IT'S ALL GEEK TO ME:
TRANSLATING NAMES OF INSECTARIUM ARTHROPODS

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ABSTRACT

Kids today! Why don't they know the basics of Greek and Latin? Either they don't pay attention in class, or in many cases schools just don't teach these classic languages of science anymore. For those who are Latin and Greek-challenged, noted (fictional) Victorian entomologist and explorer, Prof. J. Phineas Michaelson, will present English translations of the scientific names that have been given to some of the popular common arthropods available for public exhibits. This paper will explore how species get their names, as well as a brief look at some of the naturalists that named them.

INTRODUCTION

Our education system just isn't what it used to be. Classic languages such as Latin and Greek are no longer a part of standard curriculum. Unfortunately, this puts modern students of science at somewhat of a disadvantage compared to our predecessors when it comes to scientific names. In the insectarium world, Latin and Greek names are used for the arthropods that we display, but for most young entomologists, these words are just a challenge to pronounce and lack meaning.

Working with arthropods, we all know that **Entomology** is the study of these animals. Sounding similar but totally different, **Etymology** is the study of the origin of words, and the history of word meaning. It is common for entomologists to dabble in etymology, but quite rare for etymologists to dabble in entomology. The intention of this article is to present a brief introduction to entomological etymology, and to provide translations for some of our more common insectarium species.

Taxonomy is the study of scientific classification (from the Greek *taxis* = "order" or "arrangement", and *nomos* = "law" or "method" – a method of arrangement). The current system of scientific classification was developed by Carl Linnaeus (1764 - 1845), as published in the 10th edition *Systema Naturae* in 1758. Under this system, each organism is identified by a unique two-word name – the genus and the species. Because Latin and Greek were traditionally the international languages of natural history, root words used in scientific names are from these languages, or are Latinized nouns.

The person who describes a species for the first time is known as the **author** of that species. He (or she) must:

- describe the organism in enough detail to distinguish it from other closely related species,

- publish this description in a scientific, peer-reviewed journal, and
- designate a type specimen, preferably to be deposited in a reputable museum collection, to serve as the "standard" to which others of this species are to be compared.

The author also gets to choose the species name, and place the species as a member of the proper genus, or sometimes in a new genus created by the author for that species and for others like it, if appropriate.

When scientific names are written, the genus and species are italicized (or underlined), the genus name is capitalized, and the species name is written in lower case, followed by the last name of the author and the year of publication of the original species description. For example, the scientific name for humans is properly written:

Homo sapiens Linnaeus 1758

(or *Homo sapiens* L. 1758 – Linnaeus gave so many species their original names that his name can be abbreviated, and as such is still universally recognized). If a species is subsequently placed in a different genus by later taxonomists, the original author name is placed in parentheses to signify that the species was originally described as belonging to a different genus.

Species can be named in many ways, including:
1) as a description of a notable morphological character (for example, *pogonognathus* referring to "bearded-jaw");
2) as a reference to some behavioral characteristic (for example, this is a re-occurring theme in mosquito names, with many referring to their annoying biting behavior, such as *Psorophora* meaning "itch-bearer");
3) as a reference to a habitat type (for example, *sylvestrus* referring to occurrence in woodlands and forests, or *deserta* for the desert-dwellers);
4) as a comparison to another already described genus or species (for example, *Centruroides* meaning "like *Centrurus,*" or species names that start in *pseudo-* meaning "false-");
5) as a toponym, a reference to the place of origin for the type specimen (names generally ending in *–ensis,* meaning "place where found"); or
6) as a patronym, to honor a person who is in some way associated with the animal being named, or associated with the author (for example, *michaelsoni* if one were to name a species in my honor). The general rule for patronyms is that if named in honor or memory of a man, his surname is used, followed by the letter "*-i*" and if named for a woman, her given name (or sometimes surname) is used, followed by "*-ae*" as the suffix. It gets a bit more complicated when naming for multiple people.

SOME INSECTARIUM SCIENTIFIC NAMES TRANSLATED

Unfortunately, authors don't always include the etymology of the name when they publish the initial description, often leaving us to guess their intentions. Therefore, some of the following translations may not be entirely correct, or quite what the author meant to imply. These names are translated to the best of my ability, keeping in mind that my Latin and Greek schooling was many decades ago. In the following translations, "(Gr.)" refers to words or word roots of Greek origin, and "(La.)" refers to words or word roots of Latin origin. See the footnotes for information about some of the authors.

