

# Forum

## Pronouncing the Names of the Moons of Saturn, or Pulling Teeth from Tethys

The moons of Saturn, so Woody Allen recently observed [Allen, 1979], do not come up in conversation very often. This may be one reason why most people, planetary scientists included, have trouble pronouncing their names.

Our troubles, however, stem not merely from the fact that these names are unfamiliar, or even that they are of non-English origin. After all, the same is true of many terms in technology and medicine [cf. Nybakken, 1959; Reiche, 1959]. They stem from the fact that they are drawn from Greco-Roman mythology and so possess the three chief difficulties troubling those who strive for 'correct' pronunciation anywhere in this area.

There is, first, the fact that most mythological names come in two distinct versions, one ancient Greek, the other Latin. Which of these should one attempt to Anglicize? Witness such choices as those between Hermes and Mercurius, Poseidon and Neptune. Next, how is one to spell one's choice: Mercurius or Mercury, Poseidon or Posidon? Finally, and most importantly, in the case of moons whose names are already specified by commissions of the International Astronomical Union there is the question of which of several competing conventions one is to follow in pronouncing and in placing the stress-accent. Is one to say Po-SAY-don, Po-SIGH-don, Po-SEE-don, Po-say-DOAN, Po-sigh-DOAN? Since Greek, unlike both Latin and English, will often accent names on the last syllable, such cases tend to be the most troublesome.

In practice, it is habit, familiarity, and convenience that have tended to settle the matter, sometimes in ways that vary from case to case. In the case of scientific nomenclature, however, a strong *prima facie* case exists for adopting certain conventions for pronunciation. First, as far as possible, the pronunciations should be free from ambiguity, even for non-English-speaking people. Second, they should have the benefit of historical precedent. Finally, they should come easily to the tongues of, if not necessarily thought to be euphonious by, people from a variety of linguistic backgrounds.

All of this implies certain guidelines which we can apply to pronouncing the names of Saturn's moons. First, if there already exists a well-established way of pronouncing a given name in English, then that way should be retained in preference to some novel way—however more 'correct' by strictest standards of linguistic propriety. If, on the other hand, a given name is not well established, the Latin pronunciation, even of a Greek name, is to be preferred, and the accent is to be Latinized (and Anglicized) by shifting the stress backward to the first or second syllable of the name.

The second rule may seem to need justification. After all, the names were originally Greek: Why not pronounce them and accent them as we presume the ancient Greeks did? Alternatively, if certain Greek names are to be integrated into the English language, then why not pronounce and accent them as English-speaking people habitually pronounce and accent words native to their own tongue?

To put it this way, however, is to fall prey to false antithesis. To defer to English practice exclusively would be to jeopardize cross-cultural intelligibility. Conversely, to attempt to recapture the ancient Greeks' own putative pro-

nunciation and accents—apart from ignoring the pre-Greek origin of many of the names at issue—would distract from the very practical issue at hand and entangle us in acrimonious and fruitless debates as to which of four well-defined systems of pronouncing ancient Greek is the 'correct' one [cf. Stanford, 1967]. Tape recordings of Homer are, alas, unavailable, and anyone familiar with the permutations of English over the last 500 years would not expect Homeric Greek to bear much relation to Modern Greek, 3000 years removed.

Granted, classical writers on rhetoric did preserve, in writing, instructions on how to shape the mouth to make certain sounds (these, only 800 years removed from Homer), and certain onomatopoeic words give us good hints as to how certain vowels were sounded. Still the situation was perhaps best summed up by Blass [1890]:

I am perfectly convinced that, if an ancient Athenian were to rise from his grave and hear one of us speak Greek, on the basis of the best scientific inquiry and with the most delicate and practiced organs, he would think the pronunciation horribly barbarous. But if he heard a modern Greek, he would not indeed be so loud in his censure, simply because he would fail to observe that this is supposed to be his own language. . . .

Even if, miraculously, universal assent to some single, 'correct' system could be secured, the substance of that agreement would still be no more than marginally relevant to the practical aim of establishing an internationally recognizable and usable scientific nomenclature. By contrast, one does well to remember the important and ready-made mediating role that Latin plays in this context.

Until the Renaissance, it was in the form of Latin that much of Greek culture came to and was assimilated by the West. Until the early 19th century, moreover, Latin was the international language par excellence of science and scholarship. To this day Latin remains the root of the Romance languages and, as such, is more directly accessible to native speakers of French, Italian, Spanish, etc., than Greek.

