

The Red Queen

About five years ago I wrote a small piece (fortunately unpublished) contending that sexual selection (and if you don't know what this is read Elizabeth Mead's introduction, immediately preceding this. In fact read it anyway, because it's better than mine).

Now that you here my assumption is that you've read Elizabeth's piece. And you know that she is a supporter of sexual selection as a motivator for the production of art. I was, as the piece I wrote five years ago reminds me:

...Many evolutionary biologists believe that the human brain evolved as a result of the selection pressure of art. It seems clear that poets, musicians, artists and other creative individuals are very sexually attractive... Selection pressure selects more creative individuals to reproduce and evolution creates more artistic brains.

During editing, Elizabeth appended, "I just want to officially register my profound objection to this paragraph". Although support of sexual selection is more nuanced than it was at that time I still think it part of the rainbow of evolutionary strategies that induced creativity in all of us. And now Elizabeth does too. The step she made, took her years. For the most part people think that the source of creativity and artistry is culture. I agree, and the profound differences in the artistic production from culture to culture show that individual learning plays a significant role in the production of art. But, as with language, art is universal. And, also as with language, there are deep structures within creativity that characterize all art. The brain and body are designed to facilitate the production of language and, similarly, the brain and body are designed to facilitate the production of art. That designer was evolution, but the mechanisms that resulted in my capacity to type this sentence (however poorly conceived) are disputed. Many of those evolutionary biologists I referred to in the quote go a lot further than merely asserting that evolution creates more artistic brains. They further suggest that the evolution of cognition was a by-product of the need to produce and comprehend art.

Let me labour that last point for a moment. There is a tendency to take cognition or, more loosely, the capacity to reason and be self-aware, as a given. Humans are presented as inevitable, and sometimes as the pinnacle of creation, almost as the target of evolution, but this teleological thinking sits more comfortably with ministers and rabbis than with scientists. Evolution didn't produce a self-aware species (that we know of) until 4.5 billion years after the Earth formed, but it produced life very soon after the Earth cooled sufficiently to permit liquid water. Life got along fine without essays about why life exists for nearly four billion years.

The evolution of cognition needs explaining. The required brain size, and the required ratio of brain mass to body size, that reasoning requires, creates all sorts of problems (i.e. is non-adaptive). Children have to be born very early in development so that a baby's head can fit through even the mother's pelvis, which is, in turn, an adaptation for bipedalism that restricts the size of the aperture. Even at this early developmental stage babies' heads

are too large, and their skulls are designed for deformation. All this contributes to a very high mortality rate for mother and baby. Dead mums and kids isn't adaptive, so the ones that survive must garner huge advantages from large brains, and the capacity for cognition that seems to be the primary purpose of their expanded volume. Because they are born at such an early developmental stage babies need much more care than do the progeny of other mammals, and that care is a draw on available resources.

All this leads me to suspect that the explanation for cognition is multifactorial, one cause is unlikely to be sufficient to get it over the line. Another issue with large brains is that they require disproportionate amounts of energy to maintain function. Our brains consume about twenty percent of all the energy we use.

Neanderthals had big brains too, but also big bodies. As a result they probably didn't have quite the same issues with parturition that we do, and thus babies were born later in development. The upshot is an accelerated childhood, one recent credible estimate is eight years to maturity. This suggests that learning processes were accelerated, without an extended period of learning by example (we spend a few years slavishly copying our parents, chimpanzees don't) that prepares us to operate without reinventing the symbolic world. Neanderthal art is unsophisticated, if it exists at all. In terms of me being here, and you, we may have gotten very lucky that our distant ancestors needed to give birth to less developed babies, it may have allowed the possibility that symbolic intelligence could emerge.

My understanding of the mechanisms that produced art (and perhaps mind) are more nuanced than at the time I produced the quote at the beginning of this introduction. As I said, I now suspect multiple culprits in the crime of our capacity for creativity. But there are also multiple victims, in a sense, amongst them a group of creative individuals that operate outside of the art scene, and often outside of society. These individuals are known as outsider artists, and some would contend they are the most difficult creative group to pigeonhole within evolutionary narrative (including myself, before I gave it some thought). The definition of outsider art is nebulous, and the range of behaviours and skills exhibited is wide, but artists get classified as outsider mostly when they seek not to profit (and I don't mean just not seeking a financial benefit) from their endeavours.

