Performing the Insect and Its Mysterious Metamorphosis

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https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

Prologue

In the 1901 film, *La Chrysalide et le Papillon d'or*, the director Georges Méliès, playing the lead role of a music hall magician, effects a three-way metamorphosis. Dressed in robe and turban, he dances onstage in front of a backdrop of a stylized jungle, and then brings on an enormous cocoon that he opens to show that it is empty, and hangs it from an invisible wire. Playing a flute and swaying like a snake charmer, he entices an actor costumed as an enormous caterpillar onto the stage that he then unceremoniously stuffs into the cocoon. He taps on the outside, and a woman dressed as a butterfly emerges. He chases her, but she flutters away until he throws a cloth over her. When two female assistants take off the cloth, she has changed into a human princess. The magician bows to kiss her foot, but she waves her hand, transforming *him* into a caterpillar, who wriggles after her as she exits the stage.

Méliès exploits the magic of new film technology to turn one of nature's greatest mysteries—insect metamorphosis—into a mock fairytale. He satirizes the dual tropes of the human capturing nature in the form of a butterfly, and the male trying to capture the female, but both not only defy the power of his magic, but respond with fantasy revenge. His magic produces Psyche, the winged soul represented by butterflies, long celebrated as symbols of rebirth resisting nature's inexorable trajectory toward death. She, however, devolves her pursuer into a larval state, reducing him and his desire to ludicrous helplessness. Méliès combines Ovid's depictions of metamorphosis as punishment for god-angering hubris with a prescient glimpse of Kafka's Gregor Samsa's descent into an insect.

The scene also combines the two types of metamorphosis most common in traditional theatres—transgender and transspecies—along with the much less dramatized transformation of insects. While playing upon the popular image of the butterfly being female, the scenario inadvertently also utilizes the entomological fact that caterpillars have no sexual differentiation. However, it contravenes biological metamorphosis that is linear and unidirectional by performing a comical circularity. In addition, the film uses the new technology to portray the belief, prevalent in many cultures and demonstrated in their theatrical traditions, of the soul transmigrating through different bodies. But the actual transformation process inside the cocoon is leapt over and presented as a fait accompli. For thousands of years, people have been stymied by the secrets of insect metamorphosis locked within the shell-like casing of the pupa.

Mysterious Metamorphosis

Kim Todd explains that metamorphosis was a biological strategy that probably evolved because insects were so numerous: "Metamorphosis is efficient because the young and their adult counterparts don't compete with one another for the same limited resources [...] It allows one creature the benefit of two completely different bodies and life strategies, each employed when most useful" (2007:13). While a few insects do not metamorphose, and others do so partially (hemimetabolous), about 80% undergo a complete change (holometabolous) through four stages: egg, larva (nymph, caterpillar), pupa (cocoon for moth and chrysalis for butterfly), and imago (adult, often with wings). As the larva grows in stages (instars), it casts off its skin to expand until the final molt, when the

Figure 1. (facing page) The Beetles emerge to question Fabre in Souvenirs Entomologiques: Playing Dead *by Li Yi-chu. Experimental Theatre, Taipei, 2023. (Courtesy of Li Yi-chu 李憶銖)*

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TDR 67:4 (T260) 2023 https://doi.org/10.1017/S1054204323000436
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https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

Figure 2. The Butterfly emerges from the cocoon in George Méliès's La Chrysalide et le Papillon d'or *(The Brahmin and the Butterfly), 1901. (Public domain; courtesy of Catherine Diamond)*

juvenile hormone disappears, signaling the larva to begin constructing its casing for the pupa and undergo its next transformation. Not only does metamorphosis completely alter the organism, but also the organism's *umwelt*, its particular perceptual relationship to the world defined by markers, significant to the animal equipped to perceive and react only to them.

Jakob von Uexküll developed his theory of the umwelt to help explain why a tick is endowed with only the barest sensory apparatus it needs to survive in its particular environment ([1934] 2010:44). Giorgio Agamben suggests that this specifically honed capacity belongs to all animals and humans; that there is no "objective" nature, but that each animal has its own particular connection with its environment, and this umwelt "constitutes a closed functional [...] unity with the animal's receptive organs that are assigned to perceive the mark and react to it" (2004:41). Theatre theorist Una Chaudhuri expands on Agamben's interpretation: "Its notion of environment as something that differs from species to species, even from individual to individual [...] provides it with its distinctive experience of existence [...;] that species cannot be properly understood other than in relation to the environments they inhabit, and specifically to those aspects of their environments relevant to their existence" (2013:324). However, she omits that metamorphosis also changes the manner in which an individual organism experiences *different* umwelts while in altered bodies. The tripartite metamorphosis of the insect not only changes its external shape and the composition of its organs, but also its sense of being in the world; its umwelt alters with each stage. A caterpillar gorges on leaves to store enough energy to undergo the trauma of metamorphosis. As it must focus on feeding and fattening, it wastes no energy on reproductive organs, while the imago, such as the adult moth or butterfly, is gendered and feeds only enough to discharge its reproductive duties. The insect's change of sensory apparatus alters its umwelt, how it perceives its environment and operates in it, such as preferring leaves or pollen. Are these two perceptual worlds utterly separate as Uexküll and Agamben suggest? Or is there some throughline of consciousness that connects them, a memory of being an Other in this drama of radical transformation?

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Insect metamorphosis still poses a challenge to our imaginations, as Charlotte Sleigh reveals in her recollections of her first high school encounter:

> We were studying the life cycle of the bluebottle [fly] and had before us some of their pupae: red brown, shaped like fat cigars about of seven millimeters' length and segmented in appearance. Then we cut into them. I will never forget the horror as a thick pus-like yellow goop oozed out. Something struck me as profoundly wrong. I could understand how a vertebrate could grow from a homunculus embryo, but how could a fly assemble itself, life-size and ready to go, from a soup? [...] This was nature at its most perverse. (2006:281)

"Soup" is among the most common descriptions of the state of dissolution inside the pupa casing in which the previous structures of the caterpillar disappear and hormonal triggers instigate the generation of new organs in an utterly new body. The cellular rearranging has only recently been traced by magnetic imaging resonance and chemical analysis. These physiological and anatomical revelations do not lessen, but deepen, the mystery of the process because we do not know how the insect itself experiences it. Todd asserts that while other animals also partake in lesser forms of alteration, "insect metamorphosis remains the most impressive because it is hidden, dramatic, and numerous" (2007:13). The closest humans come to such a bodily transformation is puberty; not only do the mind and body appear temporarily unreconciled, but the disjuncture is both internally bewildering for the individual and externally visible for all in our species community to witness. How much more upsetting it would be if we left every semblance of our formative selves behind and, bestowed with an entirely new body and mind, had to adapt to an equally unfamiliar world. Would anything remain of "identity?"

The more we learn, the more astonishing the insect transformation becomes, and the more questions it raises. Does the caterpillar, while spending all of its waking hours consuming plants, *know* it is going to become a winged insect? And after emerging from its massive cellular overhaul, does the moth *remember* anything of the process? Our hormonal changes occur without our say-so as the body startlingly seems to have a mind of its own, which our consciousness can scarcely grasp, let alone control. Moreover, our cells are continuously replicating, growing, and dying at different rates so that the body is always replacing itself, yet we have almost no consciousness or control over how these changes impact us, and instead experience a continuum of awareness and sense of self. Might insects experience a similar throughline that connects their changes?

Such questions resonate with the Taoist Zhuangzi's famous conundrum when he, upon waking from a dream in which he was a butterfly, wondered if he was now a butterfly dreaming he was a man. Does the caterpillar dream of becoming a butterfly?[1] One wonders if insects dream or imagine at all. BBC's Zaria Gorvett writes that insect larvae have neurons within them that remain for their whole lives, "so it's been suggested that adult insects that went through this stage might be able to remember some things that happened before they metamorphosed" (2021). The shift in entomology that is reconsidering the scope of insect sentience—their feelings of pain and pleasure as well as distinct characteristics found in individuals—has implications for how insects might be represented in theatre (Tucker 2016). Whenever insect characters have appeared onstage since the time of Aristophanes, it has generally been to critique human behavior and society by comparison. What if the theatre instead explored the insect umwelt to open up a whole new world of sensory perception? Could the scientific developments assist in reconceiving the older plays to present a more complex picture of insect life and shift the dynamics in human-insect relations?

1. Zhuangzi's dream has been adapted for two plays: the Qing dynasty play *Hudie meng* (Butterfly Dream), and the Yuan dynasty *zaju, Lao Zhuang Zhou yizhen meng hudie* (Old Zhuang Zhou Dreams of a Butterfly), in which the protagonist dreams of a huge butterfly who is actually a dancing immortal (Idema 2019:71–72). Idema also suggests that the first Western play to prescribe a performance of butterflies was *A Quippe for an Upstart Courtier* (1592) by Robert Greene, "who has an actor trot onto the stage followed by two boys in 'cloakes like butterflies'" (81).

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Theatrical Metamorphosis and the Role of Anthropomorphism

Theatrical representations of metamorphosis have been primarily focused on human-animal shape-shifting and the conflict between the mind belonging to the former body maladjusting to the new body, such as in Ovid's *Metamorphosis*, a compendium of various transformations, or Kafka's 1915 novella, *Metamorphosis*, depicting a unique one (Kafka 1971). While the Greco-Roman transformation tales retain only symbolic significance, many Asian cultures maintain a more literal understanding of therianthropy in their performing arts. In either case, that the human mind is trapped inside a body that does not allow it to express its humanity should lead one to consider a similar possibility for real animals: they may also have imaginative or reasoning minds limited by their bodies—rather than brains—as to what they can express, such as the absence of a larynx, precluding speech.

At the same time, ancient people recognized the superior sensory apparatus of animals that modern science is only beginning to verify. The myth of Epimetheus (afterthought) tells of how he, responsible for bestowing clever survival skills to the animals, had nothing left to give humans, and required Prometheus (forethought) to steal fire, the element that would initiate the rise of civilization (and the arts), which gave humans dominion over animals. How brains interpret the information supplied by sensory organs is one of the key questions about how we and other animals live in the world, sustaining our different, but overlapping, umwelts.

Concomitant with entomology's development into a professional science in the early 19th century was its insistence on a form of empiricism that preserved an objective distance between the student and the object of study, rendering the latter inferior and passive. At the same time, however, appeared an active form of anthropomorphism that emphasized our kinship with animals and required our sympathetic treatment of them, exemplified by the founding of the Society for the Prevention of Cruelty to Animals in 1866. By anthropomorphizing animals, we tend to use our imaginations either to impose our umwelts onto theirs or use our observations of their actions to reflect upon our own similar behavior. While presuming that animals have emotions identical to those of humans may conflict with known facts, the current trend in science is to substantiate rather than deny a critical anthropomorphism that acknowledges an increasing range of similarities beyond the merely biological. Both questioning humanity's unique position in the natural world and exploring our affinities with other animals with greater neutrality and openness are the significant contributions of posthuman literature, such as expressed by J.M. Coetzee's fictitious character, Elizabeth Costello. She challenges the philosopher Thomas Nagel's argument that because humans do not have the auditory apparatus that allows a bat to use echolocation to navigate its environment, humans cannot know its umwelt—how the bat actually experiences the world. Costello responds that empathetic imagination—a kind of anthropomorphism—carries us quite far in responding with appropriate respect for the nature of that experience (2003:76–77).

