ANIMAL STORIES, NATURAL HISTORIES & CREATURELY WONDERS IN NARRATIVE MINI-ZINES

The Small Science Collective, a collaboration of scientists, artists, students, and anyone else interested in science, is responsible for the production of the "infectious" zines that employ the language of comics for the purpose of spreading scientific knowledge.
Text by ***Andy Yang***

Creation Myth

"Is Their Another Christ?"
"Are Roman Catholics Christians?"
"Who is He?"

These are the questions that the titles of small two-color comic books would pose whenever I took short breaks in the lounge of the laboratory building where I was undertaking my graduate studies.

Given that I was living in North Carolina, and well within what is known as the American "Bible Belt," finding religious propaganda on a coffee table in a relatively public space wasn't a big surprise. Indeed, these particular booklets, "Chick Tracts," were some of the more ubiquitous pamphlets one would come across. Pocket-sized, inexpensive, and handy, these comics are eponymous of their originator, Jack Chick, an evangelical Christian who had the insight (he claims revelation) that graphic narratives could be a powerful medium to spread the message of the Gospel.[1]

Though I was typically unfazed by these pamphlets, I began to take exception when the ones being left in the lounge surreptitiously took on a decidedly anti-evolutionary bent. From one pamphlet with a title "There go the Dinosaurs," you could learn that dinosaurs went extinct due to suffocation when all the oxygen-providing plants died in Noah's flood.[2] Another, "Moving on Up!" provided a remarkable mish-mash of false information and ideology regarding evolutionary biology: "Then science tells us of the *greatest* event of all time – we lost our tails! And began our long journey into *humanism."*[3]

As someone studying for a doctoral degree in zoology, I found myself equal parts indignant and impressed by how these comics, as mis-informative as they were, could be so compelling to read. Although I had been intermittently dialoguing with/confronting an outspoken set of Creationist students that were holding lectures and who infiltrated evolutionary biology courses on campus that semester, the Chick tracts seemed far more potent and persuasive in their small, quiet, and unassuming way. It was humbling that the evangelical housekeeping staff (who I suspected was responsible for the scattering of the religious comics) was doing a better job of advocating for their view of the organic world than the professional biologists -- or for that matter, the student Creationists -- on our own collegial turf.

The prelevance and thus success of the Chick Tracts made a certain amount sense given the structure of university education where the expectation is that you enroll in a course to learn

Small Science Collective
The Carrier Pigeon by Mario Martinez, *2009* © the author

something about organisms or evolution. Outside the confines the campus' four credit-hours lecture and laboratory, however, there was a discernable silence on the matter of nature and its many wonders. At best, a few taxidermied animals and pressed plants managed to wanly decorate the corners of academic halls, but beyond the walls of the biology classrooms, nary a peep nor petal about biodiversity could be found. As for educating our own community about the natural world, I realized that academics like myself were doing a shabby job indeed.

Even for students enrolled within biology classes, experience with creatures can be largely restricted to a clinical treatment of well-prepared specimens that often do little to stimulate interest or curiosity. I, for one, became interested in zoology not because of pickled jars of snakes, but because of real snakes that scared me with their slither; because of the stories I heard about large pythons in the forest and way they occupied my imagination visually and narratively. It had less to do with the classes I took -- which came after the facts of personal experience -- and more to do with the excitement I gained from imagining the lives of creatures in the stories and pictures that populated the books and magazines I happened across.

The ubiquity of the Chick Tracts made some of us start to wonder why their shouldn't be small, free science comics in public spaces that could present a counterpoint to the religious propaganda arguing that dinosaurs were on Noah's Ark or that humans and monkeys aren't related. This gave birth to the Small Science Collective (SSC) zine project.[4]

Small Science Collective
Dive Deep by Laura Hughes, 2009, © the author

Animal Stories as Natural Histories

"Zines" are booklets or pamphlets that are conceived, created, and published outside of the commercial sphere, typically with a close attention to visual structure and content. Given this, graphic narratives are often naturally the preferred format for most of the SSC's zines. These work equally well as eight-page palm-sized booklets in paper, as downloadable/printable/foldable PDFs, and also as comics on the web.