Nevertheless, Elizabeth wants me to give the motives of outsider artists some evolutionary context. I can do that, and I will, but first let's think about what the ultimate motives can be for another specific type of behaviour that she references but seeks no insight into (again, I invite you to read Elizabeth's essay if you still haven't). My opening gambit, as is the nature of gambits, is to stray from the narrative path.

Regarding a toy helicopter banging its syntho-life away in a box, Elizabeth says:

Notice your emotional investment in the little mechanical critter, and your difficulty resisting a narrative interpretation of its 'struggle'. (Unless you're a sociopath).

Sociopaths, here, are on the wrong side of a binary. There is normal (equals good) and abnormal (equals bad). You didn't love the helicopter, you sick bastard. The assumption, in an essay that seeks deep motives, is that there is no reason for sociopaths, that something just went wrong with their minds.

And that may well be right. It may be some organic problem, like a broken leg. But, of course, a broken leg has a cause. An injury sustained while pissed, or a result of an impact that wouldn't normally cause a problem but did, because of some pre-existing, but still not ultimate condition, like osteopenia (low bone-density).

What are the underlying causes that might lie beneath an individual being characterized as a sociopath? There seem to be three diagnostic indicators in a sociopath's behavior. They are impulsiveness, boldness, and meanness. And it was clearly meanness that Elizabeth was alluding to. Lack of empathy for her, you, or the anthropomorphic helicopter. Yet sometimes, for some people, possessing those three characteristics can clearly help an individual get on. In a world of sheep wolves reign. And here I'm touching on something that I believe is very significant. Our biological compulsions, our instincts, shouldn't be, and aren't the same for everyone. A king or a sultan can reasonably seek to mate with many women, and have hundreds of kids. He has the resources to see them cared for. But it may be that for many of his harem, sneaking off and getting knocked up is the biologically 'right' thing to do (and is anticipated by the polygamous prince, who, at least stereotypically, manages all those ladies through the agency of eunuchs). In fact women show a marked shift in attraction to square jawed masculine types (good symmetry equals good genes) when they are ovulating.

But pair bonding is a good strategy for most people most of the time. Shifting strategies when circumstances change also makes evolutionary sense. The most provocative statement of this I've heard was from J. Paul Getty (I think), and it went a bit like this. 'To be married just once, that just proves you are not a success in business'. Sociopaths can be very attractive, and they don't mind using complicity to get others to raise their kids. Essentially, they feign interest, and their risk taking increases their range of outcomes. Higher proportion of sociopaths successful, higher proportion failures, no middle ground. That's sounds like something that evolution could use.

But is it? Just because it could work doesn't prove that's how it does work. Certainly, sociopathy is associated with many mental disorders that are unlikely to be adaptive, such as schizoid personality disorder.

But is it inherited at all? Here the answer is a clear yes. About 60% of characteristics associated with developing sociopathy are inherited. Of course, that doesn't prove it's adaptive. Huntington's Disease, and sickle-cell anaemia are genetic diseases, but are clearly not good for you. However, over evolutionary time, non-adaptive (in some circumstances they can be adaptive, for example sickle-cell anaemia helps prevent malaria) genetic illnesses would disappear from a population unless a background mutation rate reintroduced them. And it is unlikely that sociopathy, a complex problem with complex heritability, does not arise from a single, random, and repeatable mutation.

So there are convincing reasons to believe that sociopathic behaviour is, at least a little bit, good for the sociopath, at least in terms of them having kids.

There are other underlying reasons for sociopathy. One example illustrates the complexity of the search for ultimate biological motives. At the risk of channeling 'The 1001 Nights', I again follow a tangent.

Toxoplasmosis is predominantly a disease of cats. The life cycle of toxoplasmosis is conducted partly in cats, and partly in other animals, mainly rodents. The interesting thing is rodents that have toxo stop being afraid of cats, in fact they are actually attracted to cat urine. Toxoplasmosis affects the behaviour of rats (and cats, and probably people, but I'll get to that) in such a way that that they seek risk. Other behaviors are affected too. In fact they look a lot like sociopathic rats.

