

From Sustainable Bodies of Bio-Politics to Disposable Bodies of Bio-Capital

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Abstract

The spectrum and issues of bio-capital, are wide from sportive activities and bodily technologies to surrogacy motherhood, and organ piracy. On the other hand, while the development of this work opens up new possibilities for the body, it also creates new tensions and conflicts between the body and subjectivity.

Although this conflicted field is called bio-capital, this point was not reached suddenly. For, modernism constructed and positioned the subject in two interrelated basic channels: The body as a biological unit, the object of bio-politics, on the one hand, and labor, the object of capitalism, on the other. However, with advances in genetics, medicine, software and pharmacology, there has been a fundamental shift in the positioning of the body by industrial capitalism and modern power.

In this study, the hybridization of the traditional production-circulation-commodification mechanism of capitalism, the encounter with bio-value and the sub-headings that this hybridization creates within the capitalist system will be discussed.

Keywords: Bio-capital, Bio-politics, Bio-value, Speculative Capital.

Biyo-Politikanın Sürdürülebilir Bedenlerinden Biyo-Kapitalin Kullan-At Bedenlerine

Öz

Biyo-kapital tanımlamasının çeşitliliği sportif faaliyetlerden, taşıyıcı annelik, organ korsanlığı gibi değişik biçimlerde temayüz eden beden teknolojilerine kadar pek çok başlığı içeriyor. Öte yandan, bu çalışmaların giderek genişlemesi, beden için yeni imkanlar yaratırken, beden ile öznellik arasında yeni gerilimlere ve çatışmalara da yol açıyor.

Bu çatışmalı alana biyo-kapital deniliyor olsa da, bu noktaya birdenbire gelinmedi. Zira, modernizm özneyi bir yandan biyolojik bir ünite biyo-politikanın nesnesi olarak beden, diğer yandan da kapitalizmin nesnesi bir ünite, emek, olarak birbiriyle ilişkili iki temel mecrada inşa etti, konumlandırdı. Ne var ki, genetik, tıp, yazılım ve farmakoloji alanındaki gelişmelerle birlikte, endüstriyel kapitalizmin ve modern iktidarın bedeni yerleştirdiği pozisyonlarda temel bir değişiklik ortaya çıktı.

Bu çalışmada, kapitalizmin geleneksel üretim-dolaşım-temellük mekanizmasının hibridleşmesi, biyo-değer ile karşılaşma ve bu hibridleşmenin, kapitalist sistem içinde oluşturduğu alt başlıklar ele alınacak.

Anahtar Kelimeler: Biyo-kapital, Biyo-politik, Biyo-değer, Spekülatif Sermaye.

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Introduction

Gene technology, pharmaceutical developments, getting complex organ plantations and donation operations, anti-aging, diet programs to lose or gain weight, growing cosmetic market and plastic surgery, bodybuilding and training programs, sportive diet, protein -based supplements, and products may contain steroids and *in vitro* production of *bios*, IVF pregnancy and hoarding of tissues, hormones, (stem) cells, sperms, blood, retina and of other body parts and liquids.

All these developments, on the one hand, have made the medical industry grow, on the other hand, many pieces of modern world and subjectivity by which the conventional modern world has ontologically been constructed, like the definition of death, meaning of life, the issue(s) of trade, the boundaries of the law, the limits of traditions and the modes of surplus extraction became the subject of ontological, epistemological and controversial discussions.

This conflictual terrain is labeled as *bio-capital*. Even though it has become more familiar with the covid-19 pandemic *bio-capital* is not a novel term, with a little-known sixty- years history.

The spectrum and issues of *bio-capital*, as ordered above, are wide from sportive activities and bodily technologies to surrogacy motherhood (Gupta, 2012; Ha, 2015; Davies, 2017; Marwah, 2014), and organ piracy (OSCE, 2013; Lundin, 2008; Schepher-Hues, 2017). Nevertheless, this wide spectrum will not be encapsulated in this article. What the focal point here is: how the traditional means of production-circulation-appropriation of value in the capitalist system became hybrid when it is anticipated *bio-value* that mainly includes knowledge and intellectual property rights, body parts and liquids, eggs, agricultural seeds and cemen etc.. produced through life-tech; and the general characteristics of *bio-capital* as an evolved sub-capital form of this anticipation. In other words, to figure out where the *bio-capital*'s position as a sub-branch of speculative capital in general capitalist system is the first aim of the article.

