EarthChild

Language, Power, and Symbolism for a Planet in Crisis

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Algebra

Floating dense ideas I
Spoke in ribbons
Danced the lightstep tangle of a
Formula, a digital parenthesis, a step/

…ellipsis punched our dialogue
Dropped questions
Framed a strung out
Conversation, summed affinity, stalled out.

Violet variables creased tongues
We craved an equals measure
And resolved to make it right.

Foreword

This is a book about family. It is the story of a mother, a child, and a journey far away from home. A story that rises in pre-history with the evolution of a dominant species, travels through time, and leads us back to the beginning. It is a book about lineage, love and loss.

The narrative wanders, catering to paths less well known as well as to old standards. It clambers over ecology's split pole fences, sprints over science creeks and delves into the deep woods of language, myth and magic. It shapeshifts with psychology, plays trills on sociology and dances with desire for better days.

This is also a book about hope in action. Hope based not on the outmoded ways of engaging with our planet, but in a changed relationship that starts with how we see ourselves. Hope that thrusts us forward with possibility, not backward toward an improbable future. Hope that is loud and bold, with a shifted vision for who we are, what we are doing here and how we can take responsibility for our impact on this third rock from the sun.

Chapter 1 Earthstate

Problematic progress

Before we cluster metaphors or contemplate a changing world, let us see where we are right now. This planet, this 'average' chunk of rock on the rim of a nondescript outposted galaxy—what of it? And why does it matter?

All living creatures adapt to and alter the environments in which they live. Plants break down soil as roots reach dumbly to the nearest source of nutrients; rodents burrow into hillsides; elephants strip foliage as they criss-cross the dry grass veldt. Environmental modification can be intentional as well as tangential; tools deliberately employed are not the sole domain of humans. Dolphins, otters, birds such as the woodpecker finch and several species of primate use implements to increase their odds of survival.

Humans, *homo sapiens sapiens*, have changed the Earth far more extensively than any other living organism. There are not enough snowflakes in a blizzard to count all the ways we have chiselled, dug, paved, piled, split, emptied, carved, corralled, hewn, sown or harvested our way to progress. We have built sky-hugging skyscrapers from earthbound ore, pumped rivers of refuse into (what we thought once) endless seas. We have concreted so much of our cities that some of us have forgotten how to run barefoot on grass; we have built shelters underground to shield us from our own belligerent madness. We have conquered diseases that

would have killed millions a century ago and we have tentatively set foot on the Moon.

This is not the place for an in-depth analysis of the pros and cons of global warming or a treatise on the value of a woodchip or a tree. But let us take as a starting point three key assumptions to share on our journey (we'll build the others as we amble down the road):

- The earth is a different place (chemically, materially and atmospherically) than it was 200 years ago

- The Industrial Revolution and attendant acceleration of terrestrial change were a significant shift in the relationship of humans to our habitat

- Some of these changes can be attributed to human activity

There is much less disagreement over *whether* we have changed the planet than *how much* or what the consequences of this have been. As one researcher sums up:

> …the observed warming, especially that recorded over the last 30 years, can only be explained in our models when we consider the effect of rising concentrations of greenhouse gases that are

> influenced by human activities. Although some of the early twentieth-century warming would appear to be related to changing solar activity and although some of the nineteenth-century warming may be the result of natural internal processes in the climate system…the warming experienced since the 1970s can *only* be fully explained by the continuing rise in the concentration of carbon dioxide, methane and other human-related greenhouse gases.
>
> (p. 8, Hume 2002)

Taking that as a starting point, this chapter outlines the assumptions of change to water, soil, and air that have occurred *at least in part* due to human endeavor. It is a broad-brush scientific analysis, using conservative estimates where possible. The point is that improvements to health, technology, and living standards for some have not eliminated global negative consequences that are worsening every year.

Ecologists often refer to the Earth as a closed system. Simply, this means the environment that supports our survival is one big recycling plant. It is a giant game of musical chairs, where water, air, and soil jockey for changes of state, geographical redistribution, and sustainable use. That is where we come in, and where it is time to face the music.