Finally, it should be pointed out that in the case of the planets, the names adopted are in fact the Latin names, not the Greek. It is, after all, the moons of Saturn, not of Kronos, which interest us. It seems but logical, therefore, to pronounce the satellite names as Latin words.

Therefore, to the extent that we seek a scientific nomenclature that is readily and widely intelligible, even when pronounced, we shall want to capitalize on the special advantages that Latin places at our disposal. Thus we shall base our pronunciation and accentuation of Greek names not on what classical scholars agree (if indeed they do agree) as being the closest approximation to the ancient Greek's practice but on the spelling, pronunciation, and accentuation of their transcriptions into Latin.

*Mimas* (MEE-mas). The original Latin word has a short *i*, and so is pronounced 'MIH-mas' (likewise the original Greek, Μίμας). This is important, to differentiate it from the word 'mimus' (with a long *i*), which is the Latin word for 'actor' and has no relation to Mimas, a Giant and half-brother of the Titans. However, such a pronunciation would confuse our English word Mimas with the English word 'mimic' (which comes from the Latin word 'mimus'). The simplest way to preserve the difference between mimic and Mimas is to adopt the 'MEE' sound for Mimas. This has the added

advantage of being consistent with modern Romance usage.

*Enceladus* (En-sell-LA-dus). A question surrounds the proper pronunciation of those Greek sounds which the Latin indiscriminately transcribes as 'c' when they precede e, ae, i, and y. Are we to pronounce it as equivalent to the English sound of 's', or of 'kh'? Here again, provided we are prepared to accommodate contemporary Romance practice, we shall favor 's' over 'kh,' hence En-sell-LA-dus over En-kell-LA-dus. The Latin stress is on the penultimate syllable, while the Greek would have been on the antepenultimate, or (Ἐγκέλαδος) 'En-KELL-a-dus.' This is a reversal of what is commonly found in either language, but to be consistent, we shall continue to follow the Latin.

*Tethys* (TEH-thus). The 'e' is long in Virgil but short in Ovid. The short 'e' comes more easily, and so we prefer it here. The original Greek word, Τηθύς, uses an eta, which has led to confusion in some circles. However, since Greeks rendered the bleating of sheep as βη, βη we can infer that they pronounced it 'bay, bay' not 'bee, bee' (which is what modern Greek pronunciation would imply). From this we would derive 'Tay-THOOS' as a close approximation of the original Greek pronunciation (not the hideous TEETH-us, which would be an English phonetization of modern Greek). But if we base our pronunciation on the Latin transcription of that name, then we should pronounce it 'TEH-thus.'

*Dione* (Dee-OWE-nay). The original Latin has a long 'o' but a short 'i,' and according to strict rules of pronunciation should be 'Dih-OWE-neh;' but the full glottal stops that this would require do not come naturally in English, and so, as in the case of Mimas, we shall adopt modern Romance usage and make the 'i' sound long. By coincidence, our adopted pronunciation is probably closest to the Greek pronunciation of Διώνη.

*Rhea* (RAY-ah). This is pronounced just as in the Latin. The Greek Ρέα would be 'REH-ah.'

*Titan* (TIE-tan). This is common English usage already. The Latin would be 'TEE-tan,' the Greek Τίταν was pronounced 'Tee-TAN.'

*Hyperion* (Hie-PEER-ee-on). We have Shakespeare to thank for this pronunciation. The Latin would have been 'Hoo-PAY-ree-on,' while the Greek Ὑπερίων was probably pronounced something like 'Hoo-per-EE-on.'

*Iapetus* (Ee-AH-pe-tus). Just as in the Latin. The Greek word Ἰαπετός might have been pronounced 'Ee-ah-pe-TOSS.'

*Phoebe* (FEE-bee). Again, this is a fairly common English name now. The Latin pronunciation would have been 'FOH-bay,' while the Greeks may have pronounced Φοίβη as 'FOY-bay.'

The fact is, of course, that people will pronounce these names the way they hear others pronounce them. Before Voyager, only a few astronomers bothered about these moons (and we have done our best to accommodate their ways of pronouncing the names; in this connection we wish to thank helpful comments from Clark Chapman at the Planetary Science Institute in Tucson). With luck, the versions here given may find an acceptance wide enough to save future workers the drudgery of having to consult their dictionaries and may lay to rest, once and for all, the sort of confusion and animosity which now surrounds 'Io.'

