https://doi.org/10.15826/vopr_onom.2025.22.1.009 UDC 521 + 523.44 + 811.161.1'373.22:524.3 + 81'373.23 + 81'373.21 + 811.161.1'373.46

Jan Holeš

PhD, Associate Professor, Department of Romance Studies, University of Ostrava (Reální 5, 701 03 Ostrava, Czech Republic) E-mail: jan.holes@osu.cz https://orcid.org/0000-0003-2270-2073

People Love to Name Things: Current Trends in Naming Minor Planets

Abstract

After several introductory remarks regarding the onomastic terminology used for names of celestial objects, the article proposes a semantic and a limited formal analysis of the minor planet names officially published in 2022 by the International Astronomical Union in its sixteen Working Group Small Bodies Nomenclature Bulletins, Besides the technical data on the newly discovered minor planets, these bulletins contain short motivations of minor planet names. The paper further describes the minor planet nomenclature and the rules governing their naming. This nomenclature has a clearly defined set of rules, and besides the names, there exist two other parallel ways to designate minor planets: provisional designation and number. Out of the total 648 minor planet names, an overwhelming majority (585 names, 90%) are based on anthroponyms, with three roughly identifiable subgroups of names commemorating (a) scientists, (b) "celebrities", mostly artists and athletes, and (c) the discoverers' relatives and friends. Within the first subgroup (scientists), the most important are the names honouring people involved in astronomical research. Only a minor part of the corpus is based on chrematonyms (32 names, 5%), mostly referring to educational institutions, scientific associations, names of observatories and other institutions, and toponyms (28 names, 4%), usually honouring settlements important for the discoverer or for the astronomy itself. Other types of motivations occur exceptionally, and in all such cases, minor planets names are based on common nouns.

Keywords

astronomical nomenclature; minor planets; astronyms; anthroponyms; toponyms; chrematonyms; transonymisation; onomastic terminology

For citation

Holeš, J. (2025). People Love to Name Things: Current Trends in Naming Minor Planets. *Voprosy* onomastiki, 22(1), 220–235. https://doi.org/10.15826/vopr_onom.2025.22.1.009

Received on 16 December 2023 Accepted on 30 May 2024

Ян Холеш

PhD, доцент кафедры романской филологии, Остравский университет (Reální 5, 701 03 Ostrava, Czech Republic) E-mail: jan.holes@osu.cz https://orcid.org/0000-0003-2270-2073

Современные тенденции в именовании малых планет

Аннотация

После нескольких вводных замечаний относительно ономастической терминологии, используемой для именования астрономических объектов, в статье предлагается семантический и формальный анализ названий малых планет, официально опубликованных в 2022 г. в 16 бюллетенях Рабочей группы по номенклатуре малых небесных тел Международного астрономического союза. Помимо технических данных о недавно открытых малых планетах, эти бюллетени содержат краткие мотивировки названий малых планет. В статье описывается номенклатура малых планет и правила, регулирующие их именование. Анализируемая номенклатура имеет четко определенный набор правил, предусматривающий, кроме основных названий, два параллельных способа идентификации именуемых объектов: предварительное обозначение и номер. Из 648 рассматриваемых названий малых планет подавляющее большинство (585 названий, 90 %) — отантропонимные, при этом четко выделяются три подгруппы именований, мотивированных именами: a) ученых, б) «знаменитостей» (в основном деятелей искусства и спортсменов), в) родственников и друзей первооткрывателей. В первой подгруппе наиболее значимы названия, образованные от имен людей, занимающихся астрономическими исследованиями. Только незначительная часть корпуса мотивирована хрематонимами (32 имени, 5 %) — в основном это названия образовательных учреждений, научных ассоциаций, обсерваторий и других учреждений; и топонимами (28 имен, 4 %): обычно это названия населенных пунктов, важных для первооткрывателя или для астрономии вообще. Другие типы мотиваций встречаются исключительно редко — во всех таких случаях названия малых планет мотивированы нарицательными существительными.

Ключевые слова

астрономическая номенклатура; малые планеты; астронимы; антропонимы; топонимы; хрематонимы; трансонимизация; ономастическая терминология

Для цитирования

Holeš J. People Love to Name Things: Current Trends in Naming Minor Planets // Вопросы ономастики. 2025. Т. 22, № 1. С. 220–235. https://doi.org/10.15826/vopr onom.2025.22.1.009