Barring sudden discovery of time travel, science fiction to fact wormholes as transport corridors or a friendly visit from an advanced alien race, we're unlikely to be graced with easy answers any time soon. Just as the oceans, land, and sky renew and reinvent themselves through closed circuits, we'll have to take our chances with what we have already got. In other words, this (for the moment) is all there is. (And for those who'd argue that asteroid mining is just around the corner, offering mineral wealth and possibly new sources of water—point taken. But we're not there yet, and that is only part of a potential technological solution to our planetary woes.) With our raw resource use, manufacturing, population growth, and almost universally accepted market economy, we have skipped blindly into an alley that is dark, dank and potentially dangerous.

Planetary formation & geological timescales

The solar system, and others like it in the universe, began as a spinning gas and dust cloud. Gravitational force, binding agent of galaxies and planetary systems, pulled the center of this solar nebula into itself. As it contracted, the middle of the cloud heated up, flattened and began rotating faster. Picture a pizza chef with a ball of dough on her fist—as she spins the dough, the crust thins and spreads out, with the center remaining thicker than the rest. Continuing to fall in and condense, nebula eventually contains enough consolidated material to become a protosun, surrounded by a much less dense haze of remaining gas and dust. From contraction to protostar in just 100,000 years.

The Earth formed over 4 ½ billion years ago, coalescing out of the inner regions of the solar nebula. Strewn with elements like iron, silicon, and magnesium, this part of the whirling cloud soon became littered with planetesimals and then larger rocky objects called protoplanets. The nebula was worse then an L.A. freeway at rush hour, a swarming, writhing congestion of collisions. Planetesimals bombarded each other, growing like awkward crystals as they stuck together in ever larger clumps.

The four planets closest to the Sun—Mercury, Venus, Earth and Mars—are called the Terrestrial planets. The outer planets, known as 'gas giants,' are also called Jovian planets after their most massive member, Jupiter. Others in that set are Saturn, Uranus and Neptune, all forming from the colder regions of the solar nebula. Length of time from particles to planets? About 100,000,000 years (Freedman & Kaufmann 2002; Beatty, Petersen & Chaikin, 2002).

Since the Earth accreted enough rock to be a planet, it has spun through the cosmos in a flighty dance of geological upheaval. Plate tectonics, massive volcanoes, violent asteroid, and comet rains—these are some of the inorganic forces that molded our planet. And then, the spark of life. Although 'how life began' is an incompletely answered scientific conundrum, 'somehow, at least 3.85 billion years ago, Earth's first self-replicating "biological entity" emerged' (p. 367, Beatty et al 1999). And that changed everything.

The geological time scale outlined in the table on page 6 is divided into eons, eras, periods and epochs (Sterelny 2002, p. 156; Macdougall 1996 p. 4.) These

are convenient labels for distinct time strata through the Earth's lifespan, and are characterized by the evolution of this solar satellite blessed with between 10 and 100 million different species of life at the beginning of the new millennium. An awesome number—but let us take a look at what got us here.

In the Precambrian era, life was simple. Not dull—as Macdougall notes, '…during much of the Protoerozoic…entire continents were forming, colliding, and rifting apart…' (1996, p. 51). While volcanic and tectonic activity plunged ahead with spectacular continental birth, the first signs of something self-organizing and new were probably whisper quiet and almost unnoticeable to an imagined observer on land or in the sky.

Far from 'oceans teeming with life,' the biological foothold on our planet took a long time to establish. The oldest known fossilized lifeforms were bacteria, which lived in the fledgling Earth seas about 3 ½ billion years ago. These organisms—called 'prokaryotes' or 'monerans' (the first a Greek etymology and the second from the Latin)—lacked complex internal cell structure. They were probably the sole living inhabitants of the Earth until about 2 billion years later, when cells called 'eukaryotes' emerged, holding within them many of the same cells structures that appear in life as we know it.

The prokaryotes and the first eukaryotes were all single-celled organisms. It took until the Cambrian period, which started more than 500 million years ago, for life to detonate onto the terrestrial scene in all its eventual glorious diversity. And even that was just the

beginning of a seesaw that we have all been riding since life really picked up the pace on our planet.

