

The Monsters Within: *Capital, Cancer, and Crisis*

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Abstract

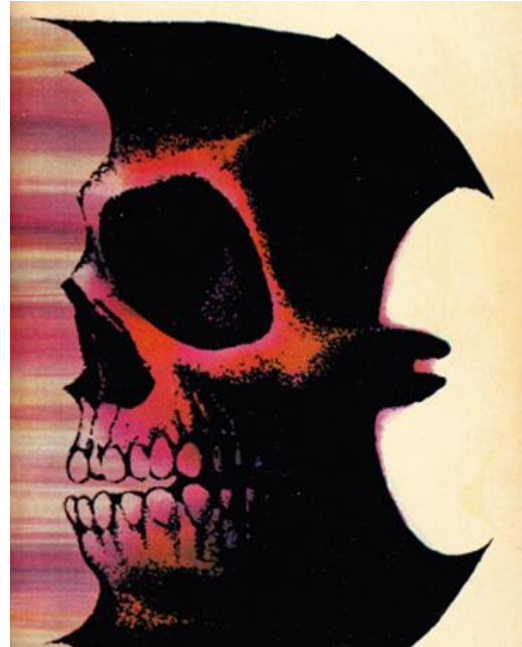
This paper critiques Marx's use of the vampire as a metaphor for capital, by suggesting that cancer offers political economists a more appropriate lexicon to describe capitalism's exploitative and destructive nature. This argument, however, is not limited to a metaphorical narrative. While cancer, similar to dead labor, drains the vitality of living labor, it is also a real disease that is investigated using innovative science to find a cure and treatments designed to improve the quality of life of cancer patients. One of the most promising advances in cancer research comes from the ability to compare the healthy human genome to those undergoing the mutations that produce cancer cells. Genetics' mapping of cancer's pathologies is critical to understanding why, how and what treatments are effective. Using the Cancer Atlas as a model, this paper outlines how political economy can apply the imaging technology of geographic information systems to identify patterns in the spread of capitalism's social and environmental mutations. In addition, these tools also afford an opportunity to investigate the health benefits of institutions and organizations animated by mutual aid and cooperation, rather than rational optimization and efficient production. From this comparative examination, illustrated by maps and described by oncology's vocabulary, a wider discussion of production, value, and social change becomes more accessible to all those who desire a healthy society with sustainable prosperity available to all.

Keywords: geographic information systems; cancer; capitalism; value.

JEL Codes: A1, B3, B4, B5, I0, P5

Introduction

Marx's poetic use of fictional monsters arms political economy with some of the most descriptive, vivid and discussed metaphors for capital across literature, political economy, and history to date (Neocleous 2003). In *Capital*, one such monster, the vampire sucks blood, rips through tissues, and alienates human capabilities, while living labor operates dead labor, during the course of the *Working Day*. Sharing this metaphor as a pedagogical device with my students elicits a variety of responses: many nod, others roll their eyes, and a creative few tolerate and contribute to a mild discussion. In an effort to spark more lively interactions, I offered an alternative metaphor—cancer. In contrast to the vampire, cancer provokes energetic and thoughtful dialogue with students, who actively make connections between capital, cancer, and the labor process. Further, many also suggest alternative diseases to represent the exploitation and alienation that is in evidence wherever we go, be it the coffee shop, the cubicles in the administration building, or in any of the monotonous day-to-day operations many of us suffer through to “make a living.”



Stoker (1965)¹

This classroom experience was too powerful to ignore and motivated further diagnostics into the nature of cancer and its appropriateness as a regular teaching device in the classroom (Morrisette 2013). Through these inquiries, the metaphorical relation between capital and cancer extended beyond a pedagogical tool, unearthing relations in the philosophy of science, human evolutionary history, and even in the importance of words. Given these parallels, the argument below proceeds, in a similar vein as in John McMurtry's *Cancer Stage of Capitalism* (2013). The relationship between cancer and capitalism is more than metaphorical. Rather, greater understanding of the interconnections is obtained by discussing cancer as a diagnosis of capitalism's malignant social relations. This diagnosis supplies the political economist with a relevant and accessible lexicon for facilitating wider discussion about the true nature of capitalism, not only in the classroom, but also as a framework for interdisciplinary research. Applying the terminology of oncology is complementary, for “when analyzed closely, words reveal themselves to be symptoms of underlying and overarching social contradictions” (Fritsch, O'Conner and Thompson 2016: 20). The contradictions highlighted here are the shortcomings of the orthodox approach to understanding economies and the masking of the disease, by its derived policies. In other words, cancer's pathology echoes between our molecular and social levels of life and death.

¹ Image from the 1965 Signet Classic edition.

At the dawn of the 20th century, vampires and werewolves inspired imagination and solidarity in a working class toiling under industrial capitalism. In the daylight of the 21st, an updated discourse is needed to build upon the momentum generated by grassroots calls for social change such as the 99% movement and the Bernie-Sanders-inspired political revolution. The battle against cancer and its science equips millennials, and all concerned citizens, with a language of change and diagnostic tools for promoting recovery and health that extend far beyond the world of medicine.

As a matter of full disclosure, I must share with you that the inspiration for applying cancer to this task comes from personal experience. Cancer killed my Mom this year. Her death was not a quick process. Cancer began taking her life eight years ago at the age of 54. Then, it took some time to itself. They call this remission. Last year it returned to decimate my Mom's body and mind during her final six months on earth. This story, while very personal, is also one that is probably all too familiar. Cancer is not a fictitious monster hiding in dank and dark castles in Transylvania, but a very real monster that is a fundamental part of all of us, with connections from the microscopic cellular level, to our familial genetics and histories, and up through the environments where we produce and reproduce our daily lives. It is the ease of personal relation that first drew me to the metaphor, and I suspect an important ingredient in the activation of an energetic classroom. Cancer is part of our collective experiences. Family, friends, colleagues, neighbors, you name it—we are all familiar with a cancer story. Thus, immediately cancer and its behavior is more relevant and interesting in the 21st century, as I am not aware of many who have a vampire experience, aside from those fans of *True Blood*, *Twilight*, or *Buffy the Vampire Slayer*. But, while we all have a cancer story, in order for it to be an appropriate framework for discussing capitalism, a relationship must be established. This, in part, also illustrates a significant problem with economics as a scientific field of inquiry. Epistemological critiques of orthodox economics are not new. However, the persistence of analyzing economic activity through isolated theories of correlation between two variables, cancer and smoking or unemployment and education continue to dominate studies, across disciplines, of the world around us. I posit cancer as a diagnostic model for capitalism, to not only provide a subject matter, or baseline, of common experiences, but to demonstrate the need to move beyond these simple relationships and invite more people to contribute to the examination of the disease's pathological mutations in economic systems. A holistic interdisciplinary effort is needed to investigate our economic and physical illnesses. In other words, it appears that we will not cure cancer without curing society of capitalism.

Supporting this position are the findings that capitalism is killing people at a similar rate to cancer. A recent JAMA study, found that, “The 10 year gap in life expectancy between women in the top 1% and the bottom 1% of the US income distribution is equivalent to the decrement in longevity from lifetime smoking” (Chetty et al 2016: 1762). While being a smoker is not a perfect proxy for a cancer diagnosis, human beings have never invented a more effective cancer delivery device than the cigarette. Thus, by the invisible hand one receives the diagnosis of living in the bottom income distribution of America (a space more likely to be filled with smokers), and will live a much shorter life. Just as my Mom, a non-smoker, and others receive a cancer diagnosis, and know that their life *too* will be shorter, filled with pain, and that the eventual end is to be consumed by a *non-fictional* monster.