Although modern science often discredits anthropomorphism as "emotionalism" (Louv 2019:46) that obscures the necessary objectivity to interpret animal behavior truthfully, it is nonetheless one of the few tools we have to relate to other species. Insects have been among the last species to be considered anthropomorphically in regard to their capacity to express mental and emotional states, due in part to their being treated as interchangeable prototypes rather than as individuals. Scientists conducting new experiments to reveal the variety of insect expressions of pain and pleasure are using their data to argue for the ethical treatment of insects even in the manner in which they are bred or captured for study (Fischer and Larson 2019:173). Formerly, anthropomorphism worked against insects, as their behavior was adapted primarily to satirize human mindlessness and brutality. Una Chaudhuri suggests that we stop metaphorizing animals in our dramas and *re-literalize* them: instead of using insects to critique undesirable traits in humans, we could consider how their differing sensory perceptions and responses might suggest alternative ways of understanding our own umwelts (2013). Some dramas are pursuing a deeper anthropomorphism by suggesting the commonality of the biological origins of insect behavior and the ontology of our own feelings and

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thoughts, and their cultural expressions. Science writer Ed Yong and disabled activist Alice Wong call for the collaboration of arts and sciences to imagine other-than-human types of sensory perception and participation in the world:

> There are a lot of painters and musicians among people who study vibrations and sounds. And I think that's valuable too because the problem with thinking about the sensors—which folks like Thomas Nagel and others wrote about—is that it's an inherently impossible task. We can get some way towards understanding how a bat or a whale or a dog experiences the world, but we'll never get that entirely. There's always going to be this chasm where it can only be leapt over through imagination rather than through empiricism. Empiricism can guide our imagination, but we still have to make that final leap on our own. To really get at this, you need to fuse the sciences and the arts. (Yong and Wong 2022)

It is recognizing this chasm that can never be fully bridged that makes the "wild" in all of its forms so attractive and the pursuit of understanding it so compelling. Animism and ancient myths of transformation that brought living beings close together were denigrated and replaced by a rigidly defined positivist science that inserted barriers between species, and then claimed its findings to be the exclusive truth. But now, as behavioral science reexamines the ethology of animals depicted in stories, the two approaches are beginning to illuminate each other.

In discussions of both live animals onstage and their various representations in plays, few include insects—the most numerous and most diverse animals on the planet—as well as the animals people have most contact with on a daily basis.[2] In contrast with Hollywood horror films portraying oversized or teeming insects terrorizing humans and animation comedies depicting cute and sentimentalized singing and dancing bugs, the theatre has made less use of them. Insects' small size, humungous numbers, alien anatomy, and (often) pestiferous presence make them difficult to depict realistically onstage, let alone as drama-worthy or empathy-evoking subjects. One solution has been to render them invisible and dramatize only the human reactions to them as perceived threats as in Tracy Letts's 1996 play, *Bug*.

Theatre, however, metaphorizes metamorphosis each time an actor becomes something, or someone, else, in part a self-willed transformation, in part a mysterious process. Despite the realistic illusions of transformation produced by film, the live theatre is the environment for the most concentrated form of human change-making because it relies solely on the entire living organism, first imagined and then embodied. It's only successful when both the external and internal qualities of the actor combine to persuade the audience of the reality and autonomy of the new persona, despite its ephemerality. That is, actor and observer experience shared umwelts. One could say theatre is born out of our desire to experience an altered consciousness, to temporarily escape from self into another way of being in the world that only the imagination can provide. In some cultures, theatrical shape-shifting is a reflection of beliefs prevalent in the outside world, and in others, it is a magical intervention, acknowledged only in the context of the stage and its convention of pretend.

In this epoch of the Anthropocene, people in industrial societies who have been technologically and ideologically cut off from the natural world are seeking to reenter it by reanimating it, discovering the symbiosis of overlapping, permeable, and constantly evolving umwelts, the complexity of which we are only beginning to fathom even as many species have gone extinct or are on the brink of doing so. For thousands of years, humans have imposed allegorical meanings upon insects and their miraculous metamorphosis, forcing them to exist within the limitations of our eschatological needs, conventional morality, and scientific assumptions. Perhaps the theatre as the laboratory of the imagination can be one of the ways in which we emerge from our epistemological cocoon and begin to engage in a relationship that inquires into not only insect survival strategies, but also the ways they perceive their particular umwelts.

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2. In 2019, Paul Miskin initiated a street theatre of actors in insect costumes for *Insectopolis* to raise awareness of insect extinction. See atlasofthefuture.org/project/insectopolis/.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

Figure 3. The Parasite dances with the ballerina playing the Larva before entering her burrow to consume her in Jan Svankmajer's 2018 film, Insects. *(Courtesy of Athanor Film Production)*

Insect Plays and Metamorphosis

Several plays that feature insects anthropomorphize them, revealing the various cultural and scientific interfaces of human perceptions and attitudes. Metamorphosis is either the central event controlling the action or it is referenced by the insect characters as a key event in their past. Although the plays use readily identifiable insect traits as metaphors to satirize human behavior, they also include aspects of insect life that could be developed or actualized to present a more "insect-centered" performance. In Karel and Josef Čapek's *Ze života hmyzu* (*The Insect Play*, 1922), insect characters are used to expose the vacuous and vicious side of the respectable virtues of the Czech bourgeoisie—hard work, care for offspring, and the accumulation of wealth. The Čapek brothers' script—which was written intermittently with Karel Čapek's robot play, *R.U.R.* (1920)—underwent significant changes between its premiere in a small theatre in Brno (1922) and a more elaborate spectacle in Prague later that same year. Its first English version by Paul Selver, also known as *And so*, *ad infinitum* (1923), further altered the script, revealing some of the difficulties in representing insect metamorphosis onstage.

In one of its most recent Czech incarnations, film director Jan Švankmajer produced a play-within-a-film, *Hmyz* (Insect, 2018), to satirize the changes the Čapek brothers made in response to critics who found their vision of humanity too nihilistic. The film's origins lie in a short story the director wrote in 1970 but was unable to develop due to Soviet censorship. Švankmajer later wrote, "It will combine dark comedy, grotesque, classic horror genre, and both animation and feature acting" (in Zemanová 2011). He layers Kafka's surreal metamorphosis onto the Čapek characters; "This Čapek play is very misanthropic, and I always liked it—bugs behave as human beings, and people behave as insects. It also reminds one a lot of Franz Kafka and his famous 'Metamorphosis'" (in Zemanová 2011).

Kafka's *Die Verwandlung* (*Metamorphosis*; 1915) also critiqued the Czech bourgeoisie by transforming the insignificant salesman Gregor Samsa into a beetle to depict the demeaned state of the individual vis-à-vis a bureaucratized and mechanized society. It begins with an a priori external transformation but then portrays how Gregor's mind tries to adapt to the insect body

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and its changed umwelt, and eventually succumbs to it. The story was adapted for the stage by Steven Berkoff (1969) and although his physically oriented version has been performed all over the world, including a famous 1989 rendition by ballet dancer Mikhail Baryshnikov, the novella received a new adaptation requiring an even more athletic performance by Gísli Örn Garðarsson of Iceland's Vesturport Theatre in 2006.[3]

In contrast to the Eurocentric interpretations, a radical adaptation was offered by Taiwan-based jingju performer Wu Hsing-kuo (吳興國) in *Tuìbiàn* (蛻變, Metamorphosis; 2013). It appeared in London just after a return performance of the Vesturport production, inviting critical comparison. Wu responded to Berkoff's and Garðarsson's physicality with his own training in classical Chinese theatre movement and conventions. Moreover, he approached Kafka's text from Chinese philosophical perspectives that accepted Gregor's idiosyncratic and grotesque transformation as a more commonplace event by setting it in both the Taoist cosmos of constant change and the Buddhist cycle of reincarnations. Wu also highlights the process of transformation in the art of the actor by playing all of the roles himself.

Figure 4. Peter Balfry as Gregor Samsa with Peter Wade in Steven Berkoff's version of Kafka's Metamorphosis. *Phoenix Theatre, Taipei, 2000. (Photo by Catherine Diamond)*

Unlike the Čapeks' and Kafka's satires, David Ives's one-act comedy *Time Flies* (2001) applies anthropomorphism to generate empathy for the insect characters by depicting them as appealing teenagers. Instead of demeaning people by comparing them with insects, Ives elevates the insects to allow people to sympathize with their predicament. In a topsy-turvy world that resembles Gary Larson's biologically informed *Far Side* cartoons, Ives revels in references to American pop culture on one hand, and a parody of scientific reductionism on the other. The popularity of his contemporary fable among English-speaking audiences around the globe, including Phoenix Theatre in Taipei, suggests one route to a more biodiverse theatre.

Taiwanese dramatist Li Yi-chu, like the Čapeks, was inspired from childhood by the books of the 19th-century entomologist Jean-Henri Fabre. Her *Souvenirs Entomologiques: Playing Dead* (2023) is based on Fabre's description of thanatosis, an insect survival strategy of dropping to the ground and freezing to avoid predation, and explores how the concept can be applied to human reactions to stress (Fabre 2002:36–37). Li and Ives demonstrate a shift from the Čapek and Kafka approach by depicting insects with less antagonism and condescension and more sympathetic entanglement. Also implicit in the feigning death response is that the insect's return to life is analogous to humanity's interpretation of metamorphosis as a metaphor for rebirth.

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3. Iceland's Vesturport Theatre in collaboration with London's Lyric Hammersmith Theatre produced *Metamorphosis* (2008) by David Farr and Gísli Örn Garðarsson in which Garðarsson as Gregor Samsa climbs upside down from the ceiling. This adaptation also placed the action in its specific historical context of Prague in 1915. See vesturport.com/theater/metamorphosis-hamskiptin/.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

The Čapek Brothers' Insect Visions

Beginning in 1919, Karel and Josef Čapek collaborated on *The Insect Play*, and although it bears resemblance to some earlier texts, theirs has been the most produced, having the greatest impact on theatre internationally.[4] The first European insect play was likely the Swiss writer Joseph Viktor Widmann's German *Maikäfer-Komödie* (Cockchafer/Beetle Comedy) (1897), which has not been translated into English.[5] Widmann's play as well as Russian writer Vsevolod Mikhailovich Garshin's short story "On What Was Not" (1882) were considered sources for the Čapeks because these works use the same insects to satirize human society, but the Čapeks denied any plagiarism.