The Paleozoic era welcomed trilobites (aka 'horseshoe crabs'), the first fish, land plants…and then it got really interesting. It was a world of coal swamps,

GEOLOGICAL TIME SCALE

Eons	Era	Period	Epoch	Duration
Phanerozoic	Cenozoic	Quaternary	Holocene Pleistocene	100,000 ybp- 2 my- 100,000 ybp
		Tertiary	Pliocene Miocene Oligocene Eocene Paleocene	5-2 mya 24-5 mya 38-24 mya 55-38 mya 65-55 mya
	Mesozoic	Cretaceous Jurassic Triassic		144-65 mya 213-144 mya 246-213 mya
	Paleozoic	Permian Carboniferous Devonian Silurian Ordovician Cambrian		286-248 mya 360-286 mya 408-360 mya 438-408 mya 505-438 mya 590-505 mya
Proterozoic Archean	Precambrian			4.6 bya- 590 mya

bya=billion years ago mya=million years ago bp=before present

land invasion, and noisy whirring insect nights. Amphibians crawled onto the land in the Carboniferous period, reptiles climbed to prominence through the Permian, and then? And then, an ominous silence that

tolls solemn warning to us in the 21st century. Mass extinction:

> It is estimated that between 80 and 90 (!) percent of all species living in the oceans at the end of the Permian period did not make it into the Mesozoic…[and] terrestrial plants and animals… were severely affected.
>
> (Macdougall 1996, p. 131)

Although there is no consensus for the cause of this extinction, it was most likely to two sources of greenhouse gas. As sea levels fell, CO_2 and methane from decomposing marine remains on the continental shelves outgassed into the atmosphere. At the same time, volcanic activity increased markedly, with huge lava eruptions over much of what is now Siberia.

Our resilient planet was far from daunted by this catastrophe. Not to be outdone, the Mesozoic era ushered in animals that today fascinate us in from the fossil to the silver screen: dinosaurs. Beginning almost 250 million years ago, this era included the evolution of birds and flowering plants like the water lily that have changed little since the Cretaceous. The continents rolled on in their slide across the Earth's surface, reaching close to their modern positions by the next global drama. Mass extinction, take two.

Sixty-five million years ago, an asteroid slammed into modern-day Mexico. Known now as the Chicxulub

crater, this chunk of wandering rock was probably about 6-15 kilometers across—but its impact thundered around the world, damning an unsuspecting world into harsh darkness, choking debris, towering tsunamis, acid rain, and firestorms from the blast wave. By the time the dust settled, seventy percent of the Earth's species had faded into history, accounted for in fossils and in reconstructed time.

Almost home now, in the Cenozoic comfort zone. Mammals, savannahs, and the tick-tock of quasi-reliable sediment science from younger seabeds are upon us. This is the age of familiar landscapes, rapid diversification of animals, and the rise of primates.

Although there is considerable debate about the exact markers of modern human evolution, including discrepancies of hundreds of thousands of years, the general trend of biological development is widely supported by evolutionary biologists. And here we trace our nested line.

A Family Tree & Timeline

- Primates (lemurs, 75-50 mya)
  - Higher primates (monkeys, 35-30 mya)
    - Hominoids (apes, 7-5 mya)
      - Hominines (homo habilis, homo erectus and homo sapiens, 2.5-2 mya)
        - Modern human subspecies (*homo sapiens sapiens*, 100,000-60,000 ya*)*

(Adapted from Palmer 2000, p. 17)

Millennium news: Earth at a glance

Having charted the birth of the Solar System and traced the outlines of the rise of life, let us turn our attention to right now: beginning of a new millennium by our choice of calendar, and end of days for some environmental systems that have remained relatively stable for thousands of years. Enter the industrious dominant species, humanity on full throttle.

Changes to soil, water, air, health, and biodiversity are five of the brightest signals of planetary distress. They are lighthouses on rocky coastline, warning us away.

Soil, water, air

Three basics for survival are water, air and soil, and each of these is under attack from climate change.

Soil degradation occurs through erosion, industrial run-off pollution, and salinity. Erosion sweeps fertile soil out through waterways, choking river deltas and washing away the topsoil of arable land. Chemical pollution of soil can make it unsuitable for agriculture.

Salinization is a slightly more complex process. It refers to the increasing salt content of soils, which renders many areas unable to support trees, crops or other plant life. Salinity occurs when the water table in an area rises and salt dissolves into the water as it approaches the surface. This increases concentrations of salt in surface soil. The water table can rise either through excessive irrigation in a heavily farmed area or tree clearing, because trees keep the water table down by storing some of the groundwater. In Australia, the driest

continent on Earth, ‘dryland salinity’ causes about $200 million damage a year (http://www.science.org.au).