Secondly, I will touch on some important debates and peculiarities in the processes of *bio-value* production and circulation, which focus on how capital turns into biological and biological ones turn into capital through the opinions of prominent *bio-capital* analyzers such as S.K.Rajan (2006, 2012), M.Cooper (2007, 2008), Dawson (2015), Fumagelli&Lucarelli (2007) Fumagalli&Morini (2010).

The next two sections of the article are discussions of subjectivity.

The first of these discussions of subjectivity is an investigation of what has happened and what is happening to the biopolitical subject created by the biopower of modernism with the production of bio-value and the development of bio-capital. The bio-political subject, as Foucault (1977, 1980, 2015) describes it, will be emphasized here in terms of the subject of modernism, that is, of industrial capitalism, its problem of the reproduction of life, its docility to discipline and its self-sufficiency/productivity as a productive subject. Through Negri & Hardt's (2000) discussions on immaterial labor, I try to explain that the positive expectations regarding the bio-political structuring of the multitude (through the production of culture and affect), which, on the one hand, fade out the classical worker, but on the other hand, with this dissolution, will replace the worker, have been frustrated by developments such as digital, medical, artificial intelligence, trans-human, especially in the 25 years since the publication of *Empire* (Negri&Hardt, 2000).

Finally, I will try to address the second part of the subjectivity debate, neo-colonial subjectivity. I will turn back to my starting point, the birthmark of capitalism, which means capture, (colonial) expansion, and re/definition of nature, natural resources, and body. I want to close the bio-value, bio-capital, and circle of capitalism, showing what these biological discoveries, medical innovations, ethical-philosophical-religious-socio/cultural controversies, have made transformed modern subjectivity from bio-politic productive bodies to bio-valuable consuming corpses... How these re/definition processes of capital(ism) and evolved, hybrid sub-capital have made boundaries of nature, capital, human body, and trade blurring, are the last matter of the article.

Capitalism, Speculative Capital and Bio-Capital

Capitalism and Speculative Capital

When it comes to "*what is capitalism?*", there will be numerous keywords and conceptions. In this study, however, capitalism will be analyzed in relation to some of these contexts, but above all through the sometimes conflicted, sometimes coordinated history of the relations between the forms of capital that shape capitalism.

As is well known, with the discoveries and new trade routes that emerged after the Middle Ages, the period of mercantilism (Braudel, 1992; Brezis, 2003), which was a highly complex commercial system involving the buying and selling of many products, including people and precious metals, between the colonies and Europe (and later America), provided the primitive

accumulation of financial capital and labor capital necessary for industrial capitalism and the technical base for the industrial revolution (Marx, 2015).

On the other hand, the accumulation of power of European mercantilism towards the industrial revolution was not a linear progression, but a journey similar to Odysseus' journey to Ithaca, with many struggles and entrapments. The most dangerous of these, similar to Odysseus' encounter with the sirens, was the speculation of the capital accumulation available to capitalism during the mercantile period by the absolutist monarchs and their finance ministers. The best known of these speculations are *Tulipmania* (Holland), the *Mississippi Goldfields* (France, John Law), and the *South Sea Enterprise* bubble (England) (Kindelberger, 2010; Shiller, 2000). The foundations of today's stock market and speculative capital were established when it became clear for the first time that huge profits could be made with a mere promise without any value, and the pioneering profits of the great speculations of the 20th century took place in the 16th-18th centuries.

While Protestantism, led by Luther and Calvin, provided the necessary spirit for capitalism through industriousness/productivity, in Weber's terms (2012), it was up to the Irish political economist Adam Smith to theorize this spirit. According to Smith (2014), trade and the market were of course indispensable, but the logic of trade should not be mercantilism based on hoarding gold, and the logic of the market should not be speculation based on abstract bonds, but a system fueled by industrial production itself, where quality production brings supply and demand into balance. Subsequently, Smith's (2014) prediction of capitalism based on industrial production was largely realized and a system where labor, capital, and production were concentrated around factories was established, especially in England. In this sense, the 18th-19th centuries were the centuries of classical capitalism based on industrial production. Therefore, political economists such as Ricardo (2000), who tried to understand capitalism after Adam Smith, or critical political economists such as Marx (2015, 1933), saw the real backbone of capitalism as industrial production and the relations concentrated around it. To put it differently, the classical period and the classical definition of capitalism was a system in which industry was at its center, and in which various forms and relations of capital (trade, banking, agriculture, etc.) were fundamentally industry-centered. Here again, going back to our allegory of Odysseus, industrial capital seemed to have completely deafened its ears, not with wax, but with the noise of the factories, in order to avoid the destructive promises of speculative capital, which made promises sweeter than the songs of the Sirens.