Instead they claimed they were inspired by their own childhood observations of insects and Jean-Henri Fabre's books—*Souvenirs Entomologiques* (1879) and *La Vie des Insects* (1910).[6] František Černŷ writes that they dedicated the play to him (2000:113).[7] Stephen Johnson, writing about his 1992 McMaster University production, mentioned researching Fabre's influence on the play:

> Our advisors from the Biology Department suggested two important characteristics of Fabre's work: (a) his observational skills are still respected; and (b) his theoretical conclusions are wrong. Fabre attributed to insects learned behavior, social skills, and a family life. This basic error of anthropomorphism had a profound effect on his writing, which tended to be narrative, moralistic, family-oriented, and quite personal. (in Johnson 1994)

Fabre, however, was not only a master storyteller, influenced by the fables of Jean de La Fontaine; he was also riding a wave of public interest in insects instigated by the conditions of warfare in World War I, such as the use of chemical sprays against both insects and humans (Murray 2017). Called "The Homer of Insects" by Victor Hugo, Fabre also inspired the insect-loving Chinese author Lu Xun (魯迅) to persuade his brother to make the first Chinese translations of his works (see *New York Times* 1915). Moreover, studies in the 21st century are beginning to bear out the truth of some of his "errors" by discovering evidence of learned behavior, social life, and family orientation among several insect species (Dukas 2008).

Fabre's description of the pine moth caterpillar could have been an inspiration for both *The Insect Play* and Karel Čapek's robot play, *R.U.R.*, with its critique of an egalitarian socialist ideal and the dehumanizing effects of capitalist industrialization:

> The caterpillar, being almost sexless, is indifferent to amorous instincts. This is the first condition for living pacifically in common. But it is not enough. The perfect concord of the community demands among all its members an equal division of strength and talent, of taste and capacity for work. If there were thousands of them in the same nest, there would be no difference between any of them. They are all the same size and equally strong; all wear the same dress; all possess the same gift for spinning; and all with equal zeal expend the contents of their silk-glands for the general welfare. [...] In their tribe there is no question of skilled or unskilled, of strong or weak, of abstemious or gluttonous; there are neither hard-workers

4. The play is also known in English as *Pictures from the Insects' Life*, *The Life of the Insects*, *The Insect Comedy*, *The World We Live In*, and *From Insect Life*. It was also translated into German, Hungarian, Italian, Japanese, Chinese, and Polish, and performed in New York, Berlin, London, Vienna, Tokyo, Warsaw, and Sydney not long after the Czech premiere (Kudlová 2021:150).
5. In Widmann's play, mayflies gather in the dark underground to hear one of them preach about redemption. He points to a shining light that signifies the paradise to come and they swarm out to mate. They represent different social types constructed around a single trait such as the denier, the experienced, the stupid, the communist, the king, and the plebeians. They learn of their imminent death and the play ends. It was well-received in its time, and performed again in 2007. It clearly bears similarities to the Čapeks' script (Leipelt-Tsai 2022).
6. The most common version in English is *Fabre's Book of Insects* with the subheading "Retold from Alexander Teixeira de Mattos' Translation of *Souvenirs Entomologiques*, by Mrs. Rodolph Stawell," which was initially published in 1921.
7. All English translations of *Premiéry bratří Čapků* (Premiere Performances of the Čapek Brothers) are from the author's 2023 unpublished translation provided her by Jarda Kubalik.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

nor idlers, neither savers nor spendthrifts. What one does the others do, with a like zeal, no more and no less well. It is a splendid world of equality truly, but, alas, a world of caterpillars! (1916:54–55)

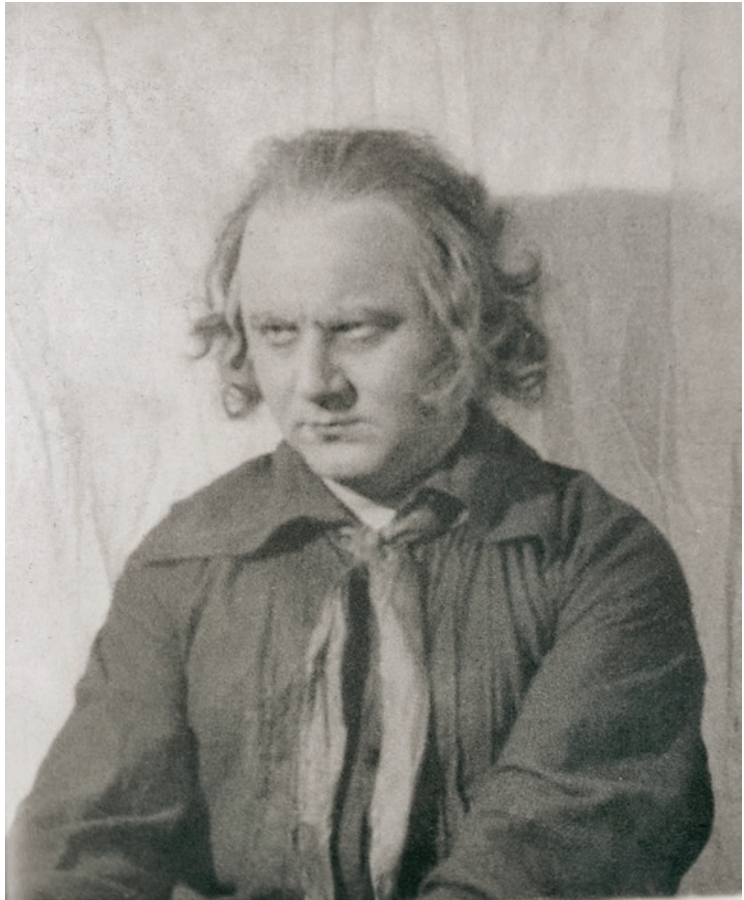

Figure 5. Karel Jičínský as the Tulák (The Tramp), in The Insect Play. *Prague, 1922. (Courtesy of the Archive of the Czech National Theatre)*

The Čapeks took their cue from Fabre's anthropomorphism to satirize human hypocrisy. It was this comparison of the instinct-driven insect with the rational human that made *The Insect Play* provocative to its first audiences at home and abroad. It was construed by many as an affront to the dignity of created-in-god's-image *Homo sapiens*—insects being the lowest form of visible animal. While the brothers wanted to strip their bourgeois compatriots of their delusions of self-overestimation, they were also careful not to select insects that immediately inspired disgust (cockroaches and fleas) or were admired (bees). Saying they did not want to damn humanity but criticize materialist greed, vacuous eroticism, militarism, and the quest for power, they impose these traits on amoral insect behavior, and in the process relegate the insects to caricature.

Presented as a revue-type entertainment inspired by American vaudeville, *The Insect Play* is divided into discrete scenes, each focusing on a species. The scenes are grouped into three acts: 1, The Butterflies; 2, The Creepers and Crawlers; and 3, The Ants. The scenes are connected by two overarching narratives: that of the Tramp, a human interlocutor whose commentary makes analogies between humans and insects; and the Chrysalis, who first "appears" in act 2 concealed inside a cocoon.[8] Invisibly, she is undergoing metamorphosis and keeps announcing that upon her emergence she will proclaim words of salvation that will usher in a new world. The two appear in all the ensuing scenes—the Tramp moralistically commenting on the insects' behavior and the Chrysalis obsessively declaring the miracle she will deliver upon rebirth.

The three acts are framed by a prologue and an epilogue that attempt to put the amorality of insect life into a humanist perspective, and ultimately support belief in human transcendence and optimism. The prologue between the Tramp and the Lepidopterist, however, initiates the process by ironically stripping humanity of its vanity as the Tramp refers to his lowly state as "a lord of

8. The English translations of these two characters, however, carry little of the nuance of the Czech originals. Johnson remarks that the English translations of the Czech "Tulák," whether "Tramp" in London or "Vagrant" in New York, do not do justice to the sense of "Wanderer" or even "Seeker" that the Čapeks wanted to convey. František Černý notes that this character shows some similarity to a character in Karel Čapek's 1917 short story, "History without Words," about a tramp in the woods observing insects and contemplating his own life (2000:114).

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Figure 6. The set of a meadow for the butterflies in act I by Karel Hugo Hilar and Josef Čapek for the Prague premiere, 1922. (Photo by Karel Váňa; courtesy of the Archive of the Czech National Theatre)

creation" and the Lepidopterist kills, pins, and labels his butterfly catch "for the love of nature." When the Tramp anthropomorphically says the butterflies flying around them are "happily playing," and the Lepidopterist insists they are merely engaged in sex; both views are shown to be partially correct in the following butterfly scene.

The epilogue, culminating with the deaths of the Tramp and the Chrysalis, brings the play back to the world of humans—a Woodcutter who finds the Tramp's corpse, a woman carrying a baby to baptism, and a group of singing schoolchildren, representing a hope in the future to counteract the despair evoked by all the brutal insect deaths. This optimism lies in the fact that life goes on despite the death of individuals, and the Čapeks enjoin the audience not to waste the precious gift of life on meaningless or harmful pursuits.

In act 1, the Čapeks portray the Butterflies as male and female flirts, ridiculing the frivolity of privileged youth. The Butterflies refer to their previous larval states as embarrassments of the body. They remember their past existence, but reject it—Felix, the butterfly poet, renounces the juvenilia he wrote on leaves to his love, and the playboy Victor mocks the caterpillar's gluttony. The Butterflies' preoccupation with sex infects their sense of time, which is simultaneously eternal in their desire for romantic fulfillment and ephemeral in their biological reality. Consumed by the urgency to reproduce, their liaisons last only seconds before becoming "ancient history." Life and death follow upon one another when, at the end of act 1, Victor is eaten by a bird just as his rival Otto copulates with his girlfriend. The Čapeks are clearly aware of the differing proclivities of the caterpillar and butterfly, but these are overshadowed by the spectators' preconceptions about the vulgarity of insect behavior as well as the ultimate target of the satire, which was evident from the Čapeks' notes about costuming that Klára Kudlová translates:

> The DRESSES of insects quite human: in the case of BUTTERFLIES elegant, in the case of MARAUDERS civil, in the case of ANTS black (or yellow) working clothes, MAYFLIES

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in gauze veils. The insect quality is expressed in the gestures and mimics, yet the characters always remain men and women, except of that which is insect-like in real people. (2021:155)

Not only the Butterflies' flirtations take place in ever present danger; death lurks in all of the scenes. In act 2, the Cricket couple who move into a dead cricket's home are then killed by the Sabre Wasp to feed its Larva who in turn is eaten by the Parasite. Act 3 is taken up with war and meaningless mass slaughter as two ant armies battle over a strip of land deemed insignificant by the Tramp. The circles of life and death are emphasized throughout, and watching the drama, the Tramp expresses compassion for the victims, revulsion for the predators, and general contempt for the combatants. The Tramp's narrative highlights the conflict between metaphorical function and real insects that are practical strategists, not analogues of human immorality.

Throughout the play, the Chrysalis remains occluded, telling us nothing of what is happening to her inside the cocoon, but monotonously reiterating her impending arrival. She promises an unveiling of a secret, but the Tramp already intuits that it is life itself: "While everything in the world strains to be born, to live forever, to feel a million feelings, only one thing matters—the awesome bliss of being" (Čapek and Čapek [1922] 1999:122). He transforms her egotistical obsession of what she *will* be into feelings of awe for the present moment. The Chrysalis finally bursts out with great fanfare and dances at her liberation only to die before she can utter the promised words. Mourning over her, the Tramp suddenly faces Death itself—not a living predator, but a ghostly power that overwhelms him. His life converges with hers just as they are both overtaken by Death. In her analysis of the play, Kudlová notes the similarity of their last words. The Chrysalis first ecstatically cries:

> "The rule of life / I declare! All creatures I command: / live! For the rule of life is come! [...] Harken! Harken! / Great words I am bringing." Her words are then transformed into a lower stylistic level by the Wanderer [Tramp]: "I want to—just for a while—I want to—Let me live! Just live! [...] I've got so much to tell! *(He drops on his knees)* I know now—how—to live. *(Collapses)*." (2021:153)

Two Snails, indifferently observing the Tramp's epiphany, take over his narrative and reveal they already know the two contradictory but overlapping priorities, the practical and the philosophical: that it's a pity they can't eat him or the dead mayflies, and yet they are still triumphant: "but at least, we are alive" (Čapek and Čapek [1922] 1999:164).