Рукопись поступила в редакцию 16.12.2023 Рукопись принята к печати 30.05.2024

1. Introduction

The 5th edition of Lutz D. Schmadel's reference work Dictionary of Minor Planet Names opens with a simple statement that people love to name things [Marsden 2009: vi]. Even if the name has usually minor importance as compared to the real features of an object, people tend to put a strong emphasis on it. The naming of most astronomical objects has lost some of its significance nowadays when millions of them are known, but some, such as minor planets, continue to be discovered and thus named. Astronomy is one of the oldest sciences, with roots in ancient Egypt, Greece, Mesopotamia, China, and Central America, and it is interesting to observe the layers of Greek, Latin, and Arabic preserved in its nomenclature [Lepage 1989]. At the same time, it is currently one of the most developing disciplines, due to the evolving knowledge of physics and chemistry, and the technological progress associated with the construction of new telescopes and space exploration. As such, astronomical terminology, including its nomenclature, requires constant neological efforts to name newly discovered phenomena and newly identified objects. The latter necessitates an organized terminological intervention, as such objects have to be designated unambiguously throughout the world.

Cabré [1998: 194] remarks that scientists and, at the beginning of the 20th century, technicians "felt it was necessary to regularize terminology in their respective areas". This period coincides with foundation of the International Astronomical Union (hereinafter, the IAU) in 1919 having a mission to "promote and safeguard the science of astronomy in all its aspects" [IAU 2023a]. The standardization itself may be carried out on the national level and often becomes part of the official language management, or it may be conducted on the international level by specialized organizations (e.g. the IAU).

Nomenclatures are considered parts of the broader terminologies by Kocourek [1982: 78], who declares that "[f]or us and for most terminologists, terminology in the broad sense includes both terminology in the narrow sense and the nomenclature"¹ and in such a case, its items could be handled just as any other term. However, some nomenclatures are constituted of proper names and some terminologists deny their terminological nature, as Rey [1979: 28], who states that "[f]or us, a nomenclature of proper names is not a terminology". The truth is that many rules governing nomenclatures in general, as summed up by Sager [1990: 94], apply to any type of nomenclature, whether they are composed of common nouns or proper names, including those of astronomical small bodies.

As for the terms designating celestial objects, the use is not stable. Some authors, such as Šrámek [1999: 164], classify their names as a group of geonyms

¹Hereinafter translated from French by the author. -J. H.

and refer to them as *cosmonyms* or *astronyms*. In the onomastic literature, we encounter both terms used for identical objects [cf. Jakus-Borkowa 2006; Avilin 2008]. However, the synonymic use of both terms does not seem appropriate, as Tabakovičová [2016] remarks in connection to their etymology (*kosmos* 'universe', *aster* 'star'). She details various attempts to distinguish between *astronyms* as the names of astronomical objects, and *cosmonyms* as the names of their surface features. For minor planet names, Vondráček [1999] uses *asteroidonym*, based on a term used to designate minor planets, but a terminological objection may be raised: asteroids are not 'stars' and the term may be confusing. Waniakowa [2021: 82–83] refuses the term *asteroidonym* and suggests *planetoidonym* instead.

Astronomical nomenclature ranks among the less explored topics in the linguistic literature. However, see Lepage [1989] for its diachronic analysis and Humbley [2018] for some general remarks. Alexander [2016] and Jakus-Borkowa [2004: 82–84] provide basic information on minor planet naming and the latter [Jakus-Borkowa 2006; 2007] also deals with folk names of astronomical objects and astronomical chrematonyms. Vondráček [1999] provides an analysis of the Czech names of minor planets. Interesting statistics and descriptions can also be drawn from astronomical resources such as [Schmadel 2009; NASA 2023; IAU 2023b; and Kleť Observatory 2023].

2. Minor planet naming

NASA understands *minor planet* as a general term for small bodies in our solar system not classified as comets [NASA 2023]. According to the IAU, new names of minor planets used to be considered official after their publication in the *Minor Planet Circulars*, which were published once a month by the Minor Planet Center (MPC) of the IAU. Since 2021, IAU's Working Group Small Bodies Nomenclature (hereinafter, WGSBN) has become responsible for assigning names to minor planets and comets [IAU 2023b]. The names are now published in *WGSBN Bulletins* which are available online on the WGSBN site (13 volumes in 2021, 16 volumes in 2022, and 17 volumes in 2023).

As Schmadel [2009: 2–3] explains, the minor planets were usually given a name taken from Greek mythology (*Ceres*, discovered in 1801, being the oldest discovered minor planet, followed by *Pallas*, *Juno*, *Vesta*, *Astraea*, etc.). With increasing numbers of celestial bodies found, astronomers started to use symbols and ordinal numbers. However, the accelerating rate of discoveries required new solutions.

