

Clifford J. CUNNINGHAM (Toowoomba)

**DISCOVERY OF THE ORIGIN OF THE WORD *asteroid* AND
THE RELATED TERMS *asteroidal*, *planetoid*,
planetkin, *planetule*, AND *cometoid****

Abstract. *Asteroid* is now one of the most widely used words in English. For more than two centuries it has been assumed that the astronomer William Herschel created the word, but that assumption can be shown to be false. This paper reveals for the first time the true identity of the person who coined the word *asteroid*, and the origins of five other related words: *asteroidal*, *planetoid*, *planetkin*, *planetule* and *cometoid*. In the cases of *asteroidal* and *cometoid*, this paper corrects errors in the OED.

Keywords: astronomy, asteroid, planetoid, planetule, Herschel

Introduction

Since ancient times only six planets were known, but that changed in 1781 when William Herschel (1738–1822) discovered Uranus. Twenty years later two more planet-like objects were found between the orbits of the major planets Mars and Jupiter. The first, Ceres, was discovered by Giuseppe Piazzi (1746–1826) in Palermo in January 1801. The second, Pallas, by Wilhelm Olbers (1758–1840) in Bremen in March 1802. In England, William Herschel (1802a) published the first scientific study of these two objects, and he introduced the word *asteroid* to distinguish them from the other denizens of the solar system – planets and comets.

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1. Herschel's search for a word, Part 1: William Watson

Herschel visited Paris in August 1802, where he met First Consul Bonaparte and the foremost astronomer in France, Pierre-Simon Laplace (1749–1827). It was Laplace who insisted on naming the new discoveries Piazzi and Olbers, in honour of their discoverers (Manara, 1997). Herschel did not concern himself – as the French did – with the naming of the new celestial objects individually. His concern was their collective appellation.

The search for a new name began on 25 April 1802, when Herschel turned to his friend Sir William Watson (1744–1824) for help. At the time of writing the relevant portion of the letter reproduced below, he was likely well aware that Isaac Newton (1726) had written an analysis of the motion of comets in the third book of the *Principia*, in which he shows that comets “are a sort of planet.”

...I have now [to] request a favour of you which is to help me to a new name. In order to give you what will be necessary I must enter into a sort of history. You know already that we have two newly discovered celestial bodies. Now by what I shall tell you of them it appears to me much more poor in language to call them planets than if we were to call a rasor a knife, a cleaver a Hatchet, etc. They certainly move round the Sun. So do comets. It is true they move in ellipses; so we know do some comets also. But the difference is this they are extremely small, beyond all comparison less than planets; move in oblique orbits so that, if we continue to call that the ecliptic in which we find them, we may perhaps, should one or two more of them be discovered still more oblique, have no ecliptic left the whole heavens being converted into ecliptic which would be absurd. I surmise (again) that possibly numbers of such small bodies that have not enough matter in them to hurt one another by attraction, or to disturb the planets, may possibly be running through the great vacancies, left perhaps for them, between the other planets especially Mars and Jupiter. But should there be only two surely we can find a name for them. The diameter of the largest of them (at present entre nous) is not 400 miles, perhaps much less as I shall know in a few hours but have not time to wait. Now as we already have Planets, Comets, Satellites, pray help me to another dignified name as soon as possible. If it could any way express the condition of a nimble, small, interloper going obliquely through the majestic orbits of the great bodies of the Solar System it would be just what is required. But pray, if you can, help me soon. I am writing a paper in which if possible I would propose a name, but as it should go to London by next Thursday I am hardly willing to press you so much for haste. However you will give it a thought, and if two or three names could be proposed it would give me some choice. Greek derivation such as planet from $\pi\lambda\alpha\nu\alpha\omega$ would probably be best. (Herschel, 1802b).

The word written in Greek, *planao*, is the verb ‘to wander.’

Trusting to the English postal service in 1802 as we can scarcely hope for today, Watson received Herschel's letter the next day and responded after a day of thought.

