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ARTICLE



Taxonomic punchlines: metadata in biology

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ABSTRACT

Biological nomenclature contains metadata that can inform researchers about a taxon's place in nature and the namer's place in contemporary science and culture. The socio-scientific content of that metadata, and the story it conveys about the origin of a scientific name, hold value for taxonomy and interest for the public in general. However, such metadata are perishable if not hard-coded into literature. Accordingly, the present paper attempts to document the use and value of socio-scientific metadata through examples of whimsical taxonomic names. In the process, I capture hitherto unpublished views on this topic expressed by George Gaylord Simpson, the twentieth century's most distinguished vertebrate palaeontologist and a co-founder of the modern synthetic theory of evolution, along with personal perspectives of many of the eminent palaeozoologists and biologists of his time. The principal conclusion is that whimsical names will surely increase in their ubiquity in scientific literature, and this commends acknowledgement in the international zoological code to encourage the preservation of their origin stories.

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Credit: Cartoon from *New Scientist*, its masked arthropod grumbling about whimsical scientific nomenclature, originally appeared in McClellan (1982). The artist, David Austin (1935-2005), began his cartooning career in the 1970s, later becoming well-known for his political commentary in pocket cartoons featured in British dailies including *Today*, *The Daily Telegraph*, and *The Guardian*, and also *Labour Weekly*, *The Spectator*, *Field and Mail*. (Used with permission of Mr. Austin's estate, courtesy of Janet Slee, 2018.)

Introduction

A name alone cannot keep a heritage alive.

- Sasha Martin (2015)

In biology a feature rarely examined is the mind of its practitioners. In popular literature, that void is filled by biographers and autobiographies that provide compelling narratives of certain colourful historical figures. Among palaeontologists, for example, notable treatments include O. C. Marsh (Schuchert and LeVene 1940), E. D. Cope (Davidson 1997), Mary Anning

(Emling 2009), John Bell Hatcher (Dingus 2018), and George Gaylord Simpson (Simpson 1965, 1978; Laporte 1987, 2000). For most biologists, however, their lives are measured by their scientific bibliography, a list of technical publications that reveals little of their personal character and private mindset. This paper uniquely examines this under-reported aspect of our science, through hitherto unpublished commentary about biological nomenclature by some of the twentieth century's most eminent palaeontologists and biologists, including George Gaylord Simpson, Malcolm McKenna, Leigh Van Valen, Albert Wood, Mary Dawson, Philip Tobias, Kenneth Caster,

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Rousseau Flower, Arnold Menke, Cornelius Philip, and others. While drawn largely from palaeozoology, the paper addresses scientific names of both extinct and extant species across the kingdoms of biology.

Taxonomy, generally defined, is the science of describing, classifying and naming organisms. As the ‘third leg’ of taxonomy, nomenclature is therefore a key piece of taxonomic information. Palmer (1904), Jaeger (1944), Brown (1956), and other standard lexicons treat the derivation of biological names in terms of their classical word roots and meanings. This paper focuses on information behind the names of species – hence, information about information, or ‘metadata’. By this, I refer not strictly to what a name describes (its translated classical roots) but to how the name came to be (its origin story). The former is etymology in the traditional taxonomic sense, the name’s derivation and descriptive translation. The latter, etymology in the broad sense, includes provenance – the pedigree or heritage of a name – which becomes increasingly valuable metadata as biological nomenclature, often by necessity, is enriched through whimsy as I explain below. Historical background of this sort can perform a social or intellectual service to science through its potential to inform later investigators about the circumstances of a species’ discovery, such as the culture of its time, the character of its place, and the personality of its discoverer. I show that such vignettes of biodiversity are both interesting and useful to scientists and students. Regrettably, however, I also show that such metadata are often intentionally concealed, cleverly encrypted by Latinised double meanings, encoded in idiomatic allusions to a type specimen, held secret among a close tribe of *cognoscenti*, or otherwise unrecorded and, thus, perishable. If not captured in an etymology when a new taxon is first described, such metadata fade into obscurity as the first-person authorities (the perpetrators) themselves become extinct, leaving subsequent generations of biologists to disagree about how a particularly curious species name evolved.

Passed down through the ‘jokelore’ of science, the origin story of a fanciful species name can differ widely among ill-informed and uninformed accounts, often conflicting irreconcilably, if its creator did not record it. I illustrate the value of metadata in constraining the variability and uncertainty in taxonomic origin stories, using examples of whimsical generic and species names (Linnaean binomials) coined by otherwise serious scholars. I argue that, just as a scientific name is the standing stone for an organism, its etymology should be a monument to its inspiration. To encourage alpha taxonomists in this direction, I suggest below that the International Commission on Zoological Nomenclature considers recommending more strongly the inclusion of an etymology in a new genus or species description.

Since the early 1970s palaeobiology, and vertebrate palaeontology, in particular, have enjoyed what can best be described as explosive popularity. Largely responsible for this rejuvenation is the public’s endless fascination with ‘hot-blooded’ and feathered dinosaurs, the discovery of ever larger ‘monsters’ of the Mesozoic, and exquisitely preserved and vividly prepared specimens from frontier fossil fields – along with the discoverers, dramas, and video documentaries that have reanimated them.

An often overlooked source of curiosity for lay observers about biology and science generally is occasional media coverage about quirky names that researchers intentionally apply in

formal publication to the objects of their study. Chemists, for example, have formally named compounds such as thebacon, dogcollarane, betweenanene, and unununium; joe, george and bi-george, cezanne, mirasorvone, selene dione and babe; bohemiacid and other substances memorialising operas or their characters; and (arranged in order for mature audiences) mad, gag-knuckle zink finger, snot, barf, fartox, damn, crapinon, kisspeptin, matrimony, arsoles, sex, lovenone, porn and fucitol. Vertebrate palaeontologists should especially approve of penguinone and pterodactyladiene (cf. Simpson 1970; Lawson 1975), compounds named for their molecular shapes (e.g., May 2008).

Geneticists have a sonic hedgehog, hotair, happyhour, cheapdate, members only, snafu and indy (‘I’m Not Dead Yet’) gene or mutation. Mineralogists have their carlsbergite (for the beer), taconite and burpalite; pyropissite, eurekadumpite, parasite and noselite; and carnallite, dickite, fornacite, fukalite and cummingtonite; and physicists, their steve, squid, wimps and machos, boojum, and quarks (up, down, strange and charm, with their colours and flavours).

Such names are often wilfully whimsical. Physicist Murray Gell-Mann borrowed his ‘quark’, for example, from James Joyce’s ‘gobbledygookian masterpiece’ *Finnegans Wake* (Horgan 2013); and, in palaeontology, *Quetzalcoatlus northropi* Lawson 1975, the giant tail-less pterosaur from the Late Cretaceous of Texas, honors famed aircraft designer, Jack Northrop, and his likewise tail-less ‘flying wing’ of similar scale (Lawson 1975, p. 947).

Other names become humorous by linguistic accidents of time and place, much like commercial branding failures such as Ford’s fateful Pinto (which, in the native Portuguese slang of Brazil’s automobile market, translated to ‘small penis’) and Mitsubishi’s Pajero (in Spanish-speaking countries, ‘masturbator’; [BBC] British Broadcasting System 2003), while others, inevitably, are victims of ritual undergraduate levity. Regardless of reason, fanciful scientific names tend to soften the sober and bespectacled lab-coat persona of researchers and provide entry points into science for curious passers-by immersed in pop culture. This paper addresses such whimsical nomenclature in biological taxonomy with the personal narration of eminent biologists of the past century.

Materials and methods

The initial data on which this paper is based were collected in 1974–75 during my graduate study in vertebrate palaeontology at the University of California, Berkeley. In the fall of 1974, I attended a course on the history of palaeontology taught by Professor Joseph T. Gregory (1914–2007), an international authority on fossil lower vertebrates and a science historian. To prepare for the class, in 1974 July and August I canvassed over 70 eminent American palaeontologists, among them former or future presidents of the Society of Vertebrate Paleontology (29) and the Paleontological Society (6), aiming to collect their observations on the use and ubiquity of whimsical nomenclature in fossil systematics and taxonomy. By way of their replies nearly all respondents shared multiple examples and many, including George Gaylord Simpson, wrote multiple pages, documenting their familiarity with and personal contributions to the topic at hand. Their cordial and humorous

responses became the basis for my term paper (40 pages, dated 3 December 1974), hastily typed to meet the course deadline, on a 1963 Olympia portable. Without a bibliography and peer review (and predating electronic spell-checking technology), the manuscript was by no means intended for publication; nevertheless, I shared portions of it with some contributors at their request, who responded thoughtfully (and mercifully) with additional elaboration. McClellan (1982) provides a brief distillation of that early work (Figure S1).

Testing the thesis

McClellan (1982) brazenly concluded: ‘I have little doubt that entomologists, out of sheer desperation, must be the most prolific of fanciful namesmiths in biology, hands down. I invite replies from any and all taxonomists who might help me test that hypothesis!’ (It was a safe bet, of course – 1.5 million known species, two out of three being insects and millions more awaiting a Linnaean binomial, and *flavus* was wearing thin.) The response far exceeded my expectation and manifested a pent-up thirst for metadata in biological nomenclature. It exposed a previously unrecognised, and truly global, subculture among scientists concerned with whimsical species names that inspired a second phase of my research. Hence, in the mid-1980s I canvassed 94 biologists, mainly entomologists this time. The resulting bounty is sampled below in quotes from their selected letters.

Regrettably, the letters collectively contain hundreds more delightful examples of whimsical species names than can be shared in a brief journal article. Moreover, at today’s state of play (Figure 1), a comprehensive treatment of whimsical nomenclature would be well out of date by the time it reached print. For additional published accounts (without the historical personal narratives) readers are referred to recent books and articles by Ohl (2018), Józwiak et al. (2015), Lachhandama (2014), Prothero (2013, p. 82–84), Berenbaum (2000), and others; and, above all, to the original academic papers by the legions of whimsical

taxonomists, leaders among whom include Terry Erwin, Arnold Menke, Cornelius Philip, Quentin Wheeler and Kelly Miller, Albert Wood, and other biologists too numerous to cite.

