The art of molting

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I.

Many animals, not just humans, generate objects that resemble their generators. In most cases these objects are not held to be works of art, however, since they are not made for the sake of resemblance to their makers. They are not made at all, in fact, but rather molted.

At its most masterful, nature gives us ecdysis, the variety of molting common to many invertebrates. Unlike lizards shedding their skin, birds their feathers, or mammals their fur, insects and arthropods are outfitted with rigid outer casings, and so their molting involves something closer to a crawling out than a casting off.

Consider the scorpion as it sinks into apolysis, when the epidermal cells gradually separate from the hard old exoskeleton. A new cuticle begins to form, and the creature within agitates, thrusting back and forth until the old integumentary shell cracks. It squeezes out, reborn. Let us imagine that it then turns and regards—perhaps with admiration, perhaps with disgust—the scorpion-shaped, self-shaped monument it has, by nature's necessity, cast off. The new creature appears neotenous, inexperienced, soft-shelled, while the outer casing it leaves behind takes on the appearance of a gutted and abandoned tank, dry and gray and dead, while still plainly retaining the figure of the life it once vehicled.

Can we easily distinguish between what the scorpion does when it molts and what we human beings do when we, say, sculpt the human form in stone? The most common means of distinguishing between the two sorts of production is that the human sculptings are *representations* of human forms, whereas molted exoskeletons or shells are not representations but rather the things themselves, or at least vestiges of the things. We all know that in fact the scorpion looks on its molted exoskeleton with neither admiration nor disgust; it is in no sense a "work" of the scorpion, any more than the shorn hair or nails of an artist are part of his or her oeuvre. The fact that the discarded shell retains the shape of the creature, while the discarded toenails do not, is irrelevant: it is biowaste, chaff, slough. Nothing more.

II.

Or is it? What do the philosophers who have probed into the workings of nature have to tell us?

In the *History of Animals*, Aristotle describes all sorts of molting as, at bottom, rejuvenation, a "sloughing off" of "what is called . . . 'old-age' [*geras*]."[1] For him the shedding of skin, fur, or exoskeleton is a biological process on a par with emerging from hibernation, where the burrow or den is comparable to a bodily shell. In the case of scaly animals, the skin is shed when it is soft, but not when it forms a solid shell. Aristotle describes the process in geckos and lizards, in which "the inner layer comes to the surface," as a rebirth, "for the creature emerges just as the embryo from its afterbirth."[2] With insects it is much the same, except that they leave behind a "husk": "for just as the afterbirth breaks from off the young of the vivipara so the outer husk breaks off from around the young of the vermipara."[3] He notes with curiosity the characteristic behavior of the cicada following its emergence: "the moment after issuing from the husk [it] goes and sits upon an olive tree or a reed; after the breaking up of the husk the creature issues out, leaving a little moisture behind, and after a short interval flies up into the air and sets a-chirping."[4] We might speculate that Aristotle is observing a sort of jubilation at the creative work completed by the insect, but in truth he does not seem to think of the form that is left behind as anything more than a by-product of a more noteworthy natural process: the process of perpetual rejuvenation.[5]

Insect ecdysis would commonly be invoked in natural-theological arguments in the early modern period. Friedrich Christian Lesser, in his tellingly titled *Insecto-Theology* of 1738, notes that "insects several times cast their skins" and that "the spoils of many insects preserve exactly the figure of the animal, which is particularly remarkable in those of spiders."[6] For

1. *Works of Aristotle*, ed. J. A. Smith and W. D. Ross, vol. 4, *Historia animalium*, ed. and trans. D. W. Thompson (Oxford, 1910), 8.17.600b.
2. Ibid.
3. Ibid.
4. Ibid., 601a.
5. For a comprehensive treatment of the social history and symbolic functions of insects in classical antiquity, see I. C. Beavis, *Insects and Other Invertebrates in Classical Antiquity* (Exeter, 1988).
6. F. C. Lesser, *Insecto-Theology; or, A Demonstration of the Being and Perfections of God, from a Consideration of the Structure and Economy of Insects* (1738; Edinburgh, 1799), 65.

Lesser this process, along with the larger cycles of metamorphosis, is among those features of insect life that make entomology such a powerful source of arguments in the service of natural theology.