I received much gratification at the perusal of your letters-the discovery of a new species of heavenly bodies is truly surprising, and I agree with you that a new name ought to be given such bodies. The best name I can think of is Planetel as a diminutive of Planet, just as Pickerel or Cockerel (used by Shakespeare) is of a Pike and a Cock. The sportsmen too call a young stag stagerel. You may also use as the diminutive the word Planeret (sic), as baronet is of the word Baron- so we say islet tartlet tablet cygnet, the respective diminutives of island, tart, table, Cygne the French for Swan. But as these are made by the mere addition of et, except tartlet, the word should be Planetet, and that does not sound well. Diminutives are also formed by adding -kin as manikin, lambkin, so you may say Planetkin- or better Erratikin- being the diminutive of Erratic. I should like Planetine (pronounced Planeteen) best of all, but I find no example of that way of diminishing in English. The diminutives formed by adding -ling such as duckling will not have place here- we cannot say Planetling. So upon the whole I think the word Planetel the least objectionable. Perhaps you may be more happy in your research after a new name.

P.S. Since I wrote the above I recollected that after the Romans we make diminutives by adding -ule such as spherule, a little sphere. So Planetule may be a little Planet. (Watson, 1802).

One diminutive suggestion he did not make was to suggest the word *planetella* (as in *novella* 'a small novel'). *Planetkin* has entered the OED as a nonce word. It identifies the Scottish philosopher Thomas Carlyle (1795–1881) as the first person to use it in 1832 (Norton, 1887: 35). The word *planetule* will be considered in section 4.

As William Herschel stated in his 25 April letter, he intended to include the new name in his paper which was due "by next Thursday." This date was 6 May, which was in fact the date Herschel's paper was read before the Royal Society in London.

2. Herschel's search for a word, Part 2: Charles Burney

In a letter of "Monday night May 10th [1802]" from Dr. Charles Burney Sr. (1726–1814) to his son Charles Jr. (1757–1817), Burney (1802a) writes:

My dear Charles

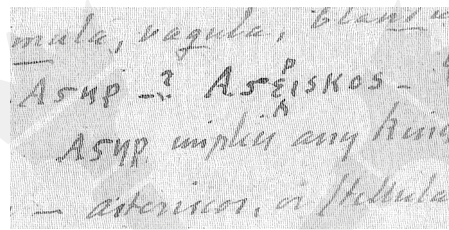
Herschel came hither today, to ask me if I c^d. furnish him a Latin or Greek name for the small stars that have been lately found, & called by some planets, & by others Comets; but he says they are neither one nor the other, but a new

genus of erratic heavenly bodies within the ecliptic, that have orbits round the Sun: yet so small that they cannot be found by a Telescope. There are however 12 astronomers in Germany formed into a Society, who have divided the ecliptic into 12 parts, assigning one to each who is not to encroach on the other departments. The last new planet, as it is called, is not above 150 miles in diameter – Mercury or the Moon wd. make 1000 such – it has, however, a disk, and is in motion.- Now what can he call a star of this nondescript kind?

Does not Hadrian call his soul animula, vagula, blandula? and is there not a diminutive of the Greek word Ἀστήρ -? Ἀστερισκος – & in Latin is not stellula the diminutive of stella? Ἀστήρ implies any kind of heavenly body, be it planet, satellite, or fixt star- asteriscos, or Stellula wd. be a pretty name for one of these little wanderers, that are taking a peep at us.

The first line of Pope’s imitations- “vital spark of heavenly flame”- suits this last little lady to a T- does it not? – if you say nay, send me a better for my friend, as soon as possible for it is to be given in to the secretary of the R.S. [Royal Society] tomorrow to be voted for reading on Thursday.

It must not be a big name for so small a star. C.B.



The first Greek word he uses is *aster* Ἀστήρ (which he uses without the accent), and the second one *asteriskos* Ἀστερισκος. Burney has a ligature between sigma and tau, which was common in some types of Greek script. He was not using the ζ form of sigma, which is only found at the ends of words, but a common ligature which somewhat resembles that form of sigma. The second vowel in the word is long, and so is written not with an epsilon but with an eta. Burney had to insert the letter ρ in the second word with a caret, and the medial sigma in Ἀστερισκος has the wrong shape.

The Latin Burney alludes to, with its use of the diminutive *-ula*, can be easily traced. According to the *Historia Augusta*, the emperor Hadrian composed shortly before his death in 138 AD the following poem:

Animula, vagula, blandula
 Hospes comesque corporis
 Quae nunc abibis in loca
 Pallidula, rigida, nudula,
 Nec, ut soles, dabis iocos...
 (P. Aelius Hadrianus Imp.)

