

RC552.A48 L63 2013  
The infested mind

THE INFESTED MIND  
*Why Humans Fear, Loathe, and Love  
Insects*

Jeffrey A. Lockwood

OXFORD  
UNIVERSITY PRESS

2013

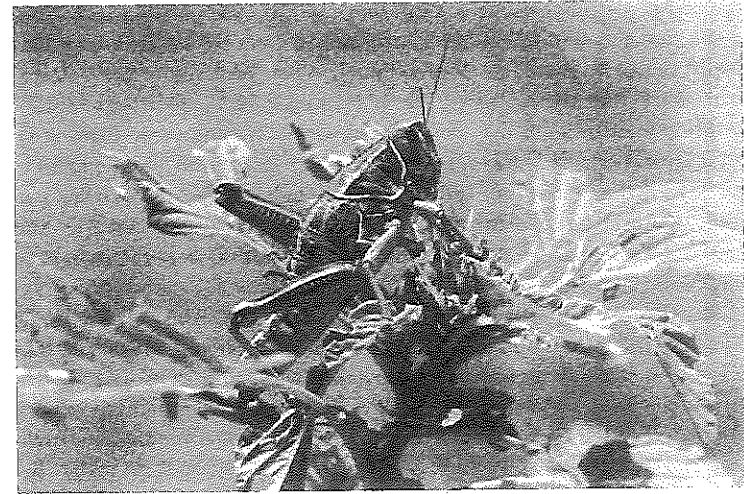
## CHAPTER 4

# A Fly in Our Mental Soup: How Insects Push Our Disgust Buttons

Within minutes, our hands were covered in feces and vomit. Our quarry was the plains lubber grasshopper, the largest of all insects on the Wyoming grasslands—and its appearance matches its disgusting behavior. *Brachystola magna* resembles the human archetype of repulsion: the old hag. This is a fat grasshopper with deep wrinkles and folds, grotesquely beefy femurs, a pathetically spare rear-end, and a bald head (at least it doesn't have hair growing in offensive places). This is no dainty grasshopper capable of lithesome leaps; it has the heft of a breakfast sausage. Every summer we collected a few dozen of these creatures for dissection in the "Insect Anatomy & Physiology" laboratory.

Most of my summer encounters with rangeland grasshoppers involved attempts to suppress grasshopper outbreaks. There is a certain nobility to taking on a worthy foe that humans have battled for centuries. However, there was no such glory in my encounters with lubber grasshoppers, which don't reach outbreak proportions and certainly can't swarm, given that the lubberly beasts have wings that are reduced to useless stubs. And if they threatened farmers' fields, mounting a control program would be tantamount to picking a fight with the fat kid on the playground or beating up the town drunk.

Moreover, the lubber is about the easiest species of grasshopper to catch, at least in principle. However, the only way to gather dozens of them is by hand. An insect net is an effective means of capturing grasshoppers that are willing and able to live up to their names, but a net will snare few of these lumbering creatures. They are clumsy behemoths, hopping with the agility of insectan sumo wrestlers. Hence the name lubbers. Grabbing a fat, flightless beast—the dodo of the insect world—is a simple matter. But catching this grasshopper is not the same thing as holding on to it.



**Figure 4.1**  
*Brachystola magna* is an archetype of a disgusting insect. The grasshopper's common name, the plains lubber, refers to its big, clumsy, and off-putting appearance. When caught, this bald, wrinkled, obese, and flightless grasshopper struggles powerfully and both regurgitates a brown fluid and excretes mushy feces, which become smeared on the captor (image by Marco Zanola through Wikimedia Commons).

The lubber may look dim-witted and benign, but appearances can be deceiving. Lurking beneath the bulging exoskeleton is a cantankerous creature. One must be careful when accosting these grasshoppers because their hind legs sport rows of spines that they rake across the flesh of a would-be captor. A clever predator (or entomologist) can neutralize this defensive maneuver by grabbing them by their hind legs, but at this juncture, the lubbers resort to their most noteworthy tactic: they become utterly repulsive.

Their first and most revolting strategy in this regard is to regurgitate copiously. Many species exhibit this defensive behavior, and as kids we referred to grasshoppers as "spitting tobacco juice." Indeed, the cola-colored fluid resembles the expectorant of tobacco chewers in its capacity to stain whatever it hits. Of course, a grasshopper isn't spitting wads of chewed tobacco. Rather, it is heaving up masticated and liquefied sunflower leaves—the contents of its foregut, which is the anatomical equivalent of our stomach. The prairie lubber manages to produce this material in impressive quantities, smearing itself and its handler with the dark brown fluid. For this grasshopper, however, the effort to repulse an assailant is not complete.

