

The Energy Ghost in John Updike's "Packed Earth, Churchgoing, A Dying Cat, A Traded Car" (1961)

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Summary

From an ecocritical and cultural point of view, there is merit in taking a look at one major and defining aspect of American life, the automobile, through the eyes of John Updike (1932-2009), who was sensitive ---in a way that lends itself well to interdisciplinary study---to the many material, social and psychological connections to the world that automobiles sponsor, imply and necessitate. Updike's interest in finding or showing the hidden connections between things has an interesting parallel in ecology and in the interdisciplinary approach of ecocriticism, which is a latecomer to the stage of literary criticism and cultural studies, but one which affirms the value of examining "the interconnections between nature and culture" (Oppermann 1999:7) and starts with Barry Commoner's First Law of Ecology: "Everything is connected to everything else" as a general guiding principle. (Ecocriticism is therefore often interdisciplinary, and makes use of the connections between previously separate modes of thought.) Updike seems to have broadly analyzed and considered the "semantic structures" (the ideas, values, beliefs, and other forms of knowledge generated by social systems) which reinforced positive notions of automobile ownership in post-WWII America, and he shows in his work a willingness to question the unspoken assumption that the car was always a good thing.

As U.S. society aimed to make the landscape more comfortable and convenient for the car (car sales doubled between 1945 and 1955) while also encouraging citizens to purchase consumer goods of all kinds, the focus was on material rewards. But this gnawing unthinking materialism had a material, physical starting point, a startling geological gift of billions of barrels of oil, mundane no doubt, but there. With respect to cars (and the fuel that runs them), I will show that Updike

here too wanted to show connections that abound beneath the surface. In this sense, what was real about cars, and the fuel that runs them, is a scientific story and an economic one.

Updike himself termed his long short story "Packed Earth, Churchgoing, A Dead Cat, A Traded Car" (1961) a "farraginous narrative" ---(it consists of four loosely connected vignettes) that contains "a good deal of conscious art" in the interweaving of themes that "had long been present to me: paternity and death, earth and faith and cars." Through an ecocritical analysis (that is, one informed by awareness of ecological and social connections) of this 40-year old story, it is now possible to understand that the narrator's implied and delicately framed cautionary stance vis a vis the powerful American cars and monumental highway construction projects displayed discreetly in the text was an attempt by Updike to reveal his own scientifically-literate awareness of a fragile system that was using depleting fossil fuels to generate unsustainable economic growth. (The geology of a place or what resources are available, therefore may help to generate the ideas, values and beliefs (the "semantic structures") which residents of that place may hold.) Updike's story also shows a sensitivity to human connections to their machines and story challenges us to honestly examine our psychological and social links to these machines as well.

*"The western world has cast its lot with the auto as the answer to all things. Where the (economists') lie exists is the failure to honestly calculate and carry the costs forward to the auto users. If the total costs of orienting our society around the car were honestly directed toward the users, rather than being stealthily removed to whatever "commons" can be found, there never would have been an auto industry in the first place. This is because too few would have voluntarily accepted these costs to allow a mass production industry to develop".—'Steve from Virginia', blogger on *The Oil Drum*, a peak oil website dedicated to "discussions about energy and our future".*

"Migikata—agari...."---Japanese idiom (literally, when the right shoulder goes up, then the left shoulder goes down later, or "what goes up comes back down").

I. Introduction

In Updike's own words on writing about sex, he called for a complete picture: "About sex in general, by all means, let's have it in fiction, as detailed as needs be, but real, real in its social and psychological connections. Let's... put it on the continuum of human behavior." (Hunt 210) The word "continuum" here may provide a clue to his outlook as a writer about more than just sexual matters. Perhaps the tendency to look for connections and context was something that began when he was still a child: his family, Updike has said, was inclined "to examine everything for God's fingerprints" (Johnston 1977:5).

Updike's interest in finding or showing the hidden connections between things has an interesting parallel in ecology and in the interdisciplinary approach of ecocriticism, which is a latecomer to the stage of literary criticism and cultural studies, but one which affirms the value of examining "the interconnections between nature and culture" (Oppermann 1999:7) and starts with Barry Commoner's First Law of Ecology: "Everything is connected to everything else" (Rueckert qtd in Oppermann 1999:7) as a general guiding principle. (Ecocriticism is therefore often interdisciplinary, and makes use of the connections between previously separate modes of thought.) From an ecocritical point of view, there is merit in taking a look at one major and defining aspect of American life, (not sex, but another love affair instead), the automobile, through the eyes of John Updike (1932-2009), who was sensitive ---in a way that lends itself well to interdisciplinary study---to the many material, social and psychological connections to the world that automobiles sponsor, imply and necessitate. Moreover, he was ahead of his time and in some of his earliest work, from the late 1950s, he saw the interconnections linking human beings to cars and to the larger world and the cosmos that many missed apprehending until much more recently. That is to say that Updike clearly showed in his work that he understood that the automobile, despite its bravely discrete appearance, a machine with a driver seemingly alone on the road, is part of a larger whole, a continuum in time and space.

Many things may engage an artist's attention. In Updike's case, the system he lived and worked in, perhaps because he saw it as fragile and at risk, simply because its connections to other things were not well understood or were glossed over superficially, drew him to examine it and portray its flaws, its assumptions, and its blind spots. For instance, in a description of what spirit guided his writing efforts, Updike once said. "I have from the start been wary of the fake, the automatic" (Hunt 1980:214) . We must place Updike's statement side-by-side with the recent analysis of an American historian:

In the new consumer agenda of the 1950s the essential 'goodness' of automobile ownership went unquestioned. Automobile ownership was still the blessing that both best symbolized and facilitated much of what Americans called 'the good life'. In the generation after 1945 Americans began to define full personhood as requiring ready individual access to an automobile (McCarthy 2007:152) (emphasis mine).

Assumptions that go "*unquestioned*", the "*automatic*", the "*fake*".....all these may be a starting point to analyze some works of Updike's which are centered around cars and car ownership.