Roving amiable little soul,
Body's companion and guest,
Now descending for parts
Colourless, unbending, and bare
Your usual distractions no more shall be there...

The reference to Alexander Pope (1688–1744) is to the first line of his 1712 poem *The Dying Christian to his Soul*. The words are based on the death bed utterance attributed to the Roman emperor Hadrian: “Animula, vagula, blandula, hospes comesque corporis.” Pope had been inspired by these words from an early age, as he relates to Richard Steele, co-founder of *The Spectator* magazine, what led him to pen his poem.

I was the other day in company with five or six men of some learning; where chancing to mention the famous verses which the Emperor Adrian spoke on his death-bed, they were all agreed that 'twas a piece of gaiety unworthy of that prince in those circumstances. I could not but differ from this opinion: methinks it was by no means gay, but a very serious soliloquy to his soul at the point of his departure; in which sense I naturally took the verses at my first reading them, when I was very young, and before I knew what interpretation the world generally put upon them. (Pope, 1712).

From the cover of the letter from Burney Sr. in Chelsea to Burney Jr. in Greenwich (a distance of only 11 km), it can be read that Burney Jr. was sent this letter by two penny post at 9am on Tuesday morning. But was Burney Sr. correct in dating this letter Monday the 10th of May? It would make sense if he dated it Monday the 3rd of May, because it was to be that Thursday (6 May) when the paper was read. We see here it was to be in the hands of the Secretary the very next day, which would be the 4th of May. My own reading of letters from this period has revealed incorrect dates – sometimes the year is actually written incorrectly! It would certainly not be impossible for a person working by candlelight, late at night, to get the day of the week correct but the day of the month wrong by a week. It is also obvious by the way the letter is written that it has been done in haste – he twice had to use carets to insert a phrase or a Greek letter in its proper place, and the last line quoted above was written at the bottom of the letter after a paragraph of personal details – it was clearly an afterthought. He also wrote his son that the objects could not be found in a telescope, another indication he was tired and writing in haste, since clearly they were found using a telescope.

If we consider this letter as being in the hands of Charles Burney Jr. (in Greenwich) in the afternoon of Tuesday, the 4th of May, we must conclude he supplied an answer to Herschel that very day. Since there were four country mail

despatches and deliveries daily in that era, he could have devised an answer which would have been in Herschel's hands that evening. It is certainly clear from this letter that Herschel had not chosen a word – he was also clearly in great haste to get an appropriate word, since he visited Charles Sr. in person on 3 May instead of writing to him at leisure. Burney Sr. uses the phrase “as soon as possible” which has entered modern parlance as ASAP, thus emphasizing how urgent it was.

Charles Burney Jr. likely supplied his answer to his father in writing, and Burney Sr. then gave the response to Herschel. This may have been done verbally, as no known letter exists. However, the “smoking gun” letter was written later that year.

Dr. Burney's 2-page letter [postmarked 7 Dec. 1802] to the political hostess Frances Crewe (1748–1818) is definitive (Burney, 1802b). In this he tells her that his son furnished Herschel with the word *asteroid*. He tells her about

...a new vol. of the Philosophical Trans. in w^{ch} are two curious astronomical papers by Herschel. In one of w^{ch} he gives an acc^t of the 2 newly discovered celestial bodies, *Ceres*, & *Pallas*. The first in magnitude is only $\frac{3}{8}$ of the Moon; its Diameter no more, if I understand right, than 161 miles. The 2^d, *Pallas*, still less, about $\frac{3}{4}$ of *Ceres*- its Diameter about 147 miles- not an 8th p^t of Mercury- They are not allowed by Herschel to be either Planets or Comets, but asteroids, italick, a kind of star- a name w^{ch} my son, the Grecian, furnished.

Thus, after more than two centuries, it has been established beyond doubt that Charles Burney Jr. invented the word *asteroid*! Every book, dictionary and reference that gives credit to Herschel for creating this appellation is incorrect, although he certainly deserves full credit for being the first to publish it and correctly recognise that *Ceres* and *Pallas* were in a separate category from planets or comets. Charles Sr. deserves some of the credit for coining the word, as he chose the Greek word *aster*, and passed this idea along to his son, who added *-oid*.

