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## The Thermo-Entropic Limits of Security in Capital's Militaristic Death Drive: A Note on Robert Biel's Entropy of Capitalism

Robert Drury King<sup>1</sup>

### Abstract

*This commentary to Robert Biel's book, *The Entropy of Capitalism*, defines the tasks of international security on the terms of a systems theory that asks how the system reproduces itself. The matter, energy, and information that go into its successful reproduction are also ecological challenges to this very system because the processes that generate the order of the system are the same processes that generate an entropy for the system that it must confront. The system confronts its own waste and the manner in which it does so, on Biel's account, establishes its pathways of future development, including the ways in which the system is constrained. The commentary reaches beyond Biel's framework by deepening his understanding of the structural embeddedness of capitalist development, including its surveillance stage, but it ends by defending Biel against his critics. Critics of Biel's preference for low-input strategies of future development run astray, I suggest, in their neglect of Biel's core insights into how an analysis of entropy is so essential to an understanding how the capitalist system works.*

**Keywords:** *Capitalism; entropy; security; development; systems theory; low-input alternatives*

### Reading in the Forest

A key challenge to the establishment and successful reproduction of the international security system (including theoretical security discourses) consists in finding accurate ways to define what animates its limits: who it applies to, how it works, and why it spreads. These limits are through and through ecological in every case; likewise, they are systemic. This commentary will outline a dissipative, systems-theoretical view of security based on thermo-entropic analysis of the viability of the social structure which security discourses mean to prop up, what they mean to enclose and defend. This essay could not proceed without analysis of the system of capital in terms of its structural reproduction. It thus looks at the reproduction of the core elements which, historically, have defined the various capitalisms, over time. Like all systems, capital must accumulate matter, energy, and information, and it must fend off environmental threats to this accumulation.

The security of the international system confronts the challenges of any system, *tout court*: it must fight off its tendency to decay (entropy) across perturbations in the environment of what it means to secure (its structural order). It does so by drawing inputs of matter, energy, and

<sup>1</sup> Robert Drury King, Professor Emeritus, not currently associated with any school, University of Nevada, Reno, United States. E-mail: [rdruryk@gmail.com](mailto:rdruryk@gmail.com)



information from energy pools in its surrounds in order to reproduce its structure as an output, over and over again.

The essential difficulty with security today (as well as security discourses), then, is that capital's extension has encircled the environment *of* environments. There is no longer an outside, or for that matter the surety of some inside, wherein capital might cast out its waste, its various forms of internal disorder. While ever new imaginaries proffer new figures of enmity (Bin Laden, Taliban, ISIS, the return of fascisms, atomic annihilation) which might allow the system to define a new outside, these must remain merely imaginary. They may appear as external enemies (to whomever), but these figures are all a part of the same system insofar as they are based in the same energy and entropy dynamics. These figures (real as they may be) all draw from the same pools of matter, energy, and information as those who would define them as figures of enmity. Pumps exist on the inside of any part within the whole, but there is no outside in which to really dump entropy. As we shall see, the system reacts to this lack of an environment outside of itself by auto-cannibalizing itself, indeed by means of capital's own structural dynamics.

### **Systemic Reproduction in The Accumulation Regimes**

First, how do we define entropy in the system today? Biel (2012) theorizes that analyzing the energy (entropy and exergy) dynamics of capital allows us to see transitions in the various accumulation regimes that define the recent history of global development and its political economy. Such a framework allows us to draw very interesting conclusions about the early 1970s, with the capital system's subsequent neoliberal path-dependency. The 70s signaled an end to a decades-long domination of the international, geopolitical system by the U.S., which could outcompete the European countries in their own (hydrocarbon and financial) markets because of the structural advantages that accrued to the U.S. after the outcomes of the two major wars of the 20th century. From a longer-term historical point of view, however, one that analyzes systemic energy dynamics, the oil crises of the 70s will prove to have marked the end of U.S.-led strategies of energy control, despite the fact that the U.S. continues to structure its social reproduction as if it were still a part of the pre-70s world.

