

# KARST RESEARCH IN THE 19TH CENTURY - KARL DEŽMAN'S (1821-1889) WORK

## O RAZISKAVAH KRASA V 19. STOLETJU - PRISPEVEK KARLA DEŽMANA (1821-1889)

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**Abstract** UDC 551.44(091):929 Dežman K  
*Stanislav Južnič: Karst research in the 19<sup>th</sup> century - Karel Dežman's (1821-1889) work*

Karel Dežman's research of the karst phenomena was examined. Among his works the cave research, description of Proteus, other cave animals and plants were found. A special concern was put on Dežman's sources dealing with Proteus research. As the custodian of the Land Museum of Ljubljana, Dežman promoted the Ljubljanian natural history research of his time. His scientific works are not very well known because he did not follow the political line of the official Slovenian national representatives.

**Key words:** Karel Dežman, karst, caves, Proteus, Carniolan Land Museum.

**Izvleček** UDK 551.44(091):929 Dežman K  
*Stanislav Južnič: O raziskavah krasa v 19. stoletju - prispevek Karla Dežmana (1821-1889)*

Dežmanova raziskovanja krasa so pomembno poglavje zgodovine kranjskega naravoslovja. Med njimi so opisi jam, človeške ribice, druge kraške favne in flore. Posebna pozornost je posvečena Dežmanu in znanim opisom proteusa. Kustos Deželnega muzeja Karel Dežman je bil gonilna sila večine ljubljanskih naravoslovnih raziskav svojega časa. Slabo poznavanje njegovega dela je predvsem posledica njegovega političnega delovanja, ki ga je kmalu odtujilo poklicnim zastopnikom slovenskih narodnostnih prizadevanj.

**Ključne besede:** Karel Dežman, kras, jame, proteus, Kranjski Deželni muzej.

### INTRODUCTION

Although Dežman was the most prominent natural history researcher in Ljubljana of his time, his work is now almost forgotten. Slovenes don't remember him because they consider his political positions at least unfriendly. Germans don't write about Dežman because he was obviously not one of them. But politics should not effect decisively the greatness of Dežman archeological, botanical, or karst research, which we present in this treatise.

Dežman began his popular lecturing in Ljubljana immediately after he left a high school teaching post and became the custodian of Ljubljanian Land Museum in



Fig. 1: Karel Dežman.

1852. He delivered some popular lectures together with the Carinthian German Filip Paushitz (\* May 26, 1824 Nötsch), professor of physics at Ljubljanian high school (Schmidt, 1966, 140-141).

In his very first published Acts of the Museum Society in 1856 the Museum curator, Karl Dežman (Deschmann, \* January 3, 1821 Idrija; † 1889), shortly reviewed natural historical research in Carniola. More or less, it was a kind of biography of six distinguished Carniolan naturalists: Scopoli, Hacquet, Wulfen, Karl Zois, Žiga Zois, and Hladnik (Dežman, 1856, 9; Schmidt, 1963, 148).

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## DEŽMAN ABOUT CAVES

On June 11, 1856 Dežman reported to Museum Society about his research of the cave Skednenca. He described other interesting natural historical samples found between Krim and castle of Mokrice under the Gorjanci hills. The entrance into Skednenca was a difficult one. The broken stones covered the main hall which had two holes, one of them used as the door. In the front face of the cave there was the lower much narrower port facing the south east side with many stalactites. The smaller entrance had star-like cupola place which ends into lower hollow slit of stone wall facing the open space. The cave was dry with some minor water from stalactite dropping into the basins. Dežman did not really like the scorpions, jags and mosquitoes at the cave. Three to four walking hours from the cave Skednenca (today in township of Ig catalogued as No. 353) you could reach Počivavnik near the mountain Osredek (1300 m) in Kamniške Alps. Dežman used to visit the farmer house "Pri Benkotu" on the foot of the Krim Hill. Around Mokrice (Mokrc) many places borrowed their names from the Turkish war times, among them "Krvave Peči" with several interesting botanical species (Dežman, 1862, 95-97).