Water presents another climate change challenge—access to freshwater, fisheries decline, disappearing atolls, and potentially disastrous sudden shifts in the ‘stable’ global climate system.

Drought prone areas will be increasingly subject to long-term dry periods. Although dire predictions of large cities like Adelaide in South Australia ‘running out of water’ may not eventuate, the prospect of ‘water wars’ in other parts of the world will loom as this resource becomes more scarce.

Already, fish stocks have plummeted due to overfishing and habitat destruction. According to the United Nations Food and Agriculture Organization (FAO), 75% of ocean fisheries are being overfished. Even areas that were thought to be resilient to changes over the longer-term are struggling. According to recent research released about the current ocean state, ‘the North Sea is undergoing "ecological meltdown" as a result of global warming…(s)cientists say that they are witnessing "a collapse in the system", with devastating implications for fisheries and wildlife’ (Sadler and Lean, 2003).

Ever heard of Tebua Terawa and Abanuea? They were the first South Pacific islands documented to ‘disappear beneath the waves’ in 1999 as the sea levels rose. Others have followed, and these latter-day Atlantis analogues are portents of more drastic coastal redrafting to come.

Another theory of climate change postulates that our planet does not move gradually from one state to

another. Instead, much evidence points to discrete 'flip-flops' of temperature that brought on previous ice ages, and the ocean current known as the Gulf Stream as a driving force behind these switches. Burroughs defines the global 'thermohaline circulation' as 'the deep-water circulation of the oceans driven by density contrasts due to variations in salinity and temperature' (2001, p. 290).

Changes to either salt content or temperature influence the worldwide currents. For example, increases in temperature coupled with the influx of freshwater from Arctic melt changes the global ocean circulation and weakens the Gulf Stream.

In our current global climate, the Gulf Stream provides significant warming effects to areas of the North Atlantic coast including the U.K. and Norway. As it weakens (due to increased temperatures and higher glacial melt), it slows. The Gulf Stream becomes a less effective temperature moderator, and this ushers in frigid temperatures and the beginning of the next ice age. Counterintuitive, but a real possibility according to many climatologists:

> In the past, the slowing of the Gulf Stream has been intimately linked with dramatic regional cooling. Just 10,000 years ago, during a climatic cold snap known as the Younger Dryas, the current was severely weakened, causing northern European temperatures to fall by as much as 10 degrees. Ten thousand years before that, at the height of

> the last ice age, when most of the UK was reduced to a frozen wasteland, the Gulf Stream had just two-thirds of the strength it has now
>
> (McGuire, 2003)

These changes occur '…at most on a timescale of a few centuries, sometimes decades, and perhaps even just a few years' (Adams, Maslin and Thomas 1999).

The air

Of all the environmental consequences of our activity on Earth, atmospheric changes are the most well-known and popularly recognized. The hole in the ozone layer and increased greenhouse gas emissions have had the overwhelming proportion of publicity in the areas of climate change, and have been the source of heated debate. Without enumerating all the arguments, suffice to say that industrial processes and population growth contribute to increasing levels of greenhouse gasses in our atmosphere.

Global warming and health

Global warming affects human health in three distinct ways: through agriculture, temperature fluctuations (especially extremes), and indirectly through shifting patterns of disease.

Despite technological leaps, agriculture still depends on patterns of rainfall that can sustain crops or livestock in a relatively predictable way. Climate change shifts patterns of productivity across national boundaries.

For example, extended drought in southern Europe has decreased yields while northern Europe actually expands its agricultural repertoire. Extremes will likely become more common, with drought and flood being chronic states rather than acute events for many places in the world. Drier regions, including some central U.S. states, will suffer continued lack of precipitation while the coasts get soaked.

Although the news is not 'all bad' on the agricultural front—indeed, many parts of the world will become more versatile and productive—the economic and social effects of such shifts are likely to be huge. ('Heatwave's warning for future of farming', *New Scientist*, August 23, 2003).

Extraordinary weather events are always newsworthy—but summer 2003's European heatwave demonstrated how quickly a 'hot spell' could turn deadly. Approximately 35,000 people died as a result of the unusual heat. And, notes a recent *New Scientist* article (October 10, 2003), '[The] World Meteorological Organization estimates that the number of heat-related deaths could double in less than 20 years.'