Biel uses the notion of accumulation regime to historicize the shorter-term historical transitions of energy crises in terms of the longer-term social reproduction of the system of capital (with its sub-regimes of core and periphery). What may have appeared as a structural crisis of a new order for the U.S. over the shorter term, looks like a reproduction of much of the same dynamics in terms of entropy. Thus, Biel views the shorter-term energy transitions since the 70s in terms of longer-term accumulation and reproductive strategies and the impacts these strategies have had on global development, the international division of labor, the formation of transnational corporations (TNCs), and their hydrocarbon-controlling directives and agendas. The neoliberal accumulation regime evidenced its predictable path-dependency by searching out oil on the cheapest possible terms, betraying international law any semblance of democracy, so constituted, in the process.

But in the fight for oil, why spend it? Enter the regime of surveillance capitalism. Here, we see another trend in the realm of automation, for example, the EATR robot funded under the Bush regime, which is fueled on living tissue itself: a corpse here, a corpse there, a cheaper nature is the point. What's to come? Glimpse what appears a much more innocent image than EATR, a children's play doll- Cayla. Outfitted with a blue tooth app, a microphone, and voice-



recognition technology, Cayla already signals the transition to a nature even cheaper than the biomasses that might replace hydrocarbons: our behavior itself. And this nature, termed our “human nature”, is the new cheap nature sought by the accumulation regime of surveillance capitalism. Surveillance capitalism represents the latest transition in global capitalist development. Such clandestine accumulations of behavior seem at first blush an intelligible (yet deplorable) strategy for the continual capture of cheap natures which can be converted into surplus profits.

Our behavior seems to come from somewhere internal, a cognitive source providing spontaneous surpluses of data, free for the mining. We offer surplus behavior in our most passive, generous states of labor (from infancy to adult—analysis of a quantity of labor is here useless), consigning our privacy to Google with little resistance, even when we are aware of the violation of privacy at hand. There is perhaps no greater current threat to global security than that presented by surveillance capitalists like Google and Facebook as they defy any notion of democratic standard by surveilling, extracting, and selling off to the highest bidder using algorithms that generate prediction products. The short-term transition we are immersed in, then, follows the pursuit of creating continual streams of capital for advertisers and players on behavioral futures markets. The goal under the regime of surveillance capitalism is to capture such flows of future behavior, code this data as surpluses to be bought and sold, and to harvest this future behavior into cost-free feedback for the accumulation regime.

Recently scholars assaying transitions in global development have analyzed this emerging history and the logic of these new capital dynamics, but, outside of Biel, little has been said about the thermo-entropic costs of this new mode of capital accumulation. Such a framework helps us understand why we seem to give our behavior away, freely, up for surveillance capitalists, even when the actual matter, energy, and information involved in the exchange has patent costs. *The Entropy of Capitalism* will have an enduring appeal because it can theorize the actual energy that define the transition to surveillance capitalism. It details the real, material supports that must regardless be deployed for the capture of our (online) behavior. As well, Biel’s analysis of entropy gives us a way to understand how much matter, energy, and information (thermo-entropically) actually go into mining our behavior in a world defined by the encroachment of the periphery upon the core, of the environment upon the system. While surveillance capitalism promises a new form and medium of cheap extraction and reproduction of capital, there are ecological, material limits to this process.

Assessing these limits is key to assaying the future behavior of the system and thus for the entire security game, as it were. Biel has it that security can still function in capital’s system of accumulation. It does so, first, as a security discourse and material strategy of security designed for the ruling order and its militaristic impulse. Biel contends: “[t]he ruling order builds its credentials on combating insecurity on behalf of society, on rebuilding the structure which the era of unpredictability dissolves. To do so, it claims exceptional (extraordinary) repressive powers” (p.169). What’s worth emphasizing in this claim is the focus unpredictability. What does the so-called ruling order do with unpredictability? What happens in a world where the affirmative desire for security becomes a drive for its own repression and at the expense of its subjects? Here, second, security functions, ironically for Biel, to define and *defend a situation of accelerating demise* of the social order, a contradictory premise for security discourses: security merely becomes a mock strategy that serves the capitalist militarism of the ruling order while

accelerating the death drive of subjects within this system. Worse, these subjects begin thus to desire their destruction—for, the choice will be made, by subjects, to feel secure rather than to feel that one's life is constantly at stake.