Naming a minor planet is nowadays a relatively complex procedure, introduced in the 1920s. The process is explained by Schmadel [2009] as follows. Immediately after the discovery, the minor planet is assigned a provisional designation. This is

composed of the year of discovery plus a code comprising two capital letters and a digit. The first letter indicates the period of the year (A indicates the interval January 1-15, B indicates January 16-31, etc.; letters I and Z are not used) and the second letter indicates the order of the discovery within the half-month (letters A-Z are used, but I is omitted again). If there are more than 25 discoveries within a half-month (which is now the rule), the alphabet for the second letter starts running anew and the letter will be followed by an index number (i.e. the 26th minor planet in the first half of January 1925 would be designated as 1925 AA1 and the 27th minor planet would be assigned the code 1925 AB₁, etc.) [Schmadel 2009: 4–5]. As soon as additional data on the minor planet are obtained, the object obtains a number from the MPC and it becomes uniquely identifiable by its provisional code and its number. Sometimes, it is also given a name. Unnamed minor planets are identified with the number (in parentheses) and the provisional designation. Named minor planets are identified with the number (in parentheses, as we use them in this article, or without them) and its name. For instance, a minor planet discovered by the observatory of the Astronomical Institute of the Czech Academy of Sciences in Ondřejov on the night of 28/29 September 2000 was assigned the provisional designation 2000 SD_{163} , and it was subsequently named (93256) Stach after Daniel Stach, a Czech journalist covering science. Its name became official after its publication in the MPC Circular no. 110618 published by the IAU on 29 May 2018 [Astronomical Institute... 2023].²

Vondráček [1999: 137] points out that at least in some cases, the names are not haphazard, and a contiguity between the provisional designation and the minor planet name can be found. For instance, *1980 RD*₁ was named *Dahl* after Roald Dahl, the British author of children's books, and (9007) James Bond was named in reference to its number. Sometimes, the relation is extralinguistic, as Schmadel [2009: vii] explains via examples such as (2731) Cucula discovered by Paul Wild in May, the month when cuckoos were heard near his observatory, or (6765) *Fibonacci*, containing the Fibonacci sequence. However, such relations were not found in our corpus and their occurrence is probably very low.

Most minor planets will never receive a name: out of the 1.3 million known minor planets, only 24,466 were named as of November 2023 [IAU 2023b]. If the discoverer wishes to name a minor planet, they must submit a proposed name to the IAU through its WGSBN.³ In this way, some minor planets may

²In order to give a clearer idea of the discovery rate, during the first 15 days of November 2023, 215 new minor planets were discovered, out of a total of 17,075 minor planets discovered in 2023, making 1,305,669 total discovered minor planets to date [MPC 2023].

³The body, presided by Jana Tichá (Czech Republic), is composed of 15 members, 11 of whom are voting members. In light of the increasing numbers of names, the WGSBN requests "individual discoverers and teams to propose no more than two names every two months" [IAU 2023b].

be finally designated by three identifiers: a number, a provisional designation, and a name. In 2021, the WGSBN adopted a set of guidelines out of which we quote some:

• "Discoverers of small bodies <...> have the privilege of proposing a name for ten years after an object is numbered. <...>

- Names become official when they are published in the WGSBN Bulletin.
- Names are limited to a maximum length of 16 characters.
- Names must be in the modern Latin script.

• Names as proposed must contain any diacritical marks and other extensions to the Latin script that are present in the source name. <...>

- Names proposed by discoverers cannot contain their own surname.
- Discoverers may propose names of close relatives <...>.
- Names of pet animals are discouraged.⁴ Names cannot contain numbers. <...>
- Generic words, such as *university*, are strongly discouraged in names" [IAU 2021: 6–7].

The proposal to name a minor planet is submitted to the WGSBN. It should contain a "citation" explaining the motivation of the name. Its form and contents are governed by the WGSBN guidelines [IAU 2021: 7–8]: they are limited to 360 characters and must be written in English. In addition, citations for persons should include their birth year (and death year, if appropriate) (examples 1–9, 11, 13–16). Some citations are very brief and consist of a single sentence (13, 14). Names of commercial entities and "support/criticism of a country, its leaders or political institutions" should be avoided, as well as "blatant self-promotion of the discoverer" [Ibid.: 7]. Errata of names and citations are published in each volume of the *WGSBN Bulletin* correcting typing and minor errors, which are, however, not intended to reflect changes in the contents of the citations. In addition, members of the WGSBN expressly waive the responsibility to check every statement contained in citations [Ibid.: 8].

3. Recent minor planets names

Our corpus of the minor planet names given in 2022, comprising 648 names published in the sixteen *WGSBN Bulletins* [WGSBN 2022], represents a sample of names in no way deviating from the preceding and the following years. It enables a description of the main trends in naming minor planets.

⁴They have been discouraged since 1971, when James B. Gibson named a new minor planet *Mr Spock* after his pet cat, which bore the name of a character from the Star Trek series.