Capital, as the fundamental class process driving capitalism, is poisoning our waters. Capital is marketing smoking to children. Capital is polluting our air. Capital is promoting fraud in health care, the financial industry, and just about every aspect of our lives. Cancer and the mutations of our cells from the inside of our lungs, bones, breasts, and blood attack us and lay waste to the spaces they consume, just as the carcinogenic toxins pollute and destroy Mother Nature's corpus across the globe. Can we isolate and identify a single cause of cancer? No, it is always going to be a combination of factors. Genetics, diet, exercise, proximity to a nuclear plant, smoking or other ill-advised behaviors are all part of the story, but can you ever truly separate these factors from the social and economic forces that encourage that first cigarette or make living by that power plant or fracking well from the death growing inside of the individual?

Capital turns us against one another just as the mutations of our cells spark cancer's insatiable appetite for growth. The atomistic reductionism of neoclassical economics isolates people. The defense of my property, my bootstraps, and my success, against your bad decisions is a product of the individualist understanding of human nature promoted by rational choice theory. The vampire is but one of the tools applied, by Marx, to illustrate the false nature of the vulgar political economist's narrative (Henry 1990). While neoclassical economics implements mathematical tools to provide a veneer of scientific precision, the underlying tale of harmony, stability, and equilibrium remains vulgar. The mythology of *Homo Economicus*² drains society's vitality by killing meaningful discussion of value. The rational agent is a monster. This monster breeds social mutations by reinforcing capitalism's ugly and divisive nature. Racism comes to mind as a particularly malignant form of capital's power to mutate society's class relations and the individuals that populate them.

The point, here, is that we must progress beyond the limitations of our current modes of inquiry and begin to believe in each other and our experiences. This is solidarity. This is the way that families band together when one is ill. Humans are stronger together. A common understanding that capital is killing can enhance our understanding of the how and why. With this knowledge, the challenge of changing the social relations and the supporting institutional structures promoting the death and destruction of cells, human life, neighborhoods, economies, and the planet becomes defined. Therefore, to build an accessible and relevant framework for discussing capitalism in terms of cancer this essay starts at the cellular level and establishes relationships between various stages of aggregation, while providing these descriptions within the historical context of both the scientific advances in the field of oncology and the lack of comparative progress in economics.

This is an alternative narrative that commutes between the social plane and the biological and genetic levels of life (McMurtry 2013). This is not fiction. It is the application of a real disease and its corresponding scientific history to argue for novel approaches to healing the planet and our human habitats. Accompanying the historical and philosophical discussions is the application of geographic information systems, as imaging technology and common ground to advance interdisciplinary methodologies for enhancing diagnostics and treatment. Imaginary stories have a long history in economics; it is time for an updated narrative that takes place within the context of our social and environmental sphere of life.

² This is a pejorative term to describe the narrow construction of the individual as an optimizing agent in neoclassical economic models.

I. The Deranged Image in the Mirror

To enhance my technical grasp of the relationships between capital and cancer beyond the simple metaphorical exercise that emerged in classroom discussions, it was necessary to strengthen my comprehension of the disease. While my Mom's battle with breast cancer provided medical, personal, and socio-economic understanding of cancer's ability to metastasize and cause pain and suffering beyond our bodies, a scholastic presentation of the disease was needed. A better understanding of how and why my Mom and my children's grandmother's life was taken so early was desired. My investigation began with Dr. Siddhartha Mukherjee's *The Emperor of All Maladies: A Biography of Cancer*. For the heterodox or political economist, the attraction to this discussion of cancer should be obvious, as the illusion to cancer's relation to social hierarchy is complemented by the text's characterization as a biography. A biographical interpretation of a disease seems odd, heterodox if you please, but Dr. Mukherjee clarifies why this approach is appropriate in describing the process of writing his book:

I started off by imagining my project as a "history" of cancer. But it felt, inescapably, as if I were writing not about something but about someone. My subject daily morphed into something that resembled an individual--an enigmatic, if somewhat deranged, image in a mirror. This was not so much a medical history of an illness, but something more personal, more visceral: its biographical (Mukherjee 2010, 39).

Similar to Dr. Mukherjee, I too am dealing with something personal, as are millions of humans. Rather than hiding from my biases and experience, this piece embraces and lays them out for the reader to decide their relevance.

Beyond the personal nature of the experiences expressed in *Maladies*, the theme of the individual is ever present. It is important to note in the above quotation that cancer is a "deranged image in a mirror." Cancer is in fact inside of us all, as "a cancer cell is an astonishing perversion of the normal cell" (Mukherjee 2010, 38). Consequently, oncology in its efforts to cure this disease has wrestled with a central issue in political economy. Is the perversion of the cell internal, supuration of blood (an early individual explanation of the disease) or are there external forces, carcinogens, to be identified as its cause? This debate has extended oncological research beyond the confines of reductionism and into more holistic examinations. Following the reflexive approach of oncology in political economy requires examination outside the neoclassical reliance on the individual as the primary unit of analysis, and more generally beyond the imaginary world of logical time, searching instead through history.

Fortunately, Marx's historical materialism provides both a framework and a relevant unit of analysis. Let's begin by suggesting that the origin of cancer is found in Marx's capital; that is, cancer emerges and grows from the exploitative social relation. In the modern epoch of capitalism, capital is the relationship between the owners of the means of production, including money capital, and those that must toil and trouble for the wages necessary to produce and reproduce their daily lives. In other words, the economic building block is the social relation, just as cellular relations aggregate to create all organic life. The exploitative individualist interpretation of the war of all against all is taking place internally as Rudolf Virchow's *omnis*

cellula e cellula [“all cells come from cells”; Virchow (1858) 1972] rages. The rational agent or self-interested individual is our “deranged” self and the fundamental class process stimulates the metamorphosis of human interactions into a variety of diseases. The free market illusion presented by orthodox economics celebrates a cancerous interpretation of humanity as the answer to all allocation problems. While in contrast, the altruistic and cooperative individual is our best self and a healthy social relation. I will dedicate more time to this in the sections to follow on treatments and a cure, but for the time being, the focus remains at the individual level to examine the parallels between the cancer cell’s mutation and growth and the neoclassical model of economics.

Before preceding one brief caveat, many may be asking: cancer is much older than capitalism, is it not? So how can cancer be limited to capital as a fundamental class process (FCP)³? Well, from a strong neoclassical perspective, capitalism and the self-interested individual is a universal phenomenon, just ask Gary Becker or any number of his Chicago School colleagues. However, from a more historically insightful position, the dynamics of the FCP and the prevalence of cancer in societies appear to follow a similar evolutionary pattern. During the previous century, cancer has had its best years by the measures of growth and diversification. This, on the one hand, is in part due to better medical technology, the identification and proper diagnosis of the many variants of the disease, and from increases in human life expectancy (Mukherjee 2010). Cancer is a process, a slow moving death from within. But, the growth of cancer’s reach is also strongly associated with social and environmental factors, such as smoking, pesticides and fertilization in agriculture, and a variety of other chronic diseases that weaken human being’s immune systems. Thus, much like capitalism’s mantra, for cancer, growth is good, and the globalization of capital is fueling a worldwide expansion of the disease.