While industrial production and market relations within the capitalist system (what Marx (2015) called the P-M-P cycle) also carried risks for capitalists, it was the most protected and sustainable system for the capitalist system as a whole, and there was no comparison between the risks of production-based capitalism and speculation-based finance capital.

From the beginning of the 20th century onwards, a new situation emerged, the P-M-P cycle grew and grew, with P representing capital at the end of each cycle, with a multiplier effect. With this growth, on the one hand, the small players in the market were driven into bankruptcy, and on the other hand, capital was centralized and the P-M-P cycle turned into an Avalanche. Thus, within the capitalist system, financial capital, which had the role of financing trade and industry, gradually began to capture the soul of the system, monopolies, and cartels were formed, and after the First World War, as a result of this unbalanced centralization of capital, the depression of 1929 and then speculative crises began to emerge on various occasions.

On the other hand, the period between the two world wars was a time when Keynesian policies were gaining acceptance in the world. Keynesian central planning was further consolidated after World War II with the welfare state. Therefore, the Keynesian economic system, in the most general sense, meant the control of speculative capital to the fullest extent.

In the 1970s, Friedmanism, more commonly known as the Thatcher & Reagan doctrine, neo-liberalism, labeled notions such as central planning, the welfare state and the public sector, which kept markets as stable as possible and protected against speculation, as the burden of public finance and began to liquidate them through practices such as privatization, urban gentrification, the elimination of social rights and the shrinking of public budgets.

As is well known, this elimination was not limited to the elimination of the welfare state and Keynesian economics (Keynes, 1936); classical industrial institutions or the logic of fordist production also took its share of the neo-liberal elimination. Production became fragmented, and globalized, labor became flexible, and to the extent that production processes became atomized, capital also became flexible, optimized its centralization with many digital tools, and globalized.

The fragmentation, flexibilization, and globalization of production paved the way for the globalization of the movement of capital, which had been limited in Keynesian economic periods, and when this global movement was combined with neo-liberal policies and digital financial instruments, speculative

capital inevitably emerged from the cave where it had been chained for centuries, like mythological monsters that grow younger and stronger with age.

Thus, speculative capital is like a mythological creature from the late Middle Ages, sometimes chained, sometimes unleashed, but when unleashed, it feeds on its sweet promises by scorching the capital it pursues. In this respect, speculative capital rather than being a new stage, it is actually a sub-branch of capitalism, and bio-capitalism, which I will try to address, is one of the post-neo-liberalist manifestations of speculative capital.

So far we have dealt with speculative capital in general, as a kind of love-hate relationship within the capitalist system and on very general historical lines. Let's try to make the story here a little more specific by looking at the emergence of bio-capital

Speculative Capital and the Incubation Period of Bio-Capital

The deciphering of the structure of DNA (in 1953) that positive science has begun to analyze (and manipulate) our genetic inheritance, can be seen the beginning of the history of *bio-capital* (Rajan, 2006, 2012)

The cornerstone of the establishment of bio-capitalism is what Fumagalli & Morini (2010) and Fumagalli & Lucarelli define as cognitive capitalism (2007); after the second half of the 20th century, it is the process of transformation of communication into cyber information. Following this process, biological life has been categorized in the form of four essential DNA nucleotides: "cytosine (C), guanine (G), adenine (A), and thymine (T). Transformed into such a biological code, bios can potentially be circulated seamlessly as information, as a commodity, and as a material artifact." (Dawson, 2015: 6) Thus, after cognitive capitalism, the syn-bio medium of capitalism was also formed. Taken together with today's computer engineers' increasing rhetoric of DNA-based computing and synthetic biologists' lifecycle slabs, Syn-Bio, the roots of bio-capitalism, represents a combination of these two technological transformations. (Dawson, 2015; Rajan, 2006, 2012) The discovery of the structure of DNA has made a multitude of biological operations possible that transform cells through manipulation of their cellular, and subcellular structures by techniques: cell fusion, cell culturing, and gene splicing (Rajan, 2006).

Along with these developments in gene technology, some very revolutionary developments have occurred. First of all, with these changes in the structure of DNA, agricultural production has transformed biological formation. Cell fusion, cell culturing, and gene splicing have made both recombinant

DNA and Genetically Modified Organisms (GMO) possible. These shifts from DNA to R-DNA and from conventional nutrition and seed to GMO have made the soil and herb weak. This weakness has strengthened the fertilizer and anti-pesticide industry.