It certainly appears that Charles Jr. had no interest in publicly claiming his invention of *asteroid*. Considering the great opprobrium heaped upon Herschel for choosing that word, it is perhaps not surprising. Why is there no letter in the Herschel archives of the Royal Astronomical Society about the extremely important creation of the word *asteroid*? There seem to be two possibilities.

First, there was no letter from Charles Burney Sr. or Jr. to Herschel. It is probable that Burney Jr. informed Burney Sr. either by letter or in person, and that the word was given to Herschel by Burney Sr. in person.

Second, there was a letter from Burney Sr. to Herschel, but it was deliberately destroyed by Herschel. Again there seem to be two possible motives for this course of action. Either Herschel wanted to keep the credit for coining the word for himself, or, after he realised what great opposition the new word had created, he destroyed the letter to protect the Burney family from abuse.

Since Herschel hardly needed any more fame than he already possessed, it seems most likely that Burney Sr. told Herschel about it in person, in which case there was no letter to be found.

According to the OED, the first use of the word *asteroidal* is by the English astronomer Norman Lockyer (1836–1920) in 1868. But research for this paper has established its first use by Herschel (1807) in describing his observations of the asteroid Vesta: “The spurious nature of the asteroidal disk...”

While there appears to have been no personal relationship between Herschel and Stephen Weston (see Section 3), the same cannot be said for Dr. Burney Sr. An anecdote is related by his daughter Miss Burney in late 1786: “This morning my dear father carried me to Dr. Herschel. That great and very extraordinary man received us almost with open arms. He is very fond of my father, who is one of the council of the Royal Society this year, as well as himself.” (Sime, 1900: 199). Dr. Burney has left vivid recollections of his visits to Herschel who, he wrote in 1798, “is one of the most pleasing and well-bred natural characters of the present age, as well as the greatest astronomer.” (Sime, 1900: 201). They often met at meetings of the Royal Society, and Herschel frequently stayed at Burney’s house where he almost certainly met Charles Burney Jr.

Burney Jr. is referred to in the letter to Mrs. Crewe as “the Grecian.” This was not just parental boast, as Burney Jr. was one of England’s preeminent Greek scholars in the late eighteenth and early nineteenth centuries. He was elected a Fellow of the Royal Society (1802), made Professor of Ancient Literature at the Royal Academy (1810), and elected to the Literary Club (1810).

3. Herschel’s search for a word, Part 3: Sir Joseph Banks and Stephen Weston

Whatever the case may be, Herschel still felt uncomfortable with his choice of *asteroid*. Clearly unimpressed by Watson’s ideas, Herschel turned for help to the President of The Royal Society, Sir Joseph Banks (1743–1820). Banks in turn gave the task to Stephen Weston (1747–1830), a Fellow of the RS since 1792 and a great scholar of Classics, Persian, Arabic and Chinese.

I applied to Mr. S. Weston as I always do in these occasions to stand God Father to your new species of moving stars and [he] has sent me a card which I enclose. I really think *Aorate* a good name and much better than any that has been hitherto suggested and the more so as it is not probable that any of this new kind of wanderers are visible to the naked eye. (Banks, 1802)

In this letter to Herschel, Banks favoured *Aorate* to describe Ceres and Pallas. The elements of the word are *a-* ‘not’, (*h/-)ora-* ‘see’, *-t-* passive participial suffix

(i.e. making ‘see’ into ‘seen’), *-e* [= *-η*] fem. termination unusual in a compound containing *a-* ‘not’; *ἀόρατος* is perfectly good Classical Greek for ‘invisible,’ the very attribute of Ceres and Pallas that Banks highlighted in his letter.

The replacement of the termination *-os* [= *-ος*] with the long vowel *-η* would automatically draw the accent on to the penultimate syllable. Weston may have finished his word with *-η* in imitation of several Greek names of goddesses that have the same ending. The most instructive is *Persephone*, thought to be a folk etymological modification of the original *Persephatta*, both forms being compounds with transparent etymologies and therefore not likely to form a fem. in *-η*.