Updike seems to have broadly analyzed and considered the "semantic structures"¹ which reinforced positive notions of automobile ownership, and he shows in his work a willingness to question the unspoken assumption that the car was always a good thing. For example, Updike's best-known hero Harry "Rabbit" Angstrom (the word "angst" seems intentional) is a Toyota dealer. But Rabbit makes many sorry errors, and is also a kind of anti-hero. Rabbit is "the high school athlete who finds adult life an anti-climax after his achievements in adolescence" (Hamilton 1970:137). Like America, as it settled into a not-quite satisfying maturity of post-war prosperity in the 1950s and onwards, Harry Angstrom finds his glory days in the past. As U.S. society aimed to make the landscape more comfortable and convenient for the car (car sales doubled between 1945 and 1955) while also encouraging citizens to purchase consumer goods of all kinds, the focus was on material rewards.

But this gnawing unthinking materialism had a material, physical starting point, a startling geological gift of billions of barrels of oil, mundane no doubt, but there. With respect to cars (and the fuel that runs them), I will show that Updike here too wanted to show connections that abound beneath the surface. In this sense, what was real about cars, and the fuel that runs them, is a scientific story and an economic one. Also, there is another "continuum": the whole history of man's relationship with the car has a shape and reasons for its beginning (it is also necessary to think of what follows both *after* the beginning and from this beginning). Through his art, Updike wants us to get a sense of this man-car relationship *in a broader continuum*, and bring a fuller understanding of all the factors that entangle people in car-dependency in so many ways.

The focus on cars, car-dependency and the United States has a particular urgency at the moment. Now as I write this in 2010, US automakers---two of whom were on the brink of

1 In Fritjof Capra's definition, semantic structures are "the ideas, values, beliefs, and other forms of knowledge generated by social systems" (Capra 91).

bankruptcy last year---are holding their collective breath to see if the US car fleet will shrink again this year as it did last year, by 4 million cars (the fleet shrinking means that sales of new cars are outnumbered by the scrapping of old cars). "This shrinkage of nearly 2 percent is without precedent, except in wartime", said Lester Brown (NYT 1/2010). The reduction, though historic, passed without much other comment or reflection on the underlying structural causes. What sort of less obvious connections between cars and the unseen "system" that is our planet and our cosmos might we be missing here? Perhaps Updike's art can provide a clue.

The United States has the most cars of any country in the world (about 250 million) and the most cars (765) per 1000 people. What happens to cars from now in the United States, with world's largest, most expensive highway system and the most car-dependent infrastructure (one result of this highway system), is significant and brings consequences of every kind: political, economic, and environmental. Considering the American so-called "love affair" with the automobile from the viewpoint of one American artist, John Updike, "the most distinguished writer of his generation"², whose career spanned the post-war economic boom, and who often wrote about life in the (automobile-dependent) American suburbs may bring clarity to the unfolding economic situation.

Also, Updike should receive overdue and belated recognition for bringing to his work a fundamental understanding of science (not merely as decoration or to provide atmosphere), especially physics: his story "The Orphaned Swimming Pool" (published in 1969) begins, "Marriages, like chemical unions, release upon dissolution packets of the energy locked up in their bonding" (Updike 2003:442); elsewhere, he talks about, "art... (as)... a kind of refutation of the conservation of matter" (Hunt 1980: 214) ; in one speech, said that "Reality is----chemically, atomically, biologically----a fabric of microscopic accuracies" (Hunt 1980:49); and in another speech, "Energy ebbs as we live...almost alone the writer can reap profit from his loss" (Hunt 1980: 103). It is probable that a writer who has such a precise scientific vocabulary, as well as the ability to aptly compare artistic notions to scientific terms may also excel at artistically revealing the many connections in the world (including scientific or material ones) which we find ourselves swayed by and entangled in, particularly as these apply to the automobile.

2 The cover of George Hunt's book *John Updike and the three great secret things: Sex, Religion, and Art* (Grand Rapids Michigan; Eerdmans Publishing Co., 1980) features this quote by John Cheever, another famous American writer.

II. "Packed Earth, Churchgoing, A Dying Cat, A Traded Car"

The Hamiltons see Updike's very long short story, "Packed Dirt, Churchgoing, A Dying Cat, A Traded Car" (which Updike originally published in *The New Yorker* in 1961) as the "most personal of all the Olinger stories" (Hamilton 1970: 93). "David Kern" is the narrator's name and "David" is the name that the Updikes gave to their first son (Hamilton 1970: 93). Also the name "kern", the Hamiltons assert, is a reference to a kernel, the heart of something, and also a biblical allusion (from I Corinthians, where St. Paul says a "bare kernel" will not come to life unless it dies) to death and rebirth. (Hamilton 1970: 93). The second sentence of the story begins with the word that hints most of autobiography "I" (in "I, David Kern"), and this story is the second-to-last of Updike's first series of professional efforts, the Olinger stories. So it occupies a special place in his work, a last personal look back at his youth and where he had come from. Updike himself termed this story (with four parts, one for each of the parts of the title) a "farraginous narrative" that contains "a good deal of conscious art" in the interweaving of themes that "had long been present to me: paternity and death, earth and faith and cars." (my emphasis) (Bloom 2001: 93).³

Critics such as the Hamiltons have examined the religious and spiritual themes of death and rebirth in this story, but Updike's ideas about "earth" (by this term, I think he means the environment or nature) and "cars" in this work have not been explored in detail. Robert K. Johnston, writing in *The Christian Century* thirty years ago, describes Updike as "an enigma" (Johnston 1977:1) and goes on to write that "(Updike) is accurate in his portrayal of secularity as an indisputable fact of contemporary American life. Secularism takes a variety of forms in America, but perhaps none is as widespread as is our commitment as a people to technology and the machine...Updike is as perceptive a commentator on this fact as any..." (Johnston 1977: 7) . But what critics have not grasped---and maybe this is why Updike remains an enigma to this day---is that Updike himself did not find the physics of the system he lived in an enigma--he wasn't puzzled by the mass popularity of cars, TV dinners, suburban living arrangements or the "artificiality and superficiality" (Johnston 1977:3) that he saw everywhere; several of his stories, including the one I will discuss here, clearly show that he understood how oil, a finite resource, makes an industrial economy grow and go, but just not forever⁴. Updike implicitly turns to thermodynamics, the "science of relations between heat and other forms of energy" (OED)

3 The Bloom book contains an excerpt from a book called *John Updike: A Study of the Short Fiction* (NY,NY: Twayne Publishers, 1993) p. 40, 41-42 by Robert M. Luscher, where this undocumented quote from Updike is wholly taken from.