[Editor's Note: Since some of the species displayed in modern insect zoos were described in space and time after the era of Professor Michaelson, these species were added to the following sections of this article by anonymous 21st century entomologists on behalf of the professor, as were any modern synonyms for the species listed. Professor Michaelson should not be held accountable for any errors in taxonomy for species that were published after 1886, and would prefer not to be held accountable even for errors in taxonomy for species published prior to that year, keeping in mind that research tools such as "the Internet" were not available in his day.]

Sonoran Desert Arthropods:

Giant Sonoran centipede – ***Scolopendra heros*** Girard 1853[1]
scolopendr (Gr.) = "a kind of multiped"; *hero* (Gr.) = "hero" or "defender, protector"

Tiger Centipede – ***Scolopendra polymorpha*** Wood 1861[2]
poly (Gr.) = "many"; *morph* (Gr.) = "form" (due to the variability of color patterns displayed?)

Arizona rain millipede (desert millipede) – ***Orthoporus ornatus*** (Girard 1853) [as *Julus* – later placed in *Orthoporus* Silvestri 1897]
o*rthos* (Gr.) = "straight"; *porus* (La.) = "an opening"; *ornatus* (La.) = "adorned" or "decorated"

Desert hairy scorpion – ***Hadrurus hirsutus*** **(**Wood 1863) [as *Buthus* – later placed in *Hadrurus* Thorell 1876]
hadr (Gr.) = "thick" or "stout"; *hirsut* (La.) = "hairy"
[***Hadrurus arizonensis*** Ewing 1928[3] is more commonly exhibited in insectariums, collected in Arizona]

Stripe-tailed scorpion – ***Vaejovis spinigerus*** Wood 1863
Vejovis is a Roman (Etruscan) god of the underworld, often portrayed as a young man, holding a bunch of arrows; *spina* (La.) = "spine"; *-gerus* (La.) = "bearing" – named as such for the spiny bumps at the ends of the dorsal keels on the tail.
[This species was more recently placed in the genus *Hoffmannius* by Soleglad & Fet, 2008, named for early 20th Century Mexican entomologist, C. C. Hoffmann; and then in 2013 placed in the genus *Paravaejovis* based in part on DNA studies: *para* (Gr.) = "beside" or "near"].

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[1] Charles Frédéric Girard (1822-1895) was a French zoologist who worked in the USA from 1847 to 1859, primarily on North American reptiles, amphibians, and fishes. He also described several Sonoran arthropods that were collected during US government-sponsored explorations of the western territories in the 1850s.

[2] Horatio C Wood (1841 – 1920) was an American physician and naturalist who described several species or North American myriapods and arachnids from the desert southwest while studying medicine in Philadelphia, and later while serving as a surgeon for the Union Army during the Civil War.

[3] Henry Ellsworth Ewing (1883 – 1951) was an American entomologist with the U.S. National Museum's Bureau of Entomology (USDA) in Washington DC.

Arizona bark scorpion - ***Centruroides sculpturatus*** Ewing 1928 [synonymized under Baja endemic species *Centuroides exilicauda* (Wood 1863) by Williams 1980, but returned to separate species status by Valdez-Cruz *et al.* 2004 due to venom and DNA] [*Centruroides* by Marx in 1890]
centr (La.) = "the center" or "a point"; *oid* (Gr.) = "like" (*Centrurus* is a related arachnid genus, and *Centruroides* means "like *Centrurus*"); *sculpt* (La.) = "to carve" or "to engrave"; *exilicauda* (La.) = "slender tail"

Vinegaroon – ***Mastigoproctus giganteus*** (Lucas 1835)[4] [as *Thelyphonus* – later placed in *Mastigoproctus* Pocock 1894]
mastig (Gr.) = "a whip"; *proct* (Gr.) = "the anus" or "rectum"; *giga* (Gr.) = "giant" or "very large" [*thely* (Gr.) = "a female" or "tender" ; *phone* (Gr.) = "a sound" (perhaps a reference to the silent prey capture, using the front legs for orientation)]

Texas Brown Tarantula – ***Aphonopelma hentzi*** (Girard 1852) [as *Mygale* – later placed in *Aphonopelma* Pocock 1901]
aphono (Gr.) = "lacking sound" or "silent"; *pelma* (Gr.) = "the sole of the foot" (perhaps a reference to silent walking); named in honor of N. M. Hentz[5]

Tucson Blonde Tarantula – ***Aphonopelma chalcodes*** Chamberlin 1940[6]
chalc (Gr.) = "copper"; *odes* (Gr.) = "like"; referring to their copper-like color?