If we are to adequately address the limitations security suffers today, this sense of inequality – or rather, disequilibrium, which is expressed in material-energetic dissipation of order, wrought by capital's dynamics – must be packaged and unwrapped on the inside of the distinction that defines life within systems today: security, like all things, must be constructed or built by taking inputs of matter, energy, and information from environmental surrounds and *in a situation in which exergy* (available energy or order that can be harnessed by social systems and secured for their reproduction) *is already scarce*. Security strategies must also fight this fight—they preside over a world where entropic by-products must be flushed into an external environment under heavy stress. If this cannot be achieved, security's own entropy attacks it from within, as with a bodily cancer run amok.

Historically, if the (symptomatically Western) wealthiest enclaves of countries have enjoyed greater degrees of security, this is because these countries have found, often perniciously, ways to unevenly manage (at the expense of the Global South) and to expel their entropy. Such countries have exported or flushed the waste that comes with generating security into the Global South (see Hirsch, 2013), where labor seems to come cheaper, and into natural environments, like oceans, forests, and the atmosphere. Of course, capital's history of uneven development is basic to its evolution. Further, if we were to model the construction of security on anything like the material realities of the wealthiest enclaves of countries – attaining the wealth resources and satisfying the energy consumption demands of the U.S, Western European countries, and Japan (the global core countries) – then it is well-nigh impossible, *given current* material and technological resources, to realize anything like a globally democratic or homogenized conception of security. Imagine extending the wealth and energy extraction and consumption patterns of these wealthiest countries to a global context (especially given peak oil). At best, in our current context (of the capital system) we might be able to speak of security only for (what Biel calls) the ruling order, these wealthiest enclaves.

## The Structures of Capitalist Entropy

To deepen Biel's analysis, we might suggest that what really prevents the actualization of security on a global scale is internal to the sheer weight of the capital system and to the reproduction of its structural parameters. The danger here is that political sentiment might obscure structural analysis. We ought not to lose sight of the structural parameters that define the social reproduction of the system at its very core. What parameters do we have in mind? With respect to the capital system there must be a continuous conversion of the bulk of its energy, materials, and information into the reproduction of the following structurally necessary components (brief list):

- i. A structurally enforced inequality between capital and (ultimately human) labor.
- ii. Constant accumulation of capital with an expanding profit motive.
- iii. Property system with private ownership of means of production.



- iv. An uncontrollable global market, in-principle, with fetishistic production objectives.
- v. Nation-state system as framework of international relations where each state confronts each other, sometimes violently, over the control of inputs and outputs.
- vi. Nuclear or tribal forms of agency which socialize individuals toward ensuring the legitimization of the minimal, status-quo objectives of the state.

Of course, the core parameters that make the capital system what it *is*, are extremely expensive, thermo-entropically, to reproduce over time (capital now in its perhaps 5<sup>th</sup> century of existence is already taxing, very highly, natural ecological systems and human labor). Further, the capital system, just in order to reproduce its basic engine of reproduction, requires mechanisms that cause it to ‘overdevelop’ and which require it to produce immense, *high-input* quantities of disorder in its environments, from the production of food waste and hydrocarbon fuel-burning to the maintenance of its militarization tendency.

Security modelled on reproduction of such a heavily entropic system has become, if the revolutions in capital and finance have shown us anything, an apologetics for the ruling order, a discourse coincident in all its features with the kind of outlandish militarism and overt repression necessitated by the extension of capital accumulation. It is true to say that this makes security (material strategies and discourses), and especially the maintenance of the status-quo security parameters of the core wealthiest enclaves this security serves, wasteful and harmful to the environments it funnels its entropic waste into, but the two more astounding facts are the following (according to Biel):

- a) Security discourses get pulled into the orbit of capital’s gravity, become a kind of sad prop for the failure of the capital system as a whole, justified only as a militarism of the ruling order, inevitably issuing in a further drain on the system’s exergy.
- b) More unsettling still, as such a prop, security retains the function of a death drive (this entropic tendency to decay) that swallows up the subjects it would otherwise secure along with the failure of the system. The system takes the subject down with it, even as it tries to secure this subject.