Growth is cancer’s objective. Mutated cells multiply and overrun the healthy cells in the human body. There are a number of words that are used to describe cancer’s growth and this cellular behavior. One that most all of us are familiar with is metastasis. Cancer metastasizes and becomes nearly impossible to stop. This process, in breast cancer, for example, often occurs after a cancer has been in remission and reappears in another place in the body⁴. It returns in a new and improved treatment resistant form with an aggressive attitude. Think financialization. The financialization of mortgages was aggressive and resistant to all forms of regulation or treatment. Returning after decades of successful suppression following the Great Depression and the extensive reforms to restrict dangerous speculative activity, financialization burst out of remission, metastasized globally, its growth could not be contained. The systematic expansion in the number of derivative contracts could be referred to as neoplasia, the rapid reproduction of cells. This malignant neoplastic explosion of social relations, in the form of money contracts, nearly killed the patient. Only through radical treatments, applied by the monetary and fiscal authorities, was the patient able to survive. Much like a cancer patient, our economy is weakened and unable to return to the level of strength and vitality it once possessed, after a blunt

³ Stephen A. Resenick and Richard D. Wolff develop the fundamental class process, in their 1987 contribution to Marxian scholarship *Knowledge and Class*. Here the FCP is identified as the social relations between appropriators and those that produce the material means of a society. Under slavery, for example, the FCP is between the slave owners (appropriators) and the slaves (producers).

⁴ For a concise explanation of how cancer spreads in the body see the About Cancer section of the National Cancer Institute’s website, <https://www.cancer.gov/about-cancer/understanding/what-is-cancer#differences-cancer-cells-normal-cells>.

and painful treatment regimen of foreclosures, layoffs, quantitative easing, and the incisions of austerity. In Marx's monstrous terminology, neoliberalism: "in its blind unrestrainable passion, its werewolf hunger for surplus value... usurps the time for growth, development, and healthy maintenance of the body. It steals the time required for the consumption of fresh air and sunlight" (Marx 2011, 291), and makes a meaningful recovery all but impossible.

What is meant by radical treatment? These surgical procedures along with radical chemotherapy are central topics in the next section and juxtaposed with many of the policy actions described above. Additionally, parallels between the evolution in the understanding of cancer and how best to treat the disease and our economic principles and policy options are striking. This discussion displays that "Scientific revolutions... typically occur in basements, in buried-away places removed from mainstream corridors" (Mukherjee 2010, 196), providing additional motivation to those working outside the ivory towers of orthodox economics to continue their work towards new knowledge and a paradigm shift in economics, as cancer treatment and study has experienced such a transformation in recent decades.

An instructive tool for inspecting the growth of financialization's toxic disease is Marx's circuit of money capital, the genetic code of capitalism. Despite modern interpretations of Marx provided by John Bellamy Foster (2009) and Paul Burkett (2008), an under examined component of Marx's presentation is the metamorphosis that occurs in the circuit and the resulting changes to the circuit's metabolism. These biological metaphors connect humans to the environment and complement modern advances in medicine to differentiate the transformations occurring inside of our bodies generated by environmental or genetic factors. Under the industrial capitalism of Marx's time, metamorphosis was the dramatic scene in the factory that inspired the vampire and artistic expressions of the violence in production (Image 1). In this space, where every ounce of human vitality is being drained by the vampire, "Dante would have found the worst horrors of his inferno surpassed" (Marx 2011, 272). During living labor's metamorphosis, the exploitative nature of the social relation is explicit, and it is not difficult to explain the weakening of the circuit's ability to reproduce itself as the vitality of the worker and the circuit's metabolism are diminished. While there is time left for capital to take from the worker, "the vampire will not lose its hold on him, 'so long as there is a muscle, a nerve, a drop of blood to be exploited'" (Marx 2011, 330). These destructive metabolic transformations demanded treatment in the form of revolutionary legislation. Without the passage of laws reducing the working day or mandating the safety of children, unregulated capital may have killed the patient.

Image 1: The Iron Rolling Mill, Adolph Menzel



Despite the reforms of the early 20th century and later efforts such as the New Deal, the weakening of our economy's metabolism continues today. The exploitation of human energy and natural resources is taking place on a global scale. An important process used by capital to insure the annihilation of time and space is the financialization of value chains. This process creates distance, both spatially and socially. The owners of mortgage-backed securities are socially disconnected from the owners of homes. This distance facilitates fraud and exploitation. It makes these transactions one of millions, increasing the difficulty to diagnosis them as malignant. The circuit of money capital under finance capitalism is only loosely tied to the production of a commodity or thing that might have some use value⁵; it has stripped the relation down to its deranged self and reduced all to the accumulation of money profit.

This is a point demonstrated in McMurtry's (2013) discussion of what he terms transnational money sequence's destabilization for profit. In this analysis, he argues that money is disconnected from real value, "gold, labour, or livestock" with the end of the Britton Woods era of international currency regulation (McMurtry 2013, 12). This discussion of value is central and requires further exploration. To advance McMurtry's presentation, the final section applies GIS technology to visualize the circuit of money capital by mapping the metamorphoses generated by money sequencing across the spaces of capital to diagnose disease and apply treatments. The process of adding a spatial dimension also invites discussion about connecting money to alternative sources of value, labor, food, and health, as examples.

This expansion of space and distance from the origin of financial decisions is similar to the evolution of cancer in our bodies. Cancer is treated, and the disease goes into remission. A woman has a bilateral mastectomy and receives some chemotherapy. This combination removes any signs of the disease. However, several years later, she experiences some back pain and

⁵ Use value is a concept from classical political economy. In attempts to understand where the sources of value were derived, Adam Smith examined commodities value in use versus their value in exchange. Raj Patel's 2009 *The Value of Nothing* provides excellent coverage of these debates through the breakdown of the diamonds and water paradox.

fatigue. Because the cell mutations have moved to new locations (metastasized), the doctor prescribes some pain medication and physical therapy. Cancer is very skilled at deception⁶. Meanwhile, the disease continues to spread, penetrating her bones, multiplying in her lungs, and spreading to the brain. By the time the crisis is realized, only a ‘hero’ surgery is possible, and even then life after would be so intolerable and short that the best course of action is palliative care.

Our current political environment is promoting palliative care, as the crisis has passed and appetite for political change has been satisfied by campaign contributions. People are *pacified by cappuccinos*⁷ and in some sectors morphine drips are comforting the patient, but at the end of the day our economy and society is marching towards a violent and painful demise. “The vampire thirst for the living blood of labor” (Marx 2011, 282) and can only be suppressed for so long. Capitalism cannot be saved. Regardless of policy, shorter working days, the New Deal, or Obamacare, capital’s deranged self is always going to return, just as cancer is almost certain to return if the patient lives long enough. The financial crisis was the most recent metastatic event, leaving millions without their homes and jobs, decimating cities, and leaving visible scar tissue across urban and rural landscapes. Should we admit defeat and accept palliative care, now that the economy has stabilized and the political will for substantial policy has subsided? The next crisis will come, and if we have learned anything from the history of both cancer and capitalism, it is that the return of the disease is always more severe.

So how do we approach this problem? Cancer research began by emphasizing treatment and cure of the disease, as a practical matter, over discovering causal mechanisms. Very little was known about the cause and evolution of the disease until late in the 20th century. This is, in many ways, similar to economics. The neoclassical school assumes a universal rational agent. Little can be done at the micro level, as we are all fundamentally *Homo Economicus*. Moreover, macro policy, the strong fiscal arm of the Keynesian era, and the *Laissez-Faire* new monetary consensus of neoliberalism are top down policies schools designed to either control the symptoms of the disease or save the patient in periods of crisis, not cure them. In the next section, an historical review of cancer treatment is informative. It describes, among other things, conflicts of interests between power, politics, and science. Should we be spending time researching causes and the human genome, when so much effort is needed to take care of those coming into clinics? What becomes clear is that money and price are very poor indicators of value and that only by breaking from capital, are people free to break through paradigms and reach their innovative potentials.