The Perennial Problem of the Ending

The play's final scenes presented problems for not only the Čapeks and their first audiences, but also later producers. The English translations of the epilogue vary considerably and affect how the play is interpreted since it touches upon one of humanism's fundamental contradictions: although humans are bound by religious/moral mandates not to cause suffering but to relieve it, they live in an indifferent biological system in which thriving is based on the suffering and death of others. At the play's first reading in the Čapek home in 1921, the listeners found the ending too cruel (Černŷ 2000:123). Stung by the criticism of being overly pessimistic, the Čapek brothers "wrote notes for the Prague programme, a Preface for the published version, comments for the Samuel French edition, and a letter to the *New York Herald*, all defending their play as not nihilistic but legitimate satire" (Johnson 1994). Many critics attending the Prague and New York premieres still considered the play too dark: if human behavior could be equated with insects' brutal and bare lives, what kind of morality could be expected of society? And if all aspirations simply end in death, wherein lies hope?

The Čapeks wrote a second ending in which the Tramp does not die but awakens from a dream, which he explains to some Woodcutters. He then turns to the audience, saying, "You and I are not just viewers; we can take action too." The Woodcutters offer him a job and they all cheerfully exclaim, "What a lovely day" (in Černŷ 2000:126). The Čapeks wrote: "For the Director: If the director wishes a more optimistic ending [smírného konce], use this variation (beginning with the

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Figure 7. Liběna Odstrčilová as the Kukla (Chrysalis) emerging from behind a gauze curtain in the Prague premiere of The Insect Play*, 1922. (Courtesy of the Archive of the Czech National Theatre)*

exit of the Snails)" (in Johnson 1994). Černŷ contends that the dream ending was rarely staged because its phoniness undercuts the satiric impact of the earlier scenes (2000:125).

As Stephen Johnson, who revised the ending in 1992 and again differently in 1998, reports, the final scene never really worked for a late 20th-century American audience. Johnson settled on a technique similar to what was used in the Prague performance—the actor who plays the Tramp dies, and then surreptitiously goes offstage, leaving his jacket behind to represent the corpse. He returns as the Woodcutter, thereby suggesting a life-death-rebirth circularity with twisted irony: the Chrysalis promising eternity does not live beyond the moment of her emergence while the Tramp is resurrected, becoming through theatrical artifice a more socially acceptable person (Johnson 1998). And perhaps with these questionable complications in mind, Majer and Porter's 1999 translation eliminates the human ending altogether, letting the Snails have the last word.

The ending presents an additional problem regarding its representation of insect metamorphosis—both in the original text and in the English translations. The first English translation, for Broadway (1922) and London (1923), made major changes to the Chrysalis. Czech scholar Ondřej Pilný suggests that it was not translator Paul Selver but the producer/adapters Nigel Playfair and Clifford Bax who altered it for English-speaking audiences (Pilný 2022). The Tramp awakes from a dream in fright and, hearing the insect voices in the night, lights a flint, which attracts moths. The Chrysalis emerges from her casing as a moth, and joins other moths in a *danse macabre* celebrating Eternal Life as they drop dead. As mentioned before, butterflies build chrysalises while moths spin cocoons, but we have no evidence of how this was represented onstage.

The original Czech is more complicated as the Chrysalis and her companions are actually *jepice*, mayflies, but she is named Kukla in the text. She emerges from a *kukla*, which in Czech can mean pupa, chrysalis, or cocoon, but mayflies *do not have a pupa stage* and thus no kukla. Instead, they molt twice after hatching from an egg, first as a nymph and then as an imago living for one or two days. The Čapeks, like their predecessors, chose the mayfly because of its infamously short life, which they made ironic by the Chrysalis's constant harping on eternal life. But the Čapeks took some license with entomology by placing her in a cocoon, probably for theatrical reasons: to conceal her throughout the play and allow for a grand entrance. The English adaptors rectified that disparity by converting the mayfly into a moth, but unlike "kukla," English has two separate words for the pupa's structure, and moths do not exit from chrysalises.

It may have been, however, that actualization in performance allowed some discerning critics of the Czech productions to realize the importance of the Chrysalis. Černŷ writes that Marie Walterová in the Brno production was praised both for her manner of entry into the world and how she maintained the expectation of her birth throughout the play, with one critic claiming that she was "the axis of the vision" (in Černŷ 2000:163). In Prague, Liběna Odstrčilová performed the role using song and rhyming verse more comically, and was criticized by one critic for "imitating a

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traveling saleswoman whose job it was to rush toward life in a display of her greatness" (163). Other critics praised her "singing her glory to the bitter end as both comic and ironic," and said that the Kukla was "the most mindful character in the whole play" (163). In the photo of Odstrčilová as the Kukla, she appears to emerge from behind a gauze curtain rather than any form of cocoon.

From its inception, *The Insect Play* has been performed to caricature unsavory aspects of human behavior by means of insects preying upon each other. The first two productions in the newly independent Czechoslovakia accentuated different sides of the characters. In the Brno production, which was financially constrained and performed on a small stage, the actors were instructed to act and gesture in a sharp manner to give a grotesque impression but were still to be seen as human (Černŷ 2000:132). In the grander Prague production later that year, the costuming and movements of the actors were more insect-like, and the actors produced insect sounds that were not meant to be comprehensible but to create an atmosphere; a stage imitation of an umwelt (153). Regardless of the differing directorial emphases, the self-centeredness, superficiality, and indifference to others was shocking to spectators, even as satire. The play illustrates insect behavior and metamorphosis at a time when humans feared becoming biological automatons, as expressed by Ezra Pound, "In his growing subservience to, and admiration of, and entanglement in machines, in utility, man rounds the circle almost into insect life" (in Sarsfield 2006:88). Despite their use of Fabre's studies, the Čapeks reveal humanity's limited willingness to understand insect life on its own terms. Viewing the play solely as allegory, in which insects always represent something more significant than themselves, prevents them from being understood *as* themselves. Humans everywhere are accustomed to portraying insects in terms of just a few salient characteristics with fixed symbolic meanings. It would be difficult to "re-literalize" the Čapek insects, as Chaudhuri calls for, or to dramatize them without bias, even though the current insect apocalypse urges for an attempt to do so.

Švankmajer's Cinematic Response

Jan Švankmajer's 2018 film *Insect* combines some of the characters from the Čapek play with the nightmarish vision of Kafka's novella, complicating the allegories of the original texts. Not only is it a metafilm, with the director in a prologue speaking directly to the camera about his philosophy and reasons for making the film, it also enacts *The Insect Play* in rehearsal to satirize the shortcomings of the earlier satirical play. Švankmajer initially expressed his admiration for the Čapeks' work, then seemed to change his mind, faulting the Čapeks for not going far enough. Saying that their criticism of Czech society was mere "juvenile misanthropism," he uses their second overly optimistic ending to mock their capitulation (in Hudson 2018).

Each of the six actors plays three roles—a professional actor in a film being directed by Švankmajer; an amateur actor in *The Insect Play* being rehearsed by the Director (Jaromír Dulava); and one of the insect characters from the Čapeks' script—the Dung Beetle, Mr. and Mrs. Cricket, the Sabre Wasp, its Larva, and the Parasite. The staged insects are portrayed as another dimension of the offstage actors who are themselves role types as well as incompetent performers. The Director, who also plays Mr. Cricket, is furious at his wife's open seduction of the young actor playing the Sabre Wasp, and will exploit his capacity in both roles to inflict his revenge upon them. Švankmajer not only intertwines the actors' offstage relationships with their onstage roles, he further blurs the human-insect divide by imposing surreal stop-motion animation on them, such as elongating the Parasite's tongue as he licks a fly off his cheek while drinking beer from a bottle with a cockroach in it. In addition, Švankmajer employs close-up shots of hordes of live cockroaches and ants that materialize from inert matter, fulfilling their stereotypical role in horror films: to frighten and disgust. While the Čapeks wanted to avoid creepiness, Švankmajer indulges in it.

When the Director absurdly enjoins his actors to use the Stanislavsky method to *become* their insect characters internally, he shows them a display case of pinned bugs. Like the Čapeks' prologue, the display case creates a pseudoscientific context, in which, splayed for inspection, the mounted insects suggest that the actors will be held to similar invasive scrutiny, possibly ending in their deaths. Pointing—the process of drying and mounting insects—has a particularly voyeuristic

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Figure 8. A 1921 sketch for the Dung Beetle by Josef Čapek. (Courtesy of the Archive of the Czech National Theatre)

connotation: insects are identified using genitalic dissection that only can be seen through a microscope on a pinned specimen since spreading out the wings and legs makes all features, even those not visible in a live insect, easier to see.

Fascinated by his insect shown in the box with its dung ball, the Dung Beetle actor (Jiří Lábus) steals both and goes to a grubby lavatory to memorize his lines. As he becomes more engrossed in his part, he releases the dead beetle into the sink, where in the mirror above it, his face surrealistically transforms to resemble a close-up of a fly's. When he throws the little dung ball into the toilet, it explodes into a huge one that chases him down the corridor. The Čapeks' Dung Beetle lovingly hoards his ball, his precious material possession; Švankmajer's ball pursues the Beetle with the intent to kill him, which converts the Čapeks' critique of materialist acquisition into the threat of material consumption destroying the owner.

While the Čapeks portray the Tramp emotionally moved by insect deaths, Švankmajer's Director sinisterly kills off the actors when they are performing their insect roles. Under the pretense of being dissatisfied with the way the young actor playing the Sabre Wasp kills Mrs. Cricket, the Director forces him to practice carrying off her corpse so many times the actor collapses with exhaustion. With the Sabre Wasp dead, the Parasite, both the actor who has been lasciviously eyeing the ballerina who plays the Wasp's Larva, and the insect character who envies the Wasp's ability to find food, visits the Larva in her burrow and emerges licking his lips, implying he has consumed both the insect and ballerina! Unlike the Čapeks, Švankmajer has no qualms about inducing revulsion and repelling his audience. He deliberately presents a grotesque and nihilistic vision, reveling in cynicism about humans behaving far worse than the creepy crawlers that so terrify them.

In the end, only three actors are left. The Director; his wife, who, as the pregnant Mrs. Cricket has given birth to a human baby; and the Parasite, still burping from his meal. Grotesquely self-satisfied, they emerge from the dark theatre onto the bright sunny street, exclaiming, "Oh what a lovely day." There is no Tramp or Chrysalis, but a homeless man who, finding food and drink in a rubbish bin, likewise rejoices with "Oh what a lovely day." The film ends with a blank screen and only Švankmajer's voice muttering, "I told you so" (Švankmajer 2018). It is clear that he does not intend to advance our knowledge of insects in any way, but instead humorously exploits our fear of them.