3.1. Anthroponyms

The names based on anthroponyms represent an overwhelming majority in the 2022 sample, containing in total 585 (90%) names based on names of persons.⁵ Semantically, they form three distinct groups, out of which the first, by far the most numerous (482 names out of the 585 names based on anthroponyms), includes names based on names of prominent researchers and scientists (1–6), among which names of Nobel Prize laureates form a popular source (5). Several subgroups are clearly observable within this category, in particular the names of people associated with astronomical research in a very broad sense, such as professional and amateur astronomers, observers, telescope constructors, engineers, observatory staff, members of professional associations, astronauts, etc. (245 names) (1–4), the names of teachers mentoring finalists in the *2018 Broadcom MASTERS*, a math and science competition for middle-schools, and students participating in science competitions, such as the *2018 Intel International Science and Engineering Fair* (7). There are 147 minor planet names honouring those bright students and their teachers published in Volumes 11–16 of the *WGSBN Bulletin*.

(1) (10096) Colleenohare = 1991 RK₅ / Colleen O'Hare (b. 1955) is an active member of the Royal Astronomical Society of Canada, Okanagan Centre, who won the 2012 Qilak Award for her outreach efforts and the RASC Service Award in 2018 for her leadership, which included a term as club President as well as committee service. She led the development of the club observatory's Sky Theatre.⁶

(2) (11575) Claudio = 1994 BN_4 / Claudio Deponte (b. 1960) is an Italian amateur astronomer who for many years held the position of secretary of the Circolo Culturale Astronomico di Farra d'Isonzo.

(3) (8486) Asherschel = 1989 QV / Alexander Stewart Herschel (1836–1907) was professor of natural philosophy at the Universities of Glasgow and Durham. His extensive observations and compilations of meteor radiants and their relationship to comet orbits led to significant advances in the subject. He also made visual spectroscopic observations of meteors.

(4) (541618) Magyaribéla = 2011 UY₁₂₅ / Béla Magyari (1949–2018) was a Hungarian pilot, aeronautical engineer, and the backup cosmonaut of the Soyuz 36 mission. He was also president of the Hungarian Astronautical Society, a member

⁵Vondráček [1999] concludes that approximately 75% of names in his sample of the "Czech" minor planet names (up to 1997) are based on anthroponyms.

⁶For the sake of economy, discovery details published in *WGSBN Bulletins* [WGSBN 2022] are omitted, whereas full citations, after a slash, are preserved to document the motivation of the name. The original wording and spelling have been preserved.

of the Hungarian Astronomical Association, and worked for the Hungarian Space Office.

(5) (145174) Irenejoliotcurie = 2005 JC_5 / Irène Joliot-Curie (1897–1956) was a French chemist and physicist. With her husband Frédéric Joliot-Curie, she shared the 1935 Nobel Prize in Chemistry for the discovery of induced radioactivity.

(6) (9853) l'Épée = 1991 AN_2 / Abbé Charles-Michel de l'Épée (1712–1789) was a French educator of the deaf. Motivated by religious conviction, humanitarian concern, and a philosophical belief that the deaf were capable of acquiring language, he founded the first free public school for the deaf in 1760. He published his methods to encourage their adoption.

(7) (34490) Danielkang = 2000 SO₁₃₇ / Daniel Zion Kang (b. 2002) was awarded best of category and first place in the 2018 Intel ISEF for his materials science project. He also received the European Union Contest for Young Scientists Award. He attended the John F. Kennedy High School, Tamuning, Guam.

The second group contains 70 minor planet names (out of the 585 names based on anthroponyms) based on names of persons which could be designated as "celebrities", due to lack of a better term. Among them, 60 minor planet names are based on names of actors and actresses (8), writers (9), musicians (10), film directors, painters, and other artists (11), and 10 names refer to athletes and other persons deserving remembrance in the eyes of the minor planet discoverers (12).⁷ The variety of personalities makes the minor planet names a precious source of cultural knowledge.

(8) (251642) Leonardodicaprio = 2010 LC₉₇ / Leonardo DiCaprio (b. 1974) is an Academy Award-winning American actor and film producer, as well as an outspoken advocate for environmental issues. He has starred in numerous films and has won many awards, in addition to narrating and producing many environmental documentaries.

(9) (348511) Žemaitė = 2005 TP₁₈₆ / Žemaitė was the pen name of the Lithuanian writer Julija Beniuševičiūtė (1845–1921), who was one of the inspirations for the Lithuanian renaissance at the beginning of the 20th century.

(10) (613419) Lafayettequartet = 2006 JQ₇₅ / The Lafayette String Quartet is an all-female ensemble still comprised of the original members after 35 years. Artists in residence at the University of Victoria in Canada, they have mentored countless students to musical excellence, while championing contemporary music in concerts worldwide alongside mastery of the most demanding classical repertoire.

⁷In some names, the subgroups overlap, and in such cases, the name is counted only once.