II. Treatment and the Search for a Cure

⁶ However, in this example, particular types of breast cancer often return in the bones, which proper diagnosis could have been identified with a CT scan.

⁷ See: <https://www.fastcompany.com/1673037/david-harveys-urban-manifesto-down-suburbia-down-bloombergs-new-york>

The history of treating cancer is described as a war. This war on cancer continues to collect countless victims and spread grotesque violence inside and between human beings. As an example, the earliest efforts to remove breast cancer involved “using fire, acid and leather bindings” (Mukherjee 2010, 301). While leather bindings are no longer standard, the war on cancer’s offensive has implemented scorched earth approaches to surgery and chemotherapy. This aggressiveness in treatment is also present in the political and financial spheres of the war on the diseases, as well. However, despite the fervor behind oncologists’ quest to cure cancer, the field has remained capable of overcoming deep vested interests, both monetarily and in research, undergoing several paradigm shifts. These shifts in treatment and philosophy are often inspired by discoveries of the past that were passed over by the march of progress. By the 1990s, “The quest to combat cancer turned inward, toward basic biology, toward fundamental mechanisms... We must, at last, return to the cancer cell” (Mukherjee 2010: 333). In economics, we too must look inward, re-evaluate our interpretation of the individual and revive our most important and ignored subject, value (McMurtry 2013).

Much like cell division’s role in the health and wellbeing of organisms, society’s health is contingent upon an equally important process, the division of labor. Under capitalism, the division of labor is functionally driven by the need to accumulate surplus value in the form of money capital. This genetic coding, or DNA, for the division of labor under capitalism is pathological. Similarly, cancer develops when normal cells undergo genetic mutations. These mutations either drive cancer cell reproduction, oncogenes, or inhibit tumor suppressors, hampering the body’s ability to fight off cancer cell growth (Vogelstein and Kinzler 2004). All the pathways of normal cell division have been mapped in the Human Genome Project⁸. Currently, oncologists are now attempting to construct a comprehensive mapping of the pathological expansion of mutated genes in the Cancer Atlas⁹. This offers oncology a comparative roadmap for understanding cancer’s pathology. Unfortunately, the task for political economy is not as clearly defined. Two reasons for a lack of definition seem clear. One, what is a normal economy or genome? Second, economics remains confined to a narrow field of primitive treatments. Economics rests in the era of radical surgery and the equally radical carpet-bombing approach to chemotherapy sold to the patient in the form of policies such as quantitative easing and massive cuts to socially and environmentally driven programming in the name of austerity. The later of these two fundamental problems is addressed to clarify the path forward, with an analysis of what may represent a normal or healthy FCP to follow. The interpretation of normal economic cells is supported by a description of the argument in McMurtry (2013) for “life-capital” and the expansion of the “civil commons.”

Pathways in both the division of cells and in labor are critical to understanding the progression of diseases that inflict pain and death on patients and societies alike. For oncologist battling cancer in the early 20th century, the pathway of cancer was dominated by a theory of centrifugal force (Mukherjee 2010). Cancer starts in the breast, and if it is all removed from the body, the patient is cured. However, if surgery does not remove all of the cancer, then it will continue to spread in the body. This theory was applied as an explanation for why so many women that received mastectomies were suffering from recurrences of the disease. A principle influence behind this

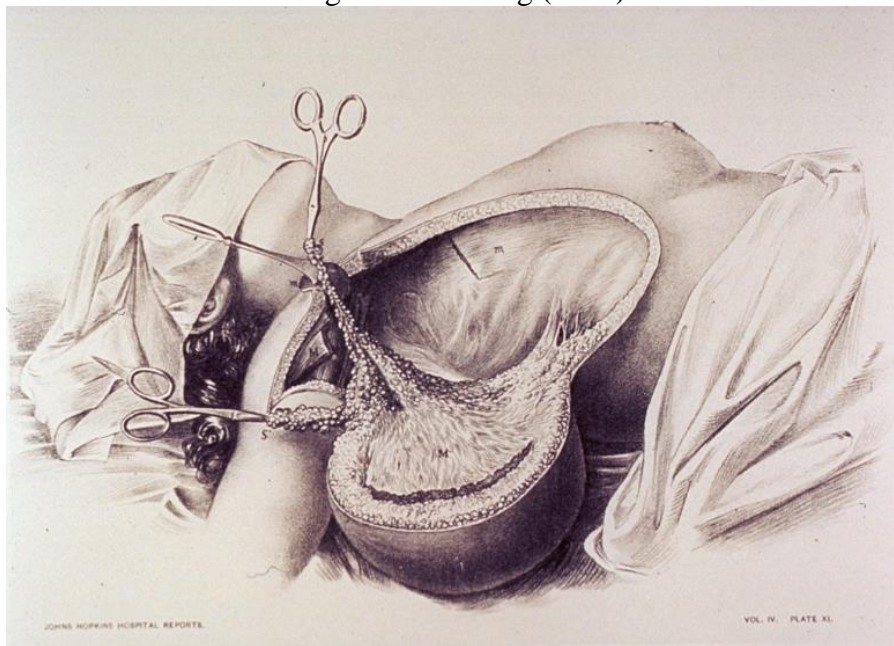
⁸ See the Human Genome Project <https://www.ncbi.nlm.nih.gov/SCIENCE96/>.

⁹ See the Cancer Atlas <http://canceratlas.cancer.org>.

theory was Dr. William Halstead of Johns Hopkins University. Halstead was a surgeon. As a surgeon, he enhanced and furthered the practice of radical surgery (Sakorafas 2008), a procedure in which more and more tissue is removed from the body to insure that the cancer has all been removed.

This approach to treating breast cancer dominated the field. Many women were subjected to these transformative dismembering surgeries. Halstead and his later descendants performed increasingly radical procedures on their patients. As late as the 1960s, the radical mastectomy had evolved into the “super radical” and then the “ultra-radical” (Mukherjee 2010, 194). This procedure was the preferred method of managing the disease as, “radical mastectomy was used to treat 47.9% of patients in 1972” (Sakorafas 2008, 605). In this procedure, the “breast, the pectoral muscles, the axillary nodes, the chest wall, and occasionally the ribs, parts of the sternum, the clavicle and the lymph nodes inside the chest” are all surgically cut away from the patient (Mukherjee 2010, 194).

Image 2: Vorenberg (2013).



A contributing factor for both the rise and staying power of this radical treatment was not a well-structured process of data collection and evidence, but rather linked to the charisma of Halstead and the celebrity inspired by the skilled movements of the surgeon’s hands (Mukherjee 2010). This approach to treating breast cancer was unfortunately misguided, by the general acceptance in the theory of centrifugal force. This force is not how cancer spreads through the body. Thus, thousands of women underwent a violent surgery and transformation of their bodies, as surgeons built successful careers and bolstered the prevailing conventional wisdom. Ironically, from a political economy perspective, the discovery of stages of cancer and the potential for much less invasive surgeries to be equally or even more successful in putting cancer in remission would come from a British physician by the name of Keynes. His findings first published in his 1954 piece, “Carcinoma of the Breast an Unorthodox View” (Hellman 1994).