Finally, a World Health Organization (WHO) reports that about 160,000 people a year are dying of 'indirect' effects of global warming such as disease and malnutrition. Increasing incidences of asthma in urban environments have been linked to atmospheric pollutants and cleaning chemicals, and malaria has returned to endemic levels in areas once deemed relatively safe from the disease.

Consider this element of the equation: the agricultural, meteorological and health consequences are

wreaking havoc in places that contribute least to greenhouse gas emissions, while developed nations like the United States have implemented a 10-year research plan to 'study' the effects of climate change. These effects are being experienced most harshly in developing countries in Africa, Latin America and Southeast Asia, places with the fewest resources to adapt to shifting conditions and the most to lose in this heated debate.

Loss of biodiversity

The World Bank defines biodiversity as 'the variability among living organisms from all sources, including land based and aquatic ecosystems, and the ecosystems of which they are part.' Biodiversity is a crucial ingredient in life on earth, as species evolve to fill ecological niches and adapt to changing environments.

Fundamentally, biodiversity is the poster child for the adage 'variety is the spice of life'—in this case, biodiversity keeps habitats functioning in cycles of birth, reproduction, interaction with other species, and death. Metaphors like 'web of life' refer to biodiversity's importance, noting how the very differences between all life on Earth is what makes it possible in the first place.

As a closed system 'spaceship Earth' contains everything we need to thrive. But as the World Wildlife Fund notes, decreases in biodiversity have critical impacts on our lives:

1. Loss of plant habitat leads to increased erosion and decreased carbon dioxide extraction from the atmosphere—resulting in increased atmospheric temperatures.

2. Loss of the ‘medicine cabinet’ lurking as yet undiscovered in animals and plants—sometimes called the ‘pharmocopeia of the forest’, this includes almost 3000 antibiotics derived from microorganisms.

A third reason to preserve biodiversity on Earth is a psychosocial element. The argument is that humans evolved in the context of their interaction with nature—and that this bond is a crucial part of our mental, physical, and emotional well-being. Studies show that spending time ‘communing’ with nature can decrease stress levels and promote good mental health. Skeptical? Here’s a quick experiment: visualize yourself in a peaceful place that makes you feel calm, relaxed and unhurried. Although everyone’s picture is different, odds are you saw something like a damp forest glade, a whispering creek or a dusky desert at sunrise. When asked to picture ourselves ‘escaping’ our urban lives to feel calmer, most of us head for the woods.

This is not to say that nature is without teeth, often violent and vicious. Nonetheless, it demonstrates how biodiversity and conservation are essential for our physical and emotional well-being.

So what’s the emergency? Although it may be tempting to fall back on the ever popular ‘the jury’s still out’ that dogs much environmental research, this is one arena where a consensus on range of extinctions is finally emerging. In an extended letter to the editor of the prestigious journal *Nature* in January 2004, twenty researchers from seven countries presented evidence of

biodiversity loss. Using a 'mid-range' global warming scenario, they predict that 24% of species on Earth will be 'committed to extinction' by 2050. Two generations from now, a quarter of all living species on our piece of rock will have disappeared as a result of human activity. Even using the 'low end' warming projections, their research shows that 18% of species will be on their way out within fifty years.

Words of wisdom: the power of language

Noting the shifts that have accompanied industrialization and the rise of our global economy, some scientists add another epoch to our recent history. This timeframe, beginning less than 200 years ago, is marked by ice core evidence showing demonstrable increases in the greenhouse gases carbon dioxide and methane. According to a growing chorus of voices, we now live in the *anthropocene*—the epoch of humanity (Crutzen 2002, p. 23.)

At the beginning of the twenty-first century (4.6 billion years later), it is not a case of whether we have changed our world, nor necessary to dwell on what has been lost in our human-spearheaded shipwreck. It is time to salvage what we can.

To jumpstart the Earth out of the precarious passage we sailed into, we need to understand how we the way we talk about our reality reflects, shapes and dominates it. We need to dig up metaphors that have outlived their usefulness and create new ones along our treacherous way. We have explored the picture of a rapidly declining environment—now it is time to examine the thousand words.

The next chapter traces language evolution, identifies the role of language in creating our world, and describes the link between language and power. It examines why how we position ourselves linguistically to our home planet may be the key to turning it all around. Sailing home, to the origins of our linguistic link with the Earth. Prevailing winds? Disaster, unless we change the siren's song.