(11) (42611) Manchu = 1998 EU₁ / Manchu (b. 1956, real name Philippe Bouchet) is a French space artist. As a science and science-fiction illustrator, he inspired generations of readers and budding scientists in France, enabling them to visualize exotic worlds or phenomena. His paintings are both spectacular and realistic.

(12) (10097) Humbroncos = 1991 RV_{16} / This citation honours the memory of sixteen persons, including ten members of the Humboldt Broncos, a junior hockey team, who died in a bus crash in Saskatchewan, Canada, on 2018 April 6. The tragedy had a unifying effect on the community and there was an emotional response all across Canada.

The third group comprises minor planet names honouring discoverers' relatives, such as spouses, a fiancée, a nephew, a niece, children (a stillborn child in one case) (13), grand- and great-grandchildren (14), parents (15), etc., and friends (16). In some instances, the minor planet name combines several personal names (14, 15). The citations of such names tend to be much briefer than in the preceding group where they often describe complex scientific, artistic, sports and other achievements. This group includes 33 minor planet names, being the least numerous group of the names based on anthroponyms.

(13) (25337) Elisabetta = 1999 PK / Elisabetta Masi (b. 2019) is the daughter of the discoverer.

(14) (145166) Leojematt = 2005 JL / Leo Rodriguez (b. 2021), Jemma Osmonson (b. 2021) and Matthew Young (b. 2021) are great-grandchildren of the discoverer.

(15) (19254) Shojitomoko = 1994 VD_7 / This name is a combination of the names of the first discoverer's parents, Shoji (b. 1929) and Tomoko (1931–2011) Hirasawa. Shoji made his son's first telescope. He is a master at making bamboo fishing rods, a style peculiar to Japan.

(16) (235852) Theogeuens = 2005 AX_{27} / Theophile (Theo) Geuens (b. 1944) was a friend of the discoverer. He is a lecturer in human sciences, a psychotherapist, a coach and a mediator.

Formally, the names of minor planets are based on surnames (6), first names (2, 13), full names (1, 4, 5, 8), hypocoristics (16), including sometimes other parts of names (1, 8) and middle names, which may be omitted (7). The first names may be reduced to initials (3). Sometimes, the so-called "eastern order" is used, when the surname is followed by the first name, typical for Hungarian, Chinese, and Japanese names (4). In four instances, pseudonyms are used (9, 11). Collective names represent an infrequent type (attested 6 times). Most often, they are based on first names and honour discoverers' relatives (14, 15). In addition, there is one

name designating a musical quartet (10) and a sports team (12), the last two instances being borderline with chrematonyms.

According to the above-mentioned WGSBN guidelines, "if full names of persons are used for names, various parts of the name must be concatenated, with spaces, hyphens, apostrophes, and embedded capitalization removed" [IAU 2021: 6] (however, compare a certain inconsistency in 6). In our corpus, this principle is breached with three multi-word names relating to persons: (28408) van Baalen, (27565) de Wet, and (15343) Von Wohlgemuth. Multi-word names seem to be more frequent if they are based on toponyms and some hesitation is observable outside the corpus. Let us compare the minor planet names selected from the list of minor planets named by the Czech observatory in Klet' [Klet' Observatory 2023]: (2747) Český Krumlov and (4408) Zlatá Koruna referring to multi-word Czech toponyms; (6692) Antonínholý and (6768) Mathiasbraun referring to first names and surnames of persons; (5804) Bambinidipraga named after a children's chorus and (4090) Říšehvězd after a Czech popular astronomical journal.

As far as gender is concerned, most names of minor planets are based on male names, if we consider gender as a binary variable. 192 names in the corpus honour women (33% of the names based on anthroponyms, minus 6 collective names).⁸ The percentage is striking, since up to World War II, the choice of minor planet names was restricted to female names, with the male (433) Eros as the only exception [Schmadel 2009: 6].⁹

The issue of changing values and tastes reflected in nomenclatures exceeds the framework of astronomy and arouses sharp debates. The WGSBN guidelines prohibit the "names of political or military persons or events <...> until 100 years after the death of the person or the event occurred"¹⁰; and even after that time, "any such names may still not be approved at the discretion of the WGSBN"¹¹ [IAU 2021: 7]. For the controversies in nomenclatures of other fields, see Smith & Figueiredo [2022],

⁸The gender was recorded according to the pronouns (*he/she*, *his/her*) used in the citations, if it was not clear from the name itself or from words contained in the citation (*husband/wife*, *son/daughter*, etc.).

⁹Comparison with other nomenclatures would certainly be interesting (see [Poulin et al. 2022], stating relatively low numbers of women honoured in zoological nomenclature of newly discovered parasite species, [Holeš 2024a], finding a negligible percentage of women commemorated in mineralogical nomenclature, and [Holeš 2024b] describing systematic alternation of female and male names in meteorological nomenclature of storms).