Aorate and other words offered by Weston (on a card now apparently lost) were given by Banks to Herschel, who was clearly disappointed with the offerings:

The names you have done me the favour to send I have carefully examined, and beg leave to give you my remarks on them. The title of them, “Names for the new Planet,” shews immediately that none of them can possibly be used for the new species of bodies which we have to christen: for they are not planets.

If Mr. Weston were to have a definition of the thing we want a name for, he might possibly find a better than that of asteroids, which is not exactly the thing we want, tho’ still the most unexceptionable of any that have been offered by my learned friends. Will you do me the favour to consult him once more upon the subject, and mention to him that the bodies to be named are neither fixed stars, planets, nor comets, but have a great resemblance to all the three?

With this view before him he will probably succeed in an appropriate appellation. (Herschel, 1802c)

In this extraordinarily frank letter, Herschel admits that the term *asteroids* is not optimal- merely the best of an unremarkable suite of options. There is no evidence that Weston looked into the matter again. Perhaps Banks thought better of asking him a second time, or Weston simply did not offer any further ideas. Thus the word *asteroid*, used in the 6 May paper, was the *de facto* choice to designate the newly discovered celestial bodies.

Herschel seems to be expressing exasperation that the title of the options given to him included the word *Planets*. Even though on dynamical grounds asteroids do bear a great resemblance to planets, in the telescopes of the day they looked exactly like stars. It was only with careful study that Herschel was able to estimate their diameters, but he was using the most powerful telescope in the world, certainly on a par or superior to that used by Johann Schroeter (1745–1816) in Lilienthal. Any other astronomer at the time would have seen only a pinpoint of light. Thus star-like is an apt visual description as Ceres and Pallas bore an exact resemblance to stars, the only difference being they (like comets) moved against the starry background.

Holmes (2008: 509) erroneously claims that Rev Steven (sic) Weston was actually the person who suggested the word *asteroid* to Herschel, even though

Herschel specifically says in the 10 June 1802 letter that none of the names suggested by Weston could be adopted! (Cunningham & Orchiston, 2011).

To understand the actual meaning of the word Herschel chose, we must look at its Greek etymology.

Greek has two words for “star”: *aster*, which gives astero- in compound words, and *astron*, which gives astro- in compounds. The first means an individual star (usually a conspicuous one), whereas the second word is normally used in the plural to refer to “the stars” in general. This distinction is generally observed in compound words, whether by luck or design: thus asterisk means “a little star”, and asteroids “like a star”, whereas astrology, astrometry, astronomy and astrophysics all refer to study of “the stars” in general. (Fitch, 1987)

In ancient Greek we find *πλανήτης* (*planētēs*), a variant of *πλάνης* (*planēs* ‘wanderer, planet’). The planets were called by the Greeks *asteres planetai* (‘wandering stars’) or *planetai* (‘wanderers’). The Latin term used in place of the Greek was *stellae errantes* (‘wandering stars’); but Late Latin borrowed the Greek term in the plural form, *planetae*, while the singular was *planeta*. The English word *planet* comes directly from the Latin *planeta*. In Greek, *aster* is *ἀστήρ*. The word *astyrred* is found in Old English as an adjective meaning ‘starry’ (Borden, 1982).

In choosing *asteroid* over *planet*, Herschel was also undoubtedly aware of the recent French trend to use the word *planete* as a feminine noun, “contrary to analogy and to etymology, considering them as immediately derived from the Greek” in the words of English antiquarian Capel Lofft (1751–1824; 1798). Since the precedent had already been set to name the *asteroids* after female deities (and one that would be followed into the 20th century), this left the *planets* firmly in the realm of male pagan deities, with the sole exception of Venus. This precedent was followed with the selection of the names Neptune and Pluto for future planetary discoveries.

4. The origin of the word *planetule*

Herschel did adopt Watson’s final suggestion, although it only appears once in his notes. In the undated “Work to be done”, he lists as the first task “To observe the 4 Planetules”. (Herschel, 1816). This was likely written in 1816 based on discussions with his son John Herschel. The word *planetule* (meaning ‘little planet’) was current before 1845, as it is found in Bolles (1845: 567). Many sources attribute its first use in English to the English geologist William Daniel Conybeare FRS (1787–1857), who applied a superfluous adjective: “little planetules” (Conybeare, 1836: 32). The printed version comes from a lecture he “delivered in Bristol College” in 1831.