Secondly, the information that has been acquired from the deciphering of DNA boards transferred into computer-based cognitive technologies: “*SynBio represents the fusion of these two technological transformations, with contemporary computer scientists increasingly talking about “DNA-based computation” and synthetic biologists speaking of “life circuit boards”* (Dawson, 2015:6).

Nevertheless, all these discoveries in Agri-business and developments of DNA board-based applied cognitive computing technologies are necessary but not enough to explain how bio-capitalism has occurred.

In the first place, it should be stated that bio-capital is not a rupture or radical shift in the mode of capitalist production but an evaluation or a subtitle under *speculative/venture capital* (Rajan, 2006). It is a specific form and composition of bio-value, intellectual property, accumulation and transaction of bio-tech and circulation of speculative capital.

Before the circulation and accumulation of this specific combination of capital and SynBio, new legal, institutional and socio-cultural regulations were crucial to be convenient for the new accumulation and circulation regime. According to Kaushik Sunder Rajan (2006), this new regime is the direct outcome of a confluence of alterations in the 70s and 80s.

The biotechnology industry came about largely as a consequence of this techno-scientific development in 1973 by Herbert Boyer and Stanley Cohen. This sort of cutting and splicing allows scientists to study the functionality of divergent genes and DNA sequences by expressing these sequences in organisms (usually bacterial or viral) called vectors. These vectors can be research tools that “house” the DNA to be studied, or can function as production factories for more DNA (if it gets amplified by the polymerase chain reaction or PCR), or for the protein that might be coded by that DNA. In other words, RDT allows the life sciences to become “technological,” where the product that is produced is cellular or molecular matter such as DNA or protein [...] The second was the enormous amount of money spent by the U.S. federal government on basic biomedical research through funding of the National Institutes of Health (NIH) consequent to the declaration of a war on cancer in the early 1970s. The third was the 1980 Bayh-Dole Act, which was legislation that facilitated the transfer of technology between academe and industry and thereby enabled rapid commercialization of basic research problems. The fourth was a supportive legal climate that allowed the protection of biotech intellectual property, marked, for instance, by the landmark 1980 U.S. Supreme Court ruling in *Diamond v. Chakrabarty*, which allowed patent rights on a genetically engineered microorganism that could break down crude-oil spills (Rajan, 2006: 5).

In this way, not only have the codes of DNA been cracked for later use in many agricultural, pharmacological and cognitive studies, but more importantly, the foundations have been laid for the registration of knowledge, which will be one of the most important parts of bio-value, as a form of property, and for the expansion and gentrification of this form of property through technopolises.

The Peculiarity of Bio-Capital

Rajan (2006) starts his conceptualization of bio capital, based on the experiences of his fieldwork that he started at the end of the 90s. During the 70s, biotechnology developed, the venture capital and the techno-cities of these technology firms and universities acted together, and the crisis of the capitalism of the 70s was able to turn into neo-liberalism by overcoming itself. However, what is more, important for Rajan (2006) is that as capitalism becomes more and more biological, capital begins to express itself through speculative capital fields rather than investing in Fordist production chain and market logic. Starting from Marx's economic theory, Rajan (2006, 2012) emphasizes capitalisms, not capitalism. Capitalism, according to Rajan (2006), is the umbrella concept that expresses a system, under which there are more fluid titles, speculative capital, which Marx (2015) draws attention from the third volume of *Capital*, although speculative capital is a form of capitalism, it is a very original form. Rajan (2006) claims that biocapitalism is a multi-layer and compact category that is a result of life technologies, the pharmaceutical industry, university technopolises' happy marriage with speculative capital; pharmacology and medical companies develop products/drugs with an upstream movement; with a downstream movement, Afterward, the product/drug is released to the market with such great pomp that; many pharmacological and cosmetic products are so expensive is not because of the cost of the production process, but because of the expectation created by the public is translated into surplus value (Rajan, 2012).