Dežman frequently visited Kočevje, also as the elected political representative of the area. On April 14, 1858 Dežman showed to the Museum Society the red alumina stone which he recently picked up in Wicherle cave of Kočevje area. He claimed that no stone like that was ever found in any other Carniolan cave. The Vienna student Franc Erjavec (\* 1834; † 1887), who later became pretty famous as a Slovene fiction writer, made a chemical analysis of the Dežman's stone. He found 8.05% of water, 10.74% of iron mine, 18.49% of alumina, 59.03% of flintstone, 2.83% of sand, and 0.83% of other ingredients, also with some traces of lime and magnesia. Museum Society members examined the possible technical and industrial use of Dežman's stone for the fabrication of bricks; therefore they also checked the homogeneity, granulation, and melting-point of the sample. They looked forwards for the more accurate final results, and everybody was curious about the possibility of making available lower price alumina with lower transport costs.

Dežman reported to the Museum Society about geology and flora of Kočevje area. He paid special attention to the formation of karst in Kočevje valleys under the castle Fridrichstein, at the area of Seele (Željne), Grafenfeld (Dolga vas) and Mosel (Mozelj) with many karst funnels called "Dolina" (valley) by domestic people. All area from Mozelj to the hill of Verdreng is covered with hundreds of dolinas. From the elevated points around Poljane (Pölland) you could see the landscape covered with so many holes as the sieve. Dežman compared the area

of holes having regular conic shapes with similar sieves at the middle of Cerknica Lake, like Vodonos or Rešeto. Inner walls of those funnels are very flat, covered with the dense grass. Many karst plants grow there, among them the characteristic *Satureja pygmaea* Sieb. around Mozelj. The system of holes dilled with water is situated under the surface. As Valvasor before him, Dežman was also interested in the wild romantic of Bilpa spring, Veliko and Malo Okno with many creeks between Bilpa and the castle of Kostel above the Kolpa River.

Dežman paid special interest to the Ledena jama (Eis Grotte, Ice Cave) in Kočevski Rog and other caves near Ober-Skrill (Zgorni Škrilj, Zdihovo). Ice caves are the real snow cellars. "After one and a half hour of walking from Kuntscher (Kunčar) Cave you can reach a snow hole in Kočevski Rog. It is the great cave overhang with rectangle stone walls approximately 200 m deep. On the bottom, you could find the ice even during the hottest summers". The charcoal-burners from Kočevski Rog use it as their water supply. Ledena jama in Kočevsko is situated pretty low above the sea level compared with others of its kind. The Kočevje area have the characteristics of Alp regions at the extraordinary low height.

At noon on September 23, 1858 Dežman measured the temperature +1.25°C (1°R) in the cave, while at the shadow around snow hole the thermometer raised even to +21.25°C (17°R). The cave ice was 20 m deep with more than 8 m of circumference. It had the structure similar to the ice in Kuntscher (Kunčar) Cave with more or less regular prismatic crystals of ice. The stone walls were covered with coral-like porcupines *Hydnum coraloides* Scop. and other alpine plant *Cystopteris montana* L., otherwise found only at the heights 1000 m to 1800 m above the sea level.

During the high summer of 1857 the visitors were able to find at Kočevski Rog the representation of all four year seasons: winter ice, flowering spring *Ompholodes verna* Mch. in woods, the summer vapors, and the ripe autumn fruits (Dežman, 1862, 225-228). Later on May 6, 1883 Dežman wrote a long German letter on blue paper about Ledena Jama in Kočevje region.

Most of Dežman's writings about caves remained unpublished and are nowadays kept at the ARS (*Privatae a* archive of Karl Dežman, signature AS854, fascicle 13 "Speleology"). Among others, we could find there drawings of the cave Vihled (Wicherle) near Kolpa. Dežman visited the cave on September 9, 1850. His young friend, the medicine student Franc Serafin Plemel (\* September 30, 1828 Bled; † June 21, 1852 Vienna), draw the picture of the cave for Dežman. Vihled is a cave above the village Bilpa (Wilpen) on the very border between domains of

Kostel and Polland, which were abolished as a remains of the feudal system just before Dežman's visit.