While he was the first to use it before an audience and in print, it was first coined by William Watson in 1802. It was subsequently used by the American astronomer Daniel Kirkwood (1888: 27) as a synonym for asteroid.

The most important historical point about *planetules* (or, in the case to be discussed, “*planetulas*”) is the confusion that was caused in Germany about what word Herschel chose to describe Ceres and Pallas. Nowhere in Herschel’s seminal paper (Herschel, 1802a) are Ceres and Pallas termed *planetulas*, but as we can see in the correspondence between the mathematician Carl Gauss (1777–1855) and the astronomer Wilhelm Olbers in 1802, they thought he had. This is an extract from a letter Olbers sent to Gauss, in which he is quoting from a letter by George Best FRS (1756–1823) in England sent to Schroeter on 7 May 1802. Schroeter then forwarded it to Olbers, who on 23 May relayed it to Gauss:

Herschel’s observations of Ceres and Pallas were read in the Society yesterday (6 May). They go to the 2nd or 4th of May... He denies they have any cometary and planetary characteristics and wants to name them planetulas, without thereby detracting from the discovery in the least.¹ (Olbers, 1802a; underlining probably by Best).

Gauss (1802) replied to Olbers, and correctly made the point that *planetula* is the diminutive of *planeta*:

To want to distinguish between ‘planeta’ and ‘planetula’ seems to me to be almost pedantic. Mercury, Venus, Earth and Mars are also ‘planetulae’ compared with Jupiter, and perhaps our Sun compared with other fixed stars would just be a tiny ‘solculus.’²

By 24 May, Olbers was aware that Herschel was using the term *asteroid* to denote Ceres and Pallas, as he was the first Continental astronomer to use the new word in private correspondence as evidenced by his letter to the French astronomer Joseph Jérôme Lalande (Olbers, 1802b). Based on what he read from Best via Schroeter, Olbers may have believed Herschel used “*planetulas*” in his RS paper of 6 May, so it was Best’s account of the reading of Herschel’s paper that was the source of the confusion.

¹ Gestern (6 Mai) sind HERSCHEL’S Beob. über *Ceres* und *Pallas* in der Societät vorgelesen. Sie gehen bis zum 2. Oder 4. Mai... Er spricht ihnen Kometen- und Planetenqualitäten ab (?) und will sie *planetulas* nennen, ohne dadurch der Entdeckung im mindesten Abbruch zu thun.

² “*Planeta* und *Planetula* unterscheiden zu wollen, dünkt, mich fast Pedanterie. Gegen Jupiter sind Mercury, Venus, Earth, Mars *Planetulae*, und vielleicht wäre unsere Sonne gegen andere Fixsterne nur ein winziges *solculus*.” In this sentence, Gauss used symbols to denote the names of the five primary planets.

5. The origin of the words *planetoid* and *cometoid*

Piazzi, the discoverer of Ceres, rejected the *asteroid* terminology – his overweening pride would not allow his discovery to be anything other than a primary planet. The tone he took in expressing his opinion to his friend Barnaba Oriani (1752–1832), Director of Brera Observatory, was quite contemptuous: “Soon we will see dukes, counts and marchesi in the sky as well” (Oriani, 1802).³ The quote by Piazzi is contained in a letter to the Director of Seeberg Observatory, Baron Franz von Zach (1752–1832), in which Oriani added his own thoughts: “You [Zach] have already successfully proven the planetism of Ceres and Pallas; consequently, it is useless to ponder Herschel’s new dynasty.”⁴

With great glee, Zach repeated this information to all and sundry. On 15 September he told Gauss what Piazzi and Oriani thought, and two days later he told his friend Jan Śniadecki (1756–1830), Director of Vilnius Observatory in Cracow, that “The Italians make fun of the asteroids.”⁵ (Zach, 1802a). The same day, Zach jovially responded to Oriani. Echoing the etymological construct of “Herschel’s dynasty,” he directed Oriani to read the new issue of his journal *Monatliche Correspondenz*. It was the only one in the world at the time devoted entirely to astronomy.

Piazzi’s remark about the celestial deities made me laugh, this bon mot is brilliant. You said I had successfully proven that the two stars were planets but you will be even more content to hear what I said about this matter in my September issue. Herschel’s dynasty is not popular in Germany either.⁶ (Zach, 1802b).