The story of the pharmaceutical industry has arguably been one of the most dramatic stories of industrial growth in the twentieth century. The pharmaceutical industry was actually incubated in, and grew out of, the dye industry, just as the biotechnology industry in the 1970s was initially supported by, and grew out of, the petrochemical industry. The "boom" in the pharmaceutical industry occurred in the 1930s with the discovery of the sulfa drugs, followed by the industrial-scale manufacture of penicillin as part of the World War II which highlighted the importance of the links between defense and security needs during war and pharmaceutical innovation. At the end of the nineteenth century, the two companies that could be called pharmaceutical companies were Bayer and Hoechst. They were joined in the 1930s and 1940s by would-be pharmaceutical giants such as Ciba Geigy, Eli Lilly,

Wellcome, Glaxo, and Roche. The burst in natural-product chemistry occurred in the 1940s and 1950s, starting with the successful development of streptomycin for the treatment of tuberculosis. Not surprisingly, the development of biopharmaceuticals has a more modest history, both because the history of the biotech industry is much shorter and because in many ways the synthesis of biopharmaceuticals, which are chemically much more complex than small organic molecules, is often a much trickier process than traditional pharmaceutical development. (Rajan, 2012: 22)

The reason why, Rajan (2006, 2012) tells about the discovery of generic components by the pharmaceutical industry and the process of producing variant drugs from generic components, through some developments related to the dye-industry and petrochemical industry, is to show that the pharmaceutical and bio-tech industry is more concerned with profit maximization (Let's remember the prevention of AIDS treatment through patent rights in South Africa (WIPO, 2000)) rather than treatment. Because, in this maximization process, while large companies develop generic formulas and variants, they also invest in know-how companies that try to develop drugs. As Rajan (2006) has often said throughout the entire study, Wall Street hates strong firms that have established themselves in the market, instead they love small investments of know-how with surprises hidden inside, ready to rise and fall speculatively. Thus, with speculative capital, which is a component of bio-capital, the pharmaceutical industry speculates not only in the stock market but also in people's lives.

Rajan (2006) asserts bio-capital is the trade of hope by upward and downward movements of speculative capital on the one hand, and making life technologies bio-value in the stock market on the other. Melinda Cooper (2008) does not oppose the pharmaceutical scheme that Rajan figures out, moreover, she builds her bio-capital analysis on it.

While Melinda Cooper (2008) agrees with biotechnology, and the skillfulness of speculative capital, from the depression of capitalism during the 1970s, makes a very important determination regarding the combination of speculative capital and biocapitalism: The massive development of biotech companies over the last two decades has been based on America's debt imperialism and regulated through this mechanism. In her important book, *Life as Surplus*, Melinda Cooper (2008) describes the connection of capital with the new field of molecular biology, which is a new field that new capital accumulation and new monetarist policies regime during the neo-liberalism initiated by the Reagen administration.

As Cooper underlined; the debt form is also materialistic. Debt looks for ways to realize its promises on certain things such as the search for power,

commodities, etc. In the long run, what the debt form wants is to return to the earth, to recapture the re-creation of life in the promising accumulation of the debt form; thus the renewal of debt corresponds to the renewal of life on earth and beyond. The system dreams of debt becoming biological autopoiesis as debt self-assessment. (Cooper, 2008)

During this period, the USA FED's interest rate policy manipulated the global financial flow towards the US dollar and the US market, allowing the US to widen its repayment gap indefinitely. At this point, what is most notable in Cooper's (2008) analysis is a link that she established between the Reagan-era regulation, intellectual property rights, deregulation of banks and financial markets, and the growth of biotechnology firms. The other equally noteworthy claim of Cooper is that the new regime of accumulation has irreversibly and inseparably intertwined economics and ecology. As Cooper has said; the new accumulation process enables debt to gain value on its own, to produce it in the form of biological autopoiesis, and thus to take over life and even replace it (Cooper, 2008).

The main claim of Cooper's "*Life as a Surplus*" (2008) study is that the neo-liberal economy is essentially a bio-economy. Cooper opens it this way, neo-liberalism and the biotech industry share a common desire to transcend ecological and economic limits, and to do so through the speculative rediscovery of the future, the termination of growth-centered industrial production. The neoliberal development of capitalism began in the 1970s and targeted biological life as the new source of surplus-value production. In this respect, neo-liberal economics is essentially a bio-economy.

The biotech revolution, I argue, is the result of a whole series of legislative and regulatory measures designed to relocate economic production at the genetic, microbial, and cellular level, so that life becomes, literally, annexed within capitalist processes of accumulation. Part of my work here is to detail the specific forms of property rights, regulatory strategies, and investment models that have made this possible.