Geoffrey Keynes was “concerned about his patient’s constitutional frailty” (Mukherjee 2010, 195). Was it necessary to always undergo such painful and invasive procedures to treat individuals? In challenging the existing status quo, Keynes applied a mixture of treatments. Radiation directly to the tumor and small surgical procedures to remove tumors were conducted with mixed results. Some of Keynes’s patients remained in remission and cancer free. In reporting these results, American surgeons dismissed Keynes and assigned the pejorative label of lumpectomy to Keynes’s procedure (Mukherjee 2010). While the “mainstream” in breast cancer treatment was dismissing this work, others were working to understand the failings in the centrifugal theory. What is the true path of cancer’s development? This question was being approached from a different perspective in chemotherapy.

However, similar to the assault on the female form-taking place in breast cancer treatment, doctors’ application of chemotherapy was equally radical in the 1970s VAMP¹⁰ era of cytotoxic drug cocktails (Mukherjee 2010). In fact, the war agent, mustard gas was one poison tested to potentially kill deranged cancer cells (Krumbhaar and Krumbharr 1919). Like many advances in science, the observation that mustard gas destroys cells in blood and bone marrow was unrelated to leukemia research and essentially an accidental discovery. However, this discovery in addition to Sydney Farber’s findings in childhood leukemia in the early 1930s ushered in a cascade of attempts to find various combinations and levels of poison capable of eradicating the body of cancer, while not destroying the patient in the process (Mukherjee 2010).

To the casual observer, it would appear prudent for the chemotherapist to consider the similarities between launching a chemical war on cancer to the proceeding battles undertaken by force of the knife and scalpel. But in similar fashion to the dismissal of Keynesian economics in the 1970s by the more “scientific” approaches to macroeconomics developed by the monetarists, chemotherapy, like monetary policy, was considered by its practitioners to be more technically sophisticated and immune to the critiques of their predecessors. In their defense of the New Classical School in economics, Robert Lucas and Thomas Sargent claimed that their approach to economics is as “free of ideological difficulties as, say, chemistry or physics [and] promise[s] a straightforward expansion of economic possibilities” (Lucas and Sargent 1979, 295). This economic consensus advocated for minimal fiscal interference or surgeries, and to rely on a steady dosage of predictable monetary tools to provide stability. Only in times of crisis, are deviations from the protocol necessary. Unfortunately, for many of the patients, their doctors, and the global economy, neither of these “scientific” approaches to treatment would stand the test of time and radical monetary policy would be necessary to save the system from collapse.

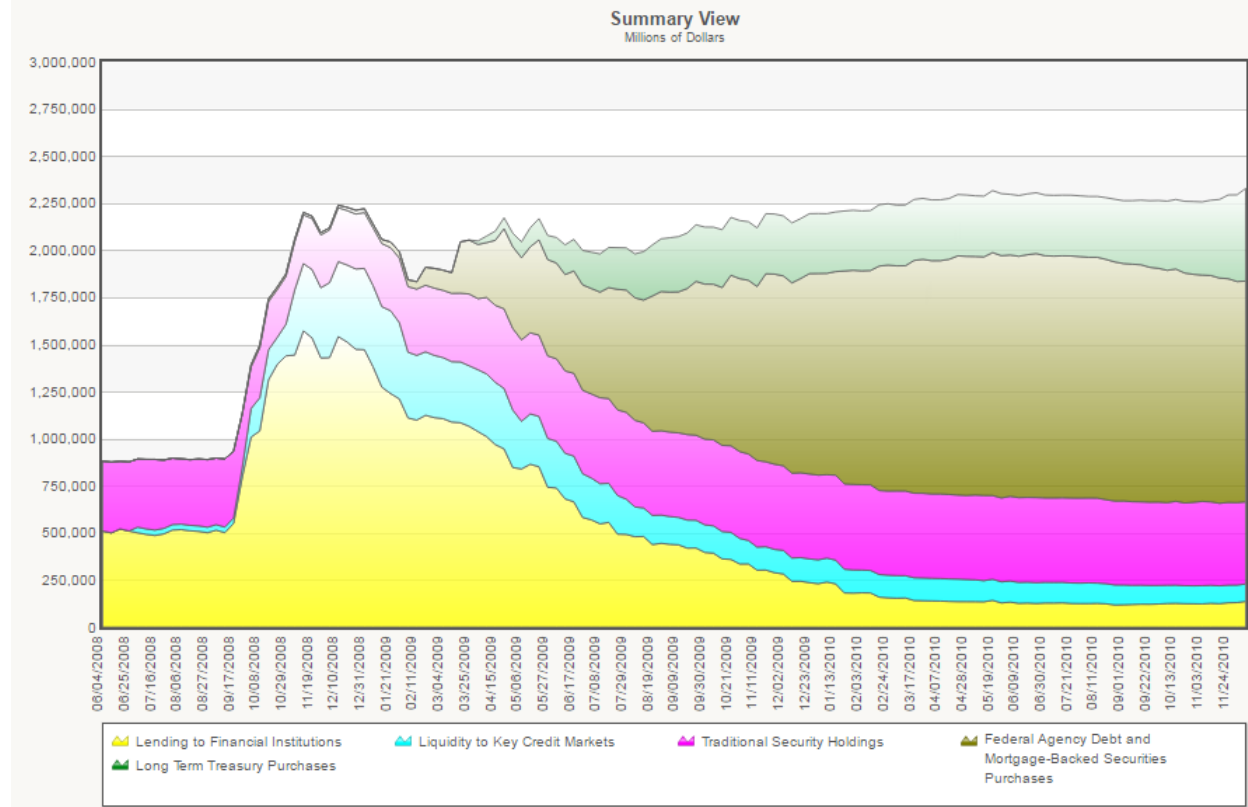
As it stands today, the debates in macroeconomics and the corresponding political discussions are mired in mode of palliative care, after a brief period of stimulus and unprecedented monetary policy. The Great Recession beginning in 2008 with the financial crisis that provoked a short period of fiscal stimulus, but this was quickly reversed and followed by a wave of international austerity and cuts to many of the most vital social programs that promote life sustaining human and social metamorphoses. Complementing cuts and the massive removal of social tissue were the unprecedented efforts to remove toxic assets from the balance sheets of the world’s financial

¹⁰ VAMP is the acronym for a chemotherapy regimen of vincristine, amethopterin, mercaptopurine and prednisone (Mukherjee 2010).

institutions. Quantitative easing possesses a striking resemblance to radical procedure in chemotherapy to treat leukemia, autologous bone marrow transplant (ABMT). In this extraordinary treatment regimen, the bone marrow of the patient is “obliterated” by cytotoxic drugs and replaced by “clean marrow from another patient” (Mukherjee 2010, 309).

In the case of monetary policy, the toxic assets that proliferated and poisoned the blood stream of the global economy were extracted by the Fed’s removal of these assets from the banks’ balance sheets and then replaced by a transfusion of dollars. The chart below from the Federal Reserve Bank of Cleveland displays the dramatic expansion of the Fed’s balance sheet during this radical policy procedure. What the chart summarizes is the massive expansion of the Fed’s balance sheet during this procedure, which is highlighted by the dark green expanding blob of toxic mortgage backed securities. The transplant of dollars into the financial system, representing a healthy blood transfusion, however, has done little to make the economy healthier in a meaningful way. Just as the recovery from ABMT is fraught with complications and life threatening dangers that might not always be expected, the unexpected result in the aftermath of the QE treatment regimen was the emergence of a “jobless recovery,” leading many to ask is this a recovery at all?

Figure 1: Credit Easing (2016).