Incidentally, we prefer 'EE-owe,' not 'EYE-owe.'

## Acknowledgments

G. Consolmagno (Kon-sul-MON-yo) and H. Reiche (RYE-koe) wish to thank Antonia Fardis for assistance in the preparation of

the manuscript and comments on modern Greek pronunciation. This work was funded in part by NASA grant NSG 7081.

## References

- Allen, W., *Manhattan*, United Artists, Los Angeles, 1979.  
 Blass, F., *The Pronunciation of Modern Greek* (translated by W. J. Purton), Cambridge University Press, Cambridge, England, 1890.  
 Nybakken; O. E., *Greek and Latin in Scientific Terminology*, Iowa State College Press, Ames, Iowa, 1959.  
 Reiche, H. A. T., Review, *Cl. World*, 53, 56, 1959.  
 Stanford, W. B., *The Sound of Greek*, University of California Press, Berkeley, Calif., 1967.

*This article was written by Guy J. Consolmagno (Department of Earth and Planetary Sciences) and Harald A. T. O. Reiche (Department of Humanities), both of the Massachusetts Institute of Technology.*

## Comments

I find the article by Consolmagno and Reiche interesting, worthwhile, and not particularly controversial. The best way to settle a controversy is to inject some facts, and the next best is to inject some informed and rational opinion.

*Anonymous Referee #1*

It's too bad they had to spoil everything at the end by airing their silly prejudices concerning 'Io.' Notice that they offer no objective evidence whatever to support the common misconception which they share ('EE-owe'). In contrast, I offer the simple observation that both the *Random House Unabridged Dictionary* and the *Webster's Collegiate* insist on Io. That's it! Period! It has taken a great deal of control for me to ignore the insistence of my coauthors on 'EE-owe.' (I admit to a single breakdown in control, which unfortunately was the cause of the only incident in which I physically attacked a funder while sober!) In any event, I feel more pity for these misguided individuals than anger.

Despite all this, I remain calm, cool, and collected, and I refuse to let this issue get under my skin. I make these points only in hopes that we can 'open their eyes' (so to speak), and so I remain (barely) . . . controlled.

*Anonymous Referee #2*

I have no particular comments other than that they clearly have tongue in cheek when suggesting that this will settle the controversy. Next to nomenclature, the pronunciation of astronomical names is a continual source of endless, frequently beer-fueled, discussion. I prefer Io (EYE-owe)—and the Federal District Marshal goes along with me (reference *Outland*)!

*Torrence V. Johnson*

On a practical note, I won't, or wouldn't, be bound by their recommendations. I use the pronunciations in the *American Heritage Dictionary*, which always takes i = ih (as in Titan). This is a desirable simplification. (What is the correct pronunciation of *Eos*, I wonder?)

*Ed Smith*

I agree with the end result, as it is close to the consensus view of the International Astronomical Union group. Latin terminology and pronunciation are used extensively in the biologic and paleontologic literature. The continental pronunciation is commonly but not universally used. Some, including the JPL'ers, have chosen the British dictionary pronunciation version, which is British schoolboy Latin; this

pronunciation is offensive to both continentals and Americans. Their pronunciations of Io and Tethys are particularly objectionable. On the other hand, the paper should state that this is their opinion and is not a statement of the IAU. We (IAU Committee on Outer Solar System Nomenclature) have chosen not to issue a pronunciation guide, for, in effect, this is a U.S. view; the British, continentals, and Soviets probably will go their own way. We have focused on the nomenclature content and spelling for written communications. I would have preferred that we issue such a pronunciation guide, and perhaps I can convince the group to do so at our next meeting. We do have representatives of all the groups on the IAU task and working groups.

In addition, much of our nomenclature is taken from many other cultures of the world. The paper does not give us a guide to Chinese, Japanese, Nigerian, or Uzbeki pronunciation among many others. Our spelling choices are based on the particular reference works cited in each edition of the IAU transactions. In our internal computer listings we give the pertinent reference for spelling each name. We could list the pronunciation also in future editions and in the soon to be published gazetteer.

To reiterate, this is Consolmagno and Reiche's opinion about Greco-Roman pronunciation and no more than that.