In what is more than a literary-rhetorical analysis, Biel rightly remarks that one of the grosser manifestations of this death drive is that subjects of security become dupes to security imaginaries such as the threat of the terrorist, a figure of enmity. Figures of enmity heavily seduce a subject’s desire for security—they are convenient for the satisfaction of the urge to defend one’s borders at all costs, but, under capital’s high-input accumulation regime, subjects do so in a crass misdirection of security’s better spent energies. After all, it is more likely that one living in the U.S. will be killed by a law enforcement officer than a terrorist (see Singel, 2006).

Thermo-entropically, the politics of security and its discourses within the international relations framework become problems not only of political representation but are more and more problematic inasmuch as these international political relations are controllable only under the parameters of a militarization tendency produced within the capital system, indeed,

as the control agency vis-à-vis its core structures. Thus again, we can here equate security with this form of militarism meant to preside over management of capital's entropy. Biel notes correctly: "(...) in order to survive, the system must parasitize upon sources of vitality wherever it can find them. The key problem then becomes how to control them while doing so" (p. 235).

Capital, for Biel, thus has distinctly constrained paths of development open to it. He mentions three, which might function as frames for security discourses today: one, the attempt to continue to impose top-down order within the system, the reinstatement of "the hierarchical and state-centric methods of early imperialism"<sup>2</sup> (p. 235). Today, with the system becoming too complex, as Biel puts it, and suffering a global crisis (economically and ecologically), this top-down form of control goes hand in hand with the *restoration* of the old order, including in the more contemporary sense: domination by the Western core countries, neoliberal political economy, globalization, business as usual, etc. Even seemingly innocuous economist narratives such as the post-Keynesian theories which today call for renewed investment in infrastructure (the fixing of rotting pipes or crumbling roads and bridges) express precisely the problem with the restoration of top-down order as a governance and control strategy within the capital system: where is the money and the resources for such infrastructural improvement projects to come from? This difficult question leads Biel to imagine his second path of development for the capital system: harnessing the spontaneous emergence of the energy produced by the system. As complex systems theories confirm, order comes for free in a variety of natural and physical systems. One might here think of Stuart Kauffman's (1993) theories on the generation of life, as self-organization, where life emerges spontaneously from the merely chemical pools defining Earth's early elemental history. Instead of construing security as managing the extraction of material and energetic wealth through costly forms of top-downism, why not take advantage of social order that "comes for free", as it were, for example as is evident in the emergence of social movements like the Arab Spring, or through the ways in which local communities may abandon status-quo preserving behaviors and share resources in times of crisis?

Biel has it that the problem with this more laissez-faire phenomenon of capitalist control and management of energy is that it can easily be co-opted by capital's current top-down regimes and interests, thus reintroducing, for security discourses, the structural problems of capital's top-down control over the system of imperialism. While locally or in punctuated times of crisis such spontaneous emergence of order can generate alternative behaviors which might then be harnessed in certain ways by entropically-legitimate security strategies, these *cannot* arise globally or perdure. Capital's top-down imperialist regimes tend to take advantage of such spontaneous emergence of order, forcing the creation and diffusion of bad forms of chaos.

Biel here suggests as an example the U.S. DARPA's (Defense Advanced Research Project Agency) – initiated under the U.S. neocons of the George W. Bush regime – development of robots that are designed to forage over battlefields consuming human and other biomass to refuel themselves and thus go on killing or serving whatever other programmed directive they are meant to carry out. This is the unfortunate consequence that too often attends to Biel's second path: the co-optation of spontaneous emergent order, which represents one of the

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<sup>2</sup> Early state-centric imperialism, that is, imperialism within the history of capitalism proper.



scarier trends in capital's development. As Biel puts it, "It's a bit like the control of the seed multinationals over experimentation in farming: the system cannot tolerate diffuse innovation, or any autonomous emergence which might go in creative directions"<sup>3</sup> (p. 255).