The letters open a window on the private thoughts of many of the twentieth century’s most influential biologists about whimsical nomenclature, the pre-eminent among them being G. G. Simpson, who has been described as ‘an Olympian figure’ in evolutionary biology (Webb [date unknown]), ‘unquestionably, the greatest vertebrate paleontologist of the twentieth century’ (Gould 1996, p. 114), and ‘the greatest paleontologist since Cuvier’ (according to Simpson’s Yale mentor, Richard Swann Lull; Laporte 1987, Preface, Footnote 1). Simpson’s letters are a principal focus of this paper and are preserved in the collected works of George Gaylord Simpson archived by the American Philosophical Society Library (2018). Selected letters from Simpson and other palaeontologists are quoted below and are included in their entirety, as examples, in the Supplementary Data (Table S1), with permission or as fair-use. To conserve space in this article, I cite all quoted excerpts from the original (1970s) study simply as ‘pers. comm.’; it means ‘written communication to me, 1974–1975; unreferenced’ unless otherwise noted. For the second (1980s) phase of the research, I cite the excerpts as ‘pers. comm. [year]’; meaning ‘written communication to me, [year]; unreferenced’. I refer to all simply as ‘the letters’ and acknowledge all respondents at the end. As this paper is long overdue, most of the respondents unfortunately are now deceased; hence, for historical context, I hereafter include parenthetically the birth-death range for those scientists at their first mention. The collection of original letters is archived in the Museum of Paleontology at the University of California at Berkeley.

Results

Whimsical names: the views of G. G. Simpson et al

In palaeontology, whimsical names are of interest to both the public and practitioners. ‘Your subject interests me very much,’

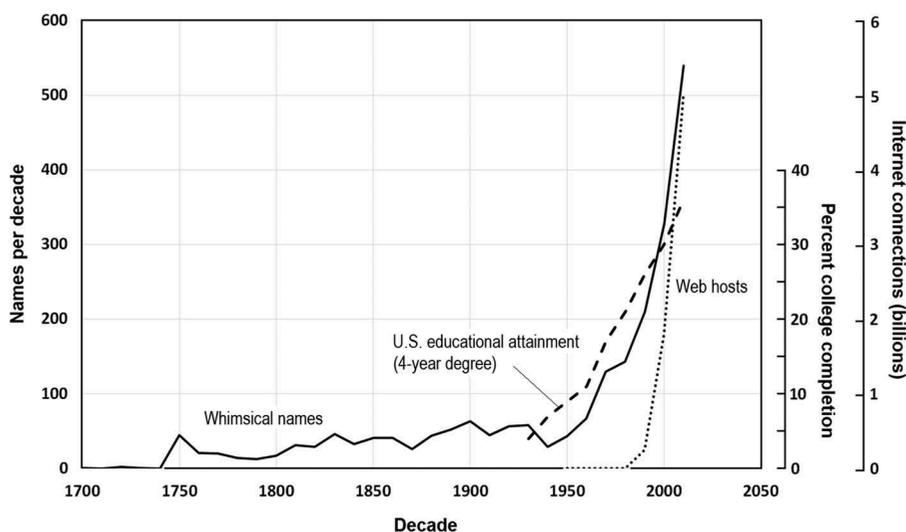


Figure 1. Whimsical names through time. Trends in the apparent growth of whimsical biological names, from Linnaeus (1758) to 2019; U.S. college educational attainment (in percent of adults aged 25 and older); and Internet usage. Sources: Taxonomic names from anecdotal lists by Yanega (2018) and Isaak (2017) where a publication date is provided, after removing duplicates ($n=2056$ unique names); educational data from Ryan and Bauman (2016); and Internet connections (Web hosts) from Internet World Stats (2018). Curves are arbitrarily scaled for easy visibility and represent totals at the end of the decade labeled; for the decade of 2010, annual totals are projected to the end of 2018.

wrote G. G. Simpson (1902–1984). ‘[A] paper of this sort shall certainly be of interest,’ Simpson added, ‘I hope to see the proposed refined version’ (pers. comm.). Malcolm C. McKenna (1930–2008), Simpson’s successor at the American Museum of Natural History (AMNH), opined, ‘I find your project amusing! . . . Onward and upward!’ (pers. comm.). Mary R. Dawson, Carnegie Museum’s Curator Emeritus of Vertebrate Paleontology, likewise acknowledged, ‘You have a most charming subject . . . I hope you’ll make copies of your report available . . . as it should make good reading!’ (pers. comm.), adding in 2018, ‘You still have a most charming subject!’ Australian vertebrate palaeontologist, Professor Michael Archer, inquired, ‘If your compilation is leading up to a book on the topic, I would be pleased to hear when it is available. The subject intrigues all of us. Good luck!’ (pers. comm. 1985); and the Curator of Invertebrate Paleontology at the Field Museum of Natural History, Eugene S. Richardson, Jr. (1916–1983) eagerly counselled, ‘I encourage you to the utmost in pursuing whimsical names.’ (pers. comm.).

Beyond palaeontology the interest seems even greater. David Heppell (1937–2004), Curator of Mollusca at the Royal Scottish Museum and a member of the International Commission on Zoological Nomenclature, wrote in a two-page letter (pers. comm. 1982), ‘taxonomists the world over would owe you a deep debt of gratitude if you would set your hand to a Sherbornian compilation of biological pornonyms and whimsonyms.’ (C. D. Sherborn’s ‘Index animalium’ is a compendium of zoological taxonomic species nomenclature from 1758–1850; widely considered a foundational work, it is now accessible via the Smithsonian Libraries.)

Simpson never directly acknowledged his affection for whimsical nomenclature, nor has it been recognised in biographies, tributes and memorials about him. To the contrary, in fact, one of Simpson’s many major works was *Principles of Animal Taxonomy* (1961); although among of the first textbooks on the science of zoological classification, in it he treated the topic of scientific nomenclature almost dismissively: ‘It provides a vocabulary for writing and talking about animals, and so is absolutely essential to zoology, but it has no other zoological or scientific interest in itself. . . . We shall not henceforth be directly concerned with it . . .’ (Simpson 1961, p. 34). While he published on the vernacular names used in various cultures for vertebrate animals (Simpson 1938, 1941a, 1941b), he elsewhere wrote, ‘Names are just names and it does not really matter what they mean as words.’ (Simpson 1953, p. 95); and, ‘From a purely scientific point of view, the source and structure of a name, its etymology, have no significance.’ (Simpson 1962, p. 15).

In taxonomy, the etymology provides the derivation of a new scientific name from its Latin or Greek roots or from Latinised words of other origin. Simpson, a student of many languages, was ‘more interested in names of barbaric (i.e., not Latin or Greek) derivation’ (pers. comm.) and he often drew upon native vocabularies for inspiration. His own technical names included Latinised words from Arabic, Malay, Maori, Mongolian, and indigenous North and South American languages including ‘Dakota Indian’ (Sioux) (Simpson 1941c, p. 2), and Quechua, Araucanian, Carib, Tupi-Guarani and Tehuelche. He explained, ‘Such “barbarous” names are deprecated by a few purists but all now admit them to be valid and they are being used increasingly. As a personal opinion, on grounds of mnemonics, of freedom

from probable preoccupation, and of appropriateness, I would often prefer a scientific name for a Mongolian animal derived from a Mongolian root to another permutation of the shopworn Greek and Latin roots.’ (Simpson 1938, p. 2). That ethic guided his work on fossil vertebrates from the lowest Cenozoic beds of Patagonia: ‘With few exceptions I have compounded the names of the oldest South American mammals from the oldest language of the area in which they occur.’ (Simpson 1935, p. 3). Whimsical examples of the latter, derived from the local Tehuelche language, include his trivial names for two early Tertiary species of the marsupial *Polydolops*, *P. winecage* (‘eight’) and *P. kamektsen* (‘nine’), which were the eighth and ninth species to be referred to this genus (Simpson 1935, p. 4–5).

Simpson nevertheless enjoyed a well-endowed classical binomial. ‘Just in passing, *Venus mercenaria* [a clam] has always been one of my favorite names. It is a pity, and perhaps should be appealed, that the species has been removed from that genus.’ (pers. comm.). He also noted, as an aside, another *Venus* whose name he found memorable. ‘P.S. Some English entomologist named an insect species *Callopyge*, with a footnote that this was in honor of one of his rivals, whom he named. Unfortunately, I do not remember the people involved, as I heard this some 50 years ago at the Zool. Soc. London and had no reason to make a special note.’ The *Venus* *Callopyge*, namesake of the taxon, is also known as *Aphrodite Kallipygos*, meaning literally ‘Aphrodite of the beautiful buttocks’ and is portrayed as a statuesque Roman work in marble from the first century B.C. (Royal Athena Galleries 2018). As will appear later, patronymics serving this ‘honorary’ function in biology are not uncommon. (I note in passing that, likewise, entomologist Wojciech J. Pulawski [pers. comm. 1985] named a wasp bearing a ‘peculiar pygidium’ *Tachysphex incertus kallipygus* Pulawski 1971; and geneticists have a *callopyge* gene, a mutation causing the large and dramatic muscular rump in certain lambs [Freking et al. 2002].)

Typically innocent, the etymology in the description of a new taxon can be an attempt to legitimise or conceal a pun, joke, or other whimsy perpetrated by the author. ‘Now perhaps I am in a mean mood,’ Simpson teased (pers. comm. 18 December 1974), ‘because I will tantalize you by telling that on two quite different occasions (indeed in different taxonomic classes) I have given new generic names with properly documented Greek origins which nevertheless conceal two atrocious puns, but I will not tell you what they are.’ (He did not reveal them in the letters; so, they are lost to time or to a determined taxonomic detective.)

The current International Code of Zoological Nomenclature ([ICZN] International Commission on Zoological Nomenclature 1999) recommends the derivation of a scientific name to be stated at the first instance of its use in publication, in the etymology section of the systematic description of a new species. Prior versions the Code were likewise only suggestive on this point. Consequently, in older systematic literature the etymology of a species name when given at all is often obscure but for an obliging footnote by its author. ‘It is indeed unfortunate that the custom of explaining the derivation of scientific names is now so little observed. A few authors used to do it; practically none do it now,’ inveighed Jaeger (1944, p. x). ‘Whether it is due to indolence, carelessness or a sort of prosaic academic apathy I shall not say.’

