragments	(Rupelian, Merian), Mera	-
			Fm.	
Sirenia	BCA-PC ME-2	Rib	Mera, Early Oligocene	Length = 34.04
		fragment	(Rupelian, Merian), Mera	mm
			Fm.	Width = 35.89 mm
Sirenia	BCA-PC ME-3	Humerus	Mera, Early Oligocene	Length = 66.78
		fragment in	(Rupelian, Merian), Mera	mm
		matrix	Fm.	Width = 42.76 mm
Sirenia	BCA-PC ME-4	Rib distal	Mera, Early Oligocene	Length = 34.30
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width =14.53 mm
Sirenia	BCA-PC ME-5	Rib proximal	Mera, Early Oligocene	Length = 70.54
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width = 36.68 mm
Sirenia	BCA-PC ME-6	Rib distal	Mera, Early Oligocene	Length = 34.78
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width = 20.02 mm
Sirenia	BCA-PC ME-7	Rib distal	Mera, Early Oligocene	Length = 66.67
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width = 46.37 mm
Sirenia	BCA-PC ME-8	Rib distal	Mera, Early Oligocene	Length = 60.43
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width = 28.79 mm
Sirenia	BCA-PC ME-9	Rib	Mera, Early Oligocene	
		fragments	(Rupelian, Merian), Mera	-
			Fm.	
Sirenia	BCA-PC ME-10	Bone	Mera, Early Oligocene	
		fragments in	(Rupelian, Merian), Mera	-
		matrix	Fm.	
Sirenia	BCA-PC ME-11	Bone	Mera, Early Oligocene	
		fragments	(Rupelian, Merian), Mera	-
			Fm.	

Sirenia	BCA-PC ME-12	Rib	Mera, Early Oligocene	Length = 126.64
		fragment in	(Rupelian, Merian), Mera	mm
		matrix	Fm.	Width = 30.18 mm
Sirenia	BCA-PC ME-13	Bone	Mera, Early Oligocene	
		fragments in	(Rupelian, Merian), Mera	-
		matrix	Fm.	
Sirenia	BCA-PC ME-14	Rib distal	Mera, Early Oligocene	Length = 46.51
		end	(Rupelian, Merian), Mera	mm
			Fm.	Width = 140.75
				mm

Cheile Baciului, Cluj-Napoca, Cluj Limestone Formation (Box II)

Taxon	New inventory	Fossil	Location/Age/	Measurements
	number		Formation	
Sirenia	BCA-PC BA-1	Rib fragment	Cheile Baciului,	Length = 53.89 mm
			sirenian level, Late	Width = 24.35 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-2	Vertebra	Cheile Baciului,	Length = 59.50 mm
		fragment	sirenian level, Late	Width = 33.68 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-3	Indeterminate	Cheile Baciului,	
		bone fragment	sirenian level, Late	
			Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-4	Rib fragment	Cheile Baciului,	Length (incomplete) =
	(Fig. 5)	(distal end is	sirenian level, Late	350 mm
		missing)	Eocene (Late	Inner arch length
			Priabonian), Cluj	(incomplete) = 393
			Limestone Fm.	mm
				Outer arch length
				(incomplete) = 473
				mm

				Capitulum to tubercle
				length = 52.32 mm
				Neck width = 34.62
				mm
				Maximum
				mediolateral width =
				34.27 mm
				Maximum
				anteroposterior width
				= 45.28 mm
Sirenia	BCA-PC BA-5	Rib distal	Cheile Baciului,	Length = 174 mm
		fragment	sirenian level, Late	Width = 35.34 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-6	Rib fragment	Cheile Baciului,	Length = 87.34 mm
			sirenian level, Late	Width = 30.49 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-7	Vertebra	Cheile Baciului,	Length = 47.96 mm
		fragment	sirenian level, Late	Width = 18.30 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-8	Left scapula	Cheile Baciului,	Length = 92.31 mm
	(Fig. 5)	glenoid	sirenian level, Late	Glenoid process width
			Eocene (Late	= 54.67 mm
			Priabonian), Cluj	Neck width = 40.62
			Limestone Fm.	mm
Sirenia	BCA-PC BA-9	Rib distal end	Cheile Baciului,	Length = 136.05 mm
			sirenian level, Late	Width = 30.09 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-10	Bone fragments	Cheile Baciului,	
			sirenian level, Late	
			Eocene (Late	-