While the SSC covers a wide spectrum of topics – from particle physics to pachyderms -- many of the zines are what could be called "animal stories." These narratives have animals as their subjects, and occasionally as their narrators as well. They explore how the animals look, what they eat, where they are found, and generally how they make a living in the world. However, these animal stories avoid a children's book sensibility in significant ways. Animals are not anthropomorphized so much as they are *personified* as a means to highlight their unique traits, qualities, and behaviors. Some of the zines will invite readers to think of animals as friends or consider the animals' situation in an analogous manner to our own human situation. However, the purpose in this is to create a conceptual bridge for conceiving the complexities of what animals are, in contrast to what we typically or simply presume them to be. In this way, we can distinguish narratives that explore animals and their unique and remarkable ways of being in the world from those stories that simply use animals as characters in what fundamentally are human stories, dramas, and psychologies. Examples of this latter kind are familiar in Snoopy, Mickey Mouse, Garfield, Donald Duck and countless other cases of animal bodies speaking in human tongues. Examples of animals as creatures in their own right, however, are much fewer and farther between. One notable example is the Sunday version of the American newspaper comic *Mark Trail* [5] which, after 60 years, still highlights one species of animal and its ecology in relation to the (increasingly human) environment. Another notable example of the animal-focused narrative is Isabella Rossellini's series *Green Porno, which* does something similar in the form of narrative video short that is unmistakably zoöcentric in its sensibility. [6]

Ever since Linnaeus, our modern scientific presentation of animals has been dominated by lists that enumerate atomized physical traits and evolutionary placement in the manner of bulleted points. Large scale projects like the Encyclopedia of Life for example, endeavor to make "species pages" for every known organism as a standard, universal internet reference to life's diversity.[7] While such approaches are invaluable for databasing basic information about organisms, the graphic narratives of comics and zines offer an important and distinct means to visualize biodiversity that is grounded in a tradition which pre-dates our modern taxonomic accounts – the writing of "natural histories."

Before what we now call the Scientific Revolution, natural history was a term that described the general inquiry into the things that existed in nature.[8] However, this was not limited to a standardized scheme of traits and attributes considered objectively verifiable. It also included the various relations and configurations through which things manifested themselves in the broadest cultural sense. As Michel Foucault describes in *The Order of Things*:

> to write the history of a plant or animal was as much a matter of describing its elements or organs as of describing the resemblances that could be found in it, the virtues that it was thought to possess, the legends and stories with which it has been involved, its substance, the foods it provided, what the ancients recorded of it, and what travelers might have said of it. The history of a living being was that being itself, within the whole semantic network that connected it to the world (p.140). [9]

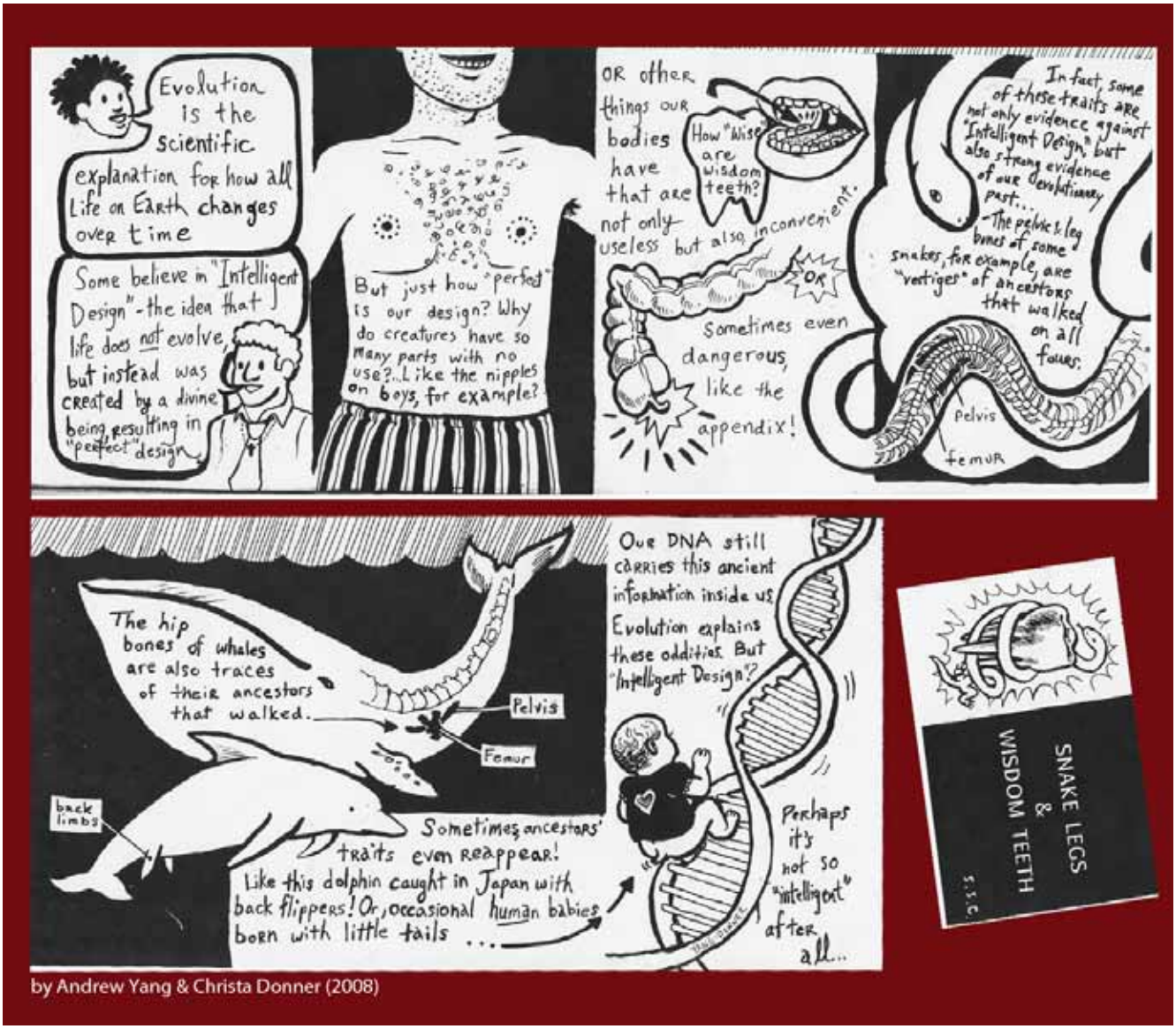
The *historia* of "natural history" signifies "learning or knowing by inquiry," in its Greek root. The *narrare* of "graphic narrative" means to "tell, relate, recount, explain," in Latin. Therefore these terms share a commonality of purpose. We see that creaturely comics and zoological zines can be understood as a contemporary form of the natural histories that were once woven from the cultural threads of observations and imagination.