During their tour Dežman and Franc Plemel also visited the Selska (Seler) Cave near Verdreng in the former domain of Kočevje. Plemel did the drawing again on September 23, 1850. He finished the map which he began already two years ago on September 21, 1848, just after the Vienna July revolution that also had some echo at Kočevje. With Dežman's help Plemel expressed an excellent knowledge and skill. Plemel was a son of a farmer Matija. The family was very talented and later gave the very best Slovenian mathematician Josip Plemelj (\* December 11, 1873 Grad on Bled; † May 22, 1967 Ljubljana).

Franc Plemel attended a local normal school between 1836-1840, a Ljubljane high school (1840-1846) and the higher studies of philosophy (1846-1848). He learned physics from Janez Krstnik Kersnik. He attended the Dr. Anton Schubert's († april 21, 1851) lectures on natural philosophy four hours per week. Schubert used the Knor's zoology textbook, and botany and mineralogy textbook of Friederich Mohs (\* 1773; † 1839) from Graz just before Dežman returned to Ljubljana in 1849 after his studies of medicine and a formal degree in law of Vienna University issued in 1849. When Dežman replaced gravely ill Schubert as a supplier on March 16, 1851 Franc Plemel was already studying medicine in Prague and Vienna. Plemel eventually died in Vienna during the fourth year of his studies. Unusually, he did not use Knafelj scholarship for his studies. He made several successful botanical tours and discovered many new plants.

His older brother, biologist Valentin Plemel (\* January 7, 1820 Bled; † June 9, 1875 Koroška Bela), was ordained as the priest in Ljubljana on July 27, 1843. Valentin used Franc's innovations and presented a very good herbarium on Vienna World Exhibition in 1873. Dežman published some of Valentin's works in Acts of the Ljubljanian Museum Society. Alfonz Paulin (\* September 4, 1853 Turniški Castle near Krško; † 1942) later used and further developed the Plemel brothers work.

Dežman visited many other caves in the region, but he left no other pictures of them. Besides Ledena Jama Dežman also wrote a letter about Vrlovka Cave at Kamanje near Ozalj at the road for Karlovac in Croatia on August 19, 1866. Vrlovka was well known hiding cave during Turkish wars and it was opened for tourists in 1928. Dežman also mentioned Vražna cave and finally wrote an undated letter about Postojnska cave on bright blue paper.

He published several Hochstetter's drawings of the Karst locations of their joint archaeology excavations (Dežman, Hochstetter, 1880) without specially pointing to any Karst peculiarities. Dežman's collaborator, the Viennese Professor on Polytechnic Ferdinand Knigt von

Hochstetter (\* April 30, 1829 Esslingen; † July 18, 1888 Vienna), published the research of Križna (Kreuzberg) Jama north of Lož at the next volume of *Memorials of Vienna Academy*. Hochstetter, Dežman, and their friends researched the cave in 1878 and 1879. The northern hall of the cave was called Dežman's hall until the end of Habsburg monarchy, as Dežman was the very first to put his foot in it. The southernmost part was named Hochstetter's Treasury. A skeleton was found 2 km deep in Mogrizer Höhle (Mokriška Jama) and it was carried to the Dežman's Museum of Ljubljana. They made a list of the animal skeleton parts found in Križna Jama. Hochstetter's assistant between 1878 and 1882, later Professor Josef Szombathy (\* June 11, 1853 Vienna; † November 9, 1943 Vienna), drew the coloured map of the Križna Cave in August 1879. He used the proportion 1:1000 and he added several enlarged details of the cave to the next table. Next he draw the map of Mrzla Jama (Merzla, Kalte Grotte, Cold Cave), one of several with that name in Carniola. Fran and Matija Erjavec also participated in the research (Hochstetter, 1881, 294, 295, 302, 310, table II, table III).