			Priabonian), Cluj	
			Limestone Fm.	
Rocks	BCA-RF BA-1	Rock fragments	Cheile Baciului,	
NOCKS	DOA-NI DA-I	Nock fragments	sirenian level, Late	
			Eocene (Late	
			Priabonian), Cluj	-
			Limestone Fm.	
Sirenia	BCA-PC BA-11	Dib for some and		L a m arth — 200 FO mana
Sirenia	BCA-PC BA-11	Rib fragment	Cheile Baciului,	Length = 26.50 mm
			sirenian level, Late	Width = 40.21 mm
			Eocene (Late	
			Priabonian), Cluj	
0: :	DOA DO DA 40	D'' (Limestone Fm.	L # 55.00
Sirenia	BCA-PC BA-12	Rib fragment	Cheile Baciului,	Length = 55.36 mm
			sirenian level, Late	Width = 21.73 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-13	Vertebra	Cheile Baciului,	Length = 39.03 mm
		fragment	sirenian level, Late	Width = 31.84 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-14	Rib fragment	Cheile Baciului,	Length = 48.88 mm
			sirenian level, Late	Width = 15.61 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-15	Bone fragments	Cheile Baciului,	
			sirenian level, Late	
			Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-16	Rib fragments	Cheile Baciului,	Length = 89.41 mm
			sirenian level, Late	Width = 38.92 mm
			Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BA-17	Bone fragments	Cheile Baciului,	
			sirenian level, Late	
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Eocene (Late Priabonian), Cluj Limestone Fm.	75 mm 93 mm
Limestone Fm. Sirenia BCA-PC BA-18 Bone fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 (Fig. 5) Bone fragment (sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenian BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 91.9 Width = 75.38 Eocene (Late Priabonian), Cluj Limestone Fm.	75 mm 93 mm
Sirenia BCA-PC BA-18 Bone fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (sternum?) Sirenia level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 (Fig. 5) Bone fragment (sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	75 mm 93 mm
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Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (sternum?) Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	75 mm 93 mm
Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (Fig. 5) Cheile Baciului, sirenian level, Late Priabonian), Cluj Limestone Fm. Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 91.9 Width = 75.38 Eocene (Late Priabonian), Cluj Limestone Fm.	75 mm 93 mm
Limestone Fm. Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (sternum?) Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	75 mm 93 mm
Sirenia BCA-PC BA-19 Rib fragments Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	75 mm 93 mm
sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 (Fig. 5) Bone fragment (sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Width = 140.7 Width = 140.7 Width = 91.9 Width = 75.38 Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.8	75 mm 93 mm
Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (Sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	93 mm
Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (Fig. 5) Bone fragment (sternum?) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	
Limestone Fm. Sirenia BCA-PC BA-20 Bone fragment (sternum?) (Fig. 5) Sirenian level, Late Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	
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Eocene (Late Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	3 mm
Priabonian), Cluj Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	
Limestone Fm. Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	
Sirenia BCA-PC BA-21 Rib fragment Cheile Baciului, Length = 69.5	
sirenian level Late Width = 37 04	55 mm
Silonian lovel, Late Width - 07.0-	1 mm
Eocene (Late	
Priabonian), Cluj	
Limestone Fm.	
Sirenia BCA-PC BA-22 Rib fragment Cheile Baciului, Length = 16.5	0 mm
sirenian level, Late Width = 35.74	1 mm
Eocene (Late	
Priabonian), Cluj	
Limestone Fm	
Sirenia BCA-PC BA-23 Bone fragments Cheile Baciului,	
sirenian level, Late	
Eocene (Late -	
Priabonian), Cluj	
Limestone Fm.	
Sirenia BCA-PC BA-24 Bone fragment Cheile Baciului, Length = 260	mm
(proximal?) sirenian level, Late Width = 27.37	7 mm
Eocene (Late	
Priabonian), Cluj	
Limestone Fm.	

Bucium (Țara Chioarului), Maramureș, Cluj Limestone Formation (Box III)

Taxon	New inventory	Fossil	Location/Age/	Measurements
	number		Formation	
Sirenia	BCA-PC	Rib	Bucium (= Gaura),	
	BUGR-1	fragments	Late Eocene	-
			(Priabonian), Cluj	
			Limestone Fm	
Sirenia	BCA-PC BU-1	Rib	Bucium (= Gaura),	Length = 77.27 mm
		fragment	Late Eocene	Width = 18.10 mm
			(Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BU-2	Rib	Bucium (= Gaura),	Length = 22.7 mm
		fragment	Late Eocene	Width = 42.02 mm
			(Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BU-3	Rib distal	Bucium (= Gaura),	Length = 240 mm
		end	Late Eocene	Width = 42.96 mm
			(Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC BU-4	Rib	Bucium (= Gaura),	
		fragments	Late Eocene	-
			(Priabonian), Cluj	
			Limestone Fm.	