Almost without fail, Simpson recorded the etymology in his systematic works on new species. (Examples abound in his

footnotes, e.g., Simpson 1932, 1933, 1934, 1970, one case being *Necrosuchus*, Simpson 1937, a crocodylian from near the Cretaceous-Tertiary boundary in Patagonia. His footnote comically explained, ‘dead + crocodile – a sufficiently appropriate name, suggested by the fact that when we were collecting it a well-meaning lady asked us if it were dead.’, Simpson 1937, p. 1.) Yet, even he had lapses. ‘I find that it may make me seem even sillier than I was,’ he admitted (pers. comm.), ‘to say that I named a fossil snake “grandfather valley cow” without explaining that “cow valley” is for the locality, Cañadón Vaca, and “grandfather” merely an indication of antiquity.’ The snake was a gigantic Eocene serpent, indeed, ‘the great-grand-daddy of all snakes from its relatively huge size’ (Simpson 1965, p. 216); the name was *Madtsoia bai* Simpson 1933, compounded from Tehuelche Indian roots and Latinised; and the locality was near Camp 3 on his first Scarritt Expedition to Patagonia (Laporte 1987, p. 149). Ironically, ‘Cow Canyon’, as he nicknamed the locality, was by his own assessment in his day quite cow-less (Simpson 1965, p. 176) and Patagonia equally snake-less (Laporte 1987, p. 149).

Likewise, Simpson named a Miocene tortoise he discovered in Patagonia *Testudo gringorum* Simpson 1942, omitting an etymology. The term ‘gringo’ is often used pejoratively in Latin America for foreigners and was applied to Simpson during his years in Patagonia (Laporte 1987, p. 159). While his missing etymology hints of covert intent, the Latinised ‘gringo’ here almost certainly alludes, playfully, to the reptile’s immigration status – a probable ‘island-hopper’ from Holarctica – which his paper discusses at length under biogeographical implications (Simpson 1942, p. 3–4).

Elsewhere in biological taxonomy, the etymology given conceals a truth. Richard Estes (1932–1990), an internationally recognised paleoherpetologist and much-beloved professor at San Diego State University, wrote, ‘I refer you to my own name *Cuttysarkus*,’ a genus of Cretaceous salamander. ‘The derivation given in the text was an attempt to “legitimize” the whimsy.’ The name ‘actually refers to the fact that I provided the finder of the first specimen of this animal with a bottle of Cutty Sark scotch whiskey as a reward.’ ‘Unfortunately,’ he lamented, ‘all too few such names ever reach print’ (pers. comm.). Sadly also, *Cuttysarkus* is now an empty vessel, a junior synonym of *Prodesmodon copei* Estes. (His students later whimsically memorialised their mentor in fossil mammal nomenclature with *Esteslestes* Novacek et al. 1991, an Eocene marsupial from Baja California, Mexico.) Likewise, Malcom McKenna (pers. comm.) noted that an Eocene primate from Wyoming has an etymology similarly cryptic, *Macrotarsius siegerti* Robinson 1968, formally ‘named in honor of the late Dr. J. G. B. Siegert, of Trinidad, West Indies.’ (Robinson 1968, p. 312). Undisclosed in the published tribute, J. G. B. Siegert (who died a century earlier) developed the well-known botanically infused alcoholic mixture known as Angostura bitters, which apparently spiced up Robinson’s expedition.

Kenneth E. Caster (1908–1992), professor of invertebrate palaeontology at the University of Cincinnati, revealed a deeper level of insight about patronyms seemingly honourable, explaining, ‘Sometimes the names are more subtle insults than mere composition implies: [it is] necessary to look at the types, or even the paradigm, to appreciate the “insult” or flattery intended. Flower’s [see below] *Casteroceras* and *Shideleroceras*

original illustrations are sufficient documentation of why I was flattered and Bill Shideler “insulted.”’ (pers. comm.).

Patronyms have memorialised every ‘Tom, Dick and Harry’ in the biological world. Albert E. Wood (1910–2002) named the middle Tertiary geomyid rodent *Dikkomys* Wood 1936, ‘to indicate relationships to *Thomomys* [the extant Western pocket gopher of North America] and in anticipation of the description of [a genus name alluding to Harry], still not described’ (pers. comm.). Before Wood could describe it, however, Robert H. Denison (1911–1985), Curator of Fossil Fishes at the Field Museum, named ‘my three genera of Cythaspidae [a family of Paleozoic jawless fishes]: *Ptomaspis*, *Dikenaspis* and *Ariaspis*.’ ‘*Dikenaspis* was originally *Dikaspis*, but,’ he reflected, ‘someone beat me to it.’ (pers. comm.). Denison’s colleague at the museum, E. S. Richardson, Jr., elucidated their conspiracy, explaining, ‘Bob asked my advice on how to name three genera for “Tom, Dick and Harry”. The names had to be Greek to combine with *-aspis*, the usual suffix in this group. *Ptom* (Tom) and *Ari* (Harry) came easily enough but there was no appropriate Dick, so we dropped the matter. A couple of weeks later I realized that the middle term is really “Dick ‘n” rather than Dick, and came up with *Diken*.’ (pers. comm.). All three were published in the same paper (Denison 1963). Wood’s *Dikkomys* aged a further half-century before a colleague completed his gopher trio by describing the Miocene *Harrymys* Munthe 1988.

Discussion

A scientific name once published often becomes the only attribute by which a species is known. It is distinctly unscientific, however. August and felicitous, the euphonious epithet stands in dramatic discord to the objective specifications that define a new species. It is art encased in a technical matrix of enumerated specimens, tabulated anatomical dimensions and precisely measured morphological details with their reproducible ratios and standard deviations, in the compulsory diagnosis and typological description of the new taxon. Absent an etymology, the art becomes entirely impressionistic, a naked nomen, poetry that frees a later observer to speculate about its origin and interpretation – and its misinterpretation.

Patronymic insults are a thing

Perhaps nowhere is biological nomenclature more prone to misinterpretation than in patronyms. After Linnaeus’ *Systema Naturae* (1758), ‘Patronyms, honoring particular persons such as other naturalists, were not at first used, but gradually entered the system as evolutionary classification superseded key-like classification.’ (McKenna and Bell 1997, p. 25). Over the following century, patronyms became commonplace as a form of tribute to a person, or a people, regarded by the taxonomist to be important to the taxon named. Thus, began patronyms such as *Colosteus marshii* Cope 1869, and *Mosasaurus copeanus* Marsh 1869, mutually dedicated by Cope and Marsh near the start of their legendary rivalry (discussed below with the ‘Bone Wars’); *Carolodarwinia* Ameghino 1901, after Florentino Ameghino’s idol Charles Darwin (Simpson 1984); *Pehuena*

Roth 1902, for the ‘Pehuen-che, a tribe of Indians of Argentina’ (Simpson 1962); *Scarrittia* Simpson 1934, for H. S. Scarritt, patron of Simpson’s two South American fossil expeditions for the AMNH (Simpson 1934); and *Hyorhinomys stuempkei* Esselstyn et al. 2015, the Sulawesi hog-nosed shrew rat, after Harald Stümpke (Esselstyn et al. 2015, p. 899) for his legendary systematic analysis of the Order Rhinogradentia (a fabulous 1957 monograph that Simpson acclaimed as ‘A definitive work . . . of passionate interest for all . . . especially pertinent for you who share its outlook and methods.’, Simpson 1963).

The ICZN Code of Ethics admonishes, ‘No author should propose a name that, to his or her knowledge or reasonable belief, would be likely to give offence on any grounds.’ ([ICZN] International Commission on Zoological Nomenclature 1999). The ‘case law’ behind that principle includes numerous examples of patronyms that, in the judgement of historians (and the confessions of perpetrators), were weaponised in biological literature. Offences span the spectrum from collegial ribbing to hostile insults. Where the latter, the etymology is usually absent or dissembles the ‘honour’ in an unflattering morphological description. G. G. Simpson passionately opposed such abuse in zoological nomenclature, as explained below following several illustrative examples.

Well known among early patronymic insults is *Sigesbeckia*, ‘the unpleasant small-flowered weed,’ named by Linnaeus for Johann G. Siegesbeck, who in 1737 harshly attacked the new Linnaean ‘sexual system’ of plant classification ‘on the ground that “such loathsome harlotry” as several males [stamens] to one female [pistil] would never have been permitted in the vegetable kingdom by the Creator.’ ‘Who,’ Siegesbeck asked, ‘would have thought that bluebells, lilies and onions could be up to such immorality?’ And, he wondered, ‘how anyone could teach without offence “so licentious a method” to studious youth.’ (Blunt 1971, p. 120–121).

In 1857 zoologist Wilhelm Blandowski named 19 new species of extant Australian fishes he had collected, two after prominent officials of the Philosophical Institute of Victoria with whom he differed philosophically. A river blackfish, *Brosmius bleasdalii*, named for the Reverend Dr John Bleasdale, he described as a ‘Slimy, slippery fish. Lives in the mud.’ The silver perch, *Cernua eadesii*, to ‘honour’ physician Dr Richard Eades, he defined as, ‘A fish easily recognised by its low forehead, big belly and sharp spine.’ Not amused, the officials blocked Blandowski’s publication by the institute (Humphries 2003, p. 161).

The legendary ‘Bone Wars’ of the late nineteenth-century American West pitted vertebrate palaeontologist Edward Drinker Cope against his rival, Othniel Charles Marsh, and created fertile ground for patronymic insults. However, the names they published over their careers (over 1,100 species in all) remained gentlemanly and professional, as far as may be surmised from etymologies given and omitted. While Marsh’s collectors in the field frequently applied to Cope the binomial ‘Monstrum horrendum’ (John H. Ostrom 1928–2005, pers. comm.), the only whimsical patronymic for a fossil species documented from the rivalry was Cope’s name, *Anisonchus cophater*, for a Paleocene condylarth (mammal). As Cope reportedly explained it to his colleague: ‘[Henry Fairfield] Osborn, it’s no use looking up the Greek derivation of

cophater, because it’s not classic in origin. It is derived from the union of two English words, Cope and hater, for I have named it in honor of the number of Cope-haters that surround me.’ (Davidson 1997, p. 69).