In the nineteenth century the Scottish naturalist James Rennie, drawing largely on Jan Swammerdam and other pioneering entomologists of the early modern period, would identify "the change of skin" in rhinoceros beetles as "deserv[ing] the greatest consideration."[7] Rennie seeks to separate the molting of caterpillars from, for example, the casting of feathers by birds and hair by quadrupeds, since "birds generally cast their feathers once, and many twice, a-year, namely, in autumn and in spring; and quadrupeds in a similar way cast their hair. But in both these cases the process is gradual, and resembles that of shedding the milk-teeth when the jaw enlarges."[8] The great difference between the changes in insects and the other classes of animals, he argues, "evidently arises from the difference of their internal structure. It must be obvious to all, for example, that the human body wears. As old age advances the bones waste away and become smaller, the muscles and skin shrink and grow dry and shrivelled, and the stature grows shorter and more diminutive."[9] Thus, for Rennie, there is nothing fundamentally unique about exoskeletal molting: it is simply the way in which certain living beings respond to certain exigencies that are the same across the biological world, in a way that suits their anatomical circumstances. These biological exigencies are, as for Aristotle, the perpetual (in endoskeletals) or periodic (in exoskeletals) rejuvenation of the body by the casting off of dead parts: a staving off of ultimate death through constant regeneration. The anatomy of exoskeletal creatures is such that what is periodically cast off resembles the rejuvenated being, but in principle we may also retrieve a resemblance of any living being from any cast-off part: as long as that part contains sufficient genetic material, we may regenerate the being itself.

If the right bodily matter is cast into the right receptacle, we might witness the process of sexual generation, which is a sort of casting forth, if not a casting off, of a resemblance. And here, too, we speak of "immortality," if only figuratively, and perhaps also of "staying young," of casting off "old-age," in Aristotle's figurative sense, and of holding on to youth by producing a new instance of it. In short, this is just what living beings do: they stave off death by producing likenesses of themselves. This is what we mean by "life."

Whatever the regenerative potential of a nail-clipping or a trace of saliva, we generally hold onto a sharp conceptual distinction between the likenesses—real (as in the case of molted exoskeletons) or potential (as in the case of trace DNA in hair or skin cells)—that are shed as waste or "spoils," and the likenesses that are generated, intentionally or not, as new living beings, as in the child that arises from the generative material of its parents. But this distinction is biologically unfounded: for most purposes, any cell of the body will do as well as a reproductive cell. In the history of thinking about molting, the leftover husk generally appears too similar to waste or to a by-product to be thought of as a monument to what it is that living beings qua living beings do. But once exoskeletal molting is recast, as Rennie recasts it, simply as the anatomically determined expression in one class of animals of a biologically universal process, then we are in a better position to see it as continuous with many other phenomena in nature, including the "artificial" production of likenesses. But let us not get ahead of ourselves.

The most revealing text on ecdysis in the long history of natural philosophy, and indeed on the widespread natural phenomenon of things casting off representations of themselves, is found in Lucretius's poem *De rerum natura* of the first century BCE. According to the Epicurean poet there is a broad category of entities in nature that can be called "films" or "bark" (*membranae vel cortex*) since "the image bears a look and shape like the object, whatever it is, from whose body it is shed to go on its way." Lucretius explains:

> In the first place, since amongst visible things many throw off bodies, sometimes loosely diffused abroad, as wood throws off smoke and fire heat, sometimes more close-knit and condensed, as often when cicadas drop their neat coats in summer, and when calves at birth throw off the caul from their outermost surface, and also when the slippery serpent casts off his vesture amongst the thorns (for we often see the brambles enriched with their flying spoils): since these things happen, a thin image must also be thrown off from things, from the outermost surface of things. Why thin films should not fall and be thrown off from things as much as those others, no one could whisper a reason, especially since there are numerous minute bodies on the outermost side of things, which can be cast off in the same arrangement they were in before, preserving the shape of

7. J. Rennie, *Insect Transformations* (London, 1830), 174.
8. Ibid., 176.
9. Ibid., 176–77.

the object, and far more quickly, as, being few and stationed in the front rank, they are less able to be impeded.[10]

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Thus, again, molting is only the most visible or obvious instance of what is in fact the general condition, not just of living beings, but of all natural bodies. All such bodies constantly give off likenesses of themselves, and it is thanks to this that we are able to see them: vision in the end is a reception of these likenesses by the visual organs. Every entity constantly radiates self-representations, and it is as a result of this radiation that we are able to represent them to ourselves.