What can such narratives accomplish compared with the objectivity and authenticity of detailed scientific illustration and its power to reveal? How do the practices relate? I posed these questions to Alex Chitty -- a biology educator, illustrator, and author of the comic featured here, *the Indomitable Water Bear*:

> I was drawn to scientific illustration because it helped me see. After looking closely at a specimen in order

Small Science Collective

How to be a Proper Host…to a Botfly by J. R. Goldberg, 2007 © the author



Small Science Collective

Snake Legs and Wisdom Teeth by Andrew Yang and Christa Donner, 2008 © the authors

to draw it, I understood it better. I also liked being able to use 'suspension-of-disbelief' strategies because I could draw what the human eye couldn't actually see. For example I could draw both the interior and exterior of a specimen at the same time, or I could take a tiny detail from an initial drawing and draw just that tiny part of it as if we were seeing it under a microscope. Drawing for a graphic narrative takes these suspension-of-disbelief strategies even farther - I am conscious of the facts, but not restricted by them. I can create a character that - though generally still true to form - can stray from the truth and encourage opportunities for viewers to establish a personal connection.

By this account, the graphic narrative form is consistent with the sensibilities of scientific illustration in helping us visualize organisms in ways not otherwise possible, while at the same time extending beyond the usual goals of illustration in terms of what is to be discovered. Rather than simply visually specifying the details of anatomy, the idea is to communicate the possibility of what the organism's behaviors, actions, and (perhaps even in some sense) personality are in terms of how it relates to other species. "If we just need to know what to call an organism, then we never really give ourselves the chance to learn or develop an understanding of it," says Chitty, "It would be a pity if by describing these organisms in order to share knowledge with others, we are actually defining them too concretely and leaving viewers with the feeling that no further investigation is required."

SO YOU'VE REACHED ADULTHOOD...

The final stage in your metamorphosis is accompanied by a number of changes both physically and behaviourally. Although experiencing initial embarassment, new imagines should understand that these changes are a natural part of growing up.

All the energy you have accumulated as either a larva or nymph are now directed toward a new purpose: REPRODUCTION. To this end, safe sex, abstinence and monogamy are strongly discouraged; your imperative is to mate as frequently and as fiercely as possible.

Fortunately, your adult form is likely equipped with one or more reproductive strategies to ensure your success as a sexual competitor. This edition of *Insect Sex Ed* offers a summary of the various types of strategies available for sexually mature males.

1. SPECIALIZED PENIS MORPHOLOGY

Your copulatory organ, or AEDEAGUS, may assume any one of countless possible shapes and sizes while also serving some adaptive funtion (see following pages).

BASIC ANATOMY:

The particular design of your aedeagus is determined by sexual selection, owing either to mate choice (female preference for specific structures), intrasexual competition (with rival males) or intersexual conflict (evolving out of an arms race with the female ovipore).

2. SPERM PRECEDENCE

You may be endowed with a modified aedeagus that allows you to either strategically position your sperm within the female's spermatheca or to physically remove a rival's sperm (obeying the first-in-last-out rule).

Sperm displacement, or STRATIFICATION, would involve replacing previously deposited sperm with your own. Your penis in this case will have a flexible, whip-like form.