¹⁰Names of army officers complying with the rule do occur in the corpus, such as (287374) Vreeland, after Michael James Vreeland (1838–1876), a general seriously wounded in the Battle of Gettysburg [WGSBN 2022].

¹¹ There are, however, various ways to circumnavigate the ban. (204370) Ferdinandvaněk was named after Ferdinand Vaněk, a fictitious Czech playwright representing the alter-ego of Václav Havel, former president of Czechoslovakia and the Czech Republic [Kleť Observatory 2023].

dealing with the impact of colonial history on the botanical nomenclature, or Guedes et al. [2023], claiming that names given in honour of specific persons are unjustifiable in biology. In this aspect, the IAU protects its nomenclature from ideologization and rare are names implying any political event, such as (8990) *Compassion*, (8991) Solidarity, and (8992) Magnanimity, commemorating victims of the terrorist attacks of 11 September 2001.

One could wonder why the names of mythological figures are missing in the above remarks. Not a single name drawn from Greek or any other mythology is attested in the corpus, even if they do occur outside the sample. For instance, a minor planet which became a target of the NASA's sample return mission OSIRIS-REx, originally designated as $1999 RQ_{36}$, was named *Bennu*. The name, which refers to an ancient Egyptian deity, was picked by nine-year-old Michael Puzio, who won a naming competition in 2013 [NASA 2023]. Mythologically motivated names which predominated in the past are now almost exclusively used for the Trojans, the asteroids sharing the orbit with Jupiter, which are "divided (with some unfortunate mistakes) into groups of Greek besiegers and their Trojan opponents" [Schmadel 2009: 10].

3.2. Toponyms

Names of minor planets based on toponyms represent a tiny portion of the sample, including 28 names (4%). Most frequently, the minor planets are named after settled places (18 names), referring to world-famous cities (17), as well as small villages of some importance for the discoverer or in astronomy (18).

(17) (30585) Firenze = 2001 PE_{14} / Firenze (Florence) is an Italian city and the intellectual and artistic center known as the Cradle of the Renaissance. The city is a treasure chest of paintings, sculptures and terracotta-domed buildings, a tribute to artists such as Da Vinci, Botticelli and Michelangelo, from a glorious golden age that lasted three centuries.

(18) (548032) Ensisheim = 2010 BU_4 / Ensisheim is a commune in the Haut-Rhin department of eastern France, about 15 km north of Mulhouse. It is well known for the fall of the Ensisheim meteorite on 1492 November 7, the oldest recorded meteorite fall in Europe.

Other types include three names based on neighbourhoods (19) and two names referring to mountains (20). Exceptionally, the corpus contains names based on the name of a mountain range, country (21), region and other objects.

(19) (560388) Normafa = 2015 FX₃₁₇ / Normafa is a popular tourist area in Budapest, not far from the Konkoly Observatory's headquarters. It is located in the Buda Hills, and is mainly known for its panoramic scenery.

(20) (19715) Basodino = 1999 UA₄ / Named for the second-highest mountain (3273 m) in the Swiss canton Ticino; its glacier is the most significant one in the canton, but it has retreated by about 1400 m in the last 150 years.

(21) (570814) Nauru = 2006 WY / Formerly known as Pleasant Island, Nauru is a 21-km² island country in Micronesia, a subregion of Oceania, in the central Pacific.

Minor planet names practically always result from transonymization [Šrámek 1999: 56], i.e. a process when a proper name is used in the function of another proper name. In the case of astronomical nomenclature, most cases concern a single-level transonymization, when a minor planet is given a name after persons (1–16) or localities (17–21). However, the process may be multi-level, when, for instance, a minor planet is named after a commune which is itself named after a person (e.g. (107561) Quinn referring to a town in South Dakota, named itself after Michael Quinn, a pioneering rancher and bullwhacker) [WGSBN 2022].

3.3. Chrematonyms

Minor planet names based on chrematonyms represent another small group, including 32 names (5%) of the sample. This group comprises in particular the names based on names of scientific associations (22), names of observatories (23) and other institutions.

(22) (576901) Adagio = 2012 WM_{27} / The Association pour le Développement Amateur d'un Grand Instrument d'Observation (ADAGIO) is a non-profit astronomical society which operates the 0.82-m telescope used for the discovery of (576901).

(23) (187669) Obastromca = 2008 CK₅ / The Observatorio Astronómico de Mallorca was founded in 1991. More than 100 numbered minor planets have been discovered there, including the Atira-class (367943) Duende.

The largest subgroup includes 18 names of educational institutions, mostly universities (24), secondary schools and even one kindergarten.