The cicada offers a paradigm for Lucretius of the casting off of a likeness, yet it is not entirely clear in this case which of the two products of molting—the shell and the being that emerges from it—is the likeness and which is the real thing. We may indeed be in the presence here of nature's own variation on the paradox of Theseus's ship. Significantly, the insect in the final stage of metamorphosis, after its emergence from the pupa, is called in modern entomology the "imago" or "image," which is the same term Lucretius had used for the "thin image" that is "thrown off from things." It was the Swedish taxonomist Carolus Linnaeus in the early eighteenth century who coined the term in its narrow entomological sense. The name was chosen for the insect in this state, we read in one nineteenth-century text, "because, having laid aside its *mask*, and cast off its *swaddling bands*, being no longer disguised or confined, or in any respect imperfect, it is now become a true representative or *image* of its species."[11] It is not the husk that is the image, then, but the insect itself. Nor is it an image in the sense of a degraded or weaker representation of a physical entity but rather in that it is now a complete or perfected representation of its kind.

It is also worth retrieving here a curious acceptation of the term "imagination" as the "process of becoming an Imago or adult insect," attributed to the nineteenth-century American entomologist Alpheus Spring Packard.[12] Important to remember here is that traditionally imagination, conceived as a mental faculty, was precisely the power of *rendering images*. In much modern philosophy, this power has been the target of suspicion: reason, the crowning faculty of the human mind, is the one that requires no sensuous images at all, and to the extent that we are falling back on images—say, when we render geometric forms on paper rather than simply doing geometric proofs on the basis of the concepts of these forms—we are failing to be perfectly rational.[13] Art, on this understanding, is a somewhat degraded human activity, since what it produces are sensuous approximations of things that are only fully comprehended when they are treated as abstract concepts. This opposition between imagination and reason becomes particularly sharp in seventeenth-century Rationalism, but the same basic understanding of the hierarchy of the mental faculties also lies behind Plato's dismissal of the figurative arts as providing only "imitations of imitations," that is, as giving us copies of objects that are themselves copies of concepts. And yet, as the entomological definition of "imagination" reminds us, there is another—in a sense opposite—understanding of the term as designating not a faculty but a process, and one that yields not degraded approximations, but rather representatives of a type. Here the concept of "image" implies not approximation but perfection: something is said to be an imago not when it merely approximates or shadows some individual physical entity but, quite the opposite, when a physical entity

10. Lucretius, *On the Nature of Things*, trans. W. H. D. Rouse (Cambridge, MA, 1924), 278–79.

principio quoniam mittunt in rebus apertis
corpora res multae, partim diffusa solute,
robora ceu fumum mittunt ignesque vaporem,
et partim contexta magis condensaque, ut olim
cum teretis ponunt tunicas aestate cicadae,
et vituli cum membranas de corpore summo
nascentes mittunt, et item cum lubrica serpens
exuit in spinis vestem; nam saepe videmus
illorum spoliis vepres volitantibus auctas:
quae quoniam fiunt, tenuis quoque debet imago
ab rebus mitti summo de corpore rerum.
nam cur illa cadant magis ab rebusque recedant
quam quae tenvia sunt, hiscendist nulla potestas;
praesertim cum sint in summis corpora rebus
multa minuta, iaci quae possint ordine eodem
quo fuerint et formai servare figuram,
et multo citius, quanto minus indupediri
pauca queunt et [quae] sunt prima fronte locata.

11. W. Kirby and W. Spence, *An Introduction to Entomology; or, Elements of the Natural History of Insects* (London, 1816), 1:69 (emphasis in original).

12. G. Gordh, *A Dictionary of Entomology*, 2nd ed. (Cambridge, MA, 2011), 725; see also A. S. Packard, *Guide to the Study of Insects* (1868; New York, 1889).

13. On early modern theories of imagination's ability to render images in physical matter, and thus of imagination's "artificial" or "artistic" power, see J. E. H. Smith, "Imagination and the Problem of Heredity in Mechanist Embryology," in *The Problem of Animal Generation in Early Modern Philosophy*, ed. J. E. H. Smith (Cambridge, 2006), 80–100.

reaches the highest level of its capacity to represent the kind of which it is a member.