Yaroslav Flegr noticed some changes in his own personality, which after some research he attributed to a toxoplasma infection. People get toxoplasmosis from cat faeces and about 30% are infected. Flegr's theory is that toxo changes people dramatically, and the changes are sex specific. Everybody takes more risks, but women care more about their appearances, become more social. Men become more introverted, but they also care less what others think of them. Essentially they become less social. But they become more sexualized. Testosterone levels are raised. But lowered for women.

So, a readily categorizable pathology like sociopathy has a range of causes, and is itself a complex. It is a boundary condition of normal behaviours, an example of a single strategy being useful in a world of many strategies. It is a microcosm of the red queen's race, a single strategy competing to stay in a market place where other selection strategies are more useful and thus more wildly represented. But it is simultaneously a disorder and, potentially, a disease. It may also be simply an extreme point on a number of dimensions that describe normality. Some people seek more risk but do not otherwise characterize sociopathy.

The making of art isn't the result of a disorder, for the most part. Elizabeth eloquently outlined a bunch of potential evolutionary reasons why we might be compelled to make art and, of course, the cultural reasons are compelling. But some artists make art that seems to be off the radar; when we send out social signals they aren't reflected by these individuals. And some make really interesting stuff. We call the stuff they make outsider art. But why do they make it? Is it reasonable to assert that they are responding to their biological compulsions in ways that resemble other artists but are, perhaps, more obscure? Or do they falsify the hypotheses that suggest art making is the product of our evolution?

Firstly, without more analysis, I would assert that the answer is 'yes'. Evolutionary theory in relation to art is sufficiently established that the burden of proof resides with those that might contend that outsider art has no biological basis. The role of evolution in all characteristics of life is established. In fact, the only credible alternatives to the suggestion that a universal characteristic evolved as an adaptation that I can think of are:

that it is a side effect of another characteristic, or groups of characteristics, being adaptive; or a specific adaption (or non-adaption) being co-opted for another purpose. Both of these evolutionary strategies have been posited as the underlying drive to art. The later position numbers amongst its advocates the scientific luminaries Stephen Pinker and Stephen Jay Gould. In relation to music, Pinker says it is, “auditory cheesecake, an exquisite confection crafted to tickle the sensitive spots of at least six of our mental faculties’. These faculties are, in his view, modules of the mind that employ pleasure in their militating for our survival.

This mechanism is called an exaptation, the classic example seems to be feathers, evolved for thermo-regulation but exapted for flight (not, initially, the other way round). Given that Gould coined this term for use in other contexts, it is unsurprising that he agrees with Pinker with relation to the role of adaption in the arts.

Many struggle with the idea that adaption can play a role in creativity or intelligence at all. While doing some reading to prepare for this piece I came across many naïve (at least to me) rejections of this thesis. One article ends with the following:

Chalking everything up to our caveman roots may seem elegant, but human behavior really isn't elegant at all. Evolutionary psychologists could learn something from literature: people are unpredictable, and we don't always do things for a reason.

This is astonishingly obtuse. If the hypothesis is elegant it is absolutely irrelevant that it explains something inelegant. An excessive commitment to Premier Crus might well explain cirrhosis of the liver. And a particularly elegant sports car attracts higher insurance premiums than a similarly valued sedan, since it is more likely to result in a pile of twisted metal wrapped around a telegraph pole.

As for literature, although the potency of plot derives from the reader being shielded from it, the characters must behave comprehensibly, unlike in life. In fact the characters of some authors, for example Charles Dickens' Sydney Carton (who exemplifies redemption in *A Tale of Two Cities*), Jane Austen's Sir Walter Elliot (who encapsulates conceit and narcissism in *Persuasion*) and Emily Brontë's Heathcliff (who personifies unrequited passion, or, as Elizabeth would have us believe, poor plotting, in *Wuthering Heights*) are often given as exemplars of the type of behaviour that needs explanation. The unquestioned assumption is that great authors encapsulate verities. And unpredictability, variation within populations, is precisely what evolution requires to be able to operate.