The important shifts in world imperialist relations that have occurred since the late 1970s (and in particular since the monetarist counterrevolution of 1979 through 1982). This period, according to political economists such as Giovanni Arrighi and Michael Hudson, has been one in which nation-state imperialism and the role of the United States within it have undergone a series of dramatic transformations (Arrighi 2003; Hudson 2003 and 2005)[...]My argument here, and throughout the book, is that the geopolitics of World imperialism, as established in the post-World War II era, is today being displaced by a new and relatively mutable set of biopolitical relations, whose dynamics have yet to be theorized in detail[...]When capital mobilizes the biological, how do we theorize the relationship between the creation of money (surplus from debt; futures from promise) and the technological re-creation of life? (Cooper, 2008:19, 20)

Apart from Cooper and Rajan's studies, there are some studies that evaluate bio-value/bio-tech and capital as different aspects of capitalist capital or in relation to different forms of capital.

Vandana Shiva proposes "biopiracy" in her work "The Plunder of Nature and Knowledge". According to Shiva, patent restrictions is the second coming of Columbus:

Biopiracy is the Columbian "discovery" 500 years after Columbus. Patents are still the means to protect this piracy of the wealth of non-Western peoples as a right of Western powers. Through patents and genetic engineering, new colonies are being carved out. The land, the forests, the rivers, the oceans, and the atmosphere have all been colonized, eroded, and polluted. Capital now has to look for new colonies to invade and exploit for its further accumulation. These new colonies are, in my view, the interior spaces of the bodies of women, plants, and animal (Shiva, 1999: 23).

According to Waldby&Mitchell "*generated whenever the generative and transformative productivity of living entities can be used along lines that make them useful for human projects*" (Waldby&Mitchell, 2006: 33) means bio-value. Anthropologist Chaia Heller in her famous article "McDonald's, MTV, and Monsanto: Resisting Biotechnology in the Age of Informational Capital" claims that "*biotechnology as a mode of production*" that means a new moment in capitalism; this is the "*organic phase of capitalism*", where "*capital targets the reproductive dimensions of cultural and biological life as loci for intensified production and commodification*" (Heller, 2001; 407).

Another important medical anthropologist Margaret Lock and her colleague Sarah Franklin (2003) evaluates bio-capital as a production and reproduction process and as a kind of property that gains "*form of extraction that involves isolating and mobilizing the primary reproductive agency of specific body parts, particularly cells, in a manner not dissimilar to that by which, as Marx described it, soil plays the 'principal' role in agriculture*" (Franklin&Lock: 2003, 8). For sociologist Charis Thompson, bio-tech industry means manipulation and speculation of hope with this respect Thompson argues that "*the biotech mode of (re)production operates with 'promissory capital', capital raised for speculative ventures on the strength of promised future returns*"(Thompson, 2005: 7)

To sum up, what we call bio-capital is an economic system based on the production of bio-value. The milestone for bio-capital can be started with the deciphering of the structure of DNA, which triggered many developments. On the one hand, DNA opened the door to Syn-Bio technologies, and on the other hand, the accelerated efficiency studies in agricultural production with GMOs based on RDA. It is not hard to imagine that these GMO efforts will have an impact on the livestock sector in a short time. While these DNA-triggered

developments have led to significant results in cognitive, digital, agricultural and animal technologies, of course, it could not be expected that they would not lead to similar results in human sciences. In a short period of time, these changes in medicine (especially organ transplantation, aesthetics, and fertility technologies) and pharmacology merged with capital, technopolises, bio-labs, and medical technology to form another important combination of bio-capital.

From a higher level, bio-capital is the combination of scientific advances that allow the biological to be transformed into value, and speculative capital to commodify that value. So, as Rajan (2006, 2012) underlines, the structure of the pharmacology sector, the structure of bio-labs (Cooper, 2008), exploitation of expectations/hopes (Cooper&Waldby, 2014) are all speculative, and this speculative structure is one of the lifeblood of the neo-liberal debt economy (Cooper, 2007)

It is noteworthy that speculative capital, albeit as a sub-heading of capitalism (Rajan, 2006), has re-entered circulation through the natural and human sciences. For, just as the economic structure of Fordist production is Keynesianism and the political structure is the social welfare state, the form of capital of bio-capital based on bio-value has to be speculative because there is a sector and an economic structure that is driven by promises and speculation on life, health, death, youth, and the stock market acts as a bridge between these two structures.

However, this speculative structure cannot survive only by producing and circulating the bio-value that it transforms into a commodity, more precisely, speculative capital alone is not capable of producing and circulating bio-value and producing it; this is only possible with a political-legal structure that serves this process, and this is possible with Neo-colonialism, which Wanda Shiva (1999) calls "*the second coming of Columbus*". Let us now consider neo-colonialism between capitalism, neo-liberalism, and the subject formed by bio-capital and the bio-political subjectivity it leaves behind.