Many friends helped Dežman in his cave research. Dežman's documents about caves are kept together with his writings about geography, descriptions of his Triglav climbing, the measurements of the heights in Carniola, hydrology, astronomy with letters and papers from *Lai-bacher Zeitung*, cosmology (with the description of the constellation of Serpents, the book of minister's advisor Marian Koile about the Passage Instrument published in Brno in 1863, the measurements of the telegraph officers in Postojna and Ljubljana, and also in Idrija by a priest Aischolze, Dežman's own description of the travelling Passage Instrument with two beautiful technical drafts at the end), mineralogy, the manuscript copies of the third part of Hacquet's *Oryctographia Carniolica oder physikalische Beschreibung des Herzogthums Krain, Istrien und zum Theil der benachbarten Länder* (1784), geological excursion, seismology, speleology, the agriculture lectures of Ljubljanian professor Hlubek, mineralogy, chemistry, and at the end even some mathematical calculations with triangles and square roots.

Dežman's inventory of the Dol Archive and documents about his purchase of it for Rudolphinum are kept together with his manuscript autobiography, a letter to his friend J. Braun of Kočevje, and Dežman's documents connected with the Central office for Meteorological and Magnetic measurements at Vienna. For several decades he and his sister Serafina measured the Ljubljanian weather conditions for the Vienna Central office (ARS, *Privatae* a archive of Karl Dežman, signature AS854, fascicle 1).

## DEŽMAN ABOUT PROTEUS AND OTHER CAVE ANIMALS

The *Proteus anguinus* was one of the main topics on the regular monthly meetings of the Carniolian Museum Society. Dežman published some of his research of the cave plants and animals in his reports on the monthly meetings of the Museum Society. Most of Dežman's field research took place in Kočevsko, where he also used to win the pools. He became the honor citizen of Kočevje, as he was named earlier in his native Idrija (1861) and Tržič. He found several black *Proteus* in Kočevsko caves. Most of Dežman's writings about zoology, karst and *Proteus* remained unpublished and are nowadays kept in ARS (*Privatae a* archive of Karl Dežman, signature. AS854, fascicles 12 and 13).

On January 14, 1857 Dežman reported to the Museum Society about the so-called hollow rubble from the fossil hills discovered by the Professor Franc Unger (\* November 30, 1800 castle Amthof near Lučane (Leutschach) in Styria; † February 13, 1870 Graz). Unger classified it into the family of algae. Dežman also showed to the audience the example of Laurenti's book, *Synopsis reptilium*, where the very first description of the Carniolian *Proteus* was published.

In his famous book, an Austrian Joseph Nicolas Laurenti (\* December 4, 1735; † February 17, 1805), defined thirty kinds of reptiles and discussed their poisonous functions. Dežman certainly did not purchase the first edition. He used fifty years later reprint, may be from the Erberg's Dol collection which he later bought for *Rudolphinum*.

Dežman also pointed to the Society public the examples of ice diver *Colymbus glacialis* and arctic diver *Colymbus arcticus*. Both were caught in December 1857 in Cerknica Lake (Dežman, 1862, 105).

On February 19, 1858 Dežman reported about *Gordius aquaticus* L. which was found in drinking water in Trebnje. It was several centimeters long and the craftsman Klebel recently brought the sample right to Dežman's Museum. Dežman also showed the samples of black coal which the student Alfons Müllner found in Alps (Dežman, 1862, 220-221). The able young Müllner later eventually replaced Dežman as the Museum curator, but he never became his equal in karstology.

## PRINTINGS ABOUT PROTEUS

Dežman's writings about zoology and botany are kept in separate fascicle in ARS and are of special interest for Slovene karstology. Among the last manuscripts there is a very interesting bundle about *Proteus*. Dežman's wrote sixteen pages of the A4 format letter about *Proteus*. It began with the list of the few tens of recent books and articles about *Proteus* which Dežman came across while reading secondary sources. Among the books in *Rudolphinum* Dežman kept Laurenti's 1818 book that Dežman showed to the Museum Society in Ljubljana, but he did not list it in his manuscript dealing just with recent literature. In the last botanical book of the fascicle the photography on glass is kept wrapped into a black paper following the habit of their time. The Photography is well preserved with just a little damage at one corner. There is no comment about the date of photographing, its contents or use. We can still recognise four bean-like pictures in natural dimensions, two as negatives and other two as positives. That was probably one of the earliest photographs made for the natural history scientific purposes in the area of today's Slovenia.