The opposition between these two conceptions of the image—as degraded shadow of a physical thing and as supreme representative of an abstract type—is mirrored in the opposition between the two different sorts of natural representation I have identified: is it the cicada's husk that is the trace or the Lucretian "film," or is it rather the adult cicada that crawls out of the husk? Both of these oppositions are in turn mirrored by that between two basic conceptions of art that have endured throughout most of Western history: the imitation of the imitation derided by Plato, on the one hand, and on the other, the idea, found for example in the work of Friedrich Schiller and throughout much of the German Romantic movement, that art is an expression or drawing out of the inner truth of things, and as such plays a supremely important role in mediating between human beings and nature, a role that could not be played by the natural objects that are themselves taken as the subjects of figurative art. Whichever side we take in this series of oppositions, one thing remains the same: nature throws forth representations, and human artists are not so much doing something apart from or in response to nature when they begin throwing forth their own as they are getting in on the action.

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III.

Ordinarily, we suppose that to be a sign of something is to stand for it as a symbol, and correlatively that being a symbol means being nonidentical, having only a contingent or arbitrary relation to the thing in question, a relation decided on by thinking human subjects. In the semiotic tradition going back to Charles Sanders Peirce, however, there is a possibility of decoupling signs and symbols. For Peirce, not all signs are symbols—or, to put this somewhat differently, there are at least some signs that do not represent.

In recent years some thinkers have built upon Peirce's insight to show how we may attribute "thought" to nonhuman systems. Eduardo Kohn, for example, attempts to describe "how forests think": not by means of a complex central nervous system, and not in a way that involves the representation of objects by means of concepts, but simply to the extent that the forest contains innumerable perceivers, all of which live their lives in constant response to perceptual triggers or signs. "Semiosis (the creation and interpretation of signs) permeates and constitutes the living world," Kohn argues, "and it is through our partially shared semiotic propensities that multispecies relations are possible, and also analytically comprehensible."[14] The great error of the prevailing theory of semiotics has been, according to Kohn, "the assumption that all representational phenomena have symbolic properties."[15] There is an important distinction, on his view, between symbolic and nonsymbolic representation, and this is coextensive with the division between human and nonhuman living beings. But there is also a more fundamental division to be made: the one that marks out the domains of the animate and the inanimate: "What differentiates life from the inanimate physical world is that life-forms represent the world in some way or another, and these representations are intrinsic to their being."[16]

In different ways, Gregory Bateson and Tim Ingold have each sought to collapse the distinction between mind and nature along with that between culture and nature, and in so doing have shown that human engagement with the natural environment is not fundamentally different from how nonhuman beings act within their ecologies in species-specific ways.[17] It is true that human beings carry a swarm of symbolic representations and associations to every encounter they have with their natural environment, and we have no conclusive evidence that other beings are similarly constituted. But we do not need to invoke these symbolic representations in order to understand human beings as part of a broader system of representations that we call "nature." Thus Ingold rejects the standard scientific "separation of humanity from organic nature," in favor of "an alternative mode of understanding based on the premise of our engagement with the world, rather than our detachment from it."[18]

This general approach has a particularly important application in the study of human art. Ingold argues against the common conception of art as "one of the hallmarks of humanity, revealing a universal capacity to represent experience in symbolic media. . . . Focusing on the ways in which hunters and gatherers depict animals, in painting, drawing and sculpture, [he shows] that activities leading to the production of what we in

14. E. Kohn, *How Forests Think: Toward an Anthropology beyond the Human* (Berkeley, 2013), 9.

15. Ibid., 40.

16. Ibid., 9.

17. See, in particular, G. Bateson, *Steps to an Ecology of Mind* (1972; Chicago, 2000); and T. Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill* (London, 2000).

18. Ingold, *The Perception of the Environment*, 11.

the West would call 'art' should be understood not as ways of representing the world of experience on a higher, more symbolic plane, but of probing more deeply into it and discovering the significance that lies there."[19] When it casts off its skeleton, a scorpion is neither stepping outside of nature for the sake of abstraction nor probing more deeply into it in search of significance. But it is, at least, working in accordance with nature, producing a likeness that reflects its working within nature to achieve natural ends. Likewise, the traditional hunter works within nature, rather than outside of it or above it, to achieve his own natural ends, both when he brings down a bison and when he paints it on a cave wall.