Švankmajer claims that "Metamorphosis occurs in the film when an actor embodies his or her character perfectly" (in Hudson 2018). But these actors do not. They partially transform to

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simultaneously show layers of their other two roles. Combining horror film aesthetics with surreal transmutations, the movie documents the stage as the site where these actors fail to become insects through their inept dramatic skills and the Director's machinations. The insect-actor-human roles bleed into one another in the pursuit of revenge, lust, and gluttony. Once again, the human moral frame contains insect life, and the insect characters are reduced, each to a single recognizable attribute.

Figure 9. Mrs. Cricket watering her garden just before she is killed by the Sabre Wasp to feed his Larva in Jan Švankmajer's 2018 film, Insects. *(Courtesy of Athanor Film Production)*

Švankmajer not only weds the Čapek play to a mock "big bug" horror film,[9] he makes a MOD (Making-of-Documentary) spliced into the rehearsal of the play that then spins off into a spoof of human phobias and the Čapeks' tame sociopolitical critique. Though taking a more convoluted path than Méliès, Švankmajer's editing nonetheless creates a surreal circle, a metaphoric Möbius span in which the human and the insect messily become each other, unlike the cleaner parallel division of the Čapeks. By portraying the actors also as caricatures, he creates an unkind intimacy between them and their insect roles. The elisions are both so numerous and sudden, one is reminded of his assertion that editing is like a series of dream moments because only in cinema and dreams can space and time be bridged in the blink of an eye (in Weissberg 2018).

Wu Hsing-kuo's Transcendent Metamorphosis

Metamorphosis as a dream state dominates Wu Hsing-kuo's adaptation. Like his previous cross-cultural productions, which were based on Western texts and Chinese classical performing styles, Wu Hsing-kuo's *Tuibian* (Metamorphosis) references key events in Kafka's novella. This work, however, brings the entire weight of the Chinese cultural/religious/philosophical context to bear on the concept of metamorphosis, as if contemplating the story in not one but several different metaphysical realms. *Tuibian* incorporates xiqu and kunqu movement and singing, combining Kafka's plot with these theatrical conventions to sustain multiple transformations among genders, ages, and species. In the production, the insect only initiates a long process of several metamorphoses through six themed scenes that Wu performs by himself: A Dream, The Awakening, The Door, Love, The Forbidden, and Flying. Both insect metamorphosis and Kafka's Gregor Samsa's particular change are less arresting because transformation is everywhere, continuous, and the natural order of things. In this manner, *Tuibian* has more in common with Pythagoras's metaphysics in Ovid's *Metamorphosis* than Kafka's:

> Each thing changes, but nothing ever dies. The spirit wanders, roaming here and there, and takes possession of a creature's limbs, whatever body it desires, passing from savage animals to human beings, from human beings to beasts, but spirits never are destroyed. (Ovid 2011)

By syncretizing Buddhist and Taoist beliefs with Confucian categorizations of nature, Wu recontextualizes Gregor Samsa's Jewish *mitteleuropa* petit bourgeois family that was impacted by the onslaught of industrialization and bureaucratization. Kafka's text, which relates how the sensitive

9. Richard Leskosky's "Size Matters: Big Bugs on the Big Screen" (2006) analyzes the history of insects in the Hollywood horror movie genre.

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Figure 10. Wu Hsing-kuo's mythical bug in Tuibian *is depicted by the costume more than by insect-like movement. National Theatre, Taipei, 2013. (Photo by Hu Fu-tsai; courtesy of Contemporary Legend Theatre)*

Gregor is thrust into an alien umwelt to which he is unprepared and unable to adapt, is reconceived by Wu to reconcile a man becoming an insect as reflected in the Taoist *Zhuangzi*. In one anecdote, a man visiting a dying friend exclaims, "How marvelous the Creator is! What is he going to make out of you next? [...] Will he make you into a rat's liver? Will he make you into a bug's arm?" (Zhuangzi 2003:81). While the Greco-Roman world relished transformations, by which it animated the natural world with human consciousness, it rarely went to such an extreme of converting a person into a bug's arm, or indeed any insect. The weaver Arachne becoming a spider is the closest Ovid comes to insect transformation even though the Greeks had deities for both bees and ants. Aristotle named the butterfly "Psyche," and it has since symbolized Christ's rebirth and the Christian soul after death. All of Aristophanes's extant comedies include insect characters to satirize Athenian society with established associative traits easily recognized by his audience.

Wu does not attempt to change into a bug's arm, but instead makes Gregor's plight a tale of Everyman. The audience's reception of this treatment was conditioned in part by its cultural reading of metamorphosis as either a normal expression of being in the world, or as a punishment and sometimes an escape. Wu's interpretation alienated British critics who could not accept the relevance of all the changes he imposed upon the well-known Kafka story. They objected to its opacity, overindulgence, and the diffusion of its particularity—Wu abandoned the story of one man becoming an insect in specific sociohistorical circumstances. However, *Tuibian* appealed to Asian spectators familiar with the Buddhist-Taoist view that put Gregor's situation into a broader context, reducing the angst of his metamorphosis. It also reflected Wu's tendency to make all the characters he portrays representative of his own artistic struggles to integrate Chinese and Western theatre aesthetics.

The Conflicting Metaphysics of Essence and Change

When the Semitic religions—Christianity, Judaism, and Islam—made their gods transcendent creators of the universe—they not only freed them from the limitations of the natural world, but diminished nature's agency, and relegated its transformations to passive analogy and metaphor.

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In Europe, insect metamorphosis caused consternation because of the Judeo-Christian insistence on the essential and fixed self. God created a hierarchical order that was immutable:

> In the Judeo-Christian tradition, transgressing the demarcation between humans and animals was against the order created by God and therefore blasphemous. Species transformations [...] between animals and humans were seen as transgressions against a sacred order. (Sterckx 2002:166)

This affected not only religion but the concomitant science that later became codified under the Linnaean taxonomic system. Metamorphosis contravenes Western culture's belief in an essential self, or soul, that transcends, or at least withstands, the transmutations of the material world. Insects are the most flagrant violation of this principle, as Marina Warner observes: "Insect metamorphosis offered a special menacing connection with the aberrational processes of hell, where [...] forms lose their integrity" (1998:173). In contrast, in premodern China,

> [there] is the virtual absence of the idea of a transcendent Creator God who is distinct from Nature in a fundamental qualitative sense. The Chinese had notions of a supreme god in various guises [...,] of a somewhat demiurge-like "transformer" constantly reshaping the cosmos, as well as advancing moral-material principles and dynamic patterns, but not an omniscient creator of a divine hierarchal design. (Elvin 2004:xxiii)

Thus Wu's interpretation appeared as an irreconcilable contradiction to some spectators, and an illuminating resolution to others.

Kafka begins his story with Gregor Samsa waking up to discover he has become a human-sized unspecified insect. He emphatically denies that he is dreaming, as if the narrator and the author wish to prevent "dream" being used to detract from the reality of the predicament. Wu, in contrast, places his entire play within a dream, a common trope in Chinese literature in which a discontented man falls asleep on the ground and dreams of achieving success in a far-off country. He awakes to discover the presence of some insects, usually ants, and realizes that they were the transformed characters in his dream (Idema 2019:66). The dream trope is so persistent in Chinese literature because it underscores the Buddhist belief that all life is an illusion. Wu not only says "Let the viewer enter the illusory dream space as if he is in the real world, and thus enter Gregor's dream" (in Huang 2014:55), but he goes on to suggest that waking up might still be another kind of dream, as Zhuangzi implied.

Wu traverses an animated cosmic dreamscape created by Sino-French playwright Gao Xingjian's black ink-and-wash paintings about which Gao has commented, "The earliest abstract ink wash painting is Zen painting. It seeks not images, only states of mind" (in Chen 2021:334). The backdrop of black ink images of mountains, the moon, a solitary traveler, and flying birds, all common to Zen painting, pulses as if a camera were zooming in and retreating, creating a flow of the cosmic energy *qi* (氣).

That the Chinese cosmos is dynamic and engaged in constant transmutations does not mean that it is without defining boundaries. The theory of yin-yang divides the world into complimentary binaries, with each containing the essence of the other at its center; and the "five-phase theory" categorizes all aspects of the world according to a system of correlative thinking that placed a five-category grid over the natural world, codifying everything from seasons, directions, colors, and elements in assigned positions that maintained analogous relationships to all other items in the same category. Not unlike the theory of four humors (based on fire, air, water, earth) that developed from Hippocrates's notion of the body and later the medieval Great Chain of Being that hierarchized plants and animals, the Chinese five-phase theory made everything correlate within a system based on fire, wood, metal, water, and earth:

> Early Chinese taxonomies sought to integrate particular animal observations within a unitary scheme that encompassed all human actions, natural phenomena, and moral principles in the world. That natural empiricism remained secondary to the desire for comprehensiveness, and totality in classification was reflected in the fact that the most enduring taxonomy of the

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living species was limited to five main animal groups—feathered, hairy, naked, armored, and scaly—a number inspired by the five-phase theory rather than nature. (Sterckx 2002:92)

These theories were upheld by the literati elite to such an extent that even when observable insect behavior seemed to contradict the canonical authorities, the latter would still prevail, such as the insistence that the ruler of the hive must be a "king" when it was clearly an egg-laying "queen." The sphex (digger wasp), which first paralyzes and then lays its eggs in the larvae of other insects so they will serve as food for its hatchlings, was thought to be infertile and "adopted" the larvae of others in order to succor them. The sphex became such an established paragon of filial piety that it continued to serve as such long after its true behavior became known (Idema 2019:18).

Wu's insect is a mythically exotic bug, not representing any kind of real insect but rather an insect deity. Instead of physically moving and posing the body to resemble an insect as actors in the Berkoff tradition do, Wu's insect is a full-body costume that he wears, sheds, and later addresses separately. He takes advantage of the insect's lack of specific identity to create something fanciful, bizarrely beautiful rather than repulsive as Kafka's insect is meant to be: "As you know, the bug in Kafka's book has nothing to do with any natural insect. It is a monster created by a human" (in Tang 2013). This suggests that he sees Kafka's insect less as a biological reality and more a fabrication of human phobia. The costume elaborates upon a *kao* (靠)—a kind of armor worn in xiqu—forming a beetle-like exoskeleton on Wu's back, set atop flowing moth wing–patterned robes. His grotesque mask resembles a stylized skull with large eyes, like a magnified fly's face, and is adorned with two *lingzi* (翎子), the pheasant tail feathers traditionally worn by generals in xiqu. These feathers become the bug's very alive, quivering antennae. Versed in xiqu and martial arts, which like other Asian dance arts include positions and gestures derived from plant and animal shapes and movements, Wu depicts stylized natural forms—mountains, birds, and clouds—not constrained to being an insect while singing about the fluid energy that flows through him and all things.