Even eight years after the crisis, the debate has made little progress. The presidential nominees in the United States are suggesting “bigger than Reagan” tax cuts for the wealthy and promising

stronger free trade negotiations on one side. On the “progressive” agenda, a familiar series of moderate social policies to mask the pain and suffering created by the massive wealth transfers that are taking place, during this era of neoliberalism. While the Clinton campaign has moved slightly to the left on social and economic issues, the economy and the market remains, above all else, the universal force that must be respected at all costs. This entrenched ideological position continues to prevent serious discussions about the depth of the disease and its proper diagnosis (McMurtry 2013).

In contrast to this dogmatic, even religious, commitment to standardized monetary and fiscal policy taking place in economics, the field of oncology transitioned into new territory. This terrain is fertile ground for interdisciplinary approaches to understanding the core processes of both the healthy normal cell and its “deranged image in the mirror.” The grounding for advancing cancer research is the combination of the Human Genome Project and the subsequent Cancer Genome Atlas (Mukherjee 2010). These projects are mapping and identifying the mutations of genetic code for several cancers including brain, lung, pancreatic, and ovarian cancer (Vogelstein & Kinzler 2004).

The paradigm shift in oncology is a “revolution in cancer research that can be summed up in a single sentence: cancer is, in essence, a genetic disease” (Vogelstein and Kinzler 2004, 789). On the surface, it may appear that identifying cancer as a genetic disease would suggest a reductionist approach to understanding the progression of cancer. However, “it is best to think of mutated cancer genes as contributing to, rather than causing, cancer” (Vogelstein and Kinzler 2004). Rather than being a disease rooted in the individual’s biology, cancer “resides at the interface between society and science, challenging our population to confront its customs and behaviors” (Burstein 2000, 1). Behaviors presenting the greatest challenge are rooted in the rigidity of ideas and the corresponding value system, or lack thereof, promoted by neoliberalism. Summaries of the destructive pathways’ originating in the space between our genetics and life environments are found in the biological mutations responsible for tumorigenesis.

These alterations’ technical names are oncogenes, tumor suppressor genes, and stability genes. Oncologists often use the automobile as a metaphor to describe these genes malfunction when they mutate. An oncogene mutation is a broken accelerator; the tumor suppressor is a broken break system, and the stability gene “is akin to an inept mechanic” (Vogelstein and Kinzler 2004, 790). Rather than continuing with the automobile metaphor, these three mutations are presented in the prevailing capitalist social structure as: a failing monetary authority and its inability to regulate the explosive expansion of money contracts, a fiscal system slashing and cutting social systems through austerity in conjunction with an ever repressive police and military state, and a financial industry that benefits from the generation of economic instability. As exemplified by the Republican Presidential candidate explaining why he, “sort of hoped” the housing market would tank in 2006, because his cash position would allow for speculative purchases and future earnings¹¹.

The fundamental class process under capitalism produces these three societal mutations. Infection and disease follow as the expansion of financial circuits of money capital extend spatial

¹¹ <http://www.cnn.com/2016/05/19/politics/donald-trump-2016-hopes-real-estate-market-crashes/>

and social distance between the true sources of value, labor and soil. Deregulating the financial industry put the oncogene into overdrive. Financial neoplasia “was estimated at \$600 trillion... [a] figure that amounts to about \$100,000 in derivative bets for every man, woman, and child on the planet” (Stout 2009, 31). The outrageousness of these figures likely contributes to McMurtry’s (2013) claims of a complete disconnection between the financial transactions, or what he calls the transnational money sequence, and any real value generating form. However, the links to real human goods and assets remains real and explains why the subsequent debt deflations extracted wealth from so many millions of people across the planet. A fundamental example of wealth accumulation created by disconnecting human labor and the earth from final sale of products is provided by the technology industry and the need to mine cobalt for lithium ion batteries. The gentleman in the picture below can sell a ton of cobalt to the next stage of the supply chain for roughly \$3, while its final price on commodity markets is \$20,000¹². Value emerges from the earth and human effort.

Image 3: Photo by Michael Robinson Chaves (Frankel 2016)

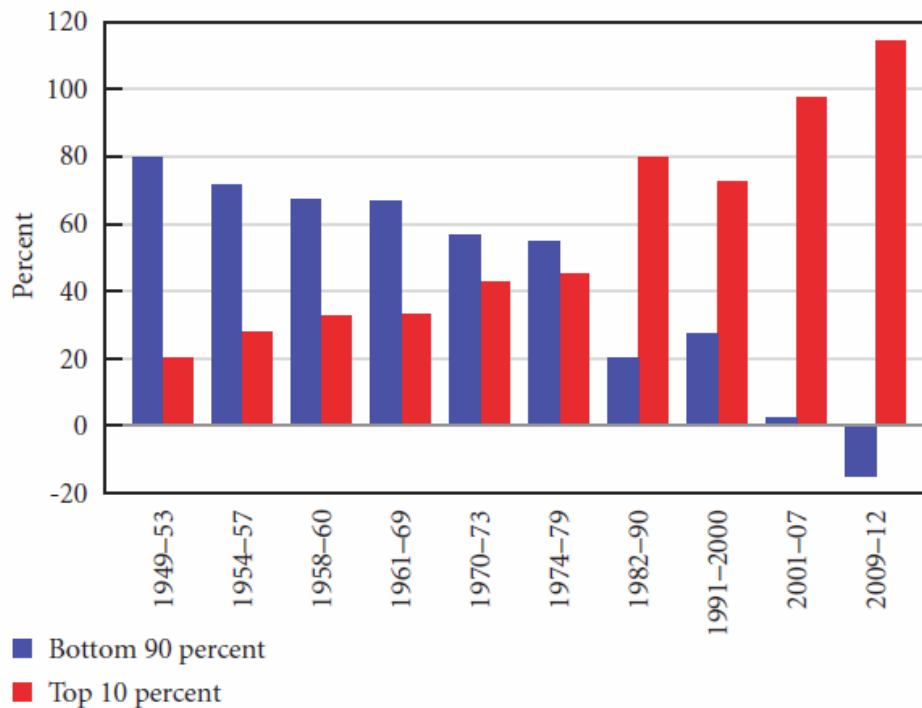


Efforts to treat the diseased expansion of toxic assets are not likely to be an effective cure. Lurking somewhere under the jobless recovery’s surface is yet another tumorigenesis ready to consume healthy cells across the system. Destruction and misery are inevitable, as long as the financial system continues to thrive on instability. Rather than being a mechanism facilitating healthy growth in the economy, the mutation of finance promotes dangerous speculative behavior that undermines stability. Finance no longer understands its role as a service provider. The mutation has made the industry truly inept and corrupt. While a strong fiscal arm could be

¹² This information is provided by a thorough Washington Post expose by Todd C. Frankel: <https://www.washingtonpost.com/graphics/business/batteries/congo-cobalt-mining-for-lithium-ion-battery/>.

used to positively counter the adverse redistribution of society’s assets, austerity and expansion of a police state both at home and abroad obstruct society’s immune system’s ability to promote healthy social and environmental change. In fact, the redistribution of wealth is occurring in the opposite direction (Figure 2).

Figure 2: Distribution of Average Income Growth during Expansions
Distribution of Average Income Growth during Expansions



Source: Author’s calculations, based on Piketty/Saez data and NBER

Figure drawn from Tcherneva (2015)

That is not to say that society is not fighting off the disease, and all is lost. To meet this challenge new technology and diagnostics are needed. Returning to our earlier quandary for economics, what is a normal economy or social relation? Following the lead of McMurtry (2013), normal cells or human relations appear to be better modeled by what he calls the “civil commons.” In other literatures these institutions and social relations are classified as exilic spaces (Grubačić and O’Hearn 2016). These are spaces that exist and reproduce themselves outside of the capitalist core. One concern that this interpretation raises is if this core periphery relation exists, then healthy social relations are an abnormality in the global corpus, thus indicating the extraordinarily deep progression of the disease.