What is supposed to make art art, of course, is that it is, precisely, not nature: it is made rather than generated, it is the result of intention rather than of a blind process, and it sets itself up against nature, rather than as participating directly in nature's flow. But if we are seeking, with Ingold and Bateson, to collapse the mind-nature dichotomy, surely any art that is a product of mental activity will go the same way as the mind that is supposed to be this art's extranatural cause. If the mind is in nature rather than apart from nature, then any product of the mind is in nature, too. Thus Ingold elegantly shows how we might in a few steps collapse the distinctions, which ordinarily give us no small reassurance, between, say, apartment blocs and the mounds of termites.

Our interest here, for now, is limited to the much narrower case of representational art, and to the possible collapse of the dichotomy between it and certain products of biological processes. I began with the fairly narrow case of ecdysis, which produces at least a temporary trace of a living being, and went on to suggest ways in which ecdysis is only one of the most obvious instances of the casting off of forms in nature. In fact there are many natural processes that leave traces of the forms of living creatures, generally in a more contingent and haphazard way. Fossils, for example, are remains of once-living beings that, in addition to coming from those beings, also resemble them—or, in the case of ichnofossils and like traces, give some indication of their characteristic activity (as in an ancient burrow that has been filled with volcanic lava and preserved over the eons).

In an earlier work I identified an important distinction in the paleontological writings of the seventeenth-century Danish geologist and theologian, Nicolaus Steno.[20] His great contribution to the history of natural philosophy was to establish an epistemologically sound method for identifying the fossilized remains of animals as remains of animals rather than as tricks of the devil or as "games" of an overly fecund nature, throwing forth organic forms in material substrata where they do not belong. In that work, I suggested that we may distinguish two sorts of "trace": signs, which stand for a thing as symbols in the Peircean sense, and vestiges, which do not stand for a thing so much as result from its former presence. The likeness of a sign to the thing of which it is a sign happens through representation; the likeness of a vestige to the thing of which it is a sign happens through identity. q6

My terminology is different from Peirce's—I speak of "traces" and divide them into "signs" and "vestiges," while Peirce speaks of "signs" and divides them, correspondingly, into the symbolic and the nonsymbolic. But it is a distinction Peirce would recognize: fossil fish look like fish, and so do sculpted pisciform figurines, but each for its own very different reasons. The insight of Peircean semiotics is that these different causal histories do not make the two sorts of resemblance *entirely* different from one another. Both are what Charles Lyell would call "monuments," though the latter are "designedly" so, while the latter are so "undesignedly."[21]

In Steno's period an important shift occurred, spearheaded by the geologist himself, in which the Renaissance trope of the "book of nature" is discarded. It is no longer thought that the things of nature stand for other things. This shift is often held to have been a great victory of the scientific revolution. Yet we may, in our telling of this history, have too hastily assumed that for thinkers such as Steno, insofar as nature was no longer a book filled with signs, it could therefore not be "read" in something like the way a book is read. In fact, Steno *was* reading the earth. The birth of geology was precisely the moment at which the earth's signs (in Peirce's sense) were deciphered, and were understood to be (in my sense) not representations, but rather vestiges, undesigned monuments, nature's signs.

These signs function ecdysially rather than mimetically. They work by way of identity rather than by way of representation. My modest suggestion is that the

19. Ibid.

20. J. E. H. Smith, "Thinking from Traces: Nicolaus Steno's Palaeontology and the Method of Science," in *Steno and the Philosophers*, ed. M. Laerke and R. Andrault (Leiden, 2017), forthcoming.

21. C. Lyell, *Principles of Geology; or, The Modern Changes of the Earth and Its Inhabitants*, rev. ed. (1830–33; New York, 1858), 2.

human mimetic activity might best be seen as an outgrowth of this species of sign, rather than as a radical rupture—the human exception—which would set human representations of nature up against nature itself, looking at it as if across a great divide.

IV.