4 See my article "Updike's Hidden Warning for an Unsustainable American Society" *Tsukuba University Area Studies Journal* (March 2005)

to clarify the basic relationships and principles that are important. In this story, he links cars together with energy in a substantive way. He also draws distinctions between different kinds of energy: solar and petroleum. This story demonstrates that Updike had more than just passing familiarity with physics and economics. Therefore, an interdisciplinary critical effort shall be attempted here, in order to spell out in detail what Updike meant to artistically portray. Updike used this story to demonstrate the internal inconsistencies---the weakest points---embedded in the structure of the oil-based economic system he lived and worked in. In this sense, this story, whose loosely grouped vignettes are more firmly connected thematically by all the cars that only seem to appear incidentally in it, tries to ask the reader to connect the cars (and the reader's own cars) to the threads of the story and the outside world mirrored in the story. In that sense, the story gives off the whiff of reality. Connections are there but they are hidden or obscured or unlabeled or below the surface. As a result, the story may indeed seem enigmatic to the reader who does not understand some of the science involved. This story then challenges its readers to recognize or grasp some of the scientific principles which lie at the core of the situation.

III. "Packed Earth"---the first of the four vignettes

In the first of the four parts, "Packed Earth", the narrator David Kern, declares his admiration of "bare earth that has been smoothed and packed firm by the passage of human feet" (Updike 2003: 102). He adds, "such spots abound in small towns" (2003:102), and mentions parks and playgrounds as places to see such areas. David Kern goes on to explain that "The corner where I now live was recently widened so that the cars going back and forth to the summer colony on the Point would not be troubled to slow down" (Updike 2003:102). The seeming intention of his story is to explain that after the bulldozers demolished his neighbor's house to make room for the wider road, a dirt path appeared over an embankment of earth. The pervasive climate of economic growth bringing destruction of the old, followed by massive construction and even more speed, is captured as seemingly incidental.

Kern then tells about his young son, "a boy not yet two" who is terrified of the bulldozers and "followed (him) through the house wailing 'sheen! 'sheen!". This behavior seems like a typical childish reaction, and we imagine that we are supposed to laugh. But Kern then adds, "(The bulldozers) mashed my neighbor's foundation stones into the earth and trimmed the leveled lot just as my grandmother used to trim the excess dough from the edge of the pie plate" (Updike 2003: 102). Now, suddenly seeing things eye-level from a child's own point of view (David Kern as a child himself, watching his grandmother), we feel no longer like laughing. David Kern, the child, had a secure world, a farming background, a peaceful country existence with handmade food, and a slower pace of existence, while Kerns' child seems not to enjoy this security and peace. Could

the booming expansion possibly have been bringing problems? The vignette ends:

We in America have from the beginning been cleaving and baring the earth, attacking, reforming the immensity of nature we were given. We have explored, on behalf of all mankind, this paradox: the more matter is outwardly mastered, the more it overwhelms us in our hearts. Evidence----gaping right-of-ways, acres mercilessly scraped, bleeding mountains of muddy fill---surrounds us of a war that is incapable of ceasing, and it is good to know that now there are enough of us to exert a counter-force. If craters were to appear in our landscape tomorrow, the next day there would be usable paths threading down the blasted sides. As our sense of God's forested legacy to us dwindles, there grows, in those worn, rubbed, and patted patches, a sense of human legacy----like those feet of statues of saints which have lost their toes to centuries of kisses.(Updike 2003: 103)

Updike doesn't use the words " U.S. Interstate Highway System" in the story, but the above passage contains phrases ("gaping right-of-ways, acres mercilessly scraped, bleeding mountains of muddy fill") that surely bring to mind this momentous public works project, the biggest and most expensive one in the history of the world (Kunstler 1993: 107). In 1961, as Updike wrote this story, this huge project had been underway for only 6 years (it was completed by 1992). But Updike's passage also refers back farther in U.S. history ("from the beginning") still. Colonists from England had brought their own cultural ideas about life and used these ideas to guide the designs of their settlements.

As Updike's prose implies by leaping from "from the beginning" to "gaping right-of-ways" (surely the Puritans didn't scrape acres and make gaping right-of-ways), it is hard to explain how and why such an enormous highway project came to be built--each step that led up to it seems only to lead to the step before that--the invention of cars, the discovery of oil, the Industrial Revolution, the use of coal, etc. Two questions come to mind from the huge chronological gap in the passage above. First, does Updike provide any clues or commentary (in this story) on the answer to where we find the root cause of this monumental public works project? And second, does Updike somehow wish to issue other commentary on the US Interstate Highway system--or resulting automobile dependence---- in this story, by hinting of its existence in the "gaping rights-of-way" passage?

IV. The Interstate Highway System

James Howard Kunstler sees the Interstate Highway Act of 1956 as essentially an "economic pump-primer" (Kunstler 1993:106). America was experiencing limits to growth in that its existing roadways were consistently full and its infrastructure "could not accept ever-greater volumes of traffic if the build-out continued apace. But if the build-out stopped, the whole economy would nose-dive again, since it now was the economy." (Kunstler 1993:106) A new highway system would beat those limits a while longer. In Kunstler's argument, the Interstate Highway System is one of the major tragedies of the American landscape and was built purely out of greed and shortsightedness:

The new superhighways created tremendous opportunities for land development in the remote hinterlands of big cities. An unthinkable long commute on old country roads now seemed reasonable on the freeway. So up went more raised ranches and new split-levels. Each of the thousands of new highway interchanges begged for commercial exploitation. Up went shopping strips and new 'convenience' stores. The great suburban build-out generated huge volumes of business. The farther apart things spread, the more cars were needed to link up the separate things, the more asphalt and cement were needed for roads, bridges, and parking lots, the more copper for electric cables, et cetera.....Certainly many Americans became wealthy selling these things, while many more enjoyed good steady pay manufacturing themthe end product of all this furious commerce for-its-own-sake was a trashy and preposterous human habitat with no future. (Kunstler 1993: 107)

Kunstler has a point, but he fails to recognize that all sorts of human innovations in technology and energy use have been essentially, in one way or another, resolvers of problematic economic issues. Such basic innovations as fire, agriculture, metallurgy, electricity, and mining have all been adopted because they seem to help materially, bringing advantages and helping populations who used them to succeed. In *The Collapse of Complex Societies*, Joseph Tainter states that "human societies are problem-solving organizations" and posits that this concept is also one (out of four in total) which underpins the basic understanding of collapse. (Tainter 1988: 194) Tainter further explains that;