But all this does show that I am in the midst of skeptics. That being so, I hope that the exhibition we are planning, and that I am describing, can have the side effect of entertaining in the same way that the cathedrals, mosques, and synagogues of the religions of the book give me joy. Beauty can be 'exapted' from its context. Let's get down to specifics.

Could Henry Darger's vibrant, fecund and prolific output be understood in evolutionary

terms; for example could his work be understood as a man engaged in showing off his excess capacity to acquire mates?

At risk of presenting hypotheses with no deep value because they can fit any circumstances I say the answer is "yes". No one knows if Darger exhibited any pathologies that would be readily classifiable, but the range of 'problems' attributed to him by his many fascinated devotees suggests that a simple categorization is elusive. He is autistic, he suffers from Asperger's syndrome, he is a Touretter, he is a murderer, he is a paedophile, and some of these simultaneously. Come to think of it, I've been saddled with all those labels. Young girlfriend, foul mouth etc. The Asperger's label is one I came to accept. And the murder story. I've never told that one. I'll come back to it.

We are interested in Darger because of his paintings, and for no other reason. He painted as part of a storytelling project of incomprehensible scale. The story from which these works are taken ran to over fifteen thousand pages. His total output, all of which was discovered posthumously, totals around thirty thousand pages. Nevertheless Henry Darger was an artist, and by the assessment of many a great, though confounding, artist.

He obsessively paints little girls, often with penises, subjected to violent abuse and fighting back. And we know that the accompanying texts that the abusers are aliens in the midst of a religious war. He could be a paedophile. And if he is, and he didn't kill the little girl that disappeared in Chicago, a disappearance one of his biographers implies he might hold culpability for, then maybe he managed to sublimate his perverse sexual energy into a creative endeavour. Attraction to little girls, when manifested as a controllable urge, might well be an extreme point along the dimension of attraction to youth. Age has value in fertility, and these girls are younger than any reasonable mating age but, if youth becomes entangled with the justification for desire, it isn't beyond the pale to see this kind of paedophilia as a distorted form of a biological imperative. Attempting to treat Darger's potential paedophilia as an extreme value of a normative function doesn't account for the violence depicted however, and there is also the small problem of the penises.

An old lady was bashed to death in the public housing block I lived in, when I was sixteen. The police talked to people who lived in apartments nearby to hers and one girl, about my age, gave the police a description of someone who sounded a lot like me and, as it turned out, was me. She had tried to get me to 'play' with her a couple of times in the preceding weeks. I enclosed 'play' in quotation marks because, in hindsight, she clearly had some sexual agenda, but I completely missed it. I missed it because of my extreme inability to read people, a disability I've partially overcome, which has been attributed to Asperger's Syndrome, but never formally diagnosed. Had I been aware of her agenda I would have been interested. I was compulsively fantasizing by then, but it never occurred to me (literally never occurred to me) that an attractive, if rough, girl would be prepared to assist me in making my fantasies reality.

It seems reasonable to assume she described me to the police out of malice. ('Thin, pale, black hair, looks, and acts, like a weasel'. 'Anything else that might help us identify him?')

'He has a limp dick and, oh yes, he lives in flat 49'.) Perhaps she thought my inadvertent rejection of her callous, and was crushed, and retaliated. So my presumed disability landed me in a situation that could have had extremely serious consequences. In fact, the police soon apprehended the killer, a nephew of the victim, as it turned out.

However, there is a correlation between suffering Asperger's and having an affinity for mathematics. I have that a bit of both of those characteristics (diagnoses? stereotypes?), so perhaps there is some selection pressure against, and for, such afflictions. Such things are not definitive, however. I know mathematicians that have no signs of nerd-dom, but considerably more mathematical ability than me.

I'm recounting my murder story to show that motives, including ultimate biological motives, are complex, and often beyond superficial analysis. Had I gone down for a murder I didn't commit, my protestations of innocence would be interpreted differently than they in fact were. I would have been released long ago, and in the compounded unlikelihood of my still being where I am today, a museum that has been labeled (occasionally even by me) as a museum of sex and death would have taken on a more morbid sheen. And attracted more visitors.