The restrained grasshopper next begins to defecate prodigiously. As opposed to vomiting, this offensive approach is not widely practiced among the lubber's brethren. Perhaps it wouldn't be particularly repugnant for most

species, as grasshoppers generally produce very dry, compact fecal pellets the size of sesame seeds. The lubber, in contrast, can produce a dozen mushy turds, similar to those of a mouse, in quick succession. Its favorite meal of juicy roadside sunflower leaves is far more succulent than prairie grasses and provides enough fluid to allow this grasshopper the luxury of a soft stool. Thus, an experienced collector avoids the rear end of the grasshopper and holds the insect at bay for a few seconds until it has exhausted its colonic arsenal. If one is too hasty in dropping the repulsive creatures into a collecting bag, the grasshoppers quickly foul the container with smeared feces, making any future handling a most unpleasant prospect.

I confess to a sort of perverse pleasure in watching my field crew—generally tough, young fellows—as their faces twist in revulsion at the lubbers' defensive tactics. These experienced outdoorsmen who routinely field dress deer handle the grasshoppers gingerly. They are, along with me, disgusted. What is this emotion and how can something the size of a cigar butt so powerfully infest our minds?

#### WHAT IS DISGUST?

Disgust is a universal human emotion that functions to protect the physical and psychological "self." We are disgusted by stimuli associated with contamination or infection. Our bodies can be invaded by all sorts of materials, chemicals, and organisms, so reacting negatively keeps us from contacting hazards and allows us to expel offensive material if it gets past our defenses. With cognitive sophistication, even ideas can be disgusting. For example, we find bestiality to be repulsive, as if a "dirty thought" could contaminate our consciousness. As Jimmy Carter famously confessed, "I committed adultery in my heart many times."<sup>1</sup>

The etymological origin of the word *disgust* points us toward the sense of taste. The word comes from *des*, meaning "the opposite of," and either the French *gout* or the Latin *gustare*, meaning taste (as in *gusto* and *gustatory*). This would be the end of the story, except in other languages the terms that are translated as *disgust* lack this connection to taste. The German *widerlich* (disgusting) and *Ekel* (disgust) connote a sense of being in opposition to something, along the lines of the Spanish *repugnante*, which is rooted in the Latin *pugnare*, meaning to fight (as in *pugilism*). In these cases, there is no implicit sensory quality. As such, some scholars believe that we might overemphasize the role of (dis)taste in understanding the nature of disgust.<sup>2</sup> Rather, the focus should be on the capacity of something to evoke a strong aversion due to its potential to taint through proximity, contact, or ingestion (only the last of these being explicitly a matter of tasting). Whatever the linguistic story, it is clear that English has an embarrassment of riches when it comes to

words that convey a sense of disgust: *abhorrent*, *execrable*, *foul*, *gross*, *gruesome*, *nauseating*, *odious*, *offensive*, *putrid*, *repugnant*, *repulsive*, *revolting*, *sickening*, and *vile*—and all of these have been used to describe insects.

Although disgust got its start in the English language in the 1600s, scientific interest in this emotion didn't arise for another two centuries, with none other than Charles Darwin. While on his famed voyage, he observed:

It is curious how readily this feeling is excited by anything unusual in the appearance, odour, or nature of our food. In Tierra del Fuego a native touched with his finger some cold preserved meat which I was eating at our bivouac, and plainly showed utter disgust at its softness; whilst I felt utter disgust at my food being touched by a naked savage.<sup>3</sup>

Philosophers and psychologists latched onto disgust in the early twentieth century, although interest largely faded as the study of other emotions became of greater interest and respectability. The exception was the psychoanalysts, who remained fascinated and interpreted disgust as a means of inhibiting the consummation of repressed urges.<sup>4</sup> In the past few years, however, disgust has enjoyed a scientific renaissance and seems to be emerging as the "white rat" of emotions, given how convenient and easy it is to elicit (e.g., a cockroach floating in a cup of tea)—and observe.<sup>5</sup>

\* \* \*

While it takes considerable training to detect whether a person is lying, we have a rather easy task when it comes to knowing when another person is disgusted.<sup>6</sup> Shuddering and turning away with squinted eyes, wrinkled nose, and pursed lips are sure signs. If the object of disgust remains nearby, the individual may begin to gag or vomit. After establishing a safe distance, a disgusted person typically seeks to remove, cover, or clean up the stimulus. All of these reactions evidently function to keep the odious material from being near, getting into, or remaining inside one's body. And what's going on inside helps explain our overt responses.

Neurophysiology reveals that the experience of disgust is surprisingly distinct from that of its aversive cousin, fear. When we are disgusted, the parasympathetic nervous system is activated and our heart rate drops, whereas fear involves the sympathetic nervous system and elevates the pulse. Studies of brain activity in people watching film clips of hundreds of crawling cockroaches or images of people eating grasshoppers reveal that disgust is associated primarily with the anterior insula rather than the amygdala, which is activated during fear.<sup>7</sup> Interestingly, parts of the insula are within the gustatory cortex, where neurons associated with taste reside—so perhaps etymology reflects anatomy. However, the notion of the insula as a specific disgust processor is undermined by magnetic resonance images revealing that this region

of the brain is also active during fear. Sorting out which part of the brain does what is complicated by the fact that a teeming mass of insects evokes multiple responses. There is, however, one feature of disgust that is unique.