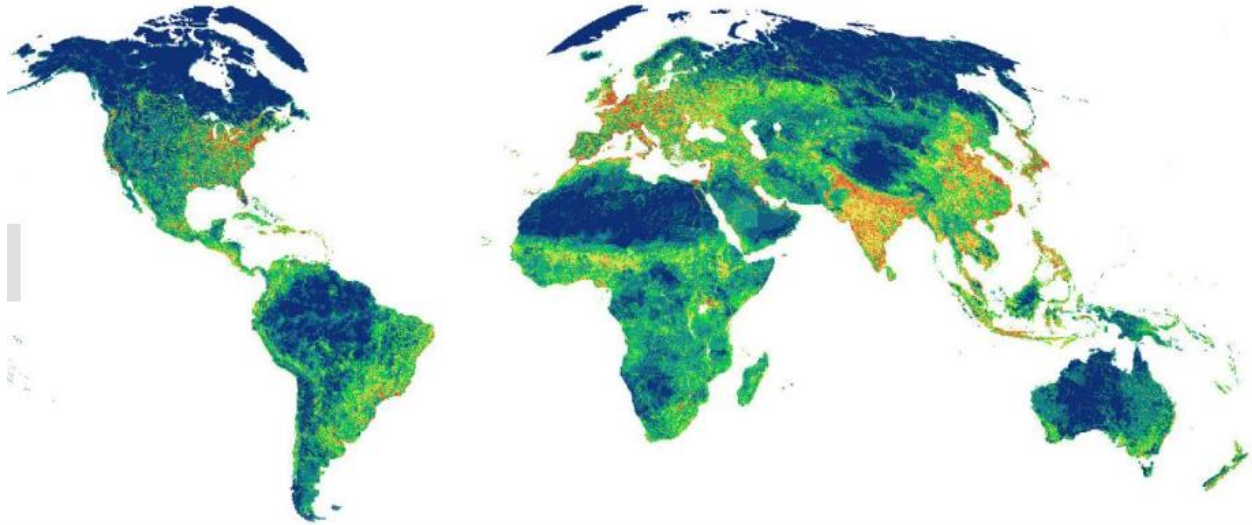
While this is an ominous observation, one of the amazing outcomes witnessed in people’s fight against cancer is the tremendous heroism, love, strength and compassion that emerge among the patient, their family and friends, and from the medical teams treating them. Similar reactions are taking place in neighborhoods and communities across the globe. In times of extreme adversity,

solidarity surfaces and supports Peter Kropotkin's observation that, "those... who acquire habits of mutual aid are undoubtedly the fittest [and] have more chances to survive, and they attain... the highest development of intelligence and bodily organization" (Kropotkin 2014, 12). This is the body's rejection of the disease. French sociologist Henri Lefebvre (1991) called this immune response *autogestion*, a flat refusal to accept the material provisioning of the system. A contemporary illustration of this healthy response to capital's exploitation and destruction of social and environmental space is the emergence of urban farming. These pathways of healing provide opportunities to examine and compare the results of healthy social relations and the institutional structures that support them to the deranged dynamics of capital. As indicated by McMurtry (2013), the money sequence is critical. The circuit of money capital's spatial distribution can be mapped and the metabolic transformation across the circuit examined to understand the genetic mutations of societies DNA.

Geographic information systems (GIS) provide social science with an opportunity to ground value and life generating goods and services that produce healthy metabolic change. This grounding is a necessary step in moving our economic thinking away from the toxic logic of profit and heal the current metabolic rift (Foster 2009). A proposal for the application of GIS is to begin a societal genome project to identify, across the planet, the patterns of death created by capital and to contrast those patterns found in healthy spaces, characterized as civil commons, exilic spaces or *autogestion*, and driven by solidarity and mutual aid. For example, comparison of the metamorphoses occurring between the points of production in the industrial food system and locally organized urban agriculture, identify very different pathways (Wilson 2015). Additionally, GIS provides the imaging necessary for targeted treatment. How do the core fundamentals of the social process reproduce themselves? Identification of support mechanisms for mutual aid and solidarity represent a hormonal approach to treatment. It is not necessary for significant parts of society to get sicker, before we can bring them back from death. Just as technology propelled cancer research into genetic mapping, innovative social science that applies GIS as a diagnostic tool is capable of supporting positive social relation transformations.

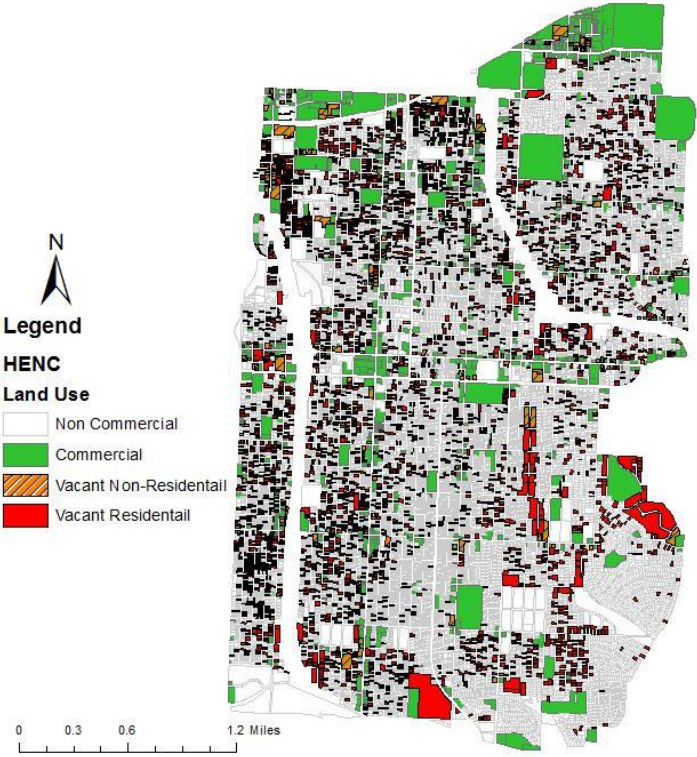
GIS supplies scientists of all disciplines with a tool to analyze the scars, open wounds, and infections left by capitalism's malignant diseases. Racism, fraud, alienation, and exploitation can all be displayed vividly across landscapes at a multitude of spatial levels of aggregations. For example, the basic mapping of the changing human footprint on the planet generated by National Geographic (Figure 3), the distribution of vacant parcels in Kansas City, Missouri urban neighborhoods (Figure 4) and the spread of dead zones in the Gulf of Mexico (Figure 5). In contrast to these problematic geographies, the reactions to the disease can be identified at the ground level as well. As noted above, urban farming is growing in spaces where healthy food options are not being provided by the current profit driven value structure.

Figure 3



This image displays spaces where the human footprint is changing. The red areas are potential proxies for declining metabolism as both the environment and humans are being exploited in these spaces Mason (2016).