In addition to the mutating Taoist cosmos that offered a counternarrative to the Confucian fixed categories, Sterckx enumerates four types of metamorphosis in Chinese thought: (1) a moral causation behind human-animal metamorphosis; (2) a functional adaptation to a temporal cycle; (3) an inherent and autonomous property of certain animals; and (4) a portentous sign for sociopolitical and cosmological change. It was also enacted on a symbolic level in shamanic practices, ritual dances, and the ritual use of animal skins (2002:171). Therefore, the occurrence of a transgressive metamorphosis such as Gregor's would attract notice, whereas that of an insect, which was merely an "autonomous property," did not warrant deeper inquiry.

The Pythagorean theory about the soul transmigrating through different bodies is also a central concept in Buddhism. However, the Buddhist believer's ultimate goal is to escape from *samsara*, the cycle of rebirths and transformations. With the ultimate transcendence of mind and body and the revelation that all life is illusory comes a dissolution of the self into the cosmos. Formal Buddhist philosophy rejects the existence of any enduring personal identity in life upon the attainment of nirvana, the final state of nothingness. In his third scene, "The Door," after shedding his heavy insect costume, Wu becomes a Buddhist Everyman beginning life's journey with an infant's cry. As a cast-off baby writhing in naked helplessness, he is dressed in a white body stocking with a stylized jingju face painted on his forehead. Falling on his back and flailing his arms and legs, his body is simultaneously both that of a baby and an insect. He shifts the tone of his singing from Zhuangzi's joyful idea of transformation rendering one "free from care" to "all mortals lead a hard life," expressing the Buddhist concept of *dukkha* (universal suffering) (in Chen 2021:335). That the existence of both humans and animals is rooted in a cycle of suffering has motivated some animal characters, such as snakes and foxes, in the traditional Chinese theatre to ascend the hierarchy of being and become human to eventually escape samsara.

The Jatakas—Theravada Buddhism's tales of the Buddha's 550 transformations into all types of people and animals as he progresses toward Enlightenment—provide plots for much of the literature and theatre in Southeast Asia, but, like Ovid's text, do not include a single story of the Buddha becoming an insect. Observing butterfly and cicada metamorphoses, the Chinese believers

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in Mahayana Buddhism saw a symbol of renewal amid the transience of life, but because the ultimate goal was to escape from the transformation cycle, insect metamorphosis could not ultimately represent a soul-liberating rebirth. In popular culture, the absoluteness of this ideal was often mitigated, such as in the tragedy *The Butterfly Lovers* in which Liang Shanbo and Zhu Yingtai are transformed into butterflies after death. But the most important insect transformation is that of the silkworm (*bombyx mori*) whose metamorphosis initiated Chinese sericulture 5,000 years ago.

Figure 11. Wu Hsing-kuo as the cast-off child, referencing both Kafka's dismissal by his father and Gregor's father abandoning him, in Tuibian, *National Theatre, Taipei, 2013. (Photo by Kuo Cheng-chan; courtesy of Contemporary Legend Theatre)*

Within the matrix of five-phase correspondences, the bombyx mori's complete metamorphosis was "linked with the image of encompassing sagehood," and yet biological truth contradicts this affiliation because not only is the moth's metamorphosis aborted by boiling the cocoon to collect the silk strands, but even if allowed to go to full term, the imago of the over-domesticated insect can neither fly nor eat (Sterckx 2002:183). Nonetheless, according to Sterckx, a poem, "Can fu" (蠶賦, A Rhapsody on the Silkworm), asserts the enduring association: "Just as the silkworm eats the mulberry leaves and emits them as threads of silk, so the sage transforms chaos into order" (2002:84). The insect's sagehood appears to be contingent on its economic benefits—its ability to convert cheap and useless leaves into valuable and useful silk—not to transform from caterpillar into a moth. Despite the many literary and visual representations of the thousands of people, mostly women, engaged in the silk industry, the insect itself did not inspire much contemplation—poetic, artistic, or scientific.

The silkworm's origins, however, did generate a myth of exceptional biodiverse proportions. A girl loved by a stallion promises to marry him if he finds her father. The horse does so, but she refuses to honor her promise and her father kills and skins the horse to avoid family scandal. When she mockingly kicks the dried skin, it rises up, enfolds her and carries her away. She is later found in the branches of a mulberry tree transformed into a silkworm, the hide having turned into a large cocoon encasing her (Idema 2019:29–30). This well-known story adapted in many versions has not been dramatized in any extant play. And despite the prevalence and importance of insect metamorphosis, it is rarely singled out as a source for transformation legends, perhaps because the change

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is accepted as part of the dynamic natural order rather than the product of the human imagination, or perhaps, as Eric Brown suggests, the reverse: "The metamorphic for the human is always already metaphoric; the real monstrosity of the insect [...] is its re-performing the functions of classical myths and fables" (2006:xii).

Wu's performance makes attenuated and sporadic connections with Kafka's story, creating a new persona by combining what Kafka reveals in his letters along with the performer's introspection about his artistic career. In the scene "Love," after transitioning from a mythic bug into a suffering Everyman, Wu next personifies the virtuous young woman in jingju, the *qing dan* (青但). He demonstrates his virtuosity by merging the object of Gregor's affection (his sister Greta), and the idol of Gregor's adoration (a portrait of woman with a muff)—with the *kunqu* heroine in the *The Peony Pavilion*, Du Liniang. Performing the male construct of the eternally desired female, Wu sits before a vanity mirror singing arias from the opera. By choosing this particular heroine, Wu underscores his "life is a dream" motif because in the opera Du falls in love with her ideal man in a dream and dies pining for him. Wu presents little of Gregor's shifting emotions toward Greta and instead performs a generic Woman tottering on the opera shoes that replicate the 3-inch embroidered "lotus" slippers for bound feet.

In "The Forbidden," Wu returns to the insect who has been injured by one of the apples Gregor's father threw at him, represented by the carapace lying dejectedly on the floor. Wu criticizes Kafka—in a projection of himself dressed as the author—for depicting the insect as weak and cowardly. Wu views the beetle's steady deterioration as a lapse of will and urges it "to get back on its feet and strive for life as an autonomous and masterful being" (in Chen 2021:337). Although Wu senses the insect's entrapment in the small room, he never attempts to enter or understand the internal change of the insect's umwelt. In the end, Wu accepts the insect as his personal burden and assumes Gregor's self-sacrifice as a filial duty. Lifting the heavy carapace onto his back, Wu struggles up a mountain. Placing it at the top, he says, "At last, buddy, this is the world. So beautiful. Are you happy?" (in Chen 2021:337). Nevertheless, the insect dies, which Wu interprets as having reached a higher realm of freedom attainable only through death/nirvana: "He's really stuck and isn't moving at all. Completely dead. Completely. Only death can lead you to this state [...] Go back to your dream and find the way out. You'll then be free!" (338). Certainly the carapace is unmoving because Wu's body is no longer animating it, just as the actor playing the Tramp left his jacket onstage as he slipped off to return as the Woodcutter.

Rather than requiring the audience to choose between death and eternal dream, Wu combines the two. Metamorphosis is portrayed as both the Taoist natural flux of the universe and the Buddhist goal of all livings to escape from the cycles of incarnation; Gregor, the insect/person, is both free and dead. Wu's persona accepts that he and the insect are one, just as the Tramp and Chrysalis are united in their simultaneous death epiphanies, the difference being the consciousness of the human in contrast to the insect's obliviousness to its own mortality. But Wu cannot end with the pathos of Gregor's death and the heartless relief of his family. In the final scene, "Flying," he is transformed into the hopeful image of a bird winging upward, the soul ascending, more resonant of Christian iconography than either Taoism or Buddhism.

Kafka uses Gregor's metamorphosis as a catalyst for change in all the other characters too, as they drop the veneer of compassion and civilization, showing themselves to be antagonistic self-serving creatures, not unlike the insect actors in Švankmajer's film. Wu focuses on the individual, whichever role he is portraying, rather than others' perceptions of him, with the exception of the father's hostility toward Gregor. He considers the existential implications of occupying different bodies, but does not investigate how this impacts each concomitant umwelt. Viewed through the prism of Kafka's text, Wu's performance explores the various meanings of metamorphosis in Chinese philosophical terms. Concerned with neither biology nor Gregor's unique transmutation, Wu still uses Gregor's plight as a structure to assume characters reflecting his own acting ability to transform. The various personifications not only demonstrate the fluid connection between all life forms, but also display his virtuosity, as he transitions from man to insect, baby to woman, Kafka to soul. Among so many transformations, real insect metamorphosis is inconsequential, and Kafka's

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Figure 12. Steven Berkoff's version of Kafka's Metamorphosis*. Phoenix Theatre, Taipei, 2000. (Photo by Catherine Diamond)*

man-to-insect change is less disturbing—but that is the point. As poetry scholar Pauline Yu claims, "Natural object and human situation were believed literally to belong to the same class of events (*lei* 類): it was not the poet who was creating or manufacturing links between them" (1987:11).

Examining the role of insects in Chinese literature, Wilt Idema translates numerous Chinese and Taiwanese popular ballads that relate insect weddings, funerals, court cases, and battles, but these are not known to have been performed as plays; he further notes that, "Insects remain quite rare for a long time in Chinese theater, but lice, fleas, mosquitoes and bedbugs do eventually mount the stage" (2019:287). Cosmic metamorphosis permeates the literature and drama, but insect transformation occupies an insignificant portion of it. Although the Chinese were the first to cultivate insect metamorphosis, it is likely that the prevailing concept of a constantly changing universe inhibited their scientific interest in it, leading Idema to conclude:

> [I]t would appear that the [Greco-Roman] Ancients had a more detailed knowledge of the insect's metamorphosis than Chinese poets. But perhaps we have to say that the Ancients, believing in the unalterable essence of all creatures, were more fascinated by the process of metamorphosis than the Chinese who believed in the changeability of all species. (2019:286)

Unlike the Čapeks and Kafka, Wu is uninterested in satirizing his species' hubris and hypocrisy, or investigating the consequences of Gregor's altered umwelt. Instead, Wu's nondramatic performance focuses on existence as a series of endless permutations beyond the reach of human will and endeavor, subject only to the cosmic flow of time and qi.

Time Flies

Metamorphosis and Puberty

David Ives's one-act play, *Time Flies* (2001), is appropriately short because it depicts the one and only day in the lives of two mayflies. Their story is a paradigm of Aristotle's three unities told with dramatic irony because we know their fates before they do, and watching them find out produces

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Figure 13. May (Diane Retz) and Horace (Rob Kernahan) in Time Flies. *Phoenix Theatre, Taipei, 2004. (Photo by Catherine Diamond)*

a kind of tragicomic catharsis. Ives's approach to insect life somewhat reverses that of the Čapeks. Rather than using insects to satirize human vices, Ives humanizes the mayflies in order to create sympathy for them, especially in the face of scientific reductionism. A fanciful experiment to imagine what it would be like to live for only one day, the play nonetheless challenges human assumptions that insects have no awareness of their own lives. Unlike Wu Hsing-kuo, Ives does not attempt to express the breadth of cosmic change, but focuses solely on what the insignificant and brief existence of his two tiny protagonists, Horace and May, means to them; the macrocosm becomes microscopic.