Western widow spider – ***Latrodectus hesperus*** Chamberlin & Ivie 1935[7]
hesperi (Gr.) = "evening" or "western"

Black widow spider – ***Latrodectus mactans*** (Fabricius 1775)[8] [as *Aranea* – later placed in *Latrodectus* Walckenaer 1805]
latro (La.) = "brigand" or "robber"; *decto* (Gr.) = "bite"; *macto* (La.) = "to kill"

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[4] Hippolyte Lucas (1814 – 1899) was a French entomologist at the National Museum of Natural History (Muséum national d'histoire naturelle) in Paris.

[5] Nicholas Marcellus Hentz (1797 – 1856) was a French-American arachnologist and educator.

[6] Ralph Vary Chamberlin (1879 – 1967) was an American biologist who described more than 4,000 animal species, of which more than half were arachnids and myriapods.

[7] Vaine Wilton Ivie (1907 – 1969) was an American arachnologist who started his career as a student of and collaborator with R.V. Chamberlin at the University of Utah, and later worked as an arachnologist at the American Museum of Natural History in New York.

[8] Johan Christian Fabricius (1745 – 1808) was a student of Carl Linnaeus, was a Danish zoologist and taxonomist specializing in arthropods, naming nearly 10,000 species of animals.

Horse lubber – ***Taeniopoda eques*** Burmeister 1838[9]
taeni- (Gr.) = "band" or "ribbon"; *pod* (Gr.) = "foot"; *eques* (La.) = "horseman" or "knight"
["lubber" refers to flightless terrestrial status]

Giant Mesquite bug – ***Thasus acutangulus*** (Stål 1859)[10] [as *Pachylis* – later placed in *Thasus* Stål 1865]
pachys (Gr.) = "thick"; *acutus* (La.) = "sharp" or "pointed"; *angulus* (La.) = "angle"; *Thasus* (Gr.) = the son of Poiseidon in Greek mythology
[Note: the common Giant Mesquite bug found in Arizona may not be *Thasus acutangulus*, but rather is considered by some to actually be a distinct species, *T. neocalifornicus* Brailovsky and Barrera 1995]

Pinacate Beetle – ***Eleodes obscurus sulcipennis*** Mannerheim 1843[11]
eleo (Gr.) = "oil"; *obscur* (La.) = "dark"; *sulcus* (La.) = "a furrow"; *pennis* (La.) = "feather" or "wing"

Cholla beetle – ***Moneilema gigas*** LeConte 1873[12]
mon (Gr.) = "one"; *ilema* (Gr.) = "a covering" or "a wrapper" [a reference to the fused elytra]; *giga* (Gr.) = "very large"

Sunburst diving beetle – ***Thermonectus marmoratus*** (Gray 1831)[13] [as *Hydaticus* - later placed in *Thermonectus* Dejean 1833]
thermos (Gr.) = "warm"; *necto* (Gr.) = "swim"; *marmor* (La.) = "marble"

[9] Karl Hermann Konrad Bermeister (1807 – 1892) was a German zoologist and botanist, specializing in entomology (especially phasmids) and herpetology, who lived and worked in Argentina for the latter third of his life and career.

[10] Carl Stål (1833 – 1878) was a Swedish entomologist and Keeper at the Swedish Museum of Natural History.

[11] Carl Gustaf Mannerheim (1797 – 1854) was a Finnish naturalist and entomologist, who also served as governor of the Viipuri province and Grand Duchy of Finland.

[12] John Lawrence LeConte (1825 – 1883) was an American entomologist, specializing in Coleoptera, who described over 5,000 beetle species and was a founding member of the American Entomological Society in Philadelphia.

[13] George Robert Gray (1808-1872) was a British zoologist and head of ornithology at the British Museum, primarily working with birds but also publishing on insects, especially phasmids.

Some tropical gems:

Atlas beetle - ***Chalcosoma atlas*** (Linnaeus 1758) [as *Scarabaeus* – later placed in *Chalcosoma* Hope 1837]
Chalc (Gr.) = "copper"; *soma* (Gr.) = "body"; *Atlas* (Gr.) = a Titan god of Greek mythology, who was condemned to hold the heavens on his shoulders for all eternity.