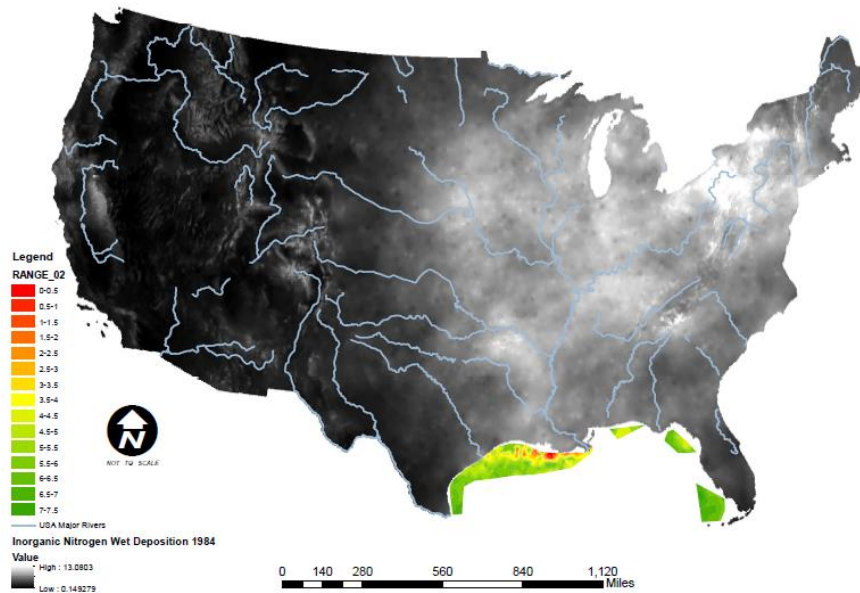
Figure 4



Vacant residential and commercial parcels across Kansas City’s Historic East Neighborhood Coalition (HENC) Wilson (2015).

Figure 5

USGS Water Resources



Levels of hypoxia in Gulf of Mexico (dead zones in red) generated by high levels of inorganic nitrogen in ground water (Wilson 2015).

Similar to oncology's project, social scientists can work to identify driver mutations. "Thirteen mountains" have emerged in the initial charting of cancer's genetic mutations, and the goal is that, "by sequencing the entire genome of several tumor types, every single mutated gene will be identified" (Muckherjee 2010, 450). In the United States, poverty, food insecurity, crime, vacancy, and poor health are all social diseases that can be mapped. While the particulars of each issue are not going to be identical, neither will the treatment strategy. Space and place matter, and those on the ground need to be provided with the resources and freedom to treat symptoms and cure disease. This requires a transformation in the division of labor. Cooperative labor process and social ownership are generating different results in the production process and providing greater stability in neighborhoods, because solidarity promotes democracy and group interpretations about what has value.

Some of this imaging work is already taking place. Economists, such as Raj Chetty are analyzing problems such as inequality from a spatial perspective, and at the same time dropping the application of neoclassical economics' abstract structural models. Instead, they are beginning to embrace a more heterodox approach. Without a priori assumptions, big data is allowing patterns to emerge and speak for themselves, promoting the use of quasi-experiments and a break from the rigors of universality in economics. These findings are prompting calls to discover practical solutions. One problematic issue found in this new research freedom is the ad hoc nature of the analysis, a classic critique. Additionally, economic systems and the social issues they create are likely to be infinitely more heterogeneous than the cancer genomes and their destructive pathways. Therefore, rather than dropping theory from economics, it is time to draw from the foundational critiques of the structural models economists are happily abandoning. Marx, Kropotkin, Veblen, Polanyi, Durkheim and Lefebvre supply political

economy with a wealth of understanding and clarity as to the evolution and toxicity of capital. Spatial analysis grounded by questions of metabolism through the circuit of money capital is one approach to providing a systematic process to research. Drawing from the threads of history is not admitting defeat, but a necessary step in the progress towards discovery.

III. Diagnosis Consultation

Is it possible to cure cancer when, “Cancer is a flaw in our growth... this flaw is deeply entrenched in ourselves. We can rid ourselves of cancer, then, only as much as we can rid ourselves of the processes in our physiology that depend on growth—aging, regeneration, healing, reproduction” (Mukherjee 2010, 462). This sounds like a no, but maybe this is the reality that we must accept as flawed creatures that cannot escape death? Rather than continuing to surrender to the idea that we are fundamentally self-interested individuals, we begin to construct institutions or pathways towards stronger more complete human behaviors. What draws out cooperative or altruistic human action? Greed, jealousy, hate, prejudice, and racism are both environmentally and internally manipulated. They are potentially always a part of human life, however, can we structure the production and reproduction of our daily lives to push them to the periphery, rather than having them be the core of human activity, as they are under capitalism? This is a daunting task, but are we going to stop fighting cancer just because it is hard?

What do we value? This needs to be discussed. How do we begin to produce and reproduce life under a value scheme that looks beyond monetary profits? The currently defined imperative for growth needs to be reconfigured. Growth is good, but not as it is constructed by those in power. The question becomes, can we reverse and be healed without violent and extraordinary carnage across earth’s corpus?

Cancer research suggests two answers to this question. One is that the neoclassical orthodox models are correct. The evolution of human nature is axiomatically trending towards the optimal agent. These relentless optimizers will reach their deranged max and kill the earth and all those on it, just as cancer cells are consuming tissue, organs, and human life at an exponential rate. Or second, human nature is pliable and the fundamental class process can be transformed. Hormonal treatments are effective and can be refined and advanced with continued growth in or understanding of the genome. A second enlightenment is possible. How do humans share without power and hierarchy? This is why value is more than a word. It is a philosophy and a way of life. The second path is not a solution or cure to cancer; it is an approach to stem the rising tide of death. The self-interested attribute of human nature is always going to be present, just as the potential for genetic mutation is a fundamental part of human growth and death. Increasingly, we, as both social scientists and oncologists, are coming to realize the importance of interconnections at multiple scales of social and physical aggregation. Environments are fundamental in the development of both humans and all that is occurring within their physiology.

In political economy the solutions and treatments necessitate a much deeper understanding of money. While Modern Money Theory is leaps and bounds ahead of the prevailing conventional wisdoms in economics, there remains a serious need for a deeper understanding of money as a

social relation. For instance, must money be a hierarchical social relation? If this is the case, it presents difficulties for long-term treatment and healing. Chemotherapy kills cancer cells, but it also generates mutations and other cancers. One pathway for experimenting with money treatments is to apply complementary and community currencies to locally transform the division of labor. Delinked from capitalist economies, experimental currency systems are already providing social science with a wide range of experimental techniques and alternative institutional arrangements.

Hence, the treatment strategy and research agenda in political economy and more generally in social science needs to progress, as it is in oncology in the following three steps:

1. Find and execute targeted treatments by promoting *autogestion* and supporting the growth of civil commons by institutionalizing cooperation, mutual aid, and solidarity.
2. Prevention. The isolation of cause and effect is nearly impossible. By integrating epidemiology with other social and environmental studies patterns and pathways may be discovered to prevent cancer and other diseases. This is upstream medicine¹³.
3. How do we understand economics as a whole? The Cartesian science and the notion of externalities is not a viable approach to understanding planetary and social exploitation. Only through approaching economics and the social provisioning process from a holistic perspective, can visions for a healthy social body be imagined.

The combination of these three steps supports discussion and debate regarding value. At the grassroots level, from academic and research perspectives, as well as policy makers, value needs to be a central component in understanding how human beings activate the division of labor to support positive life reinforcing eco-social interactions in the production process.

Marx described capital as a monster. In this description, he is calling for “a society founded on the living of full and creative lives rather than one founded on the rule of the dead” (Neocleous 2003: 684). For the early stage of the disease, a fictitious metaphor may have been appropriate. However, the advanced stage of capital now requires an honest and blunt discussion of just how sick we have become. It is time to discuss with family and friends what we value, how much we are willing to endure, and what our best path is to health and an acceptable quality of life, before it is too late.

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¹³ https://www.ted.com/talks/rishi_manchanda_what_makes_us_get_sick_look_upstream?language=en

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