Dežman listed following books and articles about *Proteus*, with some biographical and bibliographical data added for this research:

- Blainville**, H.M.D. de, 1819: *Dictionnaire des sciences naturelles*. 1-14. Levrault, Strassbourg. Reprint: 1820: *Isis*. 570 (*Tourn. de Phys.* according to Dežman, sine dato, 2r).
- Dele **Chiaje**, Stefano (\* 1794; † 1860), 1840: *Ricerche anatomico biologiche sul Proteo serpentis*. Napoli.
- Configliachi**, Pietro (\* 1779; † 1844), **Rusconi**, Mauro (\* 1776; † 1849), 1818: *Del proteo anguino di Laurenti*. Pavia: Fusi (6 pictures, 119 pages, price 24 fr.). Reprint: 1819: Fusi, Pavia.
- Configliachi**, P., **Rusconi**, M., 1820: *Isis*. 570-590.
- Configliachi**, P., **Rusconi**, M., 1821: Observatons on the Natural History and Structure of the *Proteus Anguinus* (3 pictures). *Edinburgh Phil. Journal*. 4: 398-406; 5: 84-112. A. Constable, Edinburg.
- Configliachi**, P., **Rusconi**, M., 1828: *Sopra un Protes femines*. Pavia.

- Dalton**, John Call, 1853: Some Account of the Proteus Anguinus in Sillimans Amer. Journ. (2) 15: 387-393. Reprint: 1853: *Edinburgh new Phil. Journal*. 55: 332-340.
- Van **Deen**, Isaac (Izaäk, \* 1804; † 1869), 1834: Over de rijdelingsche takken van de zweraende zenum (Neron vagus) van den Proteus anguinus (1 picture). *Tijdsche voor natuurl. Geschied*. 1: 112-129.
- Fitzinger**, Leopold Joseph (\* 1802; † 1884), 1850: Ueber de Proteus anguinus. *Wien. Ber. Mat. Nat.* 5/3: 291-303. – Separate: 1850: Carl Gerolds Sohn, Wien.
- Freyer**, Heinrik (\* 7. 7. 1802 Idrija; † 21. 8. 1866 Ljubljana), 1842: Ueber einen neue art von Hyposhthon (Proteus). (*Wregman, W.F. Erichson*) *Archiv für Naturgeschichte*. 1: 289-290.
- Hyrtl**, Joseph (\* 1811; † 1894), 1850: Bemerkungen über de Proteus anguinus. *Wien. Ber. Mat. Nat.* 5/3: 303.
- Mandl**, Louis (\* 1812; † 1881), 1839: Dimensions des globules sanguines du sang chez le Proteus. *Compt. Rend. Acad. Sc. (Paris)*. 9: 739.
- Mandl**, L., 1839: Dimensions des globules sanguines du sang chez le Proteus. *L'Institut*. 7/310: 427.
- Mandl**, L., 1839: Note sur les globules sanguines du Protée et des Crocodiliens (mit Abbildungen). *Anal. Scienc. natur. Ver. Zool*. 12: 289-291.
- Michacheles**, C., 1829: Proteus Anguinus Aristoteli prorsus igitus suit. *Isis*. 1270-1273.
- Michacheles**, C., 1831: Beiträge zur Naturgeschichte des Proteus. *Isis*. 499-509.
- Oken**, Lorenz (\* 1779; † August 11, 1851 Zürich), 1817: Ueber de Oben (Proteus Anguinus). With Pictures. *Isis*. 641-645.
- Rudolphi**, Karl Asmund (\* 1771; † 1832), 1819: Ueber de Proteus Anguinus. *Isis*. 1017-1019. – Translation: 1819. *Phil. Magaz.* 53: 181-182.
- Rusconi**, M., 1817: *Descrizione anatomiza degli organi della circolazione delle larve delle salamandre aquatiche*. Frisi, Pavia (with 4 tables).
- Rusconi**, M., 1827: *Descrizione di un Proteus femina notabile per lo sviluppo delle parti della generazione*. With Pictures. *Isis*. 94-100. Translation: 1826: *Froriep's Notizien und der Natur und her Kunde*. 16/332: 17-20.
- Rusconi**, M., 1843: Nuove osservazioni sopra il Proteus Anguino di Laurenti. Lettera al Alessandrini. *Nuovo Anal. Delle Scienze nat. Bologna*. 9: 177-179. – Reprint: 1744: *Giornale del Instituto Lombardo e Bibl. Italiana*. 6: 288-290. – Abstract: 1844: *Isis*. 502-503.