(24) (549706) Spbuni = 2011 SH₂₄ / Saint Petersburg University, founded by Peter the Great in 1724, was the first university in Russia. It is one of the largest research and educational centers in the world, and the alma mater of numerous scientists, philosophers and lecturers, including nine Nobel Prize laureates.

Other types of chrematonyms are rare in the corpus. One minor planet name is based on an astronomical survey name and one on a literary work (25).

(25) (9892) Meigetsuki = 1995 YN₃ / "Meigetsuki" was a diary written in the 13th century by Fujiwara no Teika (1162–1241), a famous Japanese poet. It contains details on many astronomical events, including the supernova of 1054. Formally, many names of chrematonyms are acronyms (22, 23). Initialisms are generally discouraged by the WGSBN [IAU 2023: 7], but they are accepted if they are written and pronounced as a word. Most of them occurred in this category.

3.4. Other motivations

Other semantic motivations are exceptional. Only three names are based on common nouns of a shrub, a tree, and an animal (26).

(26) (12349) Akebonozou = 1993 GO / Akebonozou (Stegodon aurorae) is an extinct species of Japanese elephant which lived in the Early Pleistocene (2.5–1 million years ago). An almost complete skeleton of Akebonozou was found in Taga-cho, Shiga Prefecture. The Taga specimen has been designated as a natural monument of Japan.

Conclusions

It is convenient to underline that the conclusions outlined in this article are valid for minor planet names only. Names of other celestial objects are governed by other rules. For instance, comets are usually named after their discoverer(s) (such names are not allowed for minor planets), and names of satellites should be related in some way to the name of their primary object (e.g. the names of Pluto's moons are all related to the Greek underworld, *Charon*, *Styx*, *Nix*, etc.; Uranus's satellites are named for characters from Shakespeare's plays and from Pope's mock-heroic poem *The Rape of the Lock*, etc.).

The minor planet nomenclature has a clearly defined set of rules and guidelines. Besides the names, there exist two parallel ways to designate minor planets: a provisional designation and a number. This parallel designation is somewhat similar to the usage seen in other fields, e.g. the series of names added to alphanumerical codes of vitamins (*Vitamin A / retinol, Vitamin B₁ / thiamine, Vitamin B₂ / riboflavin*, etc.), and in astronomy itself, where only the most important out of the total set of numbered stars have names.

Out of the total 648 minor planet names, most (585 names, 90%) are based on anthroponyms, with three roughly identifiable subgroups commemorating (a) scientists (482 names, with an important subgroup of people involved in astronomical research), (b) "celebrities", mostly artists and athletes (70 names), and (c) discoverers' relatives and friends (33 names). Within the first subgroup (scientists), most honour people involved in astronomical research (245 names). Only a minor part of the corpus is based on chrematonyms (32 names, 5%), mostly referring to educational institutions, and toponyms (28 names, 4%), usually commemorating settled places. As far as gender is concerned, 192 names (33% of the anthroponyms) honour women. The respective semantic motivations are depicted in the Figure below.



Semantic motivations of minor planet names

Our analysis may be considered representative in terms of the sample quantity and quality. However, it is by no means exhaustive. Outside the corpus, a quick glimpse at the names given in 2023 would reveal the extreme creativity of the discoverers. Let us mention (216368) Hypnomys, referring to an "extinct genus of giant rodents, belonging to the family Gliridae"; (614470) Flordeneu, a "mythological character from the epic 1886 poem Canigó, by Jacint Verdaguer, one of the most important of the Renaissance of the Catalan language and culture"; (541741) Fado, a "genre of music originating from old urban Lisbon songs"; (520585) Saci, a "Guarani-Brazilian folklore legend, one-legged prankster, who smokes a pipe and disappears through a dust devil"; and (10849) Onigiri, a "palm-sized portable food that has been eaten in Japan for more than 500 years and that has become a national food".

Even if the name of the minor planet is probably the least important part of the object, and even if its addition to a previously assigned number is not necessary for its identification, people are delighted to name them in order to honour eminent scientists, artists, athletes, relatives and friends, or to remember a locality. From time to time, we all read in the media about a minor planet being given a name after somebody or something significant. Such isolated and anecdotical news remind us that minor planet nomenclature, an intricate system of several parallel designations, may deserve deeper, systematic linguistic exploration.