Marsh, however, did not respond in kind. It was Leigh Van Valen (1935–2010), vertebrate palaeontologist and evolutionary theorist at the University of Chicago, a century later who closed the loop, naming a closely related species of condylarth *Oxyacodon marshater* Van Valen 1978 (pers. comm.). The trivial epithet, initially combined with a different genus (named but ‘unpublished’; Van Valen, oral comm. 19 August 1974), he later explained as, ‘For Edward Drinker Cope, by analogy to his *Anisonchus cophater* (now also placed in *Oxyacodon*), the only species he ever named for his rival Marsh. Marsh + hater (English).’ (Van Valen 1978, p. 65). McKenna and Haase (1992) followed suit with ‘the replacement name *Marsholestes* (patronym for E. D. Cope) for the preoccupied name *Myolestes* Matthew 1909’ (p. 256), for an Eocene insectivoran. The new name, meaning ‘Marsh’ + ‘robber’, ostensibly salutes Cope’s 1872 invasion of Wyoming’s fossil-rich Bridger Basin, which Marsh had considered to be his exclusive territory, and which produced the type specimen of the type species of *Myolestes*.

An example of etymological misinterpretation appears to be Marsh’s mosasaur named for Cope, *Mosasaurus copeanus* noted above. Marsh published the patronym in 1869, within months of Cope naming for him *Colosteus marshii* (‘I have dedicated it to Prof. Othniel C. Marsh, Professor of Palaeontology in Yale College, Connecticut.’; Cope 1869). As context, 1868 arguably marked the outbreak of hostilities between the two famous rivals, who reportedly were cordial publicly until then. It was in late 1868 that Cope published a new plesiosaur species, *Elasmosaurus platyurus*, whereupon Marsh harshly criticised and publicly humiliated him for restoring the aquatic reptile with its head embarrassingly on the tip of its short tail (e.g., Davidson 1997, p. 34–35). In my graduate investigation, several sources claimed (without direct evidence) that the Latin masculine suffix *-anus* (meaning ‘pertaining to, belonging to’, Brown 1956) when used in a patronymic is sometimes intended to be derogatory or insulting when the name is pronounced as an English word. Illustrating the effect, David Heppell (pers. comm. 1982) quotes his former department head, Keeper of Natural History of the Royal Scottish Museum, Rodger Waterston, ‘I don’t mind them calling a species *waterstoni*, but I do object to *waterstonianus*.’ Prothero (2013) suggests likewise in his anecdotes of species names that are intended to ‘dishonour’ individuals (his emphasis): ‘The famous late-nineteenth century paleontologists Edward Drinker Cope and O. C. Marsh insulted each other with naming wars. Marsh named a marine lizard *Mosasaurus copeanus* (emphasis on the last four letters) . . .’ (Prothero 2013, p. 83). Intent, however, is hard to prove even when a suspect is living. While Cope and Marsh obviously had the means, the motive and the opportunity to dishonour each other through their many published scientific names, establishing those long-ago facts throws no light whatever on the intent behind their fossil patronyms.

That either Cope or Marsh, or others of their era, would pervert this formal Latin suffix was apocryphal to Simpson. ‘I think it more than dubious that many, if any, of the users of this termination had your scatological interpretation in mind,’ he

scolded. ‘The suffix becomes *-ana* and *-anum* with generic names of different gender and also takes the forms of *-anus*, *-inus*, and *-unus*, all of which rather spoils the fun... In short, fun’s fun even when not clean, but let’s make it accurate. The widespread use of *-anus* in Neolatin specific names was obvious, inevitable, and usually if not always innocent.’ (pers. comm.). Albert E. Wood agreed, ‘I’m sure that Simpson is correct that your attribution of intent to be snooty in the use of “anus” is completely erroneous. Remember that the authors of the last century were brought up in the classical tradition with Greek and Latin thru [sic] college.’ (pers. comm.). Wood reinforced his admonition, noting (pers. comm.) that ‘monstrum horrendum’ applied to Cope by Marsh’s men ‘merely indicates their classical education – “monstrum horrendum, informe, ingens, cui lumen ademptum” [a monster horrendous, hideous, and vast, deprived of sight] (Virgil, of the blinded Cyclops, Polyphemus).

A well-known patronymic insult of the early twentieth century is *Dinohyus hollandi* Peterson 1905. Donald Baird (1926–2011), an authority on early Mesozoic vertebrates who began his interest at the Carnegie Museum and was later the Director of the Princeton Museum of Natural History, elaborated the story behind that species name (pers. comm. ‘Halloween 1974’):

My father used to tell stories about the pomposity of W. J. Holland, former director of the Carnegie Museum. Whenever Andrew Carnegie donated a plaster skeleton of *Diplodocus carnegii* to a foreign museum (Berlin, the Prado, or the British Museum), Dr. Holland would junket along to make the formal presentation before an audience of crowned heads, noblesse, diplomatic excellencies and scientific panjandrums. As was customary in those palmy pre-war days, [on] Dr. Holland’s palm on such occasions was a decoration from the hand of whatever monarch it happened to be. On his return he would take down his portrait from its place of honor at the University of Pittsburgh and (being an accomplished miniaturist) would paint in the new medal on his chest. This sort of thing failed to endear him to Olof A. Peterson, the curator of vertebrate paleontology at Carnegie [also previously with the Princeton Museum]; so when Peterson discovered the giant entelodont [a scavenging hog-like ungulate with a grotesque skull] at Agate Springs, Nebraska, he named it *Dinohyus hollandi* Peterson 1905–‘the biggest pig in the world.’

Baird’s story was corroborated by Mary R. Dawson (pers. comm., with permission). I note that the published etymology for this giant suid (in the genus to which Peterson initially assigned it, *Dinochoerus*) read innocently enough, ‘The specific name is given in honor of Dr. W. J. Holland, the Director and Acting Curator of Paleontology in the Carnegie Museum.’ (Peterson 1905, p. 212).

On a similar theme, James Reid Macdonald (1918–2004) was an exuberant creator of vertebrate fossil names derived from the Lakota language of the Oglala-Sioux people. Indeed, nine of my respondents referenced Macdonald’s Sioux-derived nomenclature. He published *Kukusepasutanka schultzi* Macdonald 1956, an Early Miocene anthracothere, with the etymology, ‘big-nosed-hog in Sioux, an allusion to the great tubular snout of the type species... For C. Bertrand Schultz of Lincoln, Nebraska.’ The obvious meaning was amicably intended (Macdonald, oral comm. 1975). Simpson opined, ‘A prolific coiner of queer names in my sense is J. R. MacDonald and another in all senses is Albert Wood, as you doubtless know. Indeed I think on occasion both have really gone too

far.’ (pers. comm.). Likewise, McKenna and Bell (1997, p. 26) imputed, Macdonald (1963) has ‘burdened the literature with nearly unpronounceable, but sometimes perversely memorable, caconyms... that stand only a minute chance of homonymy.’ McKenna added (pers. comm.), ‘I think Reid Macdonald also named a shrew after his first wife [unconfirmed, but, to be fair, he did name a Miocene mole after his mother and dog after his father; Macdonald 1963, p. 168, 206] in addition to providing the world with a lot of awful Sioux names...’ Ironically, Macdonald’s Native American naming spree might be due to Simpson. One of the first fossil vertebrate species with a name derived from ‘Dakota Sioux’ word roots, the Oligocene rodent, *Manitsha tanka*, meaning ‘big’ plus ‘gopher (ground squirrel)’, was christened by Simpson himself (Simpson 1941c, p. 2), but he added ‘unlike Macdonald’s mine are easily pronounceable’ (pers. comm.).

Rousseau H. Flower (1913–1988), an authority on Paleozoic marine invertebrates, frequently invented patronyms for new species in order to avoid creating homonyms accidentally, explaining that form-based descriptive names in his area of research had become ‘sadly overworked’. He wrote, ‘I named cephalopods after my friends, and worms after my enemies, only I could never get enough worms.’ (pers. comm.). In his extensive memoir on fossil corals of New Mexico, Flower (1961) applied patronyms to odd taxa of dubious affinities he observed attached to certain coral fossils, naming them ‘after all the crumbs of my acquaintance; no one has dared protest, because I have more coming up’ (pers. comm.). ‘One body, which resembles a fossil wart, I have named for a certain international figure whose activities in Washington made me seriously late in arriving at the U.S. National Museum.’ (Flower 1961, p. 104). Thus appeared in scientific literature *Kruschevia verruca* Flower 1961, memorialising the benign growths on the Soviet Premier’s nose. (Flower apparently Latinised the spelling of Khrushchev.)

Don Baird was himself so ‘honoured’ with a Carboniferous chondrichthyan (cartilaginous fish). Zangerl and Case (1973) memorialised him with ‘one of their ungodly iniopterygian sharks *Promexyele bairdi*, choosing for this appellation the species displaying the largest sex organs in the male.’ ‘But,’ Baird added, ‘they spoiled it all by observing, “the skull is notably disturbed.”’ (pers. comm.).

Everett C. Olson (1910–1993), a leading authority on fossil reptiles, based at the University of California at Los Angeles, explained (pers. comm.) the patronymic insult behind *Phthinosuchus borisiaki*. The reptile, a primitive therapsid from the Permian of Russia, was named in 1954 by Olson’s Soviet colleague, Ivan Efremov, for A. A. Borisiak, the director of the Paleontological Institute of the Academy of Sciences of the USSR. The name, ‘meaning the consumptive reptile Borisiak, was given in a fit of pique after Borisiak had refused Efremov field money. He felt badly about it later, for Borisiak died of consumption.’

For a last example of taxonomic vengeance, some context is necessary. Simpson (1962) provided a scholarly analysis of the curious generic names for South American fossil mammals coined by the Argentine palaeontologist Florentino Ameghino (with a popular account published two decades later; Simpson 1984, p. 83–84). In just one year (Ameghino 1901) Ameghino

commemorated two dozen of his scientific contemporaries with patronyms that combined the scientist's given name and surname to render such genera as *Asmithwoodwardia*, *Thomashuxleya*, *Josepholeidya*, *Edvardocopia* and *Othnielmarshia*. All but two, Simpson noted, 'were from Ameghino's *Notostylops* beds now preferably called the Casamayoran [Lower Eocene] stage. They have made the Casamayor fauna a sort of memorial to leading vertebrate zoologists and palaeontologists of the 19th century.' (Simpson 1962, p. 18). No other mammalogist had so extensively done this before, he observed, and few have done so since. So, in 1932 Simpson topped off Ameghino's list by naming a Patagonian mammal of uncertain affinities from the *Notostylops* beds, *Florentinoameghinia*, explaining, 'It is simple justice that Ameghino's series of nomenclatural curiosities ... for mammals of this age should terminate with one dedicated to himself.' (Simpson 1932, p. 18).