Even though Zach rejected the term *asteroid*, he was ready to admit to Banks that the discoveries of Ceres and Pallas presented astronomers with a situation that demanded a new terminology, which he duly supplied:

The Pallas has no assigned place as a planet according to this law in our solar system. She moves in a too eccentric ellipsis, and has a too great inclination of the orbit, as that she might be ranked amongst our primary planets. This body gives us therefore the indication of a new species, that we might call planeto-comet, so we’ll have, fixed stars, primary planets, secondary planets, and planeto-comets. (Zach, 1802c).

³ Presto vedremo dei Duchi, Conti e Marchesi anche in Cielo.

⁴ Vous avez déjà prouvé victorieusement le planétisme de Ceres et de Pallas, il est par conséquent inutile de nous arreter sur la nouvelle dynastie Herschelienne.

⁵ Les Italiens se moquent des Asteroïdes.

⁶ La Reflexion de Piazzi, sur les Dignités cèléste m’a fait bien rire, ce bon môt est excellent. Vous dites que j’ai victorieusement prouvé le planetisme de ces deux Astres, mais vous serez plus content encore, de ce que j’ai dit à ce Sujet, dans mon Cahier du Mois de Septembre. La Dynastie Herschelienne ne fait non plus fortune chez nous en Allemagne.

Piazzi (1802a) wrote to Oriani, asking his opinion of Herschel's proposed word *asteroid*. His first point is the relevant one to this paper.

What do you think? It looks to me 1st Whatever the name given to this new star doesn't really matter. Are they moving stars? You can call them planetoids or cometoids, but not asteroids.⁷

While his candid opinion about dukes in the sky was given to his friend Oriani, Piazzi (1802b) was much more courteous to his supposed friend Herschel, as he sugar-coats a bitter pill.

...could we not establish as a distinctive mark between the planets and comets the intersection of their orbits reduced to the ecliptic? And for the naming, could one not call the little planets Planetoids? Because I confess the name asteroids seems to me more appropriate for the small stars.⁸

While most Continental astronomers were airily dismissive of Herschel's choice, this letter shows Piazzi trying to reason with Herschel. In these important letters, Piazzi coins a word that has become widely used ever since to denote small planets such as asteroids, namely *planetoid*.

The first printed example of the words *planetoid* and *cometoid* comes from the pen of the critic Henry Brougham (1778–1868; 1803), who in later life became Lord Chancellor of Great Britain. He could not possibly have seen the private letter from Piazzi to Herschel, so it is he who must be given credit for the introduction of these words into the English language.

The OED regards *cometoid* as an obsolete word, and gives its origin as W. Taylor 1805. It was used by Capel Lofft (1805) in the *Monthly Magazine*, but the OED (using the same publication and page number) erroneously gives the name Taylor as the originator. Thus, the OED entry is wrong both in citing its first use in 1805 instead of 1803, and attributing the 1805 use to Taylor instead of Lofft. Despite its obsolete status, there are many instances of the use of *cometoid* in the modern literature as an object that exhibits the properties of both an asteroid and comet (e.g., Chaikin, 2003). After excoriating Herschel for bringing the word *asteroid* into use, Brougham wrote:

⁷ “Voi che ne dite? A me pare 1^o. Che qualunque sia il nome che si dia a questa nuova stella, ciò a nulla monta. Sono esse stele errant? Si chiamino dunque planetoids o cometoides, mai però asteroides.” The letter from Piazzi to Oriani from which this is extracted includes an English-language letter Piazzi received from Herschel advising him of the term ‘asteroid.’ It was quoted in Manara (1997). That Italian paper is largely devoted to the controversy over what name to give Piazzi's discovery – he chose Cerere Ferdinanda.

⁸ [...] ne pourroit on pas établir pour marque distinctive entre les planetes et le cometes l'intersection de leurs orbites reduites à l'ecliptique? Et pour la denomination, ne pourroit on pas appeler les petites planetes Planetoides? Car, je vous l'avoue, le nom d'Asteroides, me parait plus propre aux petites etoiles.