- Schmidl**, Adolph von (\* 18, Maj 1802 Königswart in Bohemia; † 20, November 1863 Buda), 1850: Notizen über den von ihm under der Planina-Höhle mitgebrachten und der Classe vorgezeigten Proteen. *Wien. Ber. Mat. Nat.* 5/3: 228-232.
- Von **Schreibers**, Carl (\* 1775; † 1852), 1802: A Historical and Anatomical Description of a Doubtful Amphibious Animal of Germany, Called by Laurenti Proteus Anguinus. Communicated by Sir Joseph Banks (\* 1743; † 1820). *Extract of the Philosophical Transactions*. (2) 91: 241-261.
- Von **Schreibers**, C., 1802: Johan Heinrich Voigt's (\* 27, June 1751 Gotha; † 6, September 1823 Jena) *Magazin für das Neueste Zustand der Naturkunde*. 4: 727-732.
- Von **Schreibers**, C., 1818: *Proteus Anguinus*. J.G. Heubner, Vienna.
- Von **Schreibers**, C., 1820: Sur le Protée. *Isis*. 567-570.
- Von **Schreibers**, C., 1820: Lettre de M. Charles de Schreibers à M. Dumeril (A.M.C. Duméril (\* 1774; † 1860)) sur le Protée et observation de M. Blainville (Henri Marie Ducrotay de Blainville (\* 1777; † 1850)) à ce sujet. *Isis*. 567.
- Von **Schreibers**, C., 1832: *Philosophical Transactions*. Abstracts. 1: 47-49.
- Trevirianus**, Gottfried Heinrich, 1820: De Protei Anguine encephale et organis sensuum die qui sitiones zootomicae. *Com. Soc. Reg. Scient. Götting*. 4: 197-202.
- Valentin**, G., 1837: Bruchstücke aus der seineren anatomien des Proteus anguinus. (*Dessen's*) *Report für Anatom. und Physik*. 1: 282-294.
- Valentin**, G., 1841: Ueber di Samentsierbündl und die afterdrüse des Proteus anguinus. *Report für Anatom. und Physik*. 6: 353-358.
- Viator**, 1837: On the Proteus Anguinus by Viator. *Edward Charlesworth's The Magazine of Natural History*. 1: 625-530. Longman, Orme, Brown Green, and Longmans, London.
- Wagner**, Rudolph (\* 1805; † 1864), 1837: Stud. Notes on Proteus Anguinus. *Proceedings Zool. Society London*. 107-108.

Many Dežman's references were published in Oken's *Isis, oder encyclopädische Zeitung von Oken*. Oken, himself an active researcher of *Proteus*, was born as Lorenz Ockenfuss and studied at the University of Würzburg and Göttingen. He began to publish *Isis* Journal in 1816. He printed it monthly until 1818 and later continued with two volumes per year. The publication ended with Volume 41 during the "time of troubles" of the revolutionary Spring of Nations in 1848.

Oken got the title of adviser after publishing the natural philosophy textbook in 1810. In 1828 he became the private docent in Munich, Professor in 1832, and finally the Professor of natural philosophy at the new University of Zürich in 1833. In 1821 he purposed the organisation of the later famous Meetings of the German Natural

Historians and Physicians, that began with the very first Leipzig gathering in 1822.

Rusconi was the dentist in Pavia (Dežman, sine dato, 4<sup>r</sup>) and he performed detailed anatomical research of *Proteus* probably under the influence of Janez Anton Scopoli. Scopoli taught at the University of Pavia between 1777 and his death in 1788 when Rusconi was still a teenager.