Hercules beetle - ***Dynastes hercules*** (Linnaeus 1758) [as *Scarabaeus* – later placed in *Dynastes* Kirby 1825]
dynastes (Gr.) = "ruler" or "chief" (i.e., "to have power"); *Hercules* (La.) = the Latin name for the Greek divine hero, Heracles, Son of Zeus, who possessed extraordinary strength and intelligence.

Elephant beetle – ***Megasoma* elephas** Fabricius 1775
mega (Gr.) = "large"; *soma* (Gr.) = "body"; *elephas* (Gr.) = "an elephant"

Goliathus beetle – ***Goliathus goliatus*** (Drury 1770)[14] [as *Scarabaeus* – later placed in *Goliathus* Lamarck 1801]
Name is a reference to the beetle's giant size, named for the biblical giant Philistine warrior, Goliath.

Giant stag beetle - ***Dorcus titanus*** (Boisduval 1835)[15] [as *Lucanus* – later placed in *Dorcus* MacLeay 1819]
dorkos (Gr.) = a stag (the mandibles of males are similar in appearance to deer antlers)
Titan (Gr.) = "gigantic", referring to the giant deities of great strength from Greek mythology, the twelve children of Gaia and Uranus (Mother Earth and Father Sky)

Giant stag beetle - ***Lucanus elaphus*** Fabricius 1775
Lucan (La.) = "a kind of beetle"; *elaphus* (Gr.) = "deer" or "stag" (as with *Dorcus*, the mandibles of males are similar in appearance to deer antlers)

Madagascar hissing cockroach - ***Gromphadorhina portentosa*** (Schaum 1853)[16] [as *Hormelica* – later placed in *Gromphadorhina* Brunner von Wattenwyl 1865]
gromphas (Gr.) = "an old sow"; *rhin* (Gr.) = "nose"; *portento* (La.) = "the wonder"

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[14] Dru Drury (1724 – 1803) was a British entomologist who amassed an extensive private insect collection and was a friend of and collaborator with J. C. Fabricius.

[15] Jean Baptiste Boisduval (1799 – 1879) was a French entomologist and botanist, specializing in Lepidoptera, but also describing and naming a variety of insects from several other orders.

[16] Hermann Rudolph Schaum (1819 – 1865) was a German entomologist who travelled and collected extensively in Africa and North America, specializing in Coleoptera.

Orchid mantis - ***Hymenopus coronatus*** Olivier 1792[17]
hymen (Gr.) = "a membrane"; *pus* (Gr.) "a foot"; *coron* (La.) = "a crown"

Jungle nymph – ***Heteropteryx dilatata*** (Parkinson, 1798)[18] [as *Phasma* – later placed in *Heteropteryx* Gray 1835]
hetero (Gr.) = "different"; *pteryx* (Gr.) = "wing"; *dilat* (La.) = "expanded"

Gray's leaf insect – ***Phyllium bioculatum*** G.R. Gray 1832
phyll (Gr.) = "a leaf"; *bi* (La.) = "two"; *oculi* (La.) = "eye" or "eye-spot"

CONCLUSION

The first step to understanding an organism is to know its name. In the case of scientific names, their translation is not always clear, but discovering the meaning of a name can be an enjoyable pursuit for those of us entomologists who enjoy dabbling in etymology. Also, when presented the opportunity to describe a new species, a basic knowledge of some Latin and Greek can help an author choose an appropriate name.

This paper includes only a small sampling of the diversity of arthropods commonly displayed in insectariums. To translate the names of all exhibited species would require far more space than is allotted for this publication. It is the hope of this author that these examples will stimulate the reader to explore Latin and Greek word roots of scientific names further, as a way to gain some insight into these organisms as they appeared to their original describers.

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[17] Guillaume-Antoine Olivier (1756 – 1814) was a French entomologist and naturalist, specializing in beetles, and like Drury, was a friend of and collaborator with J. C. Fabricius.

[18] John (a.k.a. James?) Parkinson (1730 - 1813) was a Fellow of the Linnean Society of London, as well as a land agent and museum proprietor. He purchased the Leverian Museum from Sir Ashton Lever, whose holdings included extensive material collected by Captain James Cook.