#### TRIGGERING DISGUST: SENSATION AND COGITATION

No other emotion is so intimately linked to sensory experience as is disgust. We can recall and imagine instances of joy, sadness, surprise, fear, and anger—and in so doing, we may reexperience these occasions. Not so with disgust. As the scholar Robert Rawdon Wilson put it, “The representation of filth is not filth.”<sup>8</sup> In other words, only an *actual* lubber grasshopper is disgusting. While René Descartes grounded our existence in the intellect through his famous dictum *Cogito ergo sum* (I think, therefore I am), we might claim to be certain that other things exist by virtue of *Fastidium movet, ergo est* (It is disgusting, therefore it is real). But the visceral reality of disgust is not drawn evenly from the five senses.

Given that disgust functions to protect us from contamination, it makes sense that smell drives our emotional response.<sup>9</sup> Odors warn us of rot, pollution, and disease before we come into physical contact with their sources. We smell a carcass long before we see it—and various creatures from stink bugs to skunks have exploited our capacity to be repulsed at a distance. Even without physical contact, inhaling vaporous emissions gives us a sense of having incorporated something of the vile object, and this intimacy can be nauseating. In earlier times, humans believed that foul odors were themselves carriers of disease. People sought to ward off the plague with a “pocketful of posies,” which might justify a chuckle of modern superiority except that the makers of today’s cleaning products exploit the same connection. The deodorant industry exploits a different sensibility. Because olfaction is perceived as a primitive, animalistic ability (being how mosquitoes find us and moths find mates, for example), today’s humans associate smelling good with having no odor at all.

Smell is related to taste in that both are forms of chemical detection. And much of what we describe as taste is informed by smell—hence the grade-school experiment of tightly sealing a kid’s nose and feeding him a piece of sweet onion and then a chunk of apple (similar textures and sugar contents) to show that taste alone cannot discriminate between these. Interestingly, the most aversive taste, bitterness, is not disgusting in itself. Instead, the only taste capable of eliciting disgust is sweetness in cloying excess.<sup>10</sup> Drinking tea with a drop of honey is appealing, but drinking a cup of honey is nauseating. The lesser role of taste in disgust makes sense (etymology notwithstanding) in that once something is in your mouth, contamination is all but assured. Of course, you can spit out a nasty caterpillar. Failing that, vomiting is a last resort after the viscous thing has coated your mouth in mucous slime and slid