Above we considered a distinction between those castings-off, such as the shedding of hair or the clipping of toenails, that do not retain the form of the creature from which they come, and by contrast the husks or shells that do retain it. But we found that this distinction has not carried much weight: not for Lucretius, who supposed that all castings-off in nature continue to represent the creature at their source, even if cicada husks or snakeskins do so most obviously; and not for current science, which is able to retrieve the form of the being from the tiniest fragment of genetic material. But we need not come up with a particularly elaborate theory of vision or a particularly advanced science of genetics to grasp some version of the *pars pro toto* principle at work in the living world: that each trace of any thing may be taken to stand in for the whole thing. While the nails do not retain the visible form (or "figure") of the being that shed them, they are typically thought to contain that being's essence, which explains their perceived usefulness in rituals involving sympathetic magic. Thus, often in the creation of effigies of human beings or animals, a resemblance to the being in question is not of the highest import. What matters is what the work is made out of, or at least what it contains. If the nails or hair or blood are in there, then it has an essential connection to the being from which these elements come that is far deeper than whatever might be attained by a superficially "realistic" likeness.

Of course, when effigies are constructed, they are generally of human beings or animals other than the artist who made them, and in this respect it may be difficult to see them as sheddings or castings-off of the artist himself. In a certain sense, though, any representation of a human form by a human artist is self-representational, "in kind if not in number," as Aristotle would say. Nor is it always clear, at least in prehistoric art, whether a representation of human form is a representation from the first- or the third-person perspective.[22] In a context in which human and animal beings share a single sociocosmic community, and in which the boundaries between species are thought to be permeable, artistic representations of animals might also be understood, from within, as self-representations. All figurative art that takes the animate world as its subject is thus, at least potentially, self-representational.

While sheddings always stand as signs, by way of identity, of the individual being from which they were shed, with representations it is often much less determinate to which individual being they are supposed to be traced back. We do not really know whether a bison traced in a cave is meant to stand for a particular bison (say, as a tallying of a recent kill) or for bison in general. We do not really know whether a Venus figurine is a self-representation sculpted by a woman, a representation of a woman by a man, or a representation of womanhood in general. It reveals both the power and the limits of signs that work by identity, such as sheddings, that they can, and also that they must, lead back to only one individual, while representations can represent an individual, or a kind, or an idea.

The husk can only be an *imago* of the individual cicada that sloughed it off, while a drawing can memorialize a particular cicada, or can function in the genre of natural history as a holotype of the entire species.[23] The adult cicada itself, whether it emerges from its husk or finds itself the subject of a natural-historical illustration, is an *imago* insofar as it is a realization of the fullest perfection of the type. Thus we cannot say that simulacra, whether sheddings or representations, alone signify, while natural beings simply are. Natural beings stand, as *imagines*, for the kind of being they are. The shedding signifies the individual being; the drawing signifies the individual being or the kind; and the individual being signifies the kind. These are all different sorts of *imago*, distinguished from one another not principally according to whether they were intentionally made or blindly generated, but rather with respect to the nature and scope of their function as signs.

V.

In the *Critique of Judgment* (1790), Kant comes close to a recognition of what it is that artworks and certain products of nature have in common. He notices, namely, a special class of natural entities that he calls

22. See, e.g., L. McDermott, "Self-Representation in Upper Paleolithic Female Figurines," *Current Anthropology* 37, no. 2 (1996): 227–75.

23. On the function of holotypes, see L. Daston, "Type Specimens and Scientific Memory," *Critical Inquiry* 31 (2004): 153–82.

q7 "free natural beauties" (*freie Naturschönheiten*): "Flowers are free natural beauties. What sort of thing a flower is to be is known by practically no one, other than by the botanist; and even he, while he recognizes the reproductive organ of the plant, pays no attention to this natural end when making a judgment of taste about it [i.e. the flower]. . . . Many birds (the parrot, the hummingbird, the bird of paradise) and a number of marine shellfish are beauties in themselves, and belong to no object determined by concepts in view of its end."[24] For Kant, the analogy to works of art is only partial. Like works of art, free natural beauties are deemed beautiful independently of the purposes of their parts (if indeed these are even known). There is nonetheless in natural beings, however beautiful, no "aesthetic idea." Conceived on analogy with the rational ideas treated in the *Critique of Pure Reason* of 1781, for Kant an aesthetic idea arises where no concept is adequate to the sensible representations experienced. There is moreover in art a sort of effort to sensibly represent a rational idea by means of an aesthetic idea. It is artistic genius, with which the artist is endowed, that enables such representation.