Describing their appearance, Ives stipulates that his characters share human and insect identifiers, even though—just as in the other plays—this makes them quaintly ridiculous: formal jacket and party dress, antennae, translucent wings, tube-like tails, and horn-rimmed glasses to give a bug-eye effect. Since mayflies do not go through complete metamorphosis, we do not find cocoons onstage. Instead, the two teenagers, who have just finished their second and final molt, are awkwardly trying out their new wings for the first time—both literally, and figuratively. Having just met at a party, and returning to May's pad, a pond, they discover they were born at the same time, their parents died that day, and the moon is having a strangely erotic effect on them. The moon neatly bridges the human-insect divide as science is discovering the importance of moonlight in guiding and triggering many aspects of insect behavior.[10] Like the Čapeks' Butterflies, Horace and May remember, and reject, their former larval lives and metamorphosis as an embarrassment, confessing to each other that they found it "disgusting." Ives peppers their dialogue with puns as May puts the bashful Horace at ease with an array of appetizers—Scottish smoked gnat, gnat au naturelle, Gnat King Cole. They settle down to watch some TV, and reading over the selections of insect representations in entertainment—"The Love Bug," "M. Butterfly," "The Spider's Stratagem," "Travels with My Ant," "Angels and Insects," "The Fly"—they choose Sir David Attenborough's documentary, "Swamp Life" (Ives 2001:7). A parody of his popular wildlife programs, it shows the swamp is actually May's pond. Suddenly Horace and May see themselves on TV, staring back as Attenborough describes them: as "lowly mayflies." They pick up fun factoids about themselves until Attenborough sums up their biography as "meeting, feeding, mating, and dying." Then, at the terrifying sound of a giant frog, they run around in panic, end up in each other's arms and proceed to copulate—perfectly in accord with Attenborough's script.

However, Attenborough's pronouncement of their imminent death and the increasingly frequent sound of a cuckoo clock marking their final hours finally registers, and they collapse in sorrow and fear. The spectator, having first met the couple as endearingly cute kids, empathizes with them in the face of Attenborough's reductive summation, and wishes for them to find some happiness

10. Andrew Barron and Colin Klein mention that "Many insects are sensitive to plane-polarized light, a vital celestial navigational cue," such as locusts, flies, butterflies (2016:4903). The dung beetle is well-known to use both the sun and moon to navigate its rolling path.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

in their short lives. Ives introduces a consciousness of mortality and imagines how this will affect their thoughts and behavior, and like the poet-philosopher Horace (whom they do not know) they opt for carpe diem (though they don't know Latin), and pursue that cliché of romantic felicity, a honeymoon in Paris.[11]

Time Flies merges insect metamorphosis with American-style rites of puberty, the physical transition all humans undergo, changing them mentally, emotionally, and psychologically, altering their perceptions of themselves in the world as well as their umwelt relationships.[12] Developing to sexual maturity can create an acute conflict between the juvenile identity and the body's deliberate destruction and replacement of it. Humans attribute such importance to the experience that they devote a whole literary genre to it, bildungsroman, which documents the fragility of the teenage psyche undergoing shameful and proudful changes, feelings of estrangement, and intimations of power. Many cultures and religions celebrate its occurrence by ritually declaring the individual to be admitted as an adult into the community. In many industrially developed countries, however, the physical change ushers a protracted period of adolescent turmoil, the angst of trying to unite an altered body and mind into a new sense of self. In the Biblical sense, it is becoming aware of one's own sexuality and mortality, and these disturbing insights Ives applies to the short lifespans of May and Horace.

Easily performed on a small stage with minimal set, the play reveals the ridiculousness of the characters' party clothes and awkward teenage behavior as well as of the antennae and wings and their pretense to be bugs. By juxtaposing puberty with the partial metamorphosis of the mayfly, characteristically representative of insignificance because of its diminutive size, numerousness, and ephemerality, Ives produces comedy by repositioning the trivial and the important. The intense body change humans experience should alert our imaginations to the potential of the trauma insects undergo. Ives reverses the flow of the Čapeks' and Kafka's anthropomorphism. Instead of ridiculing humans by comparing them with demeaned insects, he elevates the insects by investing them with emotions of fear and pleasure. Showing them awkward in their new bodies, Ives makes fun of human courtship, inviting spectators to use feelings from their own adolescence to imagine what the insects might experience. The Čapeks mock the empty promise of the Kukla, but Ives creates sympathy for his characters in crisis and celebrates their attempt to live fully in whatever time is allotted.

However, like the Čapek brothers, Ives pokes fun at the pretensions of science.[13] While they caricatured the Lepidopterist in the prologue for his unseemly delight in killing the butterflies he claims to love, *Time Flies* satirizes popular wildlife programs through the sonorous tones and pompous manner of Sir David Attenborough. May and Horace reject his assumptions about the "common" mayflies' bare life and express indignation at his comment, "Mayflies are a major food source for trout and salmon" (Ives 2001:11). Then seeing images on TV of mayflies being eaten, they react with horror and compassion for their conspecies; they do not identify with being "food."

Aside from the love mosquitoes bear us, humans are largely absent from the food chain, except as consumers. People hardly imagine what life is like for a prey creature, as ecologist Val Plumwood in *Being Prey* discovered when she was attacked by a crocodile:

> I glimpsed a shockingly indifferent world in which I had no more significance than any other edible being. The thought, "This can't be happening to me, I'm a human being. I am more

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11. Ives wrote the play after he read that mayflies live only for a day; "and I wondered what you do if you have only a day to live." The play was finished on his honeymoon in Mexico—not Paris (Rothstein 1997).

12. The film *The Fly* (1986) linked insect metamorphosis with human puberty. Although scientifically inaccurate, it was regarded by critics as an artistic success, thematically depicting physical transformation leading to mental and emotional change. *The Fly II* (1989) also posed allegorical elements to the changes of adolescence in the protagonist, but as far as I know, *Time Flies* is the only stage play to do so.

13. In 1983, the first report of genetic transformation of fruit flies was published, and by 1987 genetically engineered insects made their first appearance in the film *The Nest*. See what-when-how.com/insects/movies-insects-in-insects/.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

than just food!" was one component of my terminal incredulity. It was a shocking reduction, from a complex human being to a mere piece of meat. (1995)

Ives allows the insects their own narrative to counter Attenborough's indifference—they too perceive themselves as more than "mere meat"—and alter their umwelt by asserting their agency and centrality. Whereas the Čapeks' mayflies dance and die ignorant of purpose, and Kafka's beetle succumbs, Horace and May refuse to be diminished by their supposed lack of consequence.

Ives invests the mayflies with an individual stake in their own being; they are not simply anonymous and identical, even though their initial discoveries reveal that they have been blindly following that cosmic plan of instinct to meet, mate, and die. Like rebelling teenagers, they reject that trajectory, and claim their individual right to the pursuit of happiness. By taking their awakening to absurd extremes, Ives's play reminds one of Nietzsche's contention that every animal, no matter how small, lives with the same sense of self-importance in the center of its own universe—all species are speciesist. Even the insects we see as indistinguishable hordes possess some kind of *individual* consciousness, each striving to live and thrive in its own umwelt. *Time Flies* is about insects who have been humanized rather than metaphorized. May and Horace possess assertive "personalities" as entomology begins to accept greater variation within species, identifying distinct individuals that respond differently to danger and the need to adapt.

Their sudden awareness of death compels them to refute Attenborough's god-like pronouncement that they have no choice but to submit. Instead, they muster enough will to exert self-determination, which, juxtaposed with their naiveté contributes to the comedy. Ives's characters are multidimensional as they express mutual attraction, uncertainty, fear, delight, hope, and despair—all in their very short lifetime onstage. However, in the end they come to the same conclusion as the Tramp and the Chrysalis when Horace cries, "And I say who cares if life is a swamp and we're just a couple of small bugs in a very small pond. I say live, May! I say...darn it...live!" (2001:18).

Being alive is the precious bond between the insect and the human as perhaps only the Jains adhering to the principle of ahimsa have fully recognized. The mayflies assert a self-consciousness in defiance of science's attempt to deny it, as it is one of the critical tests by which humans rate animal intelligence and worthiness.

Insect Perception and the Memory of Metamorphosis

But what demarks consciousness, and where do we draw the line between those that do and do not have it? If it is determined by the presence of subjective experience, the question becomes more pertinent as to how it relates to sentience, intelligence, memory, and self-awareness. The size and simplicity of the insect brain makes it difficult to differentiate between forms of perception and cognition, especially when it has only recently been affirmed that they feel pain and will do their best to avoid it, as well as pleasure and will pursue it to repeat the experience.[14]

The complexity and thoroughness of metamorphosis likewise makes it difficult to know whether any aspect of an individual memory or consciousness persists through the process to final adulthood. Fabre provides a useful distinction that might have informed the Čapeks in their creation of the insect characters, especially in the portrayal of the opportunistic Parasite who eats the Larva, and whom Švankmajer casts as a low-level policeman governed by appetite. After a lifetime of observing insects, Fabre concludes:

> Insects are absolutely without reasoning power, notwithstanding the wonderful perfection of their work [...] they are neither free nor conscious in their industry. They build, weave, hunt, stab, and paralyse their prey in the same way as they digest their food, or secrete the poison

14. "Charles Darwin wrote in his 1872 *The Expression of Emotions in Man and Animals* that insects 'express anger, terror, jealousy and love.' Now, nearly 150 years later, researchers have discovered more evidence that Darwin might have been onto something" (Goldman 2016).

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> of their sting, with the least understanding of the means or the end. They are, I am convinced, completely ignorant of their own wonderful talents. Their instinct cannot be changed. Experience does not teach it; time does not awaken a glimmer in its unconsciousness. Pure instinct, if it stood alone, would leave the insect powerless in the face of circumstances. Yet circumstances are always changing, the unexpected is always happening. In this confusion some power is needed by the insect to teach it what to accept and what to refuse. It requires a guide of some kind, and this guide it certainly possesses. Intelligence is too fine a word for it: I will call it *discernment*. Is the insect conscious of what it does? Yes, and no. No, if its action is guided by instinct. Yes, if its action is the result of *discernment.* ([1921] 1998:50–51)

Figure 14. The Parasite (František Roland) in the 1922 Prague performance of The Insect Play. *(Courtesy of the Archive of the Czech National Theatre)*

In this somewhat ambiguous quality of discernment lies the possibility of future improvement because it is key to adaptation, not only to the external environment, but even to cellular mutation—the discerning of the advantageousness of changing internally. Encountering a more propitious situation for survival might be accidental, but deciding that it is more beneficial, continuing to use it, and even passing the information to others suggests that this discernment is an awareness beyond rudimentary consciousness even when geared toward a specific umwelt. Sentience—an ability to feel and react to pain and pleasure—also signals a semblance of individualized reactions, which science is finally according to these beings at the bottom of the zoological totem pole (Rádai et al. 2022).