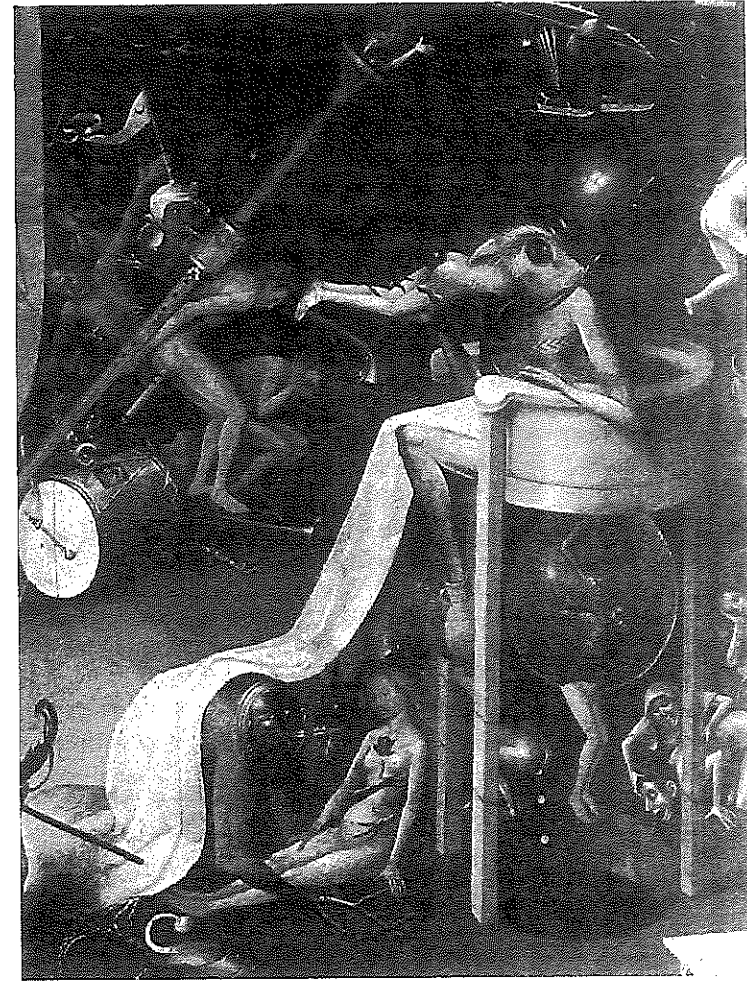


Figure 4.2  
Detail of the inner right wing of *The Garden of Earthly Delights* triptych by Hieronymus Bosch, painted in the 1480s. This panel depicts hell using grotesque and debased figures. The center character is a bird-headed monster sitting on a chamber pot and eating corpses, which are then excreted, while naked humans add their vomit and feces to the vile pit (image by Wikimedia Commons).

down your throat. However, these sensations are neither smell nor taste but the other highly relevant trigger of disgust.

We are keenly attuned to the tactile properties of substances that are likely to infect us—curdled, gooey, lukewarm, moist, mucky, oily, scabby, slimy, slithery,

and squishy.<sup>11</sup> These are the textures of feces, mucus, lesions, innards, worms, snakes, cockroaches, and maggots. When kids want to evoke disgust on the playground, they often resort to a great American folk song handed down through the generations:

Great, green gobs of greasy, grimy, gopher guts,  
Mutilated monkey meat, itty bitty birdie feet.  
Great, green gobs of greasy, grimy, gopher guts,  
And me without a spoon.<sup>12</sup>

When psychologists want to elicit disgust, they avail themselves of invertebrates. Taking a page out of the television show *Fear Factor*, various experimental protocols have subjects immerse their hands in a bowl of earthworms or hold a dead American cockroach.<sup>13</sup> Although touching is not as risky as tasting, it is surely more intimate than the remaining two senses.

Disgust at the sight of gray-green-purple rotting flesh or the sound of retching does not result from these sensory experiences per se, but from prior associations. Sight and sound reveal the existence of a vile object at some distance but do not “present” it with the intimacy of contamination. While disgust through the other senses has a noncognitive immediacy (e.g., we don’t need to figure out what is causing a vile odor to be offended), sight and sound involve thought.<sup>14</sup> We do not find the colors and shapes in an unflushed toilet or the rustling of cockroaches in the dark displeasing without background knowledge and experience. An exception could be the auditory “impressions made by the pullulation of swarms of creeping insects,”<sup>15</sup> but even here we might suspect a cognitive element.

In sum, the consensus among psychologists is that the senses eliciting disgust are those that entail proximity to a source of filth. As such, smell, taste, and touch are the primary triggers of disgust, with vision and hearing eliciting this emotion by virtue of our memory or imagination. But humans are highly cognitive creatures, so to understand the ways in which insects induce disgust we must consider how thought and feeling conspire.

\* \* \*

Although rooted in brute sensation, disgust is a “cognitively sophisticated emotion” that draws on our well-developed concepts of contamination and contagion.<sup>16</sup> We are disgusted by what we think something is and where we believe it has been. Such perceptions explain why people are reluctant to eat imitation dog feces fashioned out of chocolate or to drink a beverage that has been stirred with a comb.<sup>17</sup> Disgust arises from two strange but compelling psychological principles.<sup>18</sup> The law of contagion holds that “once in contact, always in contact.” In this form of sympathetic magic, if something touches a disgusting thing, then it becomes disgusting itself (perhaps

through what has been called “intuitive microbiology”).<sup>19</sup> The law of similarity entails that benign things that look like foul things are rendered nasty. Applying these principles to insects, some larvae look like bird droppings (law of similarity), and we know where that fly on our hamburger has been (law of contagion).

The cognitive equivalent of too much sweetness can elicit disgust. For example, when there is an excess of flattery, we find such fawning to be objectionable and may describe it as “ass-kissing” or “brown-nosing” to express our revulsion. Likewise, those who muse over a world dripping with spiritual depth are said to be saccharine, while those who engage in unrestrained intellectualizing can become tedious—and monotony itself can evoke a kind of disgust.<sup>20</sup> These mental states are united by a kind of surfeit, which is most powerfully exemplified by an excess of sexuality or vitality.<sup>21</sup> There is something oddly similar in my not wanting to hear the details of your wedding night and your not wanting to hear my description of thousands of Mormon crickets seething onto a dirt road to feed on the greasy entrails of their brethren that were in the path of a vehicle. Too much of a good thing—or perhaps most any entomological thing—is offensive.