In that technical analysis of Ameghino's ponderous names Simpson (1962) also investigated the derivations of names published by Santiago Roth, a naturalised Argentine citizen of Swiss origin working on Patagonian fossil mammals and a critic of Ameghino. Simpson exposed misnomers and mysteries in Roth's taxonomic names on multiple occasions. About *Setebos terribilis* Roth 1902, a South American ungulate from the Eocene of Patagonia, Simpson puzzled in a footnote, 'This means roughly "the terrible Patagonian pagan god."' It was a strange conceit on Roth's part to give so horrific a name to a mild herbivore smaller than a sheep and probably less terrible than a lamb.' (Simpson 1967, p. 173). One of Roth's names in particular that provoked Simpson's scorn was *Degonia* Roth 1902:

The true derivation ... has been handed down as an oral tradition that I have also heard from acquaintances of Roth. Its publication now can do no harm. Roth, of central European origin, was not invariably on good terms with his Argentine compatriots. From an English-speaking visitor he learned the pejorative "dago" sometimes applied to Latins, and he phoneticized it as "dego". In this humorous but insulting guise he dedicated the genus *Degonia* to his Latin-American neighbors in revenge for their application to him of the epithet "gringo". It is unfortunate that zoological nomenclature should perpetuate a gratuitous insult, and action to suppress the name might well be considered. [Simpson 1962, p. 23]

Five years later Simpson proceeded to invalidate the offensive name by recognising it as a junior synonym of *Pseudohyrax*, a genus ironically named by the ethnic Italian Ameghino months before Roth's *Degonia*. 'This has the incidental and happy result,' reads Simpson's footnote, 'of expunging *Degonia* from valid usage. The name is highly objectionable on non-zoological grounds' (Simpson 1967, p. 109).

The above discussion has naturally focused on the sinister use of patronyms in biology. The vast majority of such honorifics are, of course, bestowed with high esteem. Sometimes the honouree is so well known that the tribute requires but a single letter of the alphabet. My research in the 1980s invited letters mainly from entomologists but also from palaeoanthropologists whom, as group, I knew to be at once pithy and witty (e.g., 'We recognized Lucy was a female from the fossilised bra clip found under the skeleton,' joked her discoverers over wine at Berkeley; oral comm. 5 June 1987). Richard Leakey, David Pilbeam, Elwyn Simons

(1930–2016) and Philip Tobias (1925–2012) replied to my survey as did a fellow primatologist, a celebrated authority on apes and their behaviour. His letter recounted Raymond Dart's corrupt coinage of the genus *Australopithecus* – an improper hybrid of Latin and Greek – and echoed the spirited linguistic fray it triggered in scientific literature during the 1920s among taxonomic purists in which the letter's author had played a part ('melodramatic' was the scholarly squabble as Tobias described it; pers. comm. 1986). 'I take it that you are only interested in the language of systematics?' the correspondent asked. 'If your interest goes wider, I recall that certain cells in the ovary used to be called Z-cells after the initial letter of my surname.' The writer, a zoologist and anatomy professor, by then had guided Winston Churchill and World War II Allies in the European bombing strategy prior to D-Day, advised later British prime ministers, and been knighted by Queen Elizabeth II – indeed, he was 'one of the most remarkable men of the century' (Chalfont 1993): Lord Solly Zuckerman (1904–1993), OM, KCB, FRS (pers. comm. 1985). Connecting him to Dart, Tobias observed, 'As recently as 1974, Zuckerman was still speaking of *Australopithecus africanus* as "an unauthorized confusion of Latin and Greek"' (Tobias 1984, p. 41).

Preserving the evidence

Roth's *Degonia* has come to be recognised as a most abusive patronym, though not of a person but of a people. Its story, as now understood, hinges largely (perhaps entirely) on the authority of Simpson's published assertions cited above. Roth's original description of *Degonia* did not explain the name's derivation. In Simpson's interpretation of it and of the ethnic slur he attributed to its author, Simpson acknowledged his reliance on second- and third-hand hearsay as his basis. He noted that *Degonia* was reported to be a 'coined name' (made-up, without intrinsic meaning), according to T. S. Palmer's *Index Generum Mammalium* (1904, p. 219), yet Simpson built his case, as he explained, on oral tradition and anecdotes.

Hearsay, however, and even eye-witness testimony are notoriously untrustworthy (e.g., Arkowitz and Lilienfeld 2010). Without Roth's own confession printed in a forthright etymology or in his other writings, Simpson's *Degonia* hypothesis ultimately is untestable.

Oral tradition

A mature science should leave no refuge where myth and mystery, fable and fantasy, or legend and lore can hide. In palaeozoology, and biology more broadly, the undocumented species name is such a place, for its anecdotes 'repeated and "improved" as they go too often explain much and distort more' (Olson 1991, p. 350). If unrecorded, a name's origin story evolves through oral history, rumour and innuendo, much like the children's game 'Telephone' in which a secret mutates upon each retelling. I chronicle below such an oral tradition that led to a 'Mickey Mouse' dispute between two of the mid-twentieth century's giants of science:

In 1931 A. E. Wood, who famously enjoyed whimsical taxonomic names, christened *Mookomys*, a new species of middle Tertiary pocket mouse, 'for Dr. C. C. Mook, who has very kindly

allowed me to describe the rodents which he collected in Montana in 1925.’ (Wood 1931, p. 5). In his letters, Wood acknowledged, ‘*Mookomys* 1931 [was] named for C.C. Mook who found the specimen, but which was published a month or so after the first Walt Disney film hit the town, so that it [the species] was universally called “Mooky Mouse”. But,’ he maintained, ‘that wasn’t my doing.’ (pers. comm.).

Simpson challenged Wood’s cover story: ‘Wood’s disclaimer of ‘Mooky mouse’ is obviously false because ‘the first Walt Disney film hit the town’ years before 1931’, adding parenthetically, ‘(And also Wood himself referred to this as “Mooky mouse,” but that is not for publication.)’ (pers. comm.; to quote Simpson, its publication now can do no harm).

Wood then parried Simpson’s jab. ‘Simpson’s comments on *Mookomys* are erroneous. I always thought of it as rhyming with Hiawatha’s grandmother [Nokomis, sensu Longfellow]. Just after the paper was published, Erich Schlaikjer, another [Columbia University] graduate student, called it “Mooky mouse” and asked if I had named it for the cartoon character. That was the first usage of that name. I’m not sure just when Mickey Mouse originated, GGS to the contrary notwithstanding, but you should be able to find out if necessary. I invented the name [*Mookomys*] in the fall of 1930.’ (pers. comm.).

The celebrated mouse debuted in Disney’s first animated short, ‘Steamboat Willie,’ at its New York premier on 19 September 1928 ([IMDB] Internet Movie Database 2018). It was a cinematic landmark, being the first cartoon with synchronous sound (‘cinephone’ version released 18 November 1928) and, so, was likely well known in the orbit of Amherst before late 1930 by many, if not most, students of the Order Rodentia. With another viewpoint, David Heppell wrote with mock distress, ‘As a member of the International Commission on Zoological Nomenclature I am well aware that there are now few limits imposed on the coining of new names, and it may not be long before we are set to pondering the gender of genera such as *Mickeymousea* or *Donaldduckia*’ (pers. comm. 1982).

Model metadata

Two South American fossil vertebrate species tell a cautionary tale – one a rodent under pressure, the other a dinosaur with a stretched truth. Their whimsical scientific names illustrate a delightful heritage that would be unavailable to later taxonomists if not for their published etymologies.

In 1949 A. E. Wood expressed his ‘great appreciation to Dr G. G. Simpson for lending [three] specimens to me for study and description, and for arranging for the publication of the manuscript by the American Museum.’ The specimens, from the Oligocene of southern Patagonia, were ‘of very great interest’ to the so-called ‘hystricomorph problem’ in mammalian paleobiogeography (i.e., the mysterious dispersal of porcupines between Africa and South America during the early Tertiary). The specimens were discovered by Simpson’s Scarritt Expedition for the American Museum in 1934, but their description was delayed by preparation and by the war (Wood 1949, p. 1–2). The holotype had been flattened dorsoventrally during its long burial in bentonite (a highly compressible variety of clay). As a monument to its state of preservation Wood

appropriately named it *Platypittamys* Wood 1949. His etymology explained, ‘In view of the extreme crushing of the specimens on which this genus is based, I referred to it during the study as “pancake-mouse.” I wish to express my appreciation to [Fine Arts] Professor and Mrs. C. H. Morgan of Amherst College for helping me in finding an approach to a Greek name for pancake. Unfortunately, this seems to be one item for which the Greeks have no name, so the name of this genus is compounded from “pitta,” a cake, and “platy,” flat.’ (Wood 1949, p. 5).

Irritator challenger Martill et al. 1996, is a spinosaurid dinosaur from the Lower Cretaceous of Brazil. The holotype of this wonderful reptile was found to be fraudulent to a small but critical extent. As the authors kindly explained, *Irritator* is ‘from irritation, the feeling the authors felt (understated here) when discovering that the snout had been artificially elongated.’; and *challenger* ‘from Professor Challenger, the fictitious [sic] hero and dinosaur discoverer of Sir Arthur Conan-Doyle’s *Lost World*.’ As the authors recounted the discovery that inspired the dinosaur’s generic name, *Irritator*, ‘The specimen was taken to the UK for computer-aided tomography (CAT scan imaging) as well as a more thorough mechanical preparation. CAT scan imaging revealed that the tip of the rostrum had been artificially reconstructed to increase its length by reassembly of portions of the maxilla on to the premaxilla. This fabrication was concealed by blocks of matrix removed from other parts of the specimen and a thick layer of IsoponTM car body filler (see Martill 1994).’ (Martill et al. 1996, p. 5).

In neither case above was an etymology compulsory under the international code, nor is an etymology compulsory now. But for the art and craft of their generous namesmiths, the lore behind these picturesque names would be untraceable and lost to generations of subsequent scientists. For the benefit of future taxonomists, a step toward curing this canonical defect, which enables confusion and debate about a scientific name, might be improved codification. However, requiring an etymology is a bridge too far for many taxonomists. For them, the Code’s simple recommendation is deemed sufficiently effective and avoids commentary where none might otherwise be required or useful. For others, Simpson and Jaeger, for example, and many bioscience journals today (e.g., the *Journal of Vertebrate Paleontology*), virtue is its own reward and an etymology is considered a necessary element in a formal species description.