Leaders, parties, and governments need constantly to establish and maintain legitimacy. This effort must have a genuine material basis, which means that some level of responsiveness to a support population is necessary. Maintenance of

legitimacy or investment in coercion require constant mobilization of resources.
(Tainter 1988: 193)

Nevertheless, the ways to beat limits to growth and engage in problem solving (bringing more material benefits would be at least temporarily solving the unpleasant problem of facing the limits to growth) are often particular to one country, due to special circumstances such as the availability of unique resources, or unique geological or geographical features. For example, *In Coal: A Human History*, Barbara Freese gives England's vast coal reserves the credit for making that country a vast global empire:

There is one truth that was more widely understood in the past than it is today--the critical importance of coal in shaping the fate of nations, and of the world as a whole. Coal transport had lured the British to the sea, promoting the nation's growth from a small rural nation into a world-class commercial power...Thanks to coal, London grew into a metropolis large enough to become a vital center of commerce and cultural achievement. With an economic, military, and cultural influence far out of proportion to its size, this tiny nation began building a global empire of unprecedented reach, defeating native populations and European rivals such as France and Spain----nations with far more land and people, but far less coal.
(Freese 2003:233-234)

The American situation with respect to energy resources was even much more favorable than the British one. Americans had been blessed not only with vast forests (an "astonishing wealth of wood" (Freese 2003: 105)), which were used for fuel and charcoal, but also vast coal reserves ("a coal field half the size of Europe lying beneath the eastern American forest" (Freese 2003: 105)). To then also be in possession of some of the most immense petroleum reserves in the world surely must have contributed to the feeling that America had been specially selected for divine favor or, "a special destiny" (Freese 2003: 105).

"Among the nations that had started down the path of industrialization in the nineteenth century", writes Kunstler, "America was by far the best endowed with oil." (Kunstler LE 2005: 39). But what does this mean in quantifiable terms? "Cumulative US production has already exceeded 200 billion barrels and significant reserves still remain" explains Adam Brandt, of the Department of Energy Resources Engineering at Stanford University (Brandt 2010: 3966). This information can be placed alongside the data for total ultimately recoverable reserves of petroleum for the world, available in Kenneth Deffeyes' 2003 book *Hubbert's Peak: The Impending World Oil Shortage*. Deffeyes, a Professor Emeritus of Geology at Princeton University forecasts ultimate

cumulative world oil production to total around 2 trillion barrels (Deffeyes 2003: 157). (He sees U.S. ultimately recoverable reserves as 220 billion barrels (2003: 154), in line with Brandt's estimate). We can therefore calculate that the geological oil formations on territory of the United States either have contained or do contain about one-tenth of all the oil ever available in the world. America's population is only about 5% of the total of the world's. Therefore U.S. per capita oil endowment (although it is now largely consumed) has been very generous by comparison with many other countries. This out-sized endowment shaped the industrializing process by giving the U.S. a leading role:

The United States was the first industrial nation to find and exploit oil in commercial quantities, and the first to make widespread application of oil in primary manufacturing, transportation, and consumer products---indeed to elaborate the whole system of a modern consumer economy. The automobile industry and all its interrelated enterprises started in the United States. The plastics and synthetic fiber industries were born here, using oil as the feedstock. During the hundred-plus-year run of the world economy, the United States has never ceased to be the world's leading consumer of oil". (Kunstler LE 2005: 39)

In her chapter on the history of coal in America, Barbara Freese writes "in Britain it had taken centuries for areas to go from forested wilderness to industrial metropolis. Pittsburgh, like so much of what would become the United States, would experience that history in a concentrated form, propelled in no small part by the concentrated energy beneath its hills." (Freese 2003: 107). In other words, over time, people became adept at adapting technology to make use of energy supplies more quickly. Furthermore, developing coal reserves brought people the technology and knowledge they needed to make use of oil:

...coal gave us the technological and industrial base we needed to exploit these (i.e. oil and natural gas) harder to find, harder to move, and harder to control fuels. It provided, for example, the cheap iron and steel we needed for drills, pumps, tankers, railways, and pipelines." (Freese 2003: 234-5)

I would like to suggest that it was this immense American largess of energy in **sequential availability**, first wood forests, then coal, then oil (and also natural gas) that shaped a quintessentially American idea of "progress" that made using ever more energy ---as fast as technologically possible---seem like a magical and winning strategy which it would be possible to engage in forever. Making energy transitions as quickly and smoothly as new technology could

be developed brought wealth as long as energy was available to support the new technology. In America, for a long time, no matter how much energy seemed to be withdrawn from nature and used to sustain and support human life, more, ever more plentiful quantities (in different forms) appeared, like waves on the ocean, and needed only a new technology, such as the steam engine, or the automobile, to harness their power. These energy resources, so powerful but ultimately from nature, are what Updike alludes to in part in the above passage when he mentions "the immensity of nature we were given".

However, Updike pointedly does not use the word "energy" in this story. In the same way that cars in this story often seem incidental or casual, the word "energy" is a sort of *presence manqué*, making its existence in the story known artfully and specifically when Updike uses the scientific word "matter". Following Albert Einstein's famous 1926 equation $E=mc^2$, the words "mass"/"matter" and "energy" would be forever linked. And so Updike's use of the word "matter" ("..the more matter is outwardly mastered"...) is therefore also an oblique and scientific ---and secretive---reference to energy.

In Updike's passage, the earth torn apart by bulldozers is "evidence of a war incapable of ceasing" (Updike 2003: 103). The passage implies that populations where resources are located may simply have no choice ultimately about whether or not to deploy these resources. Early records from England show misgivings about burning coal because of the noxious coal smoke and failed attempts to ban coal because of pollution (Freese 2003: 25-26). Likewise, automobiles' reliance on *nonrenewable* petroleum at the beginning of the Auto Age (in the early 1900s) prompted some Americans to try to introduce a (grain) ethanol standard for auto fuel instead. (McCarthy 2007: 18-20). In both cases, people who stood most to benefit from the cost advantages of coal (over expensive scarce wood) and lower cost gasoline (over ethanol), and also producers of the coal and oil, respectively, together acted to form a coherent market that could withstand the political pressure against them until the respective use of coal/oil became so widespread----and dependence on them so structurally intertwined with the rest of the economy, including subsequently much larger populations in part supported by the economic growth provided by the new energy sources----that to stop using them for any reason became simply unthinkable.