In fact, you probably expect my story of the teeming masses of crickets to be disgusting—a phenomenon called “interpretation bias.” In experimental studies, subjects were shown pictures and asked to predict which of three outcomes would follow each image (tasting a disgusting liquid, feeling a shock, or nothing). Individuals who described themselves as extremely arachnophobic anticipated receiving either the shock or a nasty drink, the latter of which suggests that disgust might play a role in aversion to spiders.<sup>22</sup>

Pushing the cognitive aspect of disgust further, scientists have discovered a tendency of people to focus on offensive objects. The phenomenon of “attentional bias” is measured using a clever protocol known as the Stroop task. A subject is asked to tell the researcher the color of a word’s text (e.g., an individual seeing the word *maggot* in blue letters says “blue”). When words associated with disgust are used in this task, people take longer to report the color than they do with neutral words, indicating the difficulty of ignoring a word’s meaning. And when subjects are given a “disgust primer,” such as hearing about a cockroach crawling into someone’s mouth, the latency is markedly extended.<sup>23</sup> Such experiments along with case studies reveal the bizarre capacity of disgust to both draw our attention toward and push our thinking away from a stimulus.

In his darkly fascinating book on monsters, Stephen Asma recounts a conversation between a mother and her son at a medical museum. The boy was entranced by a display of a human fetus with two heads. When the mother asked, “Is this disturbing to you, William?” he replied, “God, yes. Very.” But when she suggested they leave, the boy replied, “No, absolutely not.”<sup>24</sup> I know how he felt. When I returned to the grasshopper-filled draw, I was torn

between wanting to descend into the appalling superabundance of crapping, crawling copulation and wanting to run from the grotesque gulch.

We have all felt this Janus-faced phenomenon of allure and repulsion. Who hasn't looked while passing the aftermath of an auto accident? Indeed, the entertainment industry banks on our perverse curiosity. What is a horror film if not a manifestation of our prurient capacity to savor the abhorrent? But such a conflicted response does not require sensations as dramatic as those stimulated by watching zombies eat brains.

Recall that disgust plays out most directly through taste, smell, and touch. In earlier times, gourmets used the process of decay as a culinary tactic. The *haut goût* or "high flavor" lurking at the edge of revulsion was said to enhance the fleshy taste of meat.<sup>25</sup> Although few people today choose to eat putrefying flesh, many of us relish cheeses that are tinged (or even saturated) with the nidorous smell, pungent taste, and soft texture of spoilage—Stilton, Limburger, Pont l'Évêque, and Époisses (which even the French banned from being taken on public transport).

William Miller, a scholar of disgust, proposes two forms of this emotion—both of which shed light on our internal conflict. Freudian disgust combines with shame to serve "as a barrier to satisfying unconscious desires, barely admitted fascinations, or furtive curiosities."<sup>26</sup> Hence, we emotionally abhor what we secretly desire. And the disgust of surfeit protects us from overindulgence. Too much food, drink, sex, or other carnalities evokes nausea, so that which was attractive becomes repulsive. Perhaps Miller's model explains, at least partially, the push and pull of pornography—as well as of maggot-filled corpses, carpets of cockroaches, and legions of locusts.

## THE DOMAINS OF DISGUST: INSECTS RULE!

Psychologists, philosophers, and other scholars have classified disgust in various ways. To understand why insects are so damn good at being disgusting, a biologically based taxonomy is most appropriate. Paul Rozin, the leading experimental psychologist in disgust who laid the foundations for this field in the 1980s, identifies seven "species."<sup>27</sup>

### Animalism: Insects as Beastly Vectors

Rozin contends that disgust can be a manifestation of a desire to avoid our bestial origin and nature.<sup>28</sup> And according to Aurel Kolnai, a Hungarian philosopher whose thoughts on disgust in 1929 anticipated much of today's work, insects evoke a "strange coldness, the restless, nervous, squirming, twitching vitality [that gives] the impression of life caught up in a senseless, formless surging."<sup>29</sup>

Graham Davey, a psychologist, formulates animalism in terms of infection.<sup>30</sup> This connection between animals and disease arose in three ways. First, disgusting animals may possess the qualities of contaminating substances such as feces and mucus (e.g., worms and slugs are slimy and turd-like). Next, humans have correctly associated certain animals with illness (e.g., rats and cockroaches in our homes) and contamination (e.g., beetles in our grain and maggots in our meat). And finally, we have also falsely associated animals with sickness, as superstitions transformed some creatures into objects of disgust. For example, during the Middle Ages spiders were thought to absorb poisons from the environment and infect foods by contact (the difference between a chemical poison and a biological pathogen was not understood at the time). Spiders were also considered harbingers of the plagues that devastated Europe, with people believing that spiders (rather than fleas) spread disease through their bites. Indeed, some historians trace the emergence of our anxieties about spiders to the mistaken beliefs of medieval Europeans. This connection of animality to disease brings us to the second species of disgust.