Schmidl's research of caves all over the monarchy and especially at Planinska Jama (Planina-Höhle) earned him a funny nickname "Höhlen Schmidl". Fitzinger, Hyrtl, and Schmidl participated at the debate about *Proteus* in Vienna Academy held on October 3 and October 31, 1850, and published in *Wien.Ber.* (5/3: 228-231, 291-303) later in the same year. Several other important scientist also took part in 1850 academic Vienna polemics about *Proteus*. Wilhelm Karl Knight Haidinger (\* February 5, 1795 Vienna; † March 19, 1871 Dornbach), the director of the State Geological Bureau and section mine adviser, researched the *Proteus* habitus in Idrija very deep under the surface with the help of the mine commander, Rudolf. (*Wien.Ber.* 5/3: 229). The correspondent member of the Vienna Academy and the Academy general secretary Ettingshausen's close friend, Freyer, draw the map of *Proteus* habitus in Carniola. The samples from Magdalena's cave were sold for 2 fl up to 5 fl at that time. With the same money you could buy 6 to 15 kg of beef in Ljubljana at that time (Melik, 1981, 31). The wealthy put the *Proteus* in the glass bottles and showed them in their saloons like they used to show the goldfishes. 12 samples of *Proteus* were exported from Ljubljana to England (*Wien.Ber.* 5/3: 296).

In Planina Mali Grad (*Kleinhäusler*) near the ruins of the castle they found new samples of *Proteus*. Curator-Adjunct Fitzinger reported about the well known *Proteus* researcher of Celovec (Klagenfurt), the general vicar, Count Sigmund Hohenwart (\* June 7, 1745 Celje; † 1825 Linz). Sigmund studied with Ljubljane Jesuits, Janez Jožef Lucius Erberg (\* February 11, 1712 Ljubljana; SJ October 18, 1732 Vienna; † June 29, 1787 Dol), and Franc Ksaver Wulfen (\* 1728 Beograd; SJ October 14, 1745; † March 17, 1805 Celovec). During the school years they made natural history researches around Ljubljana, and during holidays they visited Alps. Sigmund lived in Carinthia until 1809 as a Wulfen's close friend. In 1792 and 1812 Count Sigmund published his natural historical researches of Carinthia. In 1809 he became the Archbishop at Linz. His collections of animals, plants, and minerals were later given to Joanneum of Graz (Dežman, 1856, 9; SBL, 1: 335-336).

Fitzinger mentioned that Schreiner got his *Proteus* from Žiga Zois in 1807. Löwengreif researched *Proteus* in Magdalena's cave in 1797 and 1808. Sigismund's relative, Count Franc Jožef Hanibal Hohenwart (\* May 24, 1771 Ljubljana; † 1844 Kolovec), was recognized as the best Carniolian researcher. He studied *Proteus* in 1825 at the creek near Lož (Laas). He made many tours to Alps, and headed the Carniola Land Museum as the president of the Museum curators and the president of the Carniola Agricultural Society between 1827 and 1834.

Fitzinger was also interested at the *Proteus* research outside Carniola. Dr. Zohar of Zadar and the Professor Carrara of Split found Dalmatian *Proteus* samples (*Wien.Ber.* 5/3: 296).

## PROTEUS DRAWINGS

Dežman actually copied parts of Rusconi 1817 and 1827 Italian publication with his drawings included. Dežman sketched the Rusconi's *Proteus* with pencil in a somewhat curved form (ARS, *Privatae* a archive of Karl Dežman, signature AS854, fascicle 12, sine dato, 4r). He showed all *Proteus*' inner organs from Rusconi's studies (1817, 1827). On the left margin Dežman separately drew some organs of *Proteus* and discussed their particularities (Dežman, sine dato, 3r). With that in mind, we claim that Dežman was quite an expert for *Proteus* in Carniola of his time.

Dežman drew the details with the letters a-l indicating the important parts of the picture. He used Italian language with excellent skill. Besides figure 1 of female Rusconi's *Proteus* Dežman also discussed figure 2, which he did not reproduce (Dežman, sine dato, 4r, 4v). Dežman

described Rusconi's opinion against the amphibian nature of *Proteus* (Dežman, sine dato, 4r).