Bio-Politics, Neo-Colonialism, Subjectivity, and Bio-Capital

Utility, Docility, Discipline, and Bio-Politics

Capitalism's need for unlimited markets and raw materials and its desire for infinite profitability inevitably make its nature horrible. As we have tried to explain from the very beginning, there have been periods when this terrible nature of capitalism has been shackled, curbed, or allowed to run its destructive course all over the world. Historically, capitalism developed in

two basic, interconnected forms, the colonial and the industrial. These two basic channels are inseparable in terms of the nature of capitalism, but a geographical distinction can still be made. As is well known, the colonization of Latin America (Galeano, 1973), that has begun with the discovery of America which was followed by the colonization of the Far East, Middle East, South East Asia, and Africa (EGO, 2011).

Expansionist movements similar to those undertaken in the colonies for the industrial transformation of capitalism were also carried out in continental Europe: enclosures of England's countryside (Neeson, 2010; Thompson, 1963), enclosures of Galls (Kain, Chapman, Oliver, 2010) plowing the pasture of Irish countryside (Engels, 1997, 1999) issuing a decree against "wood theft" and banishment of forest for forester in Germany circa 1840s (Bensaid, 2017) in French (Sahlins, 1994) and England the banishment of hunting in the forest, (Thompson, 1975).

Capitalism, as can be seen, made moves of enclosure and confiscation similar to colonialism on its own continents, but in the colonies and the mainland, the logic of capitalism's operation, forms of concentration, the roles the system assigns to the center and the periphery differed, and most importantly, in the context of our topic, the forms of subjectivity differed in the mainland, and in the colonies.

In the colonies, colonized forms of subjectivity, deprived of all rights and basic human conditions, continued almost uninterrupted from the arrival of Columbus until the neo-liberal transformation, while in the mainland of capitalism, a governmental system and a subjectivity associated with it emerged, which Foucault (1977, 1980, 2015) calls bio-politics. The first form, which has not lost its historical continuity, I refer to here as (neo)colonial subjectivity, while the subjectivity constructed in the metropolises of capitalism, in the industrial world, is what Foucault (1977, 1980, 2015) calls bio-political subjectivity. Let us first look at the Bio-Political subject and then at the colonial subject.

According to Foucault (1977), the systems of punishment from the Middle Ages and absolutist systems did not allow for the emergence of the bodily synergy that capitalism needed, and one of the first things that capitalism did was to "liberate" modern man, for capitalism could not exist otherwise.

According to Foucault, the transition from punitive systems to systems of control and the gradual improvement of power mechanisms into two basic forms, bio-power and bio-politics, (Foucault, 1977) was made possible by the

modern subject and his body, which stands at the center of this duality and the whole mechanism (Foucault, 1977, 2015). This is because the more complicated system of capitalism compared to ancient regimes required not only the control of productive forces but also the qualified and skilled production of productive forces. And this was a process that started with sexuality being brought under the control of power and turned into a discourse, and progressed through the control of the population in general through hygiene and health policies (Foucault, 1980). Although the body was no longer punished as in ancient regimes, the human spirit was targeted with more subtle methods and the body was confined to certain limits (Foucault, 1977). These limits were defined in great detail and all movements have to utilize both the power and capitalist system (Foucault, 1977). In this respect, sexuality in particular is the center of bio-political power, since sexuality, as the intersection of body and population, is the hallmark of productive bio-politics (Foucault, 1980).

Such a centralization of policies such as hygiene, reproduction and demography, especially sex (Foucault, 1980), is related to the construction of the subject desired by modern power. More specifically, Foucault's political anatomy comes first among the types of subjectivization under the heading of bio-politics. Anatomo-politics transforms the subject on the basis of the body, sometimes using constructions, sometimes norms, and the reason for this, according to Foucault, is of course the obsession with obedience. The relative freedom of obedient bodies is experienced as freedom. It calls for a technique that overlaps both subjectification and objectification, that is to say, it reveals the procedures of individuation. (Foucault, 1980)

Another type of subjectivity emphasized by Foucault is Panoptic subjectification. Panoptic power and the subjectivity it aims to create is one of the most important aspects of the transformation of body technologies, which are individual in the anatomo-political, into social subjectivity, that is, into bio-power. In *Discipline and Punish: The Birth of the Prison*(1977), Foucault, who sheds light on modernist capitalism's projection of the human body through Bentham's project, underlines that bodies must be useful/efficient as well as docile. The body will be developed in line with the requirements of power. Therefore, the mechanical individual of anatomo-politics can be melted into the social technology of bio-political subjectivity.