### Death: Insect Ambulance Chasers

The disgust evoked by teeming masses of insects arises from two morbid associations. First, rotting tissues fuel an outpouring of insect life, as if putrescence is reanimated in the form of flies, beetles, and their kin.<sup>31</sup> Indeed, until Francesco Redi's experiments in the 1600s, rotting meat was thought to generate flies spontaneously (and garbage was taken to be the source of rats). We have given up these beliefs, but it is still amazing to see blow flies arrive within minutes of death, as if these two-winged vultures are always lurking in the crevices of the world.

The other connection to death develops ironically from the profligacy of insects. In "senseless, formless surging" numbers, grasshoppers within a ravine represent the utter devaluation of life. Forced to confront our own triviality, we are appalled by the meaningless life and thoughtless death within the swarm. And so Miller contends that: "What disgusts, startlingly, is the capacity for life. . . . Images of decay imperceptibly slide into images of fertility."<sup>32</sup> From here, it is a small step to the next species of disgust.

### Sex: Insects as Fornicators and Exhibitionists

An abundance of life implies a corresponding profusion of copulation. The orgasmic reproduction of insects has long offended human sensibilities: "Every swarming thing that swarms upon the earth is an abomination" (Leviticus

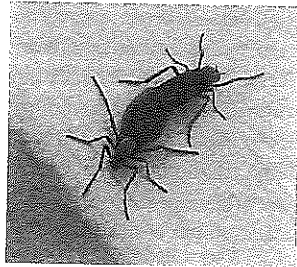
11:41). Kolnai described the disgust we feel toward vermin in terms of the “formless effervescence of life, of interminable directionless sprouting and breeding.”<sup>33</sup> He maintained that repugnance is elicited “by the sight of swelling breasts, by swarming broods of some species of animal, fish-spawn, perhaps even by rank, overgrown vegetation.”<sup>34</sup> Otto Weininger, another psychologist-philosopher in the early twentieth century, starkly claimed: “All fecundity is simply disgusting.”<sup>35</sup>

In an affront to puritanical sensibilities, dragonflies, grasshoppers, and butterflies are seen *in copula* throughout the summer. In spring and fall across the southern United States, March flies (aka love bugs, honeymoon flies, and double-headed bugs) unashamedly mate on the wing. Appropriately enough, these six-legged exhibitionists spend their larval lives in the soil, consuming decaying vegetation. Indeed, we conceptually equate sexual license with dirtiness (e.g., pornography is “filth”), and this leads us to the next form of disgust.

#### Hygiene: Insects as the Original Dumpster Divers

If insects live in, consume, and emerge from sewage and garbage, it is easy to understand our revulsion. Hugh Raffles’s lyric essay includes “the nightmare of long, probing antennae from the overflow hole in the bathroom sink or, worse, the rim of the toilet.”<sup>36</sup> The nasty cockroach emerging from the plumbing is arguably more disgusting, but rather less common, than a germy fly crawling on our potato salad.

Our revulsion toward flies was intensified by Public Health Service programs in the early 1900s that rechristened the house fly as the “filth fly.”<sup>37</sup> At about that time, Mark Twain was writing about the fly that coats itself with germs upon wading in festering sores and “then comes to the healthy man’s table and wipes these things off on the butter and discharges a bowel-load of typhoid germs and excrement on his batter cakes.”<sup>38</sup> Add to this the common knowledge (vividly captured by filmmakers in the remake of *The Fly*) that these insects regurgitate onto solid food to initiate the digestive process, and it’s easy to understand why a fly on our meal is so gross. This takes us to our next species of disgust.



**Figure 4.3**  
The March fly, *Plecia nearctica*, is commonly seen in enormous numbers along the Gulf Coast in spring and fall. The common name of love bug refers to the fact that these insects are often seen *in copula*, even while flying, thereby creating the impression of an insectan orgy. Such licentiousness in the animal world evokes disgust with exhibitionism, sexuality, and fecundity (image by Wikifrosch through Creative Commons).

#### Food: Insects as Inedible Contaminants

Although insects are important foods in many societies, eating insects violates the sensibilities of the Western palate (even entomophagous cultures are rather discriminating as to which insects are on the menu). So offensive are insects in terms of the American diet that even traces of their bodies are scrupulously regulated. The US Food and Drug Administration considers insect parts on a par with rat droppings. For example, standards for a fifty-gram aliquot of cornmeal limit the number of insects to one, the amount of “insect filth” to fifty fragments, and the quantity of rodent filth to two hairs or one “excreta fragment.”<sup>39</sup> So it appears that a grain beetle is comparable to a rat turd in your muffin—an equivalence that surely reflects the emotion of disgust more than the rationality of science. Regulations aside, we might prefer a couple of rodent hairs over the excrement—except for our next form of disgust.

