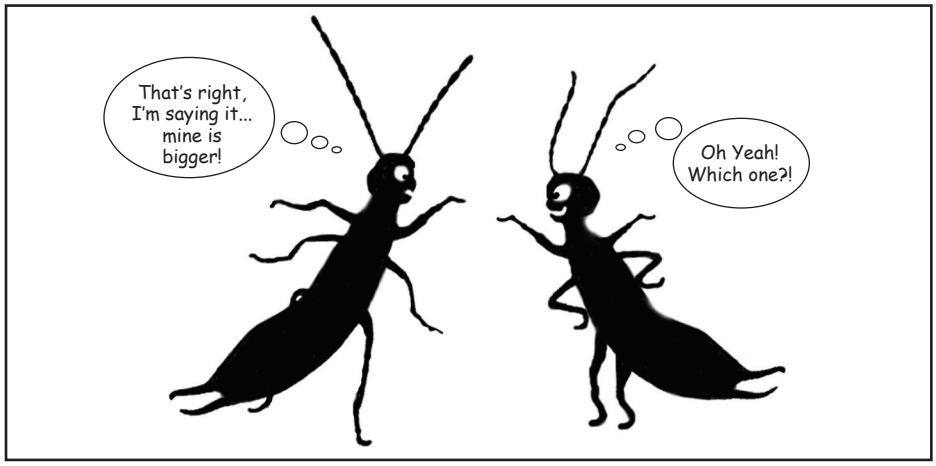
Lend me your earwigs

May Berenbaum

Inasmuch as neither is a discipline widely embraced by the general public, it's not surprising that many people confuse entomology (the study of insects) with etymology (the study of word origins). Occasionally, though, the two disciplines run at cross purposes. Take, for example, earwigs—a group of insects regarded as so peculiar even by entomologists that they are assigned their own taxonomic group, the order Dermaptera. These insects aren't particularly diverse (there are only about 1800 species worldwide) and they tend to lead a rather low-profile existence, most often brown or black in color and rarely exceeding about an inch (25 mm) in length (although the largest recorded species, at about 80 mm, is the giant earwig of St. Helena, *Labidura herculeana*, which may actually have gone extinct). Earwigs do share one attribute, to which they owe the ordinal name bestowed upon them by William Kirby in 1815: "Dermaptera," which means "skin wing," refers to the short, leathery front wings that characterize most members of the group. Most also have a long, flexible abdomen capped with a pair of pincers, called forceps, used variously for opening up their wings, grabbing mates during courtship, defending themselves, and immobilizing prey. There are a few exceptional species that are ectoparasites—that is, they live externally on the bodies of warm-blooded hosts and suck their blood—that have lost even these distinctive traits. About ten species live in the fur of giant rats in tropical Africa, eating what is euphemistically referred to as "scurf" (shredded skin flakes or scales) and another half-dozen or so live on the bodies of bats in Malaysia; these oddballs are wingless, and have forceps that are straight, rather than curved.



Their common name, however, is about as old as any name for an insect in the English language. "Earwig" derives from the Old English "ear *wicga*," which, roughly translated, means "ear insect" or "ear wiggler" (*wicga* being the etymological basis for the word 'wiggle"). This name supposedly reflects the venerable belief that earwigs have a predilection for crawling into people's ears and wreaking havoc—depending on sources, they may burrow into your brain or merely content themselves with laying eggs and hatching out a new brood of ear wigglers destined to drive insane their hapless host. The Oxford English dictionary dates this etymology back to the 11th century Saxon Leechdom, an early herbal (http://www.tenhand.com/clew/blog/archives/cat_word.html), and its persistence is reflected by the virtual universality of common names for dermapterans. Nations that have agreed politically on no other issues seem to share the unshakeable conviction that earwigs are irresistibly drawn to ears. The French call them *perce-oreille* ("ear-piercer"), the Germans "*Ohrwurm*" (ear-worm), and the Russians *ukhovertka* (ear-turner); the same applies to Danish, Dutch, and Swedish. Even Linnaeus made reference to the idea in naming the common European earwig *Forficula auricularia* (with *auricula* meaning "ear").

Like so much entomological misinformation, the notion that earwigs infest ears may have originated with Pliny the Elder, first century polymath who, among other things, believed that caterpillars originate from dew on radish leaves. According to Philemon Holland's 1601 translation of his *Naturalis Historia* (Pliny's ambitious yet ultimately unsuccessful effort to catalogue all knowledge), "If an earwig … be gotten into the eare … spit into the same, and it will come forth anon." Not long after, Nicholas Culpeper provided an alternative method for extracting earwigs in his 1652 *The English physitian: or an astrologo-physical discourse of the vulgar herbs of this nation*:

"[Hemp juice]… is held very good to kill the Worms in man or Beast, and the Juyce dropped into the Ears killeth Worms in them,

and draweth forth Earwigs, or other living Creatures gotten into them."