Box I (various items)

Taxon	New inventory	Fossil	Location/Age/	Measurements
	number		Formation	
Sirenia	BCA-PC SD-1	Indeterminate	Cluj-Napoca, Someș	
		bone fragment	riverbed, Late	
		in matrix	Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC SD-2	Various	Cluj-Napoca, Someş	
		indeterminate	riverbed, Late	
		bone fragments	Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Bivalvia	BCA-BV BA-1	Progymnodus in	Cheile Baciului, Late	
		matrix	Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-C DO-1	Right	Cluj-Napoca, Donath	Length = 92.91 mm
		squamosal	quarry, Late Eocene	Width = 30.85 mm
			(Late Priabonian),	
			Cluj Limestone Fm.	
Sirenia	BCA-PC-1	Bone fragments	-	-
Sirenia	BCA-PC SD-3	Bone fragments	Cluj-Napoca, Someș	
			riverbed, Late	
			Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC ME-15	Bone fragments	Mera, Early	
			Oligocene (Rupelian,	-
			Merian), Mera Fm.	
Sirenia	BCA-PC SD-4	Rib	Cluj-Napoca, Someş	Length = 334 mm
	(Fig. 5)		riverbed, Late	Inner arch length =
			Eocene (Late	398 mm
			Priabonian), Cluj	Outer arch length =
			Limestone Fm.	36.9 mm

		1		Capitulum to
				Capitulum to
				tubercule length =
				30.36 mm
				Neck width = 30.36
				mm
				Maximum
				mediolateral width =
				21.07 mm
				Maximum
				anteroposterior
				width = 33.63 mm
Bivalvia	BCA-BV BA-2	Progymnodus in		
		matrix	Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC LE-1	Bone fragment	Leghia, Cluj	-
			Limestone Fm.	
Sirenia	BCA-PC SD-5	Bone fragment	Cluj-Napoca, Someș	
			riverbed, Late	
			Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC SD-6	Vertebra	Cluj-Napoca, Someș	
		fragment	riverbed, Late	
			Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC SD-7	Thoracic	Cluj-Napoca, Someş	Centrum-height =
		vertebra in	riverbed, Late	26.39mm
		matrix	Eocene (Late	-length =
			Priabonian), Cluj	22.55 mm
			Limestone Fm.	-width =
				36.69 mm
				Vertebral arch
				(fragmentary) =
				26.43 mm
				Upper vertebral
				surface = 20.49 mm
L	l	I.	l	I

Box VIII (various items)

Taxon/	New inventory	Fossil	Location/Age/	Measurements
Rock	number		Formation	
Rocks	BCA-1	Rock	-	-
		fragments		
Rocks	BCA-2	Coal	Căliman mountains	-
		fragments	coal mine	
Sirenia	BCA-PC BA-	Rib fragment	Cheile Baciului,	
	24		Late Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Rocks	BCA-BV-1	Limestone	Brașov, top of the	-
		pieces	Tâmpa mountain	
Rocks	BCA-3	Flint shards	Warnwmünde,	
			shores of the Baltic	-
			sea	
Rocks	BCA-4	Ichnofossils		
		(worm tunnel)	-	-
	BCA-GP	Tooth cast		
-		model	-	-
		(sirenia?)		
Rocks	BCA-5	Limestone	-	-
		pieces		
Sirenia	BCA-C SD-1	Skull fragment	Cluj-Napoca,	Length = 86.53 mm
	(Fig. 5)	(palate?)	Someş riverbed,	Width = 57.34 mm
			Late Eocene (Late	
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC A-1	Rib fragment	Aghireş, Oligocene	-
Sirenia	BCA-PC ME-	Rib fragment	Mera, Early	
	16	in matrix	Oligocene	-
			(Rupelian, Merian),	
			Mera Fm.	
Sirenia	BCA-PC-2	Bone		
		fragments in	-	-
		matrix		

Sirenia	BCA-PC SD-8	Rib distal end	Cluj-Napoca,	
			Someş riverbed,	
			Late Eocene (Late	-
			Priabonian), Cluj	
			Limestone Fm.	
Sirenia	BCA-PC-3	Rib fragment		
		in matrix +		
		smaller	-	-
		fragments		
Rocks	BCA-6	Limestone	-	-
		with Bivalvia		
Rocks	BCA-7	Limestone		
		with bone	-	-
		fragments		
Sirenia	BCA-PC BU-5	Rib fragment	Bucium (= Gaura),	Length = 35.10 mm
			Late Eocene	Width = 33.44 mm
			(Priabonian), Cluj	
			Limestone Fm.	