Insect individuality is evident in their behavioral differences, in qualities such as boldness, sociability, and aggressiveness, especially in competing for and choosing a mate. Unlike Fabre's sexless and uniform caterpillar society, individual male cicadas strive to stand out in the loud collective hum, and supposedly those with the loudest, most frequent vibrations are the most attractive to females (Rogers 2021). Would each male not hear himself in relation to his rivals? How can he not be aware of how his "voice" compares with others around him with whom he is competing for a continuation of his DNA into the next generation? If animals were only concerned with species survival rather than the struggle of each individual to "exist" past its own lifetime, there would be no reason for males to fight and display, or females to choose. Recent research shows that not only are some beetles individualized, but their diversity aids their survival as a species. According to entomologist Melinda Babits, "In different situations, different [personality] types are beneficial for the group or for the species itself. If there are individuals who are more explorative, they can discover new food sources" (in Prescott 2021). But are insects conscious of their variations? Most of the Čapeks' insects die without enlightenment while Ives's mayflies consciously confront death and plan a strategy.

In addition, scientists propose that insects possess other means of consciousness and memory retention, such as epigenetics and body, or cellular, memory. Insects are an extremely diverse group, but all insect brains have a common anatomy, which has been likened to that of vertebrate midbrains and that Andrew Barron and Colin Klein argue "are sufficient to support the capacity

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for subjective experience, and provide the capacity to resolve competing behavioral priorities or motivations and rank needed resources by both urgency and availability" (2016:4901). They propose "that even for invertebrates—which lack anything remotely like an elaborate cortex—holistic integration is essential for the more basic, evolutionarily ancient behavioral demands of action selection, reafference adjustment, and navigation" (4903). As the result of their electrophysiological studies, they note that changes in the insect midbrain "demonstrate more compellingly than behavioral studies alone the subjective and egocentric nature of the neural representation of the environment in insects, and their capacity for selective attention supports our assertion that insects have a capacity for subjective experience" (4905).

Thomas Verny, a proponent of cellular memory being stored outside of the brain, claims that this enables insects to preserve knowledge of necessary behaviors even when their bodies undergo radical changes, whether natural or artificially induced; "As holometabolous insects traverse four life stages—from egg to larva to pupa to adult—they experience extensive neurogenesis, pruning and cell death in their brains. Despite these radical changes to their central nervous system, memories from earlier stages of their existence survive" (2021). His findings, however, are still inconclusive, but the possibility remains that rather than neural memory, the emergent moth or butterfly retains some kind of *body memory*, the trauma of metamorphosis branded into its cells.

During their pupal stage, holometabolous insects transform without feeding or excreting; they store all of the eliminated larval tissue—*meconium*—in a rectal sac. Perhaps the butterfly's memory of its former existence also resides in this liquefied metabolic waste. After the imago breaks out of the pupa casing, it pumps meconium back into the veins of its wings to make them sturdy. What is not used in this final function, leaves the body in blood-red droplets before the insect takes its maiden flight. Perhaps the expelling of the meconium represents its complete freedom from the past.

A New Stage Insect

The Entomological Society of America estimates that there are approximately 10 quintillion insects living in the world, with 900,000 known species and at least twice as many not yet scientifically identified (2019). Yet species are disappearing because their specialized interdependency with their umwelts is being destroyed by pesticides, deforestation, monocrop agriculture, and climate change. While the decline might not be the apocalyptic 25% reported in the media, it is nonetheless a dangerous trend (Kilvert 2020). As scientists discover the multitude of insect contributions to the continuance of life on earth, it is time for theatre to stop depicting them from the standpoint of human phobias and begin to effect a transformation of the "stage insect," while at least some of the living referents remain.

As Stephen Johnson relates, his two performances of *The Insect Play* involved the collaboration between theatre and entomology departments, as did another performance at Purdue University in 2009. But so far no production has reversed the tendency to read the play as an unfavorable commentary on human life through a comparison with insects—demeaning both—rather than to express how insects have complex lives beneficial to humans and other living things. It is difficult to see how to reverse this trend and still avoid falling into the opposite, foolish anthropomorphism, as in the film, *A Bug's Life* (1998). Kafka adopts the roach-like beetle because it is emblematic of entomophobia, and even Wu affords the insect only the smallest niche in the flux of existence. *Time Flies* elevates the mayfly but has not yet elicited any response from either biologists or theatre directors as to how to develop the characters within their swamp umwelt—perhaps because of its satire of scientific presumptions. Although the short play ends in the manner of the insect fable, its particular form of anthropomorphism opens a door to an imagined insect-centered perspective that has potential for more posthuman performances.

Time Flies dramatizes insects' behavior so that a spectator can begin to appreciate their manner of inhabiting their own umwelts—their unique relationship with a specific habitat—even if it has to be expressed in humanized terms to be understood by an audience. Furthering this process can

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Figure 15. The Beetles invoke the spirit of Fabre at the beginning of Souvenirs Entomologiques: Playing Dead *by Li Yi-chu. Experimental Theatre, Taipei, 2023. (Photo by Chang Chen-chou* 張震洲*)*

entail investigations of insect life not only from recent discoveries in entomology, but also by revisiting ancient and indigenous cultural insights about the varied and complex processes that insects perform. Enacting the diversity of behaviors in an insect individual avoids resorting to a stereotype trait to represent it.

Coda

Like the Čapeks, Taiwanese Li Yi-chu (李憶銖) was inspired by Jean-Henri Fabre's insect books as a child. In 2022, she performed a solo sketch, *Ruo You Chong* (若有蟲, If There Were Insects), in a rooftop garden in Taipei. Noting that the ladybug was the exception to most people's fear of insects, she combined Plato's Theory of Ideas about the perfect circle and entomophobia to enact a story about a spider, who, wanting to be round, cute, and as likeable as the ladybug, pulled out its legs. As an allegory, the simple plot speaks to humans' dissatisfaction with their bodies and the extremes they go to change them, but it also questions human aesthetics that find most insects repulsive rather than beautiful.

In 2023, Li embarked on a more complex piece of short vignettes with five actors—*Kunchong Wuyu: Zhuangsi* (昆蟲物語：裝死, Souvenirs Entomologiques: Playing Dead)—based on Fabre's work. Depicting the different ways and reasons for playing dead, a behavior that some scientists now call "tonic immobility" (TI) (Humphreys and Ruxton 2018:22), Li explored how insects and humans feign death to avoid danger and pain. She was moved when she read that the devoutly Catholic Fabre, witnessing his 16-year-old son dying, wrote about insects feigning death to console himself with hopes of resurrection.

The piece was performed in Taipei's black box Experimental Theatre, the set flexibly bounded by movable ballet barres and the floor littered with indeterminate detritus. Costumed in identical dark gray jumpsuits, the actors made little attempt at naturalism; their bug and human characters flowed into each other, often without visible changes in their gestures or voice registers, making it difficult to determine when one became the other. Scenes were spliced with projected texts,

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Figure 16. The Beetle questioned as to why she plays dead and whether she knows what she is doing in Li Yi-chu's Souvenirs Entomologiques: Playing Dead. *Experimental Theatre, Taipei, 2023. (Courtesy of Li Yi-chu 李憶銖)*

identifying some aspect of the insects that inspired the sketch. The focus was clearly on human behavior and the occasions for adopting the suspended animation of TI. Although Fabre suggests that to feign death, the insect must know something about it, Li has a terrified beetle confess in a mock interview that it does not know why it plays dead, only that it does so when it is frightened and circumstances warrant. Li questions whether the insect merely displays an instinctual reaction while only the human can make a conscious decision followed by a self-determined act, and therefore, can be dramatic. In one scene, an actor playing Fabre himself observes the others who are playing Big-headed Ground Beetles flipped on their backs and inert to avoid predators that pursue only moving animals and eat only live ones. Fabre wonders why the length of time the beetles remain immobile varies from eight minutes to an hour, and concludes that a change in light signals when the predator has left and it is safe for the beetle to escape.

The following scene, in which Fabre visits his son's grave, morphs into another focused on the corpse of a female Psyche moth lying prone near the grave. The other actors depict her offspring inside her who emerge after her death. It was previously thought that they killed her and ate their way out, but Fabre discovered that this was not true. The actors as newly birthed larvae wonder if they are inside her or she inside them, and if she remembered being a larva like them—the one direct reference to experiencing metamorphosis. In the intricate interplay between life and death, "playing dead" is offered as a kind of pseudo-resurrection—a suspension of life from which some return. The human characters in the play practice tonic immobility when they are too traumatized to think or act; it allows them psychological breathing space.

The trope of "playing dead" is a fascinating starting point, but Li's experiment is more successful in theory than in practice. After the play departs from the Fabre characters' narrative that initially holds it together, it splits into unrelated examples of feigning death. Although Li was unfamiliar with the Čapeks' play, her piece resembled theirs in its presentation of discrete scenarios that had little relationship with each other except to illustrate another manner of playing dead. There were no over-arching narrators like the Tramp and the Chrysalis to take a stance toward the insect behavior. In one vignette, an actor in the middle of rehearsing a love scene keeps repeating his lines to avoid answering the constantly ringing phone that he knows brings bad news; in another, an athlete injured in a jump lies on the ground seemingly lifeless until the referee tries to move him and he bites him in unthinking self-defense. It is not easy to portray what we imagine as the insect's limited umwelt in a manner that does not imply that the insect itself finds it limited or limiting. Li, along with the Čapeks and Ives, wrestles with how to dramatize the insect umwelt while transforming it into a human context.

Li's bugs have not escaped metaphor, but the web binding humans and insects is no longer a simple one-to-one allegory but entangled and convoluted, more provocative than demeaning. Are insects conscious of their own mortality, as Ives comically projects; or, as Li implies, are they ignorant of how they mimic death in adversity? Can we accept that our own defense mechanisms may be only sophisticated versions of the same instinctual tactic? Li Yi-chu's shift away from satire to examine how insect ethology might resemble human psychology promises intriguing potential, but still exposes the difficulty of developing rather than reducing the insect character and experience.

https://doi.org/10.1017/S1054204323000436 Published online by Cambridge University Press

Highlighting our shared temporality, Li ends the performance with reference to Zhuangzi's butterfly dream but also with an advisory note: the shift of light telling the feigning death beetles that it was time to get up and move on applied to people as well. Playing dead was a survival technique but should not to be assumed as a way of life.

Li's piece indicates that while Fabre's work may be considered out-of-date by some entomologists, his manner of engaging with insects is still inspiring to artists. Living in the insect world more than in the human, he insisted that the only true way to understand the living creature was to observe it in its native environment, and study its umwelt rather than its dead body in a laboratory. His writings convey a humanized but insect-centered umwelt with its own fascinating logic, populated with marvelous personalities and their wonderfully weird attributes. Subscribing to no theory, he bridged the gap between science and literature, as called for by Yong and Wong. His texts can still provide a source for playwrights who must negotiate between the two worlds for their human audiences.

Theatre falls behind film, literature, and the visual arts in presenting the multiple dimensions of insect life and how humans relate to them. Both animation features and wildlife programs on television have greater impact on a much larger audience than do theatre's awkward attempts. However, perhaps the theatre can exploit its limitations to suggest that they are similar to the problems ordinary humans have in relating to insects—the physical intimacy. Various kinds of anthropomorphism are going to exist in theatre, and it matters how they are applied to frame human-nonhuman relationships. We need to reimagine how to represent this maligned population as essential participants in the cosmic flow that animates the entire biosphere, both as individuals—each one struggling to survive—and as species that have come up with the remarkable strategy of metamorphosis to make the best use of their time and resources on earth.

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