Chapter 2 Language, Power, & Symbolism

Of hybrids and half-truths

Language development has been a critical feature in human society from its earliest roots. Although there remains much controversy about language evolution, use and impact on culture, language has been part of our shared experience as members of the human family from the beginning.

It is also likely that sophisticated language development grew alongside the 'final' stages in human evolutionary biology. Evidence suggests that Neanderthals and Cro-Magnons (*homo sapiens sapiens* living in Southwestern France) had contact between 35,000-40,000 years ago. From the archeological record, experts extrapolate that Cro-Magnon groups had more flexible communication strategies than their earlier European co-habitants (Palmer 2000). Some anthropologists link this linguistic and cognitive adaptability to survival, and to the eventual supremacy of our species over other hominine contenders.

Although many other species have complex communication systems, human language is the most variable and adaptable. With only thirty to forty speech sounds, we can create unlimited possibilities for communication—combining sounds into words, words into phrases and phrases into seas of meaning (Janson 2002). As with other 'human footprints' on planet Earth, our linguistic impact has been tremendous; it is likely our ancestors used languages with features like ours two thousand generations ago.

The impact of human activity on ocean, sky, and land has been tremendous over the last century and a half. But these physical markers of how far we have come (whether you call it the 'inevitable footprint of progress' or a 'deplorable trail of devastation') are only a small part of the story of how we got here. Language—and specifically the underlying archetype of how our species relates to the planet—plays a critical role in identifying, constraining, and creating our reality. It is both a roadmap and speedtrap, showing us the way and limiting how we perceive the world.

So let us take a shared deep breath and dive headfirst into linguistics and the psychosocial structures that delineate our interaction with the Earth. Together we'll investigate:

- What has language to do with any of this?
- What is the power of language to define and describe our collective experience with the earth?
- Why does language make a difference?
- How has the language we use to describe our relationship to this solar satellite affected our actions towards it?

From the earliest forms of spoken communication down to cutting edge computational linguistics, language has defied attempts to cage it. Structure, discourse, phonemes, origin, comparative study, and sociolinguistics: language shows remarkable discomfort with being tied down and an equally impressive record of being the one that got away. Without definitive, last-word research on what it is, how

it works or why we have it, we make do with sampling a small portion of its impact.

One way to study language is how it relates to our social reality—our shared perceptions of 'how the world works', and the role of communication in that experience.

Many researchers agree that language is a strange hybrid, both medium and outcome of our shared social reality (Clegg 1987; McHoul 1987; McQueen 2001). In other words, the relationship between language and 'social reality' is bilateral. On one hand, the words we use to describe something are the instruments of defining our world. A chair, a tree, a platypus are all named in a given language and we share a general understanding of what these labels point to. Of course, when you read those words you'll see a different chair to mine—but the point is we have a joint recognition of a chair as something to sit in, and a tree with at least some mutually inclusive characteristics such as branches, trunk and leaves. This is language as an outcome, or a reflection of our shared reality. We use language to communicate concepts and to name things in our world.

There is another, more subtle role for language in our lives. This is language as a vehicle for contributing to how we see our world. Language does not just mirror our reality—it shapes it. Consider a recent example from the 'war on terrorism' (itself a forceful turn of phrase.) Describing someone as an 'illegal combatant' conjures up starkly different images from 'freedom fighter.' 'Terrorist', or 'enemy of state'? Whatever your views on the issues at hand, the language to narrate that story demonstrates its impact. Perceptions, reactions and

our worldview hang on how we navigate through minefields of word selection.

The power of language

As we name things, so they become. Labels and language choices are potent symbols not only of how we understand concepts at the time, but in turn affect how we relate to those ideas. One researcher notes:

> Language is the place where actual and possible forms of social organisation and their likely social and political consequences are defined and contested. Yet it is also the place where our sense of ourselves, our subjectivity, is constructed ... (s)ubjectivity is produced in a whole range of discursive practices - economic, social, and political - the meanings of which are a constant site of struggle over power.
>
> (Weedon 1987, p.21)

This densely packed summary of language's role in our lives underscores two critical points. Firstly, language—communication, discourse, conversation, dialogue—is at the crossroads of possibility. It is the arena where we work out our compromises, negotiate relationships, trade, set up families, embark on fearless ventures and envision space shuttles to Mars. Secondly, language is the junction of communication and power—

where words, metaphor, innuendo, implicit agendas, and explicit points of view collide and compete for space in our world understanding.