#### Bodily Products: Insects as Yucky Stuff

Hair, feces, urine, mucus, saliva, sweat, blood, vomit: this is the stuff of primal, visceral disgust. At least most insects aren’t hairy (furry caterpillars notwithstanding), so aside from defecating, regurgitating lubber grasshoppers, insects don’t generally contaminate our world with their bodily products. However, the final species of disgust is another matter.

#### Bodily Violations: Insects as Invaders

Last summer, I was sitting with my son while he was being prepped for surgery to reassemble his shattered collarbone—a rather grisly bodily violation, in my queasy estimation. Out in the hall, I heard a brief ruckus and my son’s nurse say, “Oh thank you! I couldn’t do that. It just turns my stomach.” I peeked around the corner and saw that a medical technician had squashed a cricket.

Insects in hospitals, metal screws in bones—transgressions of boundaries. Clinical psychologist Susan Miller argues that the greater the potential for something to enter us, the greater the disgust:

Small, primitive life-forms close at hand are especially likely to disgust us. I believe this is because they seem too likely to enter us or at least to latch on. . . . they seem hungry for an affiliation with something more substantial. If they are structurally designed to cling or ooze, the problem worsens.<sup>40</sup>

Lice infesting pubic hair and worms squirming from an anus are paradigm cases of creatures violating our boundaries—of insinuating, transgressing,

trespassing. Our essential “self” is compromised when our biological or psychic skin is breached. We might also feel revolted when we are the violators, as when we penetrate an amorphous, protean mass of grasshoppers.

\* \* \*

Having considered these species of disgust, we might wonder whether insects would fare as well (or badly, depending on one's perspective) with other taxonomies. Does Rozin have it in for these creatures—or is there something about them that any cataloging would reveal? Let's conclude with a whirlwind tour through the paired terms that William Miller uses to classify disgust (which he associates with the second descriptor in each pair): inorganic/organic, plant/animal, human/animal, us/them, me/you, outside of me/inside of me, dry/wet, fluid/viscid, firm/squishy, nonadhering/sticky, still/wiggly, uncurdled/curdled, life/death-decay, health/disease, beauty/ugliness, up/down, right/left, cold-hot/clammy-lukewarm, tight/loose, moderation/surfeit, one/many.<sup>41</sup> We might quibble about just how many of the latter terms pertain to insects, but it seems reasonable to describe many of “them” as organic, squishy, sticky, wiggly, ugly, animals associated with surfeit, death, decay, and disease.

So we see that disgust arises from a complicated set of sensory experiences and cognitive associations. However, not only the triggers of disgust but the feeling itself is, well, sloppy. Like a sticky, mucous substance, disgust is difficult to separate from other emotions. However, coming to understand the entanglements is vital to understanding the infested mind.