Concluding remarks

The school museum represents not just an extension of the educational space for the consolidation of the scholarly materials, but also offers the possibility of developing creativity and independence, as well as the students' desire to know new worlds, socializing and communication. Thanks to the lessons held in the museum, the students can cultivate their initiative spirit, the desire to realize research and to complete museum displays.

The development of the school museum collections should become a priority for the community; however, this is not enough. These collections must be inventoried to serve the education of multiple generations. We think that the great local, regional, and national museums could contribute through their researchers and curators to the organization of the scholar collections, as well as to their development through donations.

An example in this context would be Fuchs Herman himself, who, like many other great professors at universities in Cluj, placed a particular emphasis on the enrichment of scholar collections (Wanek 2001), as well as attracting the youth to the field of paleontology through the founding of the Science Club 'The Debate School' at the ŢBethlen GáborŢ College in Aiud, where he presented to the participants the 'Prehistoric World' (Bakó 2006).

However, the examination of his collection donated to the museum in Aiud leads us to assume that a significant number of Sirenian fossils were not part of this donation, presumably having ended up in other collections. Of course, part of the fossils collected by him appear in the records of the Museum of Paleontology-Stratigraphy at the "Babeş-Bolyai" University, but others are supposed to have ended up in other collections, whose inventory remains unknown to specialists.

For instance, the Paleogene sirenians from Transylvania continue to remain poorly known from the systematic viewpoint, mainly due to the scarceness and fragmentary status of the fossils collected until now. The majority of remains refer to ribs and vertebrae, easy to assign to these marine mammals due their pachyostosis, an adaptation for the longer time spent underwater by the seacows, to facilitate eating the sea grass. Other post cranial bones are by far rarer, and skulls are exceptional finds in Transylvania (Fuchs 1970, Şuraru & Codrea 1988). The Fuchs's collection in Aiud does not break this rule. The largest part of this collection refers mainly to fragmentary ribs and vertebrae. Therefore, our tentative to assign these bones to a systematic level below order was unsuccessful. More complete and diagnostic fossils are needed for such a target.

Today, when technology is more and more developed, pseudoscience permeates through the internet very easily in every house, because the media news tends to superficially persecute scientific information, often wrongly. Future generations will be faced with real challenges when it comes to distinguishing between valuable scientific information and false scientific information.

The human of the future will have to be a very well-informed one, and this is only possible if the desire to learn develops, beginning from the learning time at school.

Acknowledgements

We especially thank prof. Szőcs Ildikó, the school principal of the "Bethlen Gábor" College in Aiud, as well as professor Dvoracsek Ágoston for allowing our access and their support in studying the fossils of the Herman Fuchs Collection. The authors thank two anonymous reviewers for their work that improved this paper.

Funding. This work was supported by a grant from the Ministry of Research, Innovation and Digitization, CNCS - UEFISCDI, project number PN-III-P4-PCE-2021-0351, within PNCDI III. The research of one of as (LV) was supported by a doctoral grant of the Romanian Government trough the Ministry of Education.

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 houses, cultural centers and other high profile units.



Figure 4. Sirenian fossil ribs from the Fuchs Herman Collection: BCA-PC BA-4 (a); BCA-PC SD-4 (b).

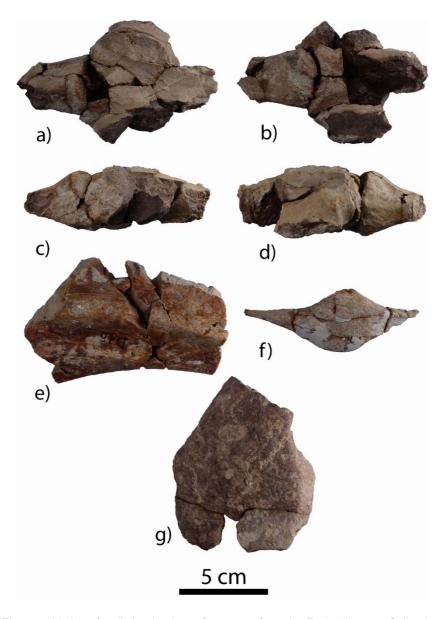


Figure 5. Various fossil sirenian bone fragments from the Fuchs Herman Collection: BCA-C SD-1 (skull fragment (palate?) (a – dorsal view; b – ventral view; c – lateral left view; d – lateral right view); BCA-PC BA-8 (left scapula glenoid) (e); BCA-C DO-1 (right squamosal) (f); BCA-PC BA-20 (sternum(?) fragment) (g).