Weedon and others (Clegg 1987; Ford and Ford 1995) suggest that language can be manipulated. Rather than viewing language as an elusive construct, the 'language is material' perspective argues that shaping and developing changes to language will have significant effects on social reality. If language is both a contributing factor and a reflection of power inequality, then the ability to shift that power by modifying language use is a powerful tool in facilitating social change. Language is at the same time a mirror and a magnifying glass, which reflects and focuses the rays of power in a particular context.

Consider a political campaign—what captures our attention is not always the best policy or the most well-mapped solution. Sometimes, it is a slogan, a few choice words to mold our thinking and reflect the world a candidate may want us all to see.

Advertising can work much the same way, shaping words to entice buyers. The argument is not that we are mindless consumers or slaves to language. In fact, these superficial examples are often cited to claim how ‘aware’ people are about the effect of language on thinking. We all ‘know’ that wearing a particular brand of running shoe will not make us Olympic athletes, or that shampoo is unlikely to improve our dating prospects overnight.

However, these examples of common wisdom about the power of language ignore a more important issue: that our understanding of the impact of words is

barely skin deep. Regardless of how 'media savvy' we may be, our awareness of the way in which language shapes, constrains, and constructs our social world has not extended to the most important domain of all: survival.

Metaphor and symbolism

Just as language mirrors what we have, language can be the site for social change as it modifies how we see ourselves. Language reproduces social relations, but also creates them as it evolves, creating what Fairclough called 'discursive practice' (1992). How we use language can modify how we perceive our place in the world.

The study of language has used many different metaphors to describe it. One recent list includes metaphors for communication as conduit, lens, linkage, performance, symbol, voice, discourse and even genre (Putnam, Phillips & Chapman 1999). Language has also been compared to a thread (McQueen 2002), a funnel, a magnifying glass, a dance, and an instrument.

In the same way, metaphor is the heart of a deeper appreciation for the role of language in defining our relationship with planet Earth. It is not enough just to know that words reflect and shape our reality. We must also come to grips with how long-embedded cultural metaphors, archetypes, and symbols impede our ability to move forward in creating a more sustainable relationship with the planet. We must grapple with the trio of language, power, and symbols for our terrestrial home and recast the foundation of the future on a new vision.

The next leg of our shared journey marks the Earth's place in our psyche. It is a connect-the-dots of planetary perception, that when complete will fix outdated metaphor as key to turning tide. Now language compass, optimistic guide, and friendly currents lead the way.

Chapter 3 Mother Earth/EarthChild

Maternal mode

Humanity's relationship with the planet of its birth has long tended towards the maternal. Mother Earth and Mother Nature are ancient associations that our species has used to describe its link to this rocky outcrop on the edge of a nondescript galaxy in a Universe rife with unknowns.

Language patterns have reinforced this notion and drawn us into seeing the Earth as our parent, from whom we have taken without thought to consequence. 'She' has been our sole source of sustenance; literally, the Earth gave birth to us in the pre-history of rapid development. Therefore it is not surprising that in most languages the Earth is feminine, and the language surrounding the planet is matrifocal. Our expressions, thought patterns, and communication about the planet evolved in parallel with our interaction with it.

The power of these linguistic ideas has been intense. Cultural rites of thanksgiving and sacrifice focused on our ancestors seeing themselves as children of the Earth, dependent for survival on the Mother Nature of protection, provision and support.

As humanity 'progressed' we have moved ever further away from close association with nature. Technology and urbanization have shifted the modern world's attention to manufactured concepts of time, artificial environments, and dislocation from our earthly origins. We have learned to 'control' nature's effect on us by building shelters to withstand the strongest earthquakes, ocean vessels to scale the seas, and rockets to escape our earthbound state.

Like growing children, we are no longer constrained by our mother's limitations on us. We have cast away the rhythms of our parent and substituted our own frenzied drive for dominance. Instead of limited scale wars with each other, we are setting the stakes on planetary meltdown.

Humanity has become an unruly teenager, hell-bent on hormones and glowering with hubris. We are flush with our indestructibility; we are foolish with immortal points of view.