That the same phenomenon occurred twice (perhaps there are other examples in history) should point to something vital about energy. It is something we need in a steady flow; it is something that enables us to stay alive, that also may determine the course of history, and the expectations of citizens, as empires are built and then crumble as the available energy becomes depleted or inadequate to maintain the complex social structure that has been developed.

The issues are structural and systemic: Updike, with his idea of showing an idea along "a continuum" as it relates to other ideas, or Barry Commoner's First Law of Ecology ("Everything

is connected to everything else”) both point to a concept of a larger system with many interconnected parts. The most critical idea about a system is what maintains its pattern, what is most important for it to maintain its shape? Ecologist Charles Hall writes “In the absence of a continual input of energy the highly ordered molecules within an ecosystem will, over time, degrade into completely random assemblages” (Hall 2006:9). Hall explains that an ecosystem and an economy both share this need for energy because they have similar functions: production (photosynthesis), consumption (respiration) and transfer of nutrients (goods). (Hall 2006: 9).

Why is energy so important to living organisms (like humans, animals, plants, etc) and also to non-living systems (like hurricanes and solar systems)? Because energy is defined in physics as “*the capacity to do work*” and work is a “*means of transferring energy into coherent action*”, whether it’s on an atomic level, a cellular level, in a car’s engine, a grasshopper jumping or a human walking. Fossil fuels are a gradient developed by sun’s light striking the photosynthesizing cells of plants:

Flowing through complex systems, energy forms the basis for trapping and cycling of materials in economies, which reduce both natural gradients, such as the redox gradient between fossil fuels and oxygen, and “synthetic” gradients such as price differentials. (Schneider and Sagan 2005: 279)

The price differentials allowed oil (present in the US in the early 1900s in huge quantities, not so deep since it was still a relatively undeveloped resource) to be much cheaper than grain ethanol, which would require human and horse labor (or if a tractor was used, then it would have required more oil). Viewing organisms, including humans, as part of a thermodynamic system allows us to understand why coal and oil would have been so attractive, so natural to use. We are always on the lookout for energy: we have been valuing it, craving it, and consuming it since before we evolved into humans:

The universe is a complex place, and its most common and its most interesting systems, including those of life, are open systems. Seal them up, imprison them, and they collapse. We (humans) are a particular material pattern of energy flow with a long history and a natural function. Our essential nature has more to do with the cosmos and its laws than with Rome (or any other human society) and its rules. (Schneider and Sagan, 2005: xii)

Sagan and Schneider investigate the similarity between living and non-living NET (Nonequilibrium Thermodynamic) systems in their responses to energy. Dissipating energy is one of the ways the second law of thermodynamics⁵ (also called “the Entropy Law”) is expressed:

Like other NET systems, life's complexity is a natural outgrowth of the thermodynamic gradient reduction implicit in the second law: where and when possible, organizations come cycling into being to dissipate entropy as heat. Gradients, such as that between the sun and space, may be huge, and draining them may take literally eons. Nonetheless, the complex systems that come swirling into being near gradients are natural. Although they may sometimes seem to be organized by an outside force, no "agent deliberating" as Aristotle put it over 20 centuries ago, is needed. (Schneider and Sagan, 2005: xvii)

In another passage they write;

"organisms struggle not only for food and habitat, but for the energy that drives their material organization—their metabolism, reproduction, and expansion. Populations grow to take advantage of energy sources, enlarging flow regimes." (2005: 147)

The Interstate Highway System was a potent way—no doubt the most effective short-term way—to quickly enlarge the petroleum energy flow regime of the United States. The automobile had done the initial work in this regard. (Certainly once automobiles began to be sold and produced, more petroleum was needed than when the oil market was limited to kerosene for lamps.) Road construction for cars had enabled the process of expansion of the petroleum energy regime to continue. The Interstate Highway System took the concept of an "enlarged flow regime" to a whole new level, but at a shockingly high price, to be paid by future generations: suburban sprawl, environmental degradation, automobile dependence, reliance on foreign oil when America's supplies faltered, and ultimately the obsolescence of the U.S. highway system when foreign sources of oil also would come up short one day. Updike uses this story to characterize, in artistic, visceral fashion the drawbacks of automobile dependence.

Updike's readers, mostly Americans, were dependent on the system, but also some perceptive ones might have also felt *in thrall* to it (they might have resented or disliked the advantages it provided (even though they earned a living through these) because they disapproved of the environmental costs it exacted). Updike alludes to these misgivings when he writes, "we have explored, on behalf of all mankind, this paradox: the more matter is outwardly mastered, the

5 The Second Law of Thermodynamics states that in a system, a process that occurs will tend to increase the total entropy of the universe.

more it overwhelms us in our hearts.” (Updike 2003:103). The point is that the energy will be dissipated---the Second Law of Thermodynamics guarantees this on a universal level. But when the amounts of energy are very huge, the disruption of the landscape is very mighty, also, and this is not the easiest process for a citizen who loves the natural landscape to watch: the heart is overwhelmed. “(K)eeping in mind some sense of transaction, of a bargain struck, between me and the ideal reader”, is how Updike explained one of his goals as a writer (Hunt 1980:214). The artist has a mission to contribute in some way to the reader’s emotional understanding or “human knowledge” (Updike 2003: xii) of the world. The passages from Schneider and Sagan’s book on physics, although they explain the process in a straightforward way, do not ‘give’ what Updike’s story can give an American reader of 1960 whose road is being widened to make way for much larger traffic flows. The science behind the Entropy Law is ineluctable. But to explain the human implications of this ineluctability---broadly, completely, sensitively, in a nuanced way, at a particular time and place (but with scientific attention to the past and future) is a task for an artist.