Rather than a mandate, the Code might more strongly recommend the use of an etymology, not least because, in science as in justice, sunlight is the best of disinfectants (Brandeis 1933, p. 62). An etymology brings transparency to the genesis of a biological name and has the ‘incidental and happy result’ of discouraging violations that are ‘highly objectionable on non-zoological grounds.’ (Simpson 1967, p. 109). ICZN Commissioner David Heppell in his letter offered useful context here:

In the Bradley Draft Code of 1957 there were two recommendations which would have limited [objectionable] names based on decisions taken at the Paris 1948 International Congress of Zoology: 1. Offensive names – It is prohibited to use a name that is liable to give offence on political, religious, or personal grounds. 2. Hidden meanings – [An author] should not select a name...that simulates, when pronounced, a word or words in some language other than Latin, especially if it suggests a bizarre,

comical, or otherwise objectionable meaning. Neither of these recommendations, you will be pleased to hear, survived into the 1961 or later Codes, but from 1948–1958 zoologists were expected to take note of them. [pers. comm. 1982]

A stronger ICZN recommendation for an etymology might explicitly acknowledge the historical value of a name's provenance (including the author's motivation and intent) as an essential ingredient of scientific nomenclature and suggest that zoologists are expected to take note of it. Such a proposal in no way seeks to regulate or abridge the linguistic art of biological naming and its attractions, values and wordplay that so 'enrich associations in a way allied to poetry' (Simpson 1962, p. 15), but simply aims only to improve the integrity of biodiversity metadata.

Heppell added, 'The bizarre names regulation' (apparently the Bradley Draft prohibition achieved the status of a working title), 'was introduced to deal with such names as *Ochisme*, *Marichisme* and *Polychisme* (to name but three insect names introduced by Kirkaldy 1904) but they have all escaped suppression so far.' (pers. comm. 1982). George W. Kirkaldy's controversial insect genera, well known among taxonomists, appended the suffix *-chisme*, pronounced 'kiss me' in English, to the names of women alleged to be his romantic conquests. (More discreet is the free-living marine nematode, *Gairleanema anagremilae* Warwick and Platt 1973, 'both the genus and species names are anagrams of the christian names of our respective woman friends', revealed Howard Platt; pers. comm. 1985.)

Additional exemplars of best practice in biological nomenclature, with etymologies clear and explicit that leave little room to misread an author's intent, are increasingly modelled in modern taxonomic literature and include such gems as:

Ninjemyx Gaffney 1992: A Pleistocene horned turtle. 'Ninja, in allusion to that totally rad, fearsome foursome epitomizing shelled success; emys, turtle' (Gaffney 1992, p. 5) ('rad' in English urban slang meaning radical or way cool, dude!).

Dracorex hogwartsia Bakker et al. 2006. A Late Cretaceous spiky, flat-headed pachycephalosaur. 'Dragon-king. After the fictional "Hogwarts Academy," invention of author J. K. Rowling, the species named in honor of her contribution to children's education and the joy of exploration.' (Bakker et al. 2006, p. 331).

Gelae Miller and Wheeler 2004. An extant genus of round fungus beetles. 'This genus is named *Gelae* (gender neutral), a shortened version of the Latin word *gelatus*, meaning "congealed" or "jellied" (and pronounced like the English word "jelly") in reference to the slime molds preyed upon by members of the group.' Its type species *G. donut*, is 'a whimsical arrangement of letters that is pronounced like the English word "doughnut.'" Related species named in the same paper are *G. fish*, *G. belae*, *G. baen* and *G. rol* (Miller and Wheeler 2004).

Wunderpus photogenicus Hochberg et al. 2006. An octopus of Indo-Malayan waters. '*Wunderpus*: from the German "wunder" meaning "marvel or wonder" and the specific name recognising the considerable photographic interest in this spectacular species (Hochberg et al. 2006).

Dendropsophus ozzyi Orrico et al. 2014. A 'bat-voiced' frog of the Brazilian Amazon. As the etymology explains, the name alludes to John Michael 'Ozzy' Osbourne, the British rock singer famous largely for biting off a bat's head thrown

by a fan during a gig. 'When calling, this new *Dendropsophus* species can be vaguely associated with the high pitch sounds emitted by some bat species that are hearable to the human ear' (Orrico et al. 2014, p. 354).

Gaga germanotta Li et al. 2012. From the botanical kingdom, a fern about whose biodiversity metadata there can be no doubt.

Gaga – 'The genus *Gaga* is named in honor of the American pop singer-songwriter-performer Lady Gaga ...' The etymological tribute runs for several paragraphs, recognizing the namesake's social activism, regard for diversity, and support for science in the public interest – and, coincidentally, a matching molecular synapomorphy in the type species, *G. germanotta*: 'At nucleotide positions 598–601 in the matK gene alignment, all *Gaga* species have "GAGA"... a sequence pattern not seen at this site in any other cheilanthoid fern sampled [e.g. the closely related *Aspidotis densa* shows GAGG, and the type species of *Cheilanthes* (*C. micropteris*) has CAGG].' [Li et al. 2012, p. 855; Germanotta is Ms. Gaga's surname.]

While a taxonomic name's linguistic roots need not enlighten, its provenance is an essential element of the taxon's metadata. An author's direct and objective accounting of a new taxon's 'cultural' roots (i.e., how the name came to be) minimises potential misinterpretation and records a dimension of the species that aids the memory for researchers and students alike, by adding colour that otherwise would be lost in the fog of history. Without an authentic and unequivocal etymology recorded when a taxon is first described, science is left with tribal knowledge as the only guide for understanding, or misunderstanding, the origin of species names.

Opposing views

In fairness, opinions differ. Some scientists are stuffy by nature and eschew taxonomical whimsy. 'In hopes that you will not take too seriously my somewhat stuffy reaction to "whimsical or roundabout derivations", I am sending you a copy of my lecture notes from [Professor Glenn L.] Jepsen's course dealing with this subject.' wrote Harvard biologist and palaeozoologist Farish A. Jenkins, Jr. (1940–2012; pers. comm.). As he characterised Jepsen, a vertebrate palaeontologist at Princeton, 'Jep was not fond of whimsical names, nor did he approve of scientific names that were ridiculously long or short.' As for Jenkins, 'I personally feel that Latin and Greek, the standards of scientific nomenclature, are in themselves bountifully expressive, and provide ample opportunity for creativity in scientific nomenclature.'

Three decades later in Upper Devonian strata of Arctic Canada, Jenkins and colleagues would unearth the now-famous evolutionary link connecting fishes and tetrapods, naming it *Tiktaalik roseae* Daeschler et al. 2006 – reported worldwide in popular media as 'Fishapod' as the team affectionately nicknamed it. '*Tiktaalik* (tic tal' ik) is derived from Inuktitut, the traditional language in Nunavut, and is the name used for a large, freshwater fish seen in the shallows.' The name was provided by '[the] elders of the Inuit Qaujimagatuqangit Katimajit of the Government of Nunavut.' The trivial name cryptically 'honours a benefactor of Devonian palaeontology ... a patron of our research.' (Daeschler et al. 2006, p. 759,763). It is no small irony that Jenkins, a palaeontologist committed to the utility of Latin and Greek nomenclature, has been immortalised

in the authorship of the distinctly roundabout and barbarous moniker for this monumental discovery.

Other grounds for objection include opportunity cost and shameless scientific self-promotion. As to cost, even the best conceived descriptive names can become obsolete by discovery of new facts; so it goes, effort to contrive a whimsical name for a new taxon is a frivolous waste of otherwise productive research time. The ICZN counsels that new names should be ‘euphonious and easily memorable, and should not be liable to confusion with those of other taxa of any rank, or with vernacular words.’ (ICZN, Appendix B.5). Inventing a biological name of any flavour therefore requires some degree of effort, and any name, classically conceived or cleverly contrived, is subject to the same opportunity cost of potential obsolescence resulting from synonymy, homonymy, or other new facts.

As to glory, whimsical names, such as those that honour (or insult) celebrities and rock stars in contemporary culture or politics, are often seen as just a ploy to attract media attention to an author’s discovery – taxonomic ‘click-bait’, to use a modern metaphor. However, patronyms recognising the rich and famous have been a part of taxonomic marketing for as long as aristocrats and monarchs have endorsed or otherwise influenced scientific exploration. *Napoleonaea imperialis* Palisot de Beauvois AMFJ 1804; *Megalonyx jeffersonii* (Desmarest), 1822 (Palmer 1904, p. 405); *Victoria regia* Lindley 1837; and *Anophthalmus hitleri* Scheibel 1937 (Weird Animals 2014, offers additional information), for example, are early models for today’s *Agathidium bushi*, *A. cheneyi* and *A. rumsfeldi* Miller and Wheeler 2005; *Obamadon* Longrich et al. 2013; and *Neopalpa donaldtrumpi* Nazari 2017. Neither did honoring celebrated artists begin with *Serendipaceratops arthurclarkei* Rich and Vickers-Rich 2003; *Livyatan melvillei* Lambert et al. 2010; *Heteragrion freddiemercuryi* Lencioni 2013; and *Sericomyrmex radioheadi* Ješovnik & Schultz, 2017. This patronymic practice extends back beyond *Mastophora dizzydeani* Eberhard 1981; *Ablerus longfellowi* Girault 1913; and *Bagheera kiplingi* Peckham and Peckham 1896. (So commonplace are musician patronyms today that absence from taxonomy’s rock-star pantheon is glaring. An anonymous reviewer of this manuscript complained, ‘Why no one has stepped up and named taxa after the true pillars of rock and roll, Pete, Roger, John, and Keith of The Who, I do not know.’)

Nevertheless, nothing says funding quite like a brand that has become a household name. The formal *Roberthoffstetteria nationalgeographica* Marshall et al. 1983, and *Diplodocus carnegii* Hatcher 1901, have served the same advertising function for their patrons as the informal terms of affection, ‘Lucy’ (Johanson and Edey 1981) and ‘Fishapod’ (Easton 2008), have done for theirs. (Olduvai’s hominids, ‘Johnny’s Child’, ‘Cinderella’, ‘George’, ‘Twiggy’ and ‘Dear Boy’ were likewise christened [Phillip Tobias, 1925–2012; pers. comm. 1986]; however, their nicknames never fully escaped into popular culture and commerce.) Skeletons of *D. carnegii* and *Apatosaurus louisae* Holland 1915, titans of the long-necked dinosaurs, have been centrepieces for over a century at the Carnegie Museum of Natural History. Their names honour philanthropist Andrew Carnegie and his wife, Louise. While both specimens are nearly inseparable from previously named species, ‘those two patronyms were worth several millions of old-style dollars to the

Museum,’ notes Donald Baird (pers. comm.), and represent ‘the world’s most gigantic pair of junior synonyms.’ (The museum’s logo is a silhouette *D. carnegii*.)