The metaphor of humanity in 21st century adolescence explains the curious mixture of hope and folly, science, and lack of political will that surround our collective response to impending global catastrophe. Procrastination, spurred by a sense of our own eternal youth and founded on a 'live for today' sense of infallibility, means that for many of the species sharing our planet it is already too late. Lions, the great apes, rhinos, tree frogs, and mountains of native species will be gone from the wild by the time a baby born today reaches retirement. Tens of thousands of others will be only a memory long before then. Like a sixteen year-old revving his souped up roadster down an icy highway, it is not a matter of if we crash, but when.

As a sullen teenager in an exuberant funk over newfound power, we have taken full advantage of technology to redefine the Earth on our own terms. But in the rampage of a growth spurt, we have forgotten that with maturity comes responsibility, and with responsibility, self-restraint. In our quest to control nature, we have forgotten to control ourselves.

Our metaphor of earth as parent has remained static while society has bounded into a global, urbanized future. From early rituals of gratitude for Earth Mother's abundance, this way of thinking has solidified into binding patterns that have trapped us into abusing our home. Like a child's relationship with a parent, we have been lulled into thinking she will always be there. There will always be more trees, more ocean, more minerals, more air space, more animals, more fresh water, more soil, more. We have suspended ourselves in the liminal state between child- and adulthood, milking the adolescent energy and drive to propel us further into the abyss. We are no longer playful, harmless children—we are a direct threat to our parent's survival, and by extension to our own.

Parenting a planet

Many environmentalists decry the abuse that the earth suffers at the hands of industrial and post-industrial cultures. They call for a return to more integrated ways of being with the earth typical of some pre-industrial societies. These voices for a return to an idealized version of sustainable living entreat us to respect our mothers and return to idyll times.

But these arguments for 'respecting Mother Earth' hinge on ways of life that for many of us are no longer relevant. Extended families sharing homes, immediate livelihood linked to the land, and seasonal shifts in our life patterns no longer figure in our mindscape. The ties that bind are still there—but to those of us who live our lives on commuter trains and in

high-rises and air-conditioned cars, the strings holding us to the Earth are barely even perceptible.

Therefore the solution lies elsewhere. It is time for a new metaphor—instead of trying to retie the apron strings, let us cut them completely. Instead of trying to crawl back into the womb of Mother Earth, let us abandon our carefree youth for a chance to parent the planet. We can join forces to give birth to an EarthChild, and nurture it as it supported us through countless millennia of transformation. Grow up, own up, make amends and tend to our planet with the care, attention and love it deserves.

Language matters

People argue for change. Whether advocating more efficient energy use, shifts away from consumer culture, revamped international development schemes or an overthrow of our current oligarchic political systems, most prescriptions for change are predicated on modifying behavior. They tell us what to do—what to eat, what/whether to buy, whom to vote for.

All of these may be important components of a brave new world, but anyone who has ever tried to change their actions without changing their outlook first knows that this is a recipe for failure. We need a change of mindset—and that comes through understanding where we have been, where we are now and how we can nudge our collective relationship with this floating home

It is easy to see how using language to reframe our understanding of the human/Earth relationship can be an effective tool for change. The earth was our mother once. Over the eons of planetary formation,

atmospheric settling, ocean building, and then in the appearance of life, she has been the center of our development. Today, we must change our ways of speaking and thinking about home. The earth is our child, and we are its mothers and fathers.

Metaphor makes a difference because it is more than a convenient symbol to rethink the Earth's position in our human world. Language is power—it has direct, immediate bearing on how we see ourselves as individuals and collectively in the face of certain disaster. In our 'modern' world of cell phones, business lunches, stock market watches, and general hurry to go nowhere fast we may discount the magic of images, associations, myths, and archetypes. We may scoff at the idea that words shape reality; we may rush through the day without thought to what molds how we see.

To reclaim that space, take a moment of silence. Take three steps back from your 'now' life—the TV, the carpool, the job. Watch a beetle crawl to safety in the gutter, trace a butterfly's trajectory from a rose, hold your palm up to a leaf and dream the oxygen from chlorophyll and light. In those cupped seconds of solitude, ask yourself just what connection with our planet really means.

As the Earth protected us from obscurity while we stumbled to our evolutionary feet, so we can return the gift by holding *terra firma's* hand to cross the road. From Mother Earth to EarthChild, metamorphosis and choice. Language, power, and symbolism to carry planet out from crisis to brave new world.

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