## NOTES

1. Amanda C. Weldy, “A thoughtful call for higher moral standards, courtesy of *Playboy* magazine,” *Journal of College and Character* 10, no. 4 (2009): 1–3.
2. Susan B. Miller, *Disgust: The Gatekeeper Emotion* (Hillsdale, NJ: Analytic Press, 2004).
3. Quoted in William Ian Miller, *The Anatomy of Disgust* (Cambridge, MA: Harvard University Press, 1997), 1.
4. Aurel Kolnai, *On Disgust*, ed. Barry Smith and Carolyn Korsmeyer (Chicago: Open Court, 2004), 3.
5. Miller, *The Anatomy of Disgust*; Miller, *Disgust: The Gatekeeper Emotion*; Bunmi O. Olatunji and Dean McKay, eds., *Disgust and Its Disorders* (Washington, DC: American Psychological Association, 2009); Daniel Kelly, *Yuck! The Nature and Moral Significance of Disgust* (Cambridge, MA: Bradford/MIT, 2011); Carolyn Korsmeyer, *Savoring Disgust: The Foul and the Fair in Aesthetics* (New York: Oxford University Press, 2011); Colin McGinn, *The Meaning of Disgust* (New York: Oxford University Press, 2011); Rachel Herz, *That's Disgusting: Unraveling the Mysteries of Repulsion* (New York: W. W. Norton, 2012).
6. Kolnai, *On Disgust*, 33–35.
7. Anne Schienle, “The functional neuroanatomy of disgust,” in Olatunji and McKay, *Disgust and Its Disorders*, 147–54.
8. Quoted in Nat Hardy, “Imagining disgust,” *Canadian Review of Comparative Literature* 34 (2007): 424.
9. Miller, *The Anatomy of Disgust*, 66–77.
10. *Ibid.*, 85–87.
11. *Ibid.*, 38.
12. “A Fish That's a Song,” track 1.1 sung by Mika Seeger on Smithsonian Folkways Recordings, 1990.
13. Bunmi O. Olatunji and Josh M. Cisler, “Disgust sensitivity: Psychometric overview and operational definition,” in Olatunji and McKay, *Disgust and Its Disorders*, 45–46.
14. Kolnai, *On Disgust*, 48–52.
15. *Ibid.*, 52.
16. Miller, *The Anatomy of Disgust*, 6.
17. *Ibid.*
18. Paul Rozin, Jonathan Haidt, and Clark McCauley, “Disgust: The body and soul emotion in the 21st century,” in Olatunji and McKay, *Disgust and Its Disorders*, 14–15; Nathan L. Williams, Kevin M. Connolly, Josh M. Cisler, Lisa S. Elwood, Jeffrey L. Willems, and Jeffrey M. Lohr, “Disgust: A cognitive approach,” in Olatunji and McKay, *Disgust and Its Disorders*, 59.
19. Steven Pinker, *How the Mind Works* (Harmondsworth: Penguin, 1998).
20. Kolnai, *On Disgust*, 62–72.
21. *Ibid.*; Miller, *The Anatomy of Disgust*, 40–47, 109–12.
22. Peter J. de Jong and Madelon L. Peters, “Contamination vs. harm-relevant outcome expectancies and covariation bias in spider phobia,” *Behaviour Research and Therapy* 45 (2007): 1271–84.
23. Williams et al., “Disgust,” 61.
24. Stephen T. Asma, *On Monsters: An Unnatural History of Our Worst Fears* (New York: Oxford University Press, 2009), 6.
25. Kolnai, *On Disgust*, 16–22.
26. Miller, *The Anatomy of Disgust*, 109.
27. Paul Rozin, Linda Millman, and Carol Nemeroff, “Operation of the laws of sympathetic magic in disgust and other domains,” *Journal of Personality and Social Psychology* 50 (1986): 703–12; Paul Rozin and Carol Nemeroff, “The laws of sympathetic magic: A psychological analysis of similarity and contagion,” in *Cultural Psychology: Essays on Comparative Human Development*, ed. James W. Stigler, Richard A. Shweder, and Gilbert Herdt (Cambridge: Cambridge University Press, 1990).
28. Miller, *The Anatomy of Disgust*, 6.
29. Kolnai, *On Disgust*, 58.
30. Graham C. L. Davey and Sarah J. Marzillier, “Disgust and animal phobias,” in Olatunji and McKay, *Disgust and Its Disorders*; Graham C. L. Davey, “Characteristics of individuals with fear of spiders,” *Anxiety Research* 4 (1992): 299–314.
31. Kolnai, *On Disgust*, 16–22; Miller, *The Anatomy of Disgust*, 40–41.
32. Miller, *The Anatomy of Disgust*, 40.
33. Kolnai, *On Disgust*, 62.
34. *Ibid.*
35. Quoted in *ibid.*
36. Hugh Raffles, *Insectopedia* (New York: Pantheon, 2010), 202–3.
37. Charlotte Sleigh, “inside out: The unsettling nature of insects,” in *Insect Poetics*, ed. Eric C. Brown (Minneapolis: University of Minnesota Press, 2006).



38. Mark Twain, *Letters from the Earth*, ed. Bernard DeVoto (Greenwich, CT: Fawcett Crest, 1964), 35.
39. US Food and Drug Administration, "Defect levels handbook: The food defect action levels," <http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/SanitationTransportation/ucm056174.htm> (accessed March 29, 2012).
40. Miller, *Disgust: The Gatekeeper Emotion*, 56.
41. Miller, *The Anatomy of Disgust*, 38.

## CHAPTER 5

# The Maggoty Mind: A Natural History of Disgust

An entomologist presented with a new specimen faces a challenge not unlike that faced by a psychologist in a first session with a patient who has an emotional disorder. Three questions tend to focus the professional's attention.

First, a preliminary identification is in order. Given that there are few million species of insects, the entomologist has to narrow the field. Is the creature a blow fly maggot, a carrion beetle larva, or a clothes moth caterpillar? Likewise, sorting out a patient's emotions can be a challenge—is the individual experiencing disgust, fear, or contempt?

Next, to solve a problem, the entomologist often finds it necessary to discern the origin of the infestation. Knowing whether the specimen came from a person's basement, bedroom, or body matters. And for the psychologist, how a patient's revulsion arose can be a valuable part of deciding on a course of treatment.

Finally, the entomologist has to deal with sometimes bizarre variations. I remember my first encounter with gynandromorphy. Identifying grasshopper species (a key to sound pest management) often requires a careful examination of diagnostic features of the male genitalia—and it's quite confusing when the right half of a specimen is male and the left side is female! I can imagine the surprise of the psychologist whose patient is disgusted by insects but who has transferred this emotion into a form of sexual stimulation.

These are our three challenges in understanding the nature of disgust. And it turns out to be a very messy undertaking.

### THE EMOTIONAL FAMILY TREE OF DISGUST

Disgust's closest relative is surely fear, as these are the two aversive emotions that protect us from harm. Much of what we know about the workings of fear