REMOVAL can be achieved either directly, by scooping out existing sperm or indirectly, by flushing out a previous ejaculate. Your penis will typically resemble either a hammer or shovel.

small science collective
http://smallsciencezines.blogspot.com
2008 (Alexandra Westrich)

3. PREVENTATIVE MECHANISMS

Other means of ensuring the paternity of your offspring include a prolonged mating period (which may last as long as 10 weeks!) or specialized structures that preempt the interference of potential rivals.

GRAPPLING ORGANS are useful for holding on to your mate to guarantee successful fertilization. Disregard the injury they may cause her; the more relentless your grip, the better.

GENITAL PLUGS are detachable parts that lodge in the spermatheca of females to obstruct access by rival sperm.

4. HYPODERMIC INSEMINATION

This strategy involves piercing the female's abdomen with your genitals and injecting your sperm directly into her abdominal cavity. The practice is believed to have evolved as a means of circumventing female mating resistance.

In some cases, the female has developed PARAGENITALIA. This adaptation reduces the trauma by providing a guide that leads to the mesospermalege, from which the sperm can comfortably migrate to the ovaries.

HIS

HERS

5. NUPTIAL GIFTS

This strategy involves feeding your mate before, during or after copulation. Think of this as a kind of parental investment (if not simply a way to appease your partner).

Nuptial gifts usually come in the form of captured or regurgitated prey items but you may also produce SPERMATOPHYLAX: a gelatinous bolus which, ejected with the spermatophore, functions as a nutritive addition for the female.

6. SEXUAL CANNIBALISM

This type of nuptial gift demands something of a sacrifice: voluntarily giving up your life to the female. Sexual cannibalism is most common among mantises, where the comparatively smaller male is perceived no differently than anything else that moves.

As deviant as it seems, take no shame in this practice. By presenting yourself as a meal (or rather, failing to escape after fertilization), you can effectively maximize both the quantity and quality of your offspring.

Small Science Collective
Ear Wig by Lyra Hill, 2008 © the author

If scientific illustration and its didactic intent risks narrowing the sense of further discovery through its exactness and specificity to form, the proposition is that narrative opens up the possibilities for the viewer and reader to engage in a whole other way. To the extent that it is true for the audience of the graphic narrative, clearly this also seems to be the case for the authors as well. In talking with Chen Dou about her comic *Meeting a Giant Octopus* she commented, "I've always felt as if drawing animals brings me closer to the creatures that share residence on planet…it allows me to place myself in a different world where there is more interaction and understanding between human beings and other species."

It is in this way that the graphic narratives featured here draw a clear line between illustrating the possibilities for understanding animals and our relationships to them more fully on the one hand, and simply caricaturing them anthropomorphically on the other. Arguably, allowing for a more expansive understanding of animals is a unifying quality of the zines and comics that the Small Science Collective seeks to distribute. Given how ubiquitous the tendency is to either fetishize animals as wild and Other or superficially employ their forms for the purpose of decoration or costume, there is a real possibility to create narratives that function as natural histories of a post-Darwinian kind. This allows us to recognize and examine the fundamental (and fundamentally important) continuum that exists between humans, animals, and the totality of nature.

References & Notes

(1) The complete list of Chick cartoon gospel tracts:
http://www.chick.com/catalog/tractlist.asp

(2) "Moving on Up?" full version available at:
http://www.chick.com/reading/tracts/1038/1038_01.asp

(3) "There Go the Dinosaurs?" full version available at:
http://www.chick.com/reading/tracts/1041/1041_01.asp

An example of another anti-evolution Chick tract "Apes, Lies and Ms. Henn" available at:
http://www.chick.com/reading/tracts/1051/1051_01.asp

(4) The Small Science Collective online:
http://smallsciencezines.blogspot.com/

(5) The Green Porno video project of Isabella Rosselini:
http://www.sundancechannel.com/greenporno/

(6) Website of the comic strip *Mark Trail*
http://www.kingfeatures.com/features/comics/mtrail/about.htm

(7) The Encyclopedia of Life Project: http://www.eol.org/

(8) Shapin, Stephen. *The Scientific Revolution*. Chicago: University of Chicago Press, 1998. p.232.

(9) Foucault, Michel. *The Order of Things: An Archaeology of the Human Sciences*. New York: Routledge, 2002. p.448.

Andrew Yang is an Assistant Professor at the School of the Art Institute of Chicago where he teaches classes in biology, as well as the visual culture of science. He received his PhD in Biology from Duke University where he studied the evolutionary ecology of social insects and the philosophy of science. The Small Science Collective project continues to grow among artists, scientists, students and anyone compelled to share their interest in various creatures and features of the natural world. Please feel free to contact us at smallsciencezines@gmail.com.

Antennae

Issue 16– Spring 2011 ISSN 1756-9575

The Illustrated Animal