References

- Alexander, M. (2016). Astronomical Names. In C. Hough (Ed.), The Oxford Handbook of Names and Naming (pp. 628–635). Oxford: Oxford University Press. https://doi.org/10.1093/ oxfordhb/9780199656431.013.3
- Astronomical Institute of the Czech Academy of Sciences (2023). Retrieved from https://www.asu. cas.cz/
- Avilin, T. (2008). Astronyms in Belarussian Folk Beliefs. Archaeologia Baltica, 10, 29-34.
- Cabré, T. M. (1998). *Terminology. Theory, Methods and Applications*. Amsterdam/Philadelphia: John Benjamins.
- Guedes, P., Alves-Martins, F., Arribas, J. M., et al. (2023). Eponyms Have No Place in 21st-century Biological Nomenclature. *Nature Ecology & Evolution*, 7, 1157–1160. https://doi.org/10.1038/ s41559-023-02022-y
- Holeš, J. (2024a). Vlastní jména osob spojených s českým prostředím v mineralogické nomenklatuře. *Acta onomastica*, 65(1), 60–76. https://doi.org/10.58756/a1658736
- Holeš, J. (2024b). Použití vlastních jmen v meteorologii. Tradiční, nové a budoucí oblasti zkoumání. *Onomastica*, 68, 361–376. https://doi.org/10.17651/ONOMAST.68.22
- Humbley, J. (2018). La néologie terminologique. Limoges: Lambert-Lucas.
- IAU 2021 International Astronomical Union (2021). Rules and guidelines for naming non-cometary small solar-system bodies. IAU WG Small Body Nomenclature. Retrieved from https://www. wgsbn-iau.org
- IAU 2023a International Astronomical Union (2023a). Retrieved from https://www.iau.org
- IAU 2023b International Astronomical Union (2023b). WG Small Bodies Nomenclature. Retrieved from https://www.wgsbn-iau.org
- Jakus-Borkowa, E. (2004). Polskie nazewnictwo kosmiczne. Opole: Uniwersytet Opolski.
- Jakus-Borkowa, E. (2006). Semantyka i struktura polskich kosmonimów ludowych. *Acta Onomastica*, 47, 244–251.
- Jakus-Borkowa, E. (2007). Charakterystyka polskich chrematonimów kosmicznych. Acta Onomastica, 48, 54–71.
- Klet' observatory (2023). Database of Minor Planet Names. Retrieved from https://names.klet.org/en
- Kocourek, R. (1982). La langue française de la technique et de la science. Wiesbaden: Oscar Brandstetter.
- Lepage, T. (1989). L'astronymie occidentale de la préhistoire à nos jours. In C. de Schaetzen (Ed.), *Terminologie diachronique. Actes du colloque organisé à Bruxelles les 25 et 26 mars 1988* (pp. 108–133). Bruxelles: Conseil international de la langue française.
- Marsden, B. G. (2009). Foreword. In L. D. Schmadel (Auth.), *Dictionary of Minor Planet Names.* Addendum to Fifth Edition: 2006–2008 (pp. vi–viii). Berlin/Heidelberg: Springer.
- MPC Minor Planet Center (2023). Retrieved from https://www.minorplanetcenter.net
- NASA (2023). Jet Propulsion Laboratory. California Institute of Technology. Retrieved from https://www.jpl.nasa.gov

- Poulin, R., McDougall, C., & Presswell, B. (2022). What's in a Name? Taxonomic and Gender Biases in the Etymology of New Species Names. *Proceedings of the Royal Society B. Biological Sciences*, 289, 1–10. https://doi.org/10.1098/rspb.2021.2708
- Rey, A. (1979). La terminologie: noms et notions. Paris: Presses universitaires de France.
- Sager, J. C. (1990). A Practical Course in Terminology Processing. Amsterdam/Philadelphia: John Benjamins. https://doi.org/10.1075/z.44
- Schmadel, L. D. (2009). *Dictionary of Minor Planet Names. Addendum to Fifth Edition: 2006–2008*. Berlin/Heidelberg: Springer. https://doi.org/10.1007/978-3-642-01965-4
- Smith, G. F., & Figueiredo, E. (2022). "Rhodes-" Must Fall: Some of the Consequences of Colonialism for Botany and Plant Nomenclature. *Taxon*, 71(1), 1–5. https://doi.org/10.1002/tax.12598
- Šrámek, R. (1999). Úvod do obecné onomastiky. Brno: Masarykova univerzita.
- Tabakovičová, M. (2016). Kosmonymum. In P. Karlík, M. Nekula, & J. Pleskalová (Eds.), *Nový* encyklopedický slovník češtiny I-II (pp. 935–936). Praha: Lidové noviny.
- Vondráček, M. (1999). Systém pojmenování planetek. In K. Klímová, & H. Kneselová (Eds.), *Propria v systému mluvnickém a slovotvorném* (pp. 133–138). Brno: Masarykova univerzita.
- Waniakowa, J. (2021). An Attempt to Systematize Polish Cosmonomastic Terminology. Onomastica, 65(2), 75–86. https://doi.org/10.17651/ONOMAST.65.2.5
- WGSBN (2022). WGSBN Bulletin (Vols. 2.1-16). Retrieved from https://www.wgsbn-iau.org