### The Limits of Capitalist Development and the Low-Input Alternative

Given the limitations of the first two paths of capitalist development, Biel puts his hope in the third path he isolates: low-input solutions to capital's high-input modes of systemic control. Again, this control is here conceived as control over the inputs and outputs of matter, energy, and information that serve as the material resources through which some viable construction of security might proceed. Low-input means simply that lower quantities of inputs of matter, energy, and information would go into the creation of a structural (here, social) order and its generation of the structural outputs it needs to reproduce or maintain that order. Biel conceives this as an alternative to the capital system because capital's dynamics are structurally high-input in nature. The low-input approach does not mean low-output production, as Biel contends: "surprisingly, small farms and gardens turn out to be more efficient than plantation agriculture"<sup>4</sup> (p. 321). In the case of food, Biel believes that low-input food production would minimally allow for the withdrawal of the current, high-input food production sub-system from the capital system, but low-input alternatives do not apply solely to the realm of food production, even if this is Biel's preferred example.

Indeed, low-input methods of the extraction and production of energy across the social board are less wasteful and more efficient; they are, then, from the thermo-entropic point of view, less costly to secure. They produce less entropy, thus avoiding the forcing of the social system into a cannibalistic phase. If the low-input alternative yields the outcome of using lesser quantities of inputs of matter, energy, and information – drastically less as compared to the system of capital – it might provide the framework for alternatives to security less caught up in the militaristic death drive of the ruling order. Because low-input alternatives are, potentially, enriching to local communities everywhere, especially *if* current conditions of control over the system can be transcended, there is a global import to such methods. Low-input strategies of social reproduction may thus offer viable alternatives for restructuring social systems, *en toto*, in line with the objectives for security required by healthier social systems.

Briefly, recently there have been raised objections to low-input alternatives of managing and securing social order, often referred to as horizontalist (versus top-down, bottom-up) oriented solutions to the problems generated by the capital system (one thinks here of the accelerationist movement as is put forth in the *Accelerationist Manifesto for an Accelerationist Politics*, by Nick Srnicek and Alex Williams, in 2013).<sup>5</sup> Objectors believe rather that we ought to harness the rich techno-capacities of capital in order to transform the system toward positive ends or else encourage use of the robust economic and political dynamics of capital to hasten its demise, though how such strategies would work is unclear, especially when one realizes that the core structures *of* capital are the ones that generate capital's immense problems

<sup>3</sup> It cannot tolerate innovation because it threatens its very reproduction, too much of which is already funneled right back into *self*-reproduction.

<sup>4</sup> Low-input methods indeed can outpace high-input methods, especially over time, because they generate less entropy which must then be controlled. Low-input does not mean *low-output*.

<sup>5</sup> The debates about this work became rather voluminous and cannot be reproduced here.

to begin with, for example, its poverty-creation for those dispossessed from the technologies of wealth-production. Other accelerationist arguments include appeals to the notion that people need large-scale institutional social structures (like vast transport or health-care systems), especially in times of crisis.

Yet such objectors and objections miss the point that the question is not so much whether such strategies are really in keeping with the needs or desires of human beings, but whether the capabilities to continue to take advantage of heavier technologies and large-institutions is still thermodynamically possible, entropically safe, or ecologically-sound in today's world. They also miss the point that Biel's low-input alternative does not imply a low-output result; for, Biel thinks that low-input food production can be even more productive than high-input production. In any case, where the theory of security is concerned, what the low-input alternative gets right is the fact that such an alternative provides a thermo-entropically astute assessment of possibilities for viable security of social structure not modelled on the ruling order's death drive, that costly form of militarism required to sustain capital's current high-input reproduction.

## References

- Biel, R. (2012). *The Entropy of Capitalism*. Brill Academic Publishers.
- Hirsch, A. (2013, December 14). "This is not a good place to live": inside Ghana's dump for electronic waste. *The Guardian*. <http://www.theguardian.com/world/2013/dec/14/ghana-dump-electronic-waste-not-good-place-live>.
- Kauffman, S.A. (1993). *The Origins of Order: Self-Organization and Selection in Evolution*. Oxford University Press.
- Singel, R. (2006, September 13). "One million ways to die." <https://www.wired.com/2006/09/nsa-bill-performs-a-patriot-act/>.
- Srnicek, N., & Williams, A. (2013, May 14). Accelerate Manifesto for an Accelerationist Politics. *Critical Legal Thinking*. <http://criticallegalthinking.com/2013/05/14/accelerate-manifesto-for-an-accelerationist-politics/>.