Branding, whether by the lonely author or the lofty institution, plays a definite role in the economy of taxonomy. A whimsical name in some, perhaps many, cases likely does conceal the self-promotional purpose of attracting media attention with the goal, as in applied science, of monetising a discovery. For the enterprising taxonomist, however, the reward is less likely to be fame and fortune as research grants and career advancement.

For other taxonomists the motives are pure. The immensely prolific entomologist and troubled poet, Alexandre Arsène Girault (Townes 1972; Spilman 1984), alone named over 3,000 species. Among them were *Mozartella beethoveni* Girault 1926, plus honorifics for dozens of other artists he admired – ‘rock stars’ by today’s standards – including *Davincia*, *Shakespeareia*, *Emersonia*, *Raffaellia*, *Goethella*, *Tennysoniania* and *Rubensteinia* (many of them now synonymised). His intent in doing so can only be surmised as he omitted etymologies. Likely, the practical aim was merely to avoid preoccupied homonyms for his many species. His deeper motive may have been to take the sting out of a life of professional despair – to right the wrong he perceived his majestic science of taxonomy suffered at the hands of ‘economic entomologists’ in U.S. and Australian agricultural agencies (the bureaucrats he grudgingly served during his career) whose narrow focus was classifying ‘pests’ for targeted eradication.

One of the first zoologists to honour a bona fide rock star was U. C. Berkeley palaeontology graduate student, Leo P. Plas, Jr., describing the fossil gastropods, *Amaurotoma zappa* and *Anomphalus jaggerius* Plas 1972 (Plas 1972, p. 255, 258). ‘My motivation to name a few gastropods oddly,’ he explained, ‘was an attempt to integrate aspects of my life and stave off the tedium of writing that god-forsaken thesis. One’s concept of the absurd is greatly heightened by such ordeals.’ (pers. comm., with permission). That Girault and Plas were motivated by neither public acclaim nor professional capital tests the assertion that shameless self-promotion is a general ambition among taxonomists who honour rock stars.

In any case, objections against whimsical naming must be applied across the history of biology back nearly to the invention of moveable type. *Scrotum humanum* Brookes, 1763, was the first post-Linnaean name given to a dinosaur (Halstead 1970). It was assigned with the clear understanding (both by Brookes and its discoverer, Robert Plot, 86 years earlier) that the type specimen, two feet in circumference, was not actually the fossilised scrotum of a giant man, but a real bone now petrified (Plot correctly described it as a ‘thigh bone’). The memorable name, perhaps as whimsical then as now, alluded to the distal end of a large dinosaur femur and ‘undoubtedly referred to the appearance of the condyles’ (Halstead 1970, p. 15) that bore a bold likeness to its namesake. As an interesting aside, the inimitable Professor Beverly Halstead (1933–1991), geologist, palaeontologist and populariser of fossils and evolution (including dinosaur reproductive behaviour), explained the history behind Halstead 1970 (pers. comm. 1985): ‘The original version was jointly with A. J. Charig [1927–1997] but his boss refused permission

for him to publish. After discovering *S. humanum*, I mentioned it to Dr H. W. Ball (Keeper of Paleontology, BMNH) who said that Alan Charig was interested in early dinosaur records – at that time he worked on molluscs under Dr L. R. Cox who had suggested Alan look at Plot's Nat. Hist. of Oxfordshire. Our original paper "*Scrotum humanum* the first named dinosaur" had acknowledgements to Drs. Cox and Ball!

Halstead relegated *Scrotum humanum* to the taxonomic graveyard of nomen oblitum, as the name has never been used in the dinosaurian context by subsequent workers. While its fate may illustrate the opportunity cost of obsolescence in coining a clever whimsical name, the cost was minor compared to Marsh and Cope and their conventionally derived species names. In their nineteenth-century fossil 'land rush' the two rivals raced to the telegrapher (a key content-provider in the social media of their day) to publish their discoveries and win priority for their scientific names – which, although classically conceived, became obsolete by the hundreds in the light of later facts shed largely through heed to normal intrapopulation variability. 'I am however wholly unable to understand how ... you should found four or five genera upon teeth belonging to parts of the same series.' Henry Fairfield Osborn privately chided O. C. Marsh (Osborn 1889).

Over the foregoing objections, whimsical names are propagating rapidly, or so it seems. Anecdotal evidence (e.g., Isaak 2017; Wikipedia 2018; Yanega 2018) suggests their usage has accelerated significantly in recent decades, multiplying at several times the previous rate (Figure 1). (The trend amusingly forecasts an asymptote within the next half-century at which all new taxonomic names will be whimsical.) The rise may reflect the countercultural ferment of the 1960s, but also mirrors, in part, the boom in educational attainment (a proxy for degreed biologists) during the ensuing period. It also is no doubt partly explained by the recent exponential growth of the Internet and online commerce, a consequence of which is the global and growing community of self-publishers and Web content creators who, in their pursuit of social engagement and ad revenue, increasingly cover whimsical species names as entertainment. This in turn informs researchers of naming models outside their taxonomic speciality elsewhere in biology. A fair analysis of this upward naming trend (which this paper does not attempt) must acknowledge a number of other important factors, among which are: (1) the fundamental expansion of biological knowledge owing to improved field methods and mobility, sampling efficiency, and research technology; (2) the growing numbers of taxonomists adapting to the consequent explosion in known organic diversity; (3) the new digital world wherein information is cheap, access convenient, and knowledge immediate, and in which older analogue literature, being less-easily searchable, is under-sampled (digital publication bias); and (4) media departments and public relations consultants for universities, research centres, public museums and scientific journals struggling for visibility via their news releases and social marketing campaigns – as much as starving students likewise seeking to gild their ratings vying 'red in tooth and claw' for reputational supremacy.

Proximate causes

Beyond the immediate 'how' and 'how come' is a more fundamental question: Why do otherwise serious scholars engage in fanciful nomenclature in the first place? The foregoing vignettes suggest a variety of specific causes. They are arguably classifiable under the familiar human vices: pride, greed, wrath, lust, et al., with boredom, jest and rebellion tossed in for good measure. Girault cited above is an extreme example wrath, for example, and in the foregoing case of Africa's southern ape-man, '[T]here are still those who believe that Dart, the Australian, was having a little slightly chauvinistic joke at the expense of the scientific world, in inventing the name *Australopithecus*! He has never admitted to this however.' (Tobias, pers. comm. 1986, of 'my predecessor and mentor').

In nature's most populous animal categories a more general cause seems to prevail: the seventh 'deadly sin': sloth – but in a good sense. The labour-saving virtue of a whimsical name is worth the price of admission in insect taxonomy. As Dr Bryan D. Turner of King's College London explained (pers. comm. 1985), his use of such trivial names as *grandiphallus*, *psychodelicus* and *rastafari* in his treatise on Jamaican Proscoptera (booklice; Turner 1975) 'contains 40 odd new species and I recall the great problems involved in finding a suitable name.' An invented combination of letters or other ingenious terminology can save hours of toil and trouble otherwise wasted in avoiding prior homonyms of Latin or Greek origin, thus promoting efficiency and increased capacity for the busy entomologist.

Cornelius 'Neil' B. Philip (1900–1987), a leading authority on Tabanidae (blood-sucking horse and deer flies) provides further insight. 'His list of described taxa is legend, not only for its length, but for the typical Philip humor injected into some,' such as *Tabanus rizonshine*, *Chrysops balzaphire*, and *C. asbestos* (for a deer fly collected from a mule) (Arnaud and Lane 1985, p. vi, p. 88). Philip described 550 new taxa, including about 15% of the world's species-group names in this family of Diptera. His relevant thoughts (pers. comm.; Arnaud and Lane 1985) while a Research Fellow of the California Academy of Sciences two years before his death at age 87 (written 'with gradually increasing [sic] legal blindness – hence there will be many mistakes [sic] in this "guess touch" typed reply') are extracted below:

My penchant for whimsical names among my specialty of Tabanidae is well-known to all colleagues some of whom got a little annoyed. Sandy Fairchild of UFla. sent a groan when I had threatened to name a new horsefly from Quintana Roo, Mex. "q-rooi!". There was a double reason. My only q name, *quirinus* had been synonymized making a hole in my target of covering the alphabet in both North American and Eastern Asia tabanids. To be sure I would not be topped or "bottomed" in N. Am. spp., I have *Tabanus aar*, *T. assa*, and *T. aatos*, and *Hybomitra zygote* (types of the latter were a mated pair!); *aar* is the latinized Indian word for the golden eagle. Q, x, and y always difficult to fill without danger of preoccupation. That word probably got me into this game. *Tabanus* and *Chrysops*, big old genera with bulging species contents that got often obscure transfer to refined genera, or buried as synonyms, always caused concern with new additions of entangling in preoccupation, if obvious descriptive Latin words were coined for new species. Early, I learned of C. P. Whitney's (N. Hamp.) use of whimsical deer fly names to avoid this laborious literature search; he named

Chrysops nigribimbo, and *C. cuclux* that would never be sunk! [pers. comm. 1985]

As to his further motivations, Philip continued:

2 names that had WWII relationship are of interest – 1) On 7 December 1931 [‘1941’ was intended; and ‘on a Guggenheim at MCZ’ is hand-annotated here] I was just finishing typing the descr. of *Tab. ginni* (a desert sprite) from the SW US, when Roosevelt’s voice interrupted our Sunday radion [sic] to announce the Japanese sneak air attack on Pearl Harbor – I promptly changed the species to “nippontucki” where horse-flies too [‘like Nippon “Japan” is hand-annotated] can conduct sneak air attacks [sic]. As I recall, the paper was submitted to the Bull. Brook. Ent. Soc., whose editor, C. T. Brues objected to the name – “No room for political satire in descriptive biology!” But the name stayed. [A decade prior to the war, Professor Brues, a Harvard economic entomologist, coincidentally penned a book titled ‘Insects and Human Warfare’ (Brues 1920).]