V. “Churchgoing”

The second vignette of the story is entitled “Churchgoing”. The word “car” appears only once: “We would arrive in our old car---I think it was the ’38 Chevy then---on those raw March nights and it pleasantly surprised me to find the building warm, the stoked furnace already humming its devotions in the basement” (Updike 2003:104). The small church in rural Pennsylvania is kept warm by fuel, and the ’38 Chevy runs on it, but people with abundant fuel do not need to think about the fuel they use every day; energy is thus a phantom presence, a ghost, an abstraction. It also seems invisible, not “worthy” of explicit mention partly because it functions in human cells and car engines alike at the molecular level. The vignette is mainly comprised of the narrator discussing his experiences in various churches; it is very easy to miss the tiny, off-hand reference to the ’38 Chevy. The vignette ends with a contrasting churchgoing experience on an unnamed Caribbean island where the level of economic development seems much lower than in the U.S: goats are tied up to eat brush on the sides of a hill leading up to the church. The last sentence of the vignette, again, is important. Kern, bored, looks through the open windows of the church and “from this height, the horizon of the sea was lifted halfway up the sky. The Caribbean seemed a steeply tilted blue plane to which the few fishing boats in the bay below had been attached like magnetized toys. God made the world, Aquinas says, in play.” (Updike 2003:106) The unnamed island (which “had been abandoned to the descendents of its slaves” (Updike 2003: 105)) has poverty--- fishing boats and goats (solar flows of energy are dispersed, and this energy is generated first by photosynthesis in the ocean or on land)--- not bulldozers and oil. But it seems

like a more light-hearted, naturally beautiful place (“made in play”) than Kern’s America where his son wailed “‘sheen! ‘sheen!. Energy does make a difference in landscape, and “more” of it is not necessarily “better”.

VI. “A Dying Cat”

The third vignette contains the ostensibly momentous occasion where Kern becomes a father for the first time. He and his wife are living in England. His wife is in labor at the hospital and Kern goes home to wait. On the way back (he walks home on small residential streets), he finds a dying cat: “It was a cat that had been struck by a car. Struck but not quite killed: a testament to the modest speed and sensible size of English automobiles” (Updike 2003: 107). This is the only sentence about cars, and it seems almost incidental, again, to the main narrative thread, a birth of a baby. But Updike uses the birth, a milestone, to disguise ---but still effectively deliver ---his criticism of auto dependence in America (people must risk their lives to go anywhere). It is quite an interesting maneuver, accomplished with a few separate devices.

First, the cat’s pathetic death is wrenching. “The cat was plump and wore a collar. Someone had loved it. Blackness from one ear obscured one side of its head and when I touched here it was like a cup. For the third time, the cat stretched, the tips of its hind feet quivering luxuriously in the way that cats have. With a great spastic effort it flipped over onto its other side, but made no cry.” (Updike 2003:107) Because Updike has chosen an innocent animal as a victim of a car collision (a “car accident”), the reader is more filled with pity than if the victim were a person who should have “known better”. The vignette does eventually get around to briefly giving more information on the baby’s birth, but not until after divulging more sad details about the cat’s death, as when Kern takes off his bloody gloves (“dyed wine-brown...I hadn’t realized there was so much blood” (Updike 2003: 108)), and writes a letter to the cat’s owners. In other words, the birth of the baby becomes an artistic ploy to make us pay attention to the damage and injuries cars can do⁶.

Once again, this vignette contains a sentence (the important first sentence) with the word “matter” in it: “Matter has its radiance and its darkness; it lifts and it buries. Things compete: a life demands a life.” (Updike 2003: 106). Energy---really matter in another form--- is a ghostly

6 Is Updike correct about the danger that goes with cars? If you compare the “top ten causes of death” for non-developed versus developed countries, “Motor vehicle accidents” are listed at number six for developed countries, but are not even in the top ten for non-developed countries. (World Health Organization, Health Report 2002). Non-developed countries have far fewer cars per capita (this is one factor that makes them “non-developed”) so not having the cars and highways means that deaths related to automobiles are overall lower.

presence again, therefore. We could actually therefore rephrase the sentence as, “energy has its radiance and its darkness”: it is energy that brings wealth and complexity but also dangers and risks. Kern’s children can be fed while he works as a writer, he leads a comfortable life in a developed country; he studies at Oxford. But also it brings the bulldozers, the little boy wailing “sheen, ‘sheen” and the cat dying in wrenching spasms on the road. With the statements “things compete” and “a life demands a life”, Updike means to include the idea that through competition and the collective satisfaction of market and political forces----Tainter’s growth in complexity as problem solving takes place and the results accrue, and often generate further problems-----we unintentionally exclude or eliminate some things which we might each personally like, such as quiet and walkable car-free neighborhoods, or our pet cats. Americans were living with huge reserves of petroleum: the British, without these, had small cars. Kern sees these small weak cars in a positive light and calls them “sensible”; once again, as on the Caribbean Island, there is the idea that less energy availability is salutary for the mind and body. Less activity can be engaged in. Perhaps Updike finds this peaceful. (There is a lack of general awareness of the way energy functions; using it may bring a gift but also a curse. Updike purposely does not use the word “energy” in order to show its obscurely recognized role as a singular, master resource of economic power.)

VII. “A Traded Car”

The last vignette, “A Traded Car”, is the longest. Once again, Updike uses a momentous occasion, this time his father’s (non-fatal) heart attack, to cloak environmentally-inspired observations about automobile use. Kern drives from Massachusetts to Pennsylvania to visit his ailing father. He first gives details of the car (“this ‘55 Ford proved an excellent buy” (Updike 2003:108)):

When we returned from England, we bought a car. We had ordered it through my parents from folders they had sent us…….In the beginning my wife and I would lovingly lave with soap and warm water the unflecked skin of the hood as though it were the thorax of a broad blue baby, and toward the end we let the gallant heap rust where it would. Its eggshell finish grew grizzled with strains of dropped maple seeds. Its doors balked at closing; its windows refused to roll down. But I somehow never believed that we would trade it in, though the little girl born across the ocean in the ominous turning of April, now a vocal and status-conscious democrat of nearly six, applied more and more pressure. The deal was consummated while my soul had its face turned, and Detroit contracted to devour her offspring. (Updike

2003: 109)

Updike iterates the life cycle of a car, from new purchase to waste product. Why? First of all, the second law of thermodynamics (the entropy law) adequately explains the gradual aging process both of machines and people (including Kern's ailing father and Kern, who has a panic attack over dying in this vignette) as entropy, or disorder, prevails. The dissipation of energy--- used to make new cars and recycle old ones--- is also described by this law. Once again we are in the world of physics: "energy flows, material cycles". (Schneider 2005: 282) David Kern describes this (car) material cycling process in emotional and even human terms: "Detroit contracted to devour her offspring".