Darger's reality may not be congruent with the thing he was seeking. It may be other aspects of his personality that prevented his seeking fame (he considered himself gifted). If his character was partly defined by Asperger's, as has been attributed, and mine also, then it may simply be that his obscurity, while he lived, was merely a product of his obsession in a field that allowed him to remain anonymous. I tried to be unnoticed, but failed. That failure was initially a bane, but became a benison (I once considered suing the local newspaper for the crime of mentioning me while raging impotently against a concrete wall. Now I rarely turn down interviews). My circumstances created me, but were circumscribed by the biological characteristics that I was predisposed for. And so it may have been for Darger.

As I've mentioned before there are theories other than sexual selection that attempt to account for the evolutionary aspects of artistic production (and I reiterate that these theories often attempt to account for much more; they attribute the evolution of human cognition to evolving artistic ability). Brian Boyd, whom Elizabeth introduced effectively, suggests that story telling allows the consideration of events that haven't happened yet. In other words, the capacity to construct a story enables one to plan for the future, to consider a range of possibilities and plan for each of them, or attempt to avoid some options and encourage others. This type of planning, called anticipatory cognition, is a precursor to, and a type of, symbolic reasoning. A campfire tale, told from parent to offspring, inculcates in the child the capacity to infer cause and effect, action and consequence and engage the future with optionality. But it also requires, within the child, a pre-existing capacity to comprehend such tales. Selection pressure closes the loop.

Henry Darger is the author of the single longest story known to man. Could this be a pathological offshoot of a facility within all of us, a capacity to create narratives that has run off the rails. Or maybe other pathologies in Darger, for example a compulsive

element, cause him to fixate, and his innate story-telling module became the fixation.

There are good evolutionary reasons why compulsion might be selected for and preserved by individuals in a population. Individual abilities are useful to the survival and expansion of bands (the small groups that operated over most of our evolutionary prehistory). Although group selection, selection pressure applied for the good of the many, is controversial, kin selection is established as a valid mechanism. Eusocial insects (those with a queen) look after their relative's offspring, and most members of a colony have no interest in breeding themselves. They are, in fact, sterile.

Kin selection may also contribute to the evolutionary pressure to preserve homosexuality in humans (and possibly other species). If there are genes that promote homosexuality (and there is considerable evidence that such genes exist) then it may be, in part, because gay siblings promote the survival of their brother's or sister's offspring, and they share genes with their siblings, and are thus inadvertently promoting the propagation of their own genes. In fact there are a number of other mechanisms supporting homosexuality in a population, but this particular mechanism is widely understood to be an evolutionary actor.

So, to recap and expand, compulsions may be a way for evolution to promote specialization, but on a continuum from generalist to specialist Henry Darger's story telling is at an extreme, but would have had appropriate characteristics to be selected for if expressed to a lesser extent.

Evolution, and its attendant selection pressures, might well account for the phenomenon of Henry Darger's creativity, just as it does for other artists, although others may be much more easily accounted for within the range of abilities and behaviours that selection might produce.

The Red Queen has, as its genesis, the evolutionary background of creativity. It's a lighthearted look, and will not be burdened by excessive narrative (unlike this introduction). The artists discussed previously by Elizabeth, and Henry Darger here, and the other artists represented in Red Queens Race, can all trace their capacity for creativity to random events, but random events that are channeled into survival strategies by evolution. Indeed, as speculated previously, all of human creativity, and the creative mind itself, may have, as its generator, the fact that creativity aids survival, and stimulates cognition.

That the evolution of cognition and creativity may be part of a closed loop that caused some hominids to become human is astonishing and, will potentially become the subject for further exploration at Mona. I'm not asserting the superiority of cognition as a survival strategy over other strategies (arguments abound: total biomass; niche distribution; species longevity; environmental modification). But as an individual with an interest in evolution and art, I feel tremendously gratified that I can, at least in my limited domain, and at least for a short time, highlight some of the often ignored characteristics of what we do and why we do it.

Our behaviour results from a morass of motives, and they produce the base and the sublime. That we can discriminate between the one and the other, and that we can find commonality in our discrimination needs explanation. From within the cossetting folds of art academia the explanations are always cultural. However the roots of our reality are deeper than our culture.

David Walsh