Personally, I think that "hemp juyce" is more likely to put thoughts of earwigs in ears if imbibed than it is to chase them out if dropped. Although entomologists generally like to rationalize this persistent notion that earwigs like to crawl into ears by explaining that many earwigs, particularly the most commonly encountered ones, seek out moist dark places, which aptly describes most auditory canals, I find it curious that I've only been able to find one single reference, in about ten centuries of literature, to an earwig actually being found in an ear, which hardly seems common enough to merit a common name. I'm not the first to notice this discrepancy; George William Lemon, in his 1783 *English Etymology, or, A Derivative Dictionary of the English Language*," was equally baffled by the putative origin:

"…*wig* here seems to carry the idea of *wriggle*, or, as we sometimes say, *wiggle waggle*; and consequently *an earwig means the insect that wriggles itself into the ear*; though an instance of such an accident was perhaps never known; or, if ever it happened, must have happened so seldom, as scarce to have been sufficient to affix an appellation to this creature; we may therefore very much doubt even this deriv. and yet I am unable to produce a better…"

This absence of reports of earwigs in ears is not for lack of a literature of insects in ears; a veritable zoo's worth of arthropods has been reported over the centuries in ears of one sort or another. In more recent times, Ryan et al. (2006) reported that, according to unpublished data from the Johns Hopkins emergency department, the most common foreign objects in ears of adults were cockroaches; Bressler et al (1993) also reported that cockroaches were the most common foreign objects in ears of 98 patients. Another review evaluating the insecticidal activity of reagents used to remove "insect foreign bodies of the ear" lists at least two species of cockroaches, honey bees, and beetles as "most frequently" requiring removal, along with at least one non-insect, a tick (Antonelli et al. 2001). Most memorably, O'Toole et al. (1985) related the case of an unfortunate patient who presented with a cockroach in each ear, affording the team of physicians an extraordinary opportunity to conduct a "controlled trial," comparing two different methods of removal from the same patient.

Thus, of all the arthropod fauna reportedly found in ears, earwigs are conspicuous by their absence. Cockroach invasions of aural cavities are understandable, given the tendency of cockroaches to infest houses. Many earwigs are also found in homes, but they're usually restricted to cracks and crevices in damp, musty basements, not in kitchens, bedrooms, and other rooms in which people (and their ears) are most frequently found. Moreover, the reluctance of earwigs to fly would seem to reduce the probability of gaining access to ears of anyone who doesn't habitually sleep with his head jammed into basement corners.

After days of searching for even one example of an earwig in an ear, I was delighted to come across a report in the Rocky Mountain Medical Journal, titled "Earwigs: the truth about the myth." I had to wait a few more days to read the paper inasmuch as the Rocky Mountain Medical Journal isn't one of the thousands of journals to which the UIUC library subscribes. When it finally arrived, I couldn't help feeling a little bit let down. Instead of a photograph of the specimen, there was a cartoonish drawing, which did indeed look like an earwig, but there was no description of how the specimen had been handled and identified, who had identified it, and how it might have gained entry (which would seemingly have been of interest in an article titled "The earwig: the truth about the myth").

There's at least one alternative etymological explanation for the connection between "ear" and "earwig," as offered (without attribution) by Cowan (1865). Although the front wings of earwigs are short and leathery, their hind wings, which fold up and tuck underneath the short front wings, bear an uncanny resemblance to a human ear in shape when unfolded. It could be that earwigs earned their moniker based on their morphology and gradually etymology became destiny. Although entomologically this explanation is far more satisfying, etymologically the evidence in favor is not really compelling. That Lemon (1783), desperate as he was to find an alternative to the unsatisfying "ear wriggle," made no mention of it suggests that the explanation may be of relatively recent origin.

It's really a shame that about the only thing people think they know about earwigs isn't true. Laying eggs in a place where their kids couldn't survive just doesn't fit the earwig profile; all known free-living earwigs display a remarkable degree of maternal care, keeping watch over their eggs and newly hatched nymphs, feeding them and protecting them from erstwhile predators. And the frightening-looking forceps, which have inspired most of the other common names of earwigs (including the common name "pincerbug" and the Latin *Forficula*, meaning "little shears") aren't even the most bizarre anatomical feature; for reasons not exactly clear to entomological science, males of the earwig family Anisolabididae have a spare penis. Although the females have only one genital opening, male anisolabidids have a pair of organs, one of which points in what would seem to be the wrong direction. While its function is not known, it's believed that the extra intromittent organ can be mobilized if something untoward happens to the slender, elongate primary penis (Kamimura and Matsuo 2001). One wonders what common name dermapterans might have acquired had this anatomical feature attracted Pliny's attention back in the first century.

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