Updike here brings in a counterpoint to orthodox economics, (where "rational" consumers are assumed to make "rational" choices). Kern does not seem "rational" in his sadness. How can we re-think economics from this tiny little clue? Biophysical economics, the study of flows of matter and energy through an economic system, may assist here, with a reiteration of Charles Hall's key statement: "in the absence of a continual input of energy, the highly ordered molecules within an ecosystem will, over time, degrade into completely random assemblages" (Hall, 2006: 9). (Again, Hall also explains how "real economies are, in fact, subject to the same forces and laws of thermodynamics as natural systems and have much in common with them" (Hall 2006: 9)). Kern's mournful reluctance to trade in his car is the artist's conception of a mind that senses the overwhelming force of the second law at work. Dissipating energy is the way this law lays claim to us. If we eat, we can postpone its effects (i.e. without an input of food energy, we will die as our cells become 'random assemblages') but we will instead dissipate the energy contained in the foods we consume; if we buy a new car we can have a new, unblemished car but we have also dissipated some energy by having had it manufactured. Kern's personal grief over having to trade in his car is, I argue, a metaphor for Updike's own sadness at the application of the second law as it works its way through an economy: if energy (such as massive reserves of petroleum) is available it will be dissipated eventually, even if it is stressful and polluting to do so.

The choice to consume (and therefore pollute, since consumption implies manufacturing and waste disposal) brings in the idea of the normal attitude of the car buyer, caricatured by Kern's 6-year old daughter's clamoring, with a "vocal and status-conscious" application of pressure for a new car. Usually, consumers, like a child, do not consider the energy required (producing a car requires about 90 barrels of oil worth of energy) to replace the car. Most consumers, like Kern's daughter, do not consider whether this energy will be there tomorrow, or the next time a new car--or highway--- is required. People do not see the downside, the sadness, the horror implied by the image of cannibalism/infanticide in the phrase "Detroit contracted to devour her offspring", but the sentiment is truly one that recognizes the whole cycle of materials, from generation to

waste product. Detroit must eat and so must we. Ecosystems, human bodies, the Ford Motor Company, and economies need continual energy inputs to stay alive, viable and active. They are all dissipative structures, and will run down without continuing inputs of energy, which we see as inputs of paper, metal, electricity, human labor, and such. But can we always be sure that the energy ----if it is contained in depleting fossil fuels----to bring the next meal or the next car will be forthcoming----or that the price we pay, in dead cats, wailing toddlers and overwhelmed hearts is worth it? Updike asks his readers of 1961 to share his thought processes as Kern traces his car from its start as a glossy brochure image to its end as a waste product----the end point of the '55 Ford. But, critically, there is the implied idea---- *what other end points, what other waste products, lurk out there?* The 6-year old daughter's insistence on buying a new car, though, points to the irrational (i.e. childish) dimension of the (according to orthodox economics⁷) "rational actor" in ordinary economics theory:

Orthodox economics assumes that the economy is an efficient equilibrium system stabilized by rational actors. But the agents of economic systems are neither particularly rational (consider the greed and fear of stock market booms and busts), nor are economies, feeding on external reserves of food and fuel, in true equilibrium. Despite the mathematics that would describe them, economies are not stable but metastable dissipative systems. Like organisms and ecosystems, they tend to grow and to find ways of tapping gradients to reduce entropy and cycle materials. (Schneider and Sagan, 2005: 280)

In the interests of the "earth" (to go back to Updike's statement on page 1) (where, presumably and logically the highway system will also end up as a waste product, another offspring "devoured", in this case by weather and erosion if the system cannot input sufficient quantities of energy to maintain it⁸), Updike scripts an involved ending. First, in the middle of the vignette, Kern, in his car, picks up a hitchhiker, a young sailor, "guileless, competent, and mildly earnest" (Updike 2003: 112).

7 In Charles Hall's and Kent Klitgaard's article "The Need For a New, Biophysical-Based Paradigm in Economics For the Second Half of the Age of Oil", Hall and Klitgaard explain that prior to Neoclassical Economics (which got its start around the 1870s), "economists were more likely to ask 'where does wealth come from?'" (Hall 7) The authors continue: "...Three factors played a large part in seeming to put Malthusian fears to rest and hence removing biophysical issues from the immediate attention of economists: the opening of the Americas to immigration by the surplus Europeans, their virtual extinction of the Native American potential competitors there, and the industrialization of agriculture, which generated an enormous increase in food production". (Hall 8). Hall's analysis therefore echoes Updike's phrase "the immensity of nature we (i.e. Americans) were given."

He asked me, "What do you do? Teach?"

This impressed me. My grandfather had been a teacher and my father was a teacher, and from my childhood up it had been assumed by people that I in turn would become a teacher.

"No," I said, "I'm a writer."

He seemed less offended than puzzled. "What do you write?"

"Oh---whatever comes into my head."

"What's the point?"

"I don't know," I told him. "I wish I did. Maybe there are several points." (Updike 2003: 113)

David Kern, the fictional narrator, and John Updike are not the same. Yet there are enough autobiographical similarities that we need to think closely about any points of congruence as clues to Updike's message ('the point') here, if any. The sailor is an average American ("guileless, competent, mildly earnest"), and he disappears from the text when he gets out of Kern's car in New Jersey, only to strangely reappear, in one word, a few pages later in the last sentence of the last paragraph of the story:

Any day now we will trade it in; we are just waiting for the phone to ring. I know how it will be. My father traded in many cars. It happens so cleanly, before you expect it. He would drive off in the old car up the dirt road exactly as usual, and when he returned, the car would be new to us, and the old one was gone, gone, utterly dissolved back into the mineral world from which it was conjured, dismissed without a blessing, a kiss, a testament, or any ceremony of farewell. We in America need ceremonies is I suppose, sailor, the point of what I have written. (Updike 2003: 121)

Updike wants us to think carefully and in a focused way about the whole process involved in the material dissolution ("back into the mineral world") of cars. Kern calls for a ceremony or ritual, something to solemnize the occasion and perhaps bring the materiality and embedded

8 "Paved roads, historical emblems of American achievement, are being torn up across rural America and replaced with gravel or other rough surfaces as counties struggle with tight budgets and dwindling state and federal revenue. State money for local roads was cut in many places amid budget shortfalls." WSJ July 17, 2010: "Rebuilding an asphalt road today is particularly expensive because the price of asphalt cement, a petroleum-based material mixed with rocks to make asphalt, has more than doubled over the past ten years" (WSJ 7/17 2010)

energy of the old car into the foreground of the consciousness of the ceremony participants (the unthinking consumers, ordinary car-buying American citizens), who would presumably be more grateful for America's "immensity of nature". But Updike, writing under the cover of Kern, wants to ask for something else, for which this strange car-trading ceremony is but another clever ploy and a metaphor. Updike seeks our awareness, our full-fledged recognition of what is involved, matter-and energy-wise, in the bargains we make to *keep driving our cars until they can no longer be driven, for whatever reasons may arise*.