Dežman's copying was one of his very useful habits. He also copied part of Hacquet's *Oryctographia* (ARS, *Privatae* a archive of Karl Dežman, signature AS854, fascicle 13) and German translation of Hallerstein's Latin letters (ARS, 730, Gospostvo Dol, fasc. 194: 810-850). Some of the originals which Dežman copied are now considered pretty rare. Dežman also copied parts of Blanville 1819 publication in French language (Dežman, sine dato, 2<sup>r</sup>). Dežman cited Blanville, Cuvier (1801), and Humbolt's critiques of Laurenti's *Proteus* research (Dežman, sine dato, 2<sup>r</sup>, 3<sup>v</sup>, 4<sup>r</sup>). Dežman mentioned Rudolphi's letter to *Isis*, Scopoli's work, and Kitaibel's letter about Lika in Strelovachka Pojana below Badany Alps and Velika

Stirovachka below Berdo (Hill) Vissesruga (Dežman, sine dato, 2<sup>v</sup>). Hungarian Pál Kitaibel (\* February 3, 1757 Nagymarton; † December 13, 1817 Pest) was one of the

best chemistry and botanic student of Jacobus Winterl (\* 1739 Eisenerz; † 1809) in Hungarian capital.

## CONCLUSION

Dežman was the best versed and the most influential Ljubljanian natural historian of his time. The karst and cave research are just some aspects of his works, many of them published with the Vienna Academy of Science. Dežman's work show that domestic Ljubljanian researchers of the caves and *Proteus* were well informed and able to perform some first rate work of their own.

It's a pity that Dežman's work was simply forgotten for political reasons. Our publication is just one of the key-stones needed for his scientific rehabilitation, to end the sorrowful neglect of his scientific achievements.

## ACKNOWLEDGEMENTS

We thank Tanja Žigon and dr. Janez Šumrada for useful suggestions, and Mellon grant of the University of Oklahoma for financial support of this research.

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ARS – Archive of the Republic of Slovenia

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## POVZETEK

Muzejski kustos Dežman je leta 1855 oživil Kranjsko muzejsko društvo in v njem dajal pomembno spodbudo ljubljanskim naravoslovnim raziskovanjem. V tem prispevku prvič v slovenskem zgodovinopisju podrobneje opisujemo Dežmanova raziskovanja kraških jam, flore in favne, kot jih je objavljajal v poročilih z mesečnih predavanj in sestankov Društva. Ob tem smo si ogledali še Dežmanove skice jam in *proteusa* v njegovi zasebni rokopisni zapuščini shranjeni pri Arhivu Republike Slovenije. Poleg skic smo našli še številna pisma o kranjskih jamah, popis Dežmanu dosegljive literature o človeški ribici in Dežmanovo natančno analizo fizioloških posebnosti *proteusa*, povzeto oziroma kar prepisano iz Rusconijevih raziskav. Preučili smo Dežmanov popis najnovejših, predvsem domačih, italijanskih in britanskih objav o *pro-*

*teusu*. Tako z uporabo objavljenih del in rokopisov prvič podrobneje predstavljamo Dežmanovo bogato znanje, ki je segalo celo do matematičnih in astronomskih ved.

Popisali smo dela, ki jih je Karl Dežman objavil ali pa le napisal o krasu in o sorodnih vedah v Ljubljani ter v pomembnih dunajskih akademskih publikacijah. S svojim delom je razširil sloves svojih in z njimi kranjskih znanstvenih dosežkov po celi Evropi. Slabo poznavanje Dežmanovega dela pojasnimo z njegovim političnim delovanjem, ki ga je kmalu odtujilo poklicnim zastopnikom slovenskih narodnostnih prizadevanj; nerodna politična stališča so ga oddaljila od tedanjih in poznejših voditeljev slovenskega naroda. Žal je zato doma kot naravoslovec slejkoprej ostal neznan: *Nemo propheta in Patria*.