Harold Masursky

Hal Masursky . . . suggested that I write to you with some of the history behind the pronunciations adopted by the JPL scientists. As far as I can tell it all goes back to the (following) memo from Ray Newburn, who was doing his best to straighten us all out back in 1971. The basic problem seems to be the dominance of English over 'Romance' pronunciations in the dictionaries Newburn consulted. In fact, these names belong to the world community. How they are pronounced by the Americans or the English is only a small part of the problem. It would be nice if the English-speaking peoples could agree among themselves, but given existing differences over simple scientific words like kilometer and laboratory, such unanimity seems unlikely. To paraphrase 'The Pirates of Penzance,' what with one thing and another, the nomenclaturist's lot is not a happy one!

Following receipt of barbs . . . , I finally became sufficiently exercised to look into the . . . subject [pronunciation of outer planet satellite names]. My primary reference was the unabridged *Random House Dictionary of the English Language*. . . . In the following list I have followed Random House and used the 'schwa' written ə in the pronunciations. It has the sound of 'a' in above, of 'e' in system, of 'i' in easily, of 'o' in gallop, and of 'u' in circus. Just shows what a nutty language English is. Other markings include 'â' as in air and 'th' as in thin or path, as well as the usual long vowels marked 'ā' for example, and the short vowels are unmarked.

Here they are. Read 'em and weep! (I got three nasty surprises myself. . . .): Janus, jā' nəs; Mimas, mī' mas; Enceladus, en sel' ə dəs; Tethys, tē this; Dione,

dī ō' nē; Rhea, rē' ə; Titan, tīt ən; Hyperion, hī pēr' ē ən; Iapetus, ī ap' i tēs; Phoebe, fē' bē.

Tobias Owen, Chair  
IAU Committee on  
Outer Solar System Nomenclature

It is good to see the troublesome question of the pronunciation of satellite names being addressed head-on, so to speak. Also we must certainly welcome Reiche's interest in the matter. He brings to it the weight of classical scholarship. As far as I am concerned, the issue should be considered settled with the advent of this paper.

Unfortunately, it probably won't be, because almost all of the choices advocated therein are different than the ones given in the 2nd edition of *Webster's International Dictionary* (it gives no second choices). I have listed Webster's pronunciations here: mī'.mas; ěn.səl'.a.dus, tē'.thīs, dī.ō'.ne, rē'ā, tī'tan, hī.pēr'ī.ōn, ī.āp'ē.tūs, fē'bē, ī'.ō.

We are now faced with having to accept either Webster's dictionary or an *Eos* article as our authority. The authors of this piece do not say explicitly why Webster's choices should be rejected. Since the main object is to agree on a standard, the accessibility of Webster and the general recognition of it as an authority are powerful arguments in favor of retaining its choices.

I wish the authors would make it easier to accept their recommendations by, in effect, explicitly refuting those given in Webster.

George L. Siscoe

This subject of pronunciation is a bottomless can of worms. I am reminded of an old German priest we had in the seminary, who insisted on pronouncing Latin like German, whereas all we seminarians righteously pronounced Latin like it should be (namely like the Italians pronounced it, inasmuch as the Italians ought to know, and besides the center of the Church is Rome, right?). So the Latin 'euge' (well-done) we pronounced (rightly) as 'ay-oo-jay,' whereas our old German priest blithely 'butchered' it as 'oy-gay.' We snickered, but I wonder who was right. Probably, the true pronunciation by a Roman would be 'ay-u-gay,' with the 'u' a very short nondescript vowel. Similarly, it is probably true that the German pronunciation 'Kaiser' is closer to Latin than our 'Ceezar' for Julius Caesar's name.

Speaking of Julius and the way we pronounce it, I am bemused by the name Iapetus for Saturn's moon. Since Latin 'Iupiter' became 'Jupiter' when the 'J' was invented, why did not 'Iapetus' become 'Japetus,' and why don't we say 'Jap-e-tus,' just like 'Japanese.' But that is another subject.

The overall list of pronunciations proposed are some Anglicized and some Latinized, and the ones they Anglicize depend solely on current usage. I don't think anyone has sufficient authority to pronounce on pronunciation. Let common usage determine pronunciation. It always does in the long run anyway. I don't agree with all their pronunciations, and probably no one else will. Let Chaos reign, and eventually Cosmos (order) will win out. Now is not the appropriate time to set down rules. Besides, no one will follow them anyway.

Godfrey Sill