To us, that name presents the idea of some body resembling fixed stars; whereas the two new planets have no one circumstance in common with those distant bodies. If a new name must be found, why not call them by some appellation which shall, in some degree, be descriptive of, or at least consistent with, their properties? Why not, for instance, call them Concentric Comets, or Planetary Comets, or Cometary Planets? Or, if a single term must be found, why may we not coin such a phrase as Planetoid or Cometoid?

The derivation of *planetoid* is also from Greek and Latin, and one wonders how Herschel would have responded to this suggestion had it come from his friend Watson. Compared with the outrage that greeted the word *asteroid*, it seems highly likely that the word *planetoid* would have raised far fewer objections. The suffix is used in mathematics (*rhomboid*, *trapezoid*), biology (*arthropoid*, *humanoid*), and chemistry (*alkaloid*), so its extension into astronomy would have raised few hackles. The *-oid* suffix was used once again by the IAU, when it named all spherical objects beyond the orbit of Neptune “plutoids.” (IAU, 2008). However, the term *plutoids* is not used very often in modern astronomy, the most-used terms being transneptunian objects, Centaurs, Damocloids and plutinos.

The suffix *-oid* is derived from the Latin suffix *-oides*, which in turn came from the Greek. It possesses the meaning ‘having the likeness of.’ In some words *-oid* has a slightly extended meaning –‘having characteristics of, but not the same as’, and it would be in this sense that Piazzi suggested the word because he uses the word “little.” Thus he is signifying that the smallness of Ceres and Pallas is a distinguishing criterion for applying a different appellation to them. It might also be noted that the prefix *aster-* is used in science as well. Just drop the letter *o* from *asteroid* and we have the word *asterid*, which denotes such flowering plants as daisies, sunflowers and potatoes.

Herschel actually used the designation “planetoid” in 1803 in a paper published by The Royal Society, but in attributing the creation of the term to ‘an eminent astronomer’ he fell short of mentioning Piazzi’s name. This appeared after the *Edinburgh Journal* article by Brougham in the same year, so Brougham made the word public before Herschel.

As the solar system presents us with all the particulars that may be known, respecting the arrangement of the various subordinate celestial bodies that are under the influence of stars which I have called insulated, such as planets and satellites, asteroids and comets, I shall here say but little on that subject. It will, however, not be amiss to remark, that the late addition of two new celestial bodies [Ceres and Pallas], has undoubtedly enlarged our knowledge of the construction of the system of insulated stars. It is not in the least material whether we call them asteroids, as I have proposed; or planetoids, as an eminent astronomer, in a letter to me, suggested; or whether we admit them at once into the class of our old seven large planets. (Herschel, 1803: 339–340).

At the IAU meeting in 2008, the draught of Resolution 5A called median bodies such as Ceres and Pluto “planetoids”, but the plenary session voted unanimously to change the name to “dwarf planet”.

Conclusion

This paper has presented definitive evidence on the originators of the early nineteenth-century astronomical words created by astronomers and philologists to categorise the small, planet-like objects first discovered in 1801. The proposals are listed in Table 1.

Name of Proposer	Word Proposed	Date of Proposal/notes
William Watson	Planeret	April 27, 1802
	Planetel	
	Planetet	
	Planetkin	Used by Carlyle in 1832
	Erratikin	
	Planetine	
	Planetule	Used orally by Conybeare in 1831; in print 1836
Franz von Zach	Planeto-comet	May 1, 1802
Charles Burney Sr.	Stellula	May 3, 1802
Charles Burney Jr.	Asteroid	May 5, 1802
Stephen Weston	Aorate	June 8, 1802
Giuseppe Piazzi	Planetoid	July 2, 1802
	Cometoid	
Henry Brougham	Planetoid	Late 1802, published 1803
	Cometoid	Next used by Lofft in 1805

Table 1. Words proposed in 1802 to categorise Ceres and Pallas.

As the important recent work by Dick (2013) has shown, the role of classification in astronomy is one with a rich heritage. It details how the creation of words to delineate what celestial objects are in comparison with others is crucial to our understanding of the heavens. As the stated goal of the American space program in the early 21st century is to land humans on an asteroid, the prominence of this word will increase greatly in the decades to come.

Clifford Cunningham
511 SE 5th Ave., Suite 1102
Ft. Lauderdale, FL 33301, USA
[Clifford.Cunningham@my.jcu.edu.au]

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