We can watch artists, and we can know, Kant supposes, how they work. We cannot similarly watch the "maker" of nature, and Kant learns well from Hume and others the lesson that the teleological argument for the existence of God can give us no positive knowledge of God. From the fact that we have seen clocks and clockmakers, and we have seen the respects in which an animal body is like, but vastly more complicated than, a clock, we cannot claim to know the maker of the animal body. In fact, as Kant establishes in the second half of the *Critique of Judgment*, which focuses on natural teleology, we cannot claim to have positive knowledge of nature as made or designed at all. For Kant, the artist with his genius is Godlike, but only if we are being childlike about what God is like. We cannot know God as a maker, and to that extent we cannot assimilate the products of nature to the products of art.

Today, many wish to collapse the distinction, not between nature and art (not yet!), but between traditional art and fine art. Since the late nineteenth century, traditional arts, falling into the category of "the primitive," have been an important inspiration for fine arts. At bottom, the basis of the distinction between these two, wherever it is defended, is that genius is at work in the one case but not the other—that "tribal" arts are more like natural excrescences than they are like the products of genius celebrated in the fine arts. Kant thus contends that the tattoos of the South Sea Islanders are at best "pleasing" (even if to actually take pleasure in them is to fail to appreciate the islanders as men, and thus as ends in themselves rather than occasions for delectation). There is no awareness here of the biographical, indeed epic, function of Polynesian tattooing, and thus of what we might call its "literary" dimensions.[25] For Kant, Polynesians tattoo themselves for the same reason seashells come forth in the ocean through the regular repetition of geometric patterns. Both are instances of free natural beauties, or something close to this: pleasing and pointless excrescences of nature, yielded blindly and without genius. That free natural beauties do not belong on the skin of a man is not for Kant a reason to reconsider his interpretation of the tattoos, but only to hope that someday the islanders will be absorbed into the fold of European history, develop a sensibility for fine art, and lose their tribal markings.

Kant's scale would gradually be inverted by Gauguin, by Breton, and by subsequent generations of indigenous artists working between worlds. Yet as admirers, critics, and theorists of art we are still looking for Kant's magical genius, and expecting every artist to have a share of it, in virtue of which he may be said to be an artist at all. We have rejected Kant's parochialism, but have perhaps too quickly discarded his account of how a great deal of human art is in fact produced. In collapsing the boundary between fine art and folk art, we have at the same time reinforced the boundary between both of these on the one hand, and free natural beauties on the other.

VI.

It may be that the more general category that can help us to make sense of a wide variety of human and natural productions alike is that of the counterfeit. In a largely forgotten sense of this term, it denotes not fraud (at least not straightforward fraud), but rather, literally, "making-against."

What is it that counterfeits? The word is closely linked semantically to parroting, to aping, to the varieties of animal behavior that reproduce human behavior, but presumably without intention. The ape that dances and

24. I. Kant, *Gesammelte Schriften*, vol. 5, *Kritik der Urtheilskraft* (Berlin, 1908), 229 (translation mine).

25. For a contrasting account that is nearly contemporaneous with Kant's remarks, see S. Schaffer, "'On seeing me write': Inscription Devices in the South Seas," *Representations* 97, no. 1 (2007): 90–122.

smokes a pipe is thought to be a sort of automaton, metaphysically on a par with the mechanical impostors that so worried Descartes, "whose motions might be determined by springs."[26] Conversely, human beings may also be said to "ape" when they go through the motions of a social ritual or interaction by following the example of another, without thinking, or without thinking too much, about what they are doing. Revealingly, the most common word for "imitate" in German is *nachäffen*: "after-aping." When Edward Tyson writes in his 1699 anatomical study of a chimpanzee that "the Orang-Outang imitates a Man,"[27] he means both that the animal is remarkably similar to human beings in anatomy and behavior and that this similarity is, in the end, not what it seems: it is not undergirded by the same ontology (the human being has an immortal soul while the ape does not). There is "genius" in what apes do, but only counterfeit, only "doing against" what human beings do directly and in the fullest sense.

Imitation in nature is by no means limited to the imitation of human beings. Beyond aping and parroting there is of course the chameleon, which lacks a verb to describe its camouflaging ability, but which symbolizes the power of many beings in nature to adapt to their surroundings, and more generally the power of any animal or human being to respond, in appearance or habitus, to new features of the social or natural environment. Here, too, there is a hint of fraudulence: chameleons are praised for their ability, while people who are "chameleonic" are denounced for appearing as they are not.