2) At the close of WWII, I was with final occupation forces in Japan – visited an American officers’ post, over door of one tent was printed sign “FUGIGMO” [more commonly spelled FUJIGMO]. On inquiry of resident, learned it was abbreviation for impatient slogan of GIs to get home . . . “F–k You Jack, I Got My Orders!” Not surprising I didn’t recognize the Japan locality! So when Hank Fuller and I revised a report on Japanese [mites] on return stateside that year he agreed “fugigmo” would be a good species new name; with explanation it was to perpetuate a GI nick name for impatience to get home! [pers. comm. 1985; when finally published the mite was named *Trombicula fujigmo* Philip and Fuller 1950.]

‘One thing about whimsical names,’ Philip explained to a colleague, ‘they’ll not run into preoccupation problems, nor insult somebody by naming a pest after them (like I did to you for example.)’ (Arnaud and Lane 1985, p. 88).

Philip’s taxonomic peer, Arnold Menke, added deeper colour. A Hymenoptera authority at the Smithsonian’s Systematic Entomology Laboratory (U. S. Department of Agriculture), Menke specialised in the burgeoning family Sphecidae. ‘[He] is an absolute master of names; Rumpelstiltskin wouldn’t last ten minutes with him.’ (Berenbaum 2000, p. 160). Among his dozens of whimsical names is the oft-cited *Aha ha* Menke, 1977 (an Australian wasp). As the legend goes, when sent the specimens by his colleague, Howard Evans, Menke exclaimed ‘Aha!’, recognising them as two new species in an undescribed genus. He named one for the discoverer, *Aha evensi* and the other *Aha ha*, threatening that if the opportunity is repeated he’ll report it under the title, ‘*Ohno*, another new genus of Australian Sphecidae’ (Conniff 1982, p. 67). In Menke’s letter (pers. comm. 1985) he explains his sense of taste: ‘Howard Evans sent me a xerox of your article earlier, and I was glad to hear from a fellow scientific humorist. I have always regarded taxonomic names as rather deadly dull except for those coined by a few among us with the gall to [perpetrate] funny names.’ He added pre-emptively, ‘Many regard forays into scientific humor as poor taste, and so on. However, even the father of taxonomy, good old Linnaeus, had moments of humour as for example, *Epupa epops*.’ Menke’s purpose, in part, was to educate students in entomological research by assigning a practicum on using library tools to properly construct bibliographic citations. ‘In order to make this interesting for them, I try to use examples of funny names to pique their curiosity. It usually works.’ (pers. comm. 1985).

A ‘most unusual species’ of caddisfly, *Leptonema gadzux* Flint et al. 1987, exclaims likewise. Senior author and

Smithsonian entomologist, Oliver S. Flint, Jr., wrote, ‘I am currently completing a revision of a large genus with many new species. The last species I found was one of the most odd and my feeling was “gadzoos look at this!”’ (pers. comm. 1985; see Flint et al. 1987).

Without an etymology, the whimsy of nonsense names can be compounded. Ian R. Ball (1941–2000), a planarian expert and Professor of Zoology at University of Amsterdam, tells of a taxonomist he knew who Latinised ‘nice’ words he collected from newspapers and elsewhere and made species names out of them. ‘For one monograph’, Ball wrote, ‘the editor insisted that etymology be explained, the author refused, and so, with a dictionary, the editor did it. Since they were all “nonsense” names the published explanations are hilarious.’ (pers. comm. 1985).

As a final example, University College of Swansea Professor Derek V. Ager (1923–1993) expressed a motivation likely shared by many passionate taxonomists. In his letters (pers. comm. 1985 and 1986; four letters, seven pages total), the famed paleoecologist and brachiopod authority shared his maxim, ‘I always say that paleontology is too important a matter to take it seriously. Evolved from Oscar Wilde I think’. As a fine example of taxonomic mischief, he and several other like-minded correspondents wrote of the perforate Mesozoic terabratalid brachiopod genus, *Pygope*, meaning buttocks + hole in Greek (Brown 1956). (The resemblance is obvious by googling images of the genus.) Ager explained, ‘It was published originally in all seriousness by a solemn German worker, then published again as a joke by another German. So I won’t necessarily go along with Mark Twain’s remark that German humour is no laughing matter.’ (pers. comm. 1985).

Whether the accordant trends in Figure 1 indicate any fundamental causation has not been established – nor can it be, as the variable of interest is incommensurable. Whimsy, after all, is art. Like a good punchline, a whimsical scientific name has a surprise ending buried in its typological description, a tragicomic tale of its discovery told in its well-played classical roots, a pun lurking in its barbarous derivation, a subtle joke veiled in its etymology, or an onomatopoeic ring in ode to its type. It is familiar yet unexpected in its academic context, high comedy for the intellectual or low and farcical, deep and deadpan or laugh-out-loud hysterical. The humor both proffered and perceived are matters of taste or opinion, products of custom and culture, and therefore judgements that are time-dependent and innately unquantifiable. I suggest a species name is whimsical that, in the reasonable belief of the beholder, violates contemporary norms of taxonomy or otherwise enlivens its vocabulary. A new name that is humorous today a century ago likely would have been unthinkable and decades hence likely will be unremarkable – yet all are whimsical to the timeless taxonomist. No longer an anomaly, whimsical nomenclature increasingly is a feature of ‘normal science’ and should be recognised if not celebrated.

Conclusion

The scientific name is the last outpost of poetry in systematics and classification. Its etymology, when provided, captures the mindset of the author and often the imagination of the

reader. Whimsical scientific names, a subset of biological nomenclature, have long survived at the frontiers of taxonomy where yesterday's offence evolves into tomorrow's norm. Their origins tell of irony, wit, satire, sarcasm, allegory, anticlimax, metaphor, mockery, burlesque, caricature and lampoonery, and, yes, insults. While the derivation of a species name may have no purely scientific significance, it clearly has socio-scientific value and the metadata hidden behind it merit illumination and formal discussion. Biologists will multiply as surely as their tools and methods will mature and the rate of species discovery will accelerate. 'Shopworn', 'sadly over-worked' and 'deadly dull' classical word roots will exact a growing cost on taxonomists fishing for unpreoccupied names and many of those will be sunk in synonymy or made otherwise unavailable. The use of fanciful or whimsical names, therefore, can only be expected to grow in scientific literature – and their origin stories deserve conservation. The present paper has attempted to document this fact in the voices of twentieth-century biologists. In the process, I place in the public record George Gaylord Simpson's views on this subject as written from his home in Tucson, Arizona, nine years before his death in 1984, along with perspectives of his eminent contemporaries.

Simpson gave no simple responses to my simple inquiry. My first letter (sent 16 July 1974), scarcely a paragraph in length, ultimately elicited four pages of correspondence from him on the subject of whimsical names (including a two-page letter dated 15 January 1975 typed by him rather than his secretary, as surmised from its 'GGS/g's' attribution), with examples penned by his own hand in Malay, Mongolian and Arabic languages. His detailed and, at times, playful responses are a measure of his keen interest in and passion for the subject of biological nomenclature, in contrast to his published opinions on the scientific value (i.e., lack thereof) that names bring to taxonomy and systematics. His thoughts are all the more meaningful being written at a time in Simpson's life (fall 1974) later revealed to be especially difficult for him personally (Laporte 2000, p. 258), to which he alluded in his letters. My July letter arrived in Tucson 'just before I was leaving on a long trip,' he replied, 'I could not answer it at once, and when I returned I had mislaid your letter and was also much disturbed by personal troubles.' (pers. comm. 18 December 1974).

In poor health himself, Simpson's career-long friends and ageing colleagues were beginning to slip into the past. In November 1974 his wife, psychologist Dr Anne Roe Simpson, ailing after 'his and her heart failures' they suffered in the years previous (Simpson 1978, p. 214–215), was in a Tucson hospital for heart surgery while his youngest child, Dr Elizabeth Simpson (also a psychologist), lay in a Los Angeles hospital dying (her medical doctors told him) with typically fatal tubercular meningitis (E. Simpson 1982). Around that time G. G. Simpson began writing his only work of fiction ever published, a novella titled 'The Dechronization of Sam Magruder.' The manuscript, apparently typed during the years from 1974–1979 (Laporte 2000, p. 258), was discovered after Simpson's death and posthumously published (G. Simpson 1996). It was worthy of a 'Twilight Zone' episode. Magruder, the twenty-second century's 'top man in the special field of abstract chronology' (Simpson 1996, p. 21), found himself alone, an evolutionary misfit trapped in time by

a quantum physics experiment gone awry, the only *Homo sapiens* in the Late Cretaceous of North America's Southwest. It seemed a despairing self-portrait, as was suggested by Stephen Jay Gould (1996) and Simpson's principal biographer, Leo F. Laporte (Laporte 2000, Chapter 12). In a final act, with human contact forever beyond his reach, Magruder reverently affirms his trust in natural selection to deliver, without intervention, humanity 80 million years in the future through descent from its furry forebears of the Mesozoic. The novella bookends Simpson's career, which began at Yale with his doctoral dissertation on Mesozoic mammals, which, as a published monograph (Simpson 1929), quickly became a standard reference in vertebrate palaeontology. Signing off, Simpson's defeated character, Magruder (or Magruder's Simpson, perhaps), writes: 'There isn't much more to say. I've had no joy, but a little satisfaction, from this long ordeal. I have often wondered why I kept going. That, at least, I have learned and I know it now at the end. There could be no hope and no reward. I always recognized that bitter truth. But I am a man, and a man is responsible for himself.' (Simpson 1996, p. 104).

The correspondence recorded here adds in a small but, I hope, significant way to the understanding of George Gaylord Simpson – the scientist and the person – that his prolific technical publications, popular books, journals, essays, and family letters and fiction may not reveal. It is not difficult to appreciate, as those who knew him personally have written (e.g., Webb [date unknown]; Olson 1991; Gould 1996; Laporte 2000), how Simpson's intellectual dexterity, intensity of focus, and scope of interests, and his learnings deep and wide, could seem daunting to fellow scientists, to the point of appearing stuffy or remote to those in his presence. He was anything but that, based on the letters from Tucson. Perhaps the 'dry martinis' played a role (Olson 1991, p. 333).

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