VIII. Peak Oil and Cars

Tom McCarthy points out that by the 1920s, "the U.S. automobile industry was the biggest industry in the largest economy in the world" (McCarthy 2007: 45). U.S. automobile manufacturers required huge quantities of wood (used for auto bodies), rubber, iron, and coal: "American consumers' demand for automobiles set in motion one of the greatest flows of raw materials in human history" (McCarthy 2007: 45). The other, less visible side of the equation was the commensurately huge flows of energy required to set these material flows into motion. It is not too much of an exaggeration to affirm that, of all the consumer products out there, *cars are the most visible and pure material expressions of petroleum energy there are in our world*. Cars lie at the heart of the "consumer agenda" that Tom McCarthy identifies them with (McCarthy 2007: 152). Consumerism, of course, comprises another related set of material flows, on a similar grand scale to autos, (and without which consumerism would probably perish). Without petroleum (whose development was tied to coal) and also coal, it is arguable that there would have been no U.S. auto industry to speak of. Other fuels are and were (for a variety of reasons) simply not up to the awesome task of setting into motion and then maintaining (at least for a memorable while) the enormous material flows that embody the monumental scale and ubiquity of the U.S. (and now the entire world) auto industry.

This brings us back to the topic of the current troubles of the auto industry. It is very likely that the peaking of world petroleum production (peak oil)⁹ is behind the economic distress emanating from Detroit (and elsewhere). With lower energy flows, the material flows must also trend commensurately lower, and the decline in oil production is a continuous geological process. We should not, perhaps, as we consider the implications, invest too many further resources in the

9 Deffeyes writes that "the mathematical peak of world oil production falls at 2004.7, call it 2005" (p. 158). Energy Information Agency (U.S. Department of Energy) figures also show 2005 as the peak at 73, 736.86 thousand barrels/day for average world production (<http://www.eia.doe.gov/emeu/international/oilproduction.html>)

material, systems and way of life that once made Kern's little boy wail, "Sheen! 'Sheen!".

IX. Conclusion

Updike pointed to "paternity", as well as "cars" and "earth" as the themes for this story. Two of Kern's children appear in the story: both are intertwined with narratives about petroleum-consuming machines, the bulldozer, the dying cat, struck by a small sensible British car, and the '55 Ford. Kern's father has owned a '38 Chevrolet, a '36 Buick, and has traded in many cars, and bought many (and loves his car: "it's a sin, the way he worships the car" (Updike 2003:117). On balance, the associations ("sheen 'sheen!", the bloody cat) are not positive, and maybe the statement about it being "sinful" to worship a car is a jab at American attitudes which have overly glorified the automobile. But the lives of generations are nevertheless cycling material, the "kernel" that is birth and death that the Hamiltons point to, and the machines cycling material, with energy flowing through both, exchanging and borrowing each other's power (for a car cannot drive itself---yet), makes for a thoughtful *pas de deux* nevertheless. How much of ourselves are in these machines? Where do we start and how much of our bodies do we owe to the existence of the machines? For if populations increase to take advantage of expanded energy flow regimes, and these flow regimes---and therefore the populations--- cannot be expanded without the machines, then our bodies are partly subsumed, or owe their very existence to these machines. We are in a sense *generated* by the machines. At the end of the story, Kern describes the point where his sense of being is dissolved into the car's and merges with the car:

And through those aeons, my car, beginning as a mechanical assembly of molecules, evolved into something soft and organic and consciously brave. I lost first heart, then head, and finally any sense of my body. In the last hour of the trip I ceased to care or feel or in any real sense see, but the car, though its soul the driver had died, maintained steady forward motion, and completed the journey safely. (Updike 2003: 121)

It is very easy for some to dismiss---with disapproval and regret---the choices other people must make, out of material necessity, on their own journeys on this earth. Updike does not want this story to be only such a dismissal, though he cares that the side of nature or the "earth" gets its 'air time' here also. In the end, the journey sees us through from birth to death, the second law is the one that sponsors us all, machines and people alike, and Updike is content to consider that aspect too: when Kern arrives home, we read: "Above my backyard, the stars were frozen in place, and the shapes of my neighbors houses wore the wonder that children induce by whirling". (Updike

121). "Whirling" is another kind of circling, another kind of spinning or cycling. Considered from geological time ("aeons") the cycling that men and machines do, from birth to death, is a kind of fast whirling, and it is of little consequence to the "stars" whether we drive or not, or for how short or how long a time.

About writing, Updike said, "what (a writer) makes is ideally as ambiguous and opaque as life itself" (Hunt 1980: 212). The story "Packed Earth, Churchgoing, a Dying Cat, a Traded Car" carefully draws the connections between cars and the following items (the list is not exhaustive by any means): fuel, human emotions, geological differences between countries, dangers of cars, status, the imperatives for economic growth, cultural attitudes towards cars, environmental concern, and infrastructure. The story does draw these connections in the "ambiguous and opaque" manner that Updike rightly held as a standard because it reflects real life.

On the other hand, the story, now exactly 40 years old, may be in some ways, ancient history as its depiction of the economy of the United States back in the 1950s and 60s brings to mind the sharp contrast with the state of things now following the Global Financial Crisis of 2008. Yet the story has a bright legacy simply because it is proving to be prophetic. "Art hopes to sidestep mortality with feats of attention, of harmony, of illuminating connection, while enjoying, it might be said, at best a slower kind of mortality: paper yellows, language becomes old fashioned, revelatory human news passes into general social wisdom", wrote Updike (Updike, 2003:xiv). This story questions the assumptions others did not and connects ideas and scientific principles with changes in the landscape; and once again these ideas---these "illuminating connections"---- were largely outside the mainstream and still are. It features a narrator unwilling to fully condone or fully approve of the car-centered economic growth then being unthinkingly embraced by nearly everyone else. In short, as global oil production peaks and then goes into terminal decline, this story is shown to be a candescent locus of that very "social wisdom" that Updike bravely hoped to achieve.

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