And beyond the fleeting adaptations of chromatophores, there is adaptation itself, the constant product of Darwinian evolution, as when the moth begins to bear pseudo-eyes on its wings so as to frighten off predators. Do pseudo-eyes represent eyes? They counterfeit them, certainly. If there were no eyes in the world, the moth's wings would not have adopted these eyelike spots. They are not vestiges of eyes, and are thus nonidentical to the entity in nature they evoke. In this respect they are more like human-made representational art than molted exoskeletons.

Early natural-history illustrations were often said to be counterfeited from the beings they depicted. Thus in his *Histoire naturelle des estranges poissons marins* of 1551, Pierre Belon speaks of the desire of naturalists "pour chercher les choses dont ils vouloient auoir le portraict contrefaict au vif."[28]

We have then a basic separation, perhaps, not between the natural and the artificial, but between the ecdysial and the counterfeit, between that which is sloughed off and that which is "knocked off," between vestige and imitation. But nor should the depth of this divide be exaggerated. Nature produces likenesses, some of which are made-against and some of which are cast off. Human beings also produce likenesses, as in the illustrations of strange fish that are counterfeited in books of natural history. Nature also produces vestiges, as when the cicada casts off its husk. We should not conclude too hastily, in turn, that human artistic production is always more counterfeit than vestige. Certain forms seem to straddle this divide, as when we take a selfie or carve ourselves in stone—at once generating imitation selves, fake selves, but also perhaps giving off, by natural necessity, films or bark, simulacra of our true selves. Can we, after all, refrain from selfie-portraiture? Can a scorpion stave off apolysis?

VII.

Bridging the illusory gap between ecdysis and mimesis, between life and art, amounts to a small but crucial supplementation of the broader project of Kohn, Ingold, and others, which consists in collapsing, to the extent possible, the distinction between nature and culture. The aim is not to prove that human beings are "just" animals, that a Le Corbusier apartment bloc is "just" like a termite mound, or that a Modigliani sculpture is "just" like a cicada husk. Wherefore this modifier, "just"? It obscures the project, and betrays the position of the opponent who invokes it as having been settled in advance.

The aim is rather to regain, for nature, its lost share in what was once a vastly more capacious and ambitious science of aesthetics. Until the eighteenth century, culminating in Kant's Third Critique, the aesthetic regard was principally focused upon moss-covered rocks, tangled branches, leaves.[29] Aesthetics, understood in Alexander Baumgarten's original sense as the science of perception,[30] could not ignore the fact that living nature

26. *Oeuvres de Descartes*, ed. C. Adam and P. Tannery, vol. 7, *Meditationes de prima philosophia* (Paris, 1964), 32 (translation mine).

27. E. Tyson, *Orang Outang, sive Homo sylvestris* (London, 1699), preface (n.p.).

28. P. Belon, *L'histoire naturelle des estranges poissons marins* (Paris, 1551), 2.

29. See, e.g., A. A. Cooper, Third Earl of Shaftesbury, *Characteristics of Men, Manners, Opinions, Times*, ed. L. E. Klein (1710; Cambridge, 1999).

30. A. Baumgarten, *Aesthetica* (Frankfurt, 1750).

imposes itself on our senses in a particularly vivid, literally impressive way. Yet by the nineteenth century aesthetics has largely shrunken the scope of its interest to a small subclass of human-made objects—those belonging to the "fine arts." This shrinking had mostly to do with economics, with the increase in the circulation of art objects as capitalist goods par excellence.

But that system has largely collapsed, and now we are lurching around, trying to see what all we might be able to regard aesthetically besides the masterworks of painting and sculpture. We have tried out the aesthetic gaze on mass-produced objects, on objectless performance pieces, on celebrities lying in glass cases. Meanwhile nature—to invoke a medieval verb subsequently revitalized by Spinoza—continues to nature, and to patiently await its rightful return, in an eventual postcapitalist age, to the center of our aesthetic attention.

VIII.

A shaggy-feathered bird, meanwhile, an ever-molting bird, comes upon the scorpion husk and pecks at it warily. The bird begins to delight in the scorpion's passivity, in its lifelike lifelessness, yet finds this is not quite enough to still all apprehension.