According to Lemke (2012), Foucault's bio-political subjectivity has three main aspects: I - political thinking determined by the new expression of sovereign power; II - modern racism; III - a unique art of governance that historically involves the self-governance and social arrangements of the individual.

Mendieta (2011), through Foucault's work, sees in his discussion of biopolitics the technologies of governmentality in relation to the interworking of capitalism, medicine, and sovereignty with liberalism.

Another important effort to understand the modern world through biopolitics appears in Agamben's (2005) work. According to Agamben, the state of exception, suspension, and sovereignty are the most important aspects of biopolitics (2005). In fact, according to Agamben, exception and suspension are the *nomos* of modernity.

On the other hand, after Foucault, the most important contribution to the debate on bio-politics, especially the relationship between the (post)modern subject and bio-political sovereignty after neo-liberalism, has been made by Lazzarato (2002), Virlo (2013), and of course Negri & Hardt (2000), who come from the Italian Autonomist school.

The debates on immaterial labor, sovereignty, subjectivity and their causes and consequences that Lazzarato and Virlo initiated in the 1970s seem to have reached their logical limits in Negri & Hardt's *Empire* (2000).

According to Lazzarato, immaterial labor has , brought about the growth of informational content and cultural content, resulting in the liquidation of the traditional figure of the worker. Products such as ideas, symbols, codes, texts, linguistic figures, images create a material product, even if it is not material... (Lazzarato, 1996) Therefore, "*Interactive and cybernetic machines become a new prosthesis integrated into our bodies and minds and a lens through which to redefine our bodies and minds themselves. The anthropology of cyberspace is really a recognition of the new human condition.*" (Negri:&Hardt, 2000: 291) On the one hand, this blurs the distinctions between head and arm labor, and on the other hand, it leads to capital's preference for flexible sectors and capital becomes increasingly speculative.

Again, during and immediately after the years *Empire* (2000) was written, there were important developments in terms of the control of work and the deepening of bio-political subjectivity. Negri&Hardt (2000), after exemplifying that the control of work and worker performance has always existed through the experiences around the Fordist production line, say something important about the new bio-political situation: the communicative/informatic machine controls the worker's entire life. In recent times, WhatsApp groups and digital affairs, flexibility, the gradual disappearance of the distinction between leisure and work time, the power producing subject, the value producing subject, the new slogan of western society is that we are all

subjects, participatory management is a technology for the creation and control of subjective processes. (Lazzarato, 1996:137)

Therefore, capital no longer targets only individuals, but extends to every stage of life. Negri & Hardt (2000) describe this situation as bio-politics evolving from modern to post-modern. In other words, they imply that while Foucault's bio-politics (1977, 1980, 2015) is an analysis of the subject-power relationship of the modern period, their analysis of bio-politics is an analysis of the subject-power relationship in the post-modern period. Whereas in the modern period there is a relationship between the individual, the nation-state and power, in the post-modern period bio-politics is a relationship between life, capital and empire as global power. This means the disappearance of labor and material production, social factorization, the collaboration of immaterial commodities with ideas and emotions.

So, on the one hand, Foucault's analysis, which is now considered a classic, and Negri & Hardt's (2000) analysis of the bio-politics of the modern period, and on the other hand, Negri & Hardt's (2000) bio-politics of the imperial period or the post-modern period.

Negri & Hardt's (2000) analysis that the movements of capital and new technologies of the 90s are targeting the whole of life is entirely correct. And this is exactly what we are trying to explain here. On the other hand, it has been about 50 years since Foucault wrote, and 25 years since Negri & Hardt (2000) wrote, and in these two decades humanity has transformed more than it has ever transformed in every field, especially in the technologies of life, and in this respect, the point that capital has reached in the nature of life has gone beyond what Negri & Hardt (2000) even imagined. Secondly, Negri & Hardt (2000) tried to make bio-politics not only a power in the hands of power but also in the hands of the subjects (multitude) subjected to it, especially in the age of the elimination of material labor and the worker, and they criticized Foucault for focusing only on one part of bio-power and ignoring its productive potential for the subject who is the object of power. To put it differently, they tried to transform the biopolitical subject from an object-subject crushed by the pressure of power into the leaven of revolutionary multiplicity, and so, instead of leaving the mansion of bio-politics, they stayed there for a while longer for the sake of this potential.

However, as I will argue more emphatically in a moment, bio-politics is ultimately a response to the greatest problem facing capitalist modernity, which is the concern for the reproduction of life at the lowest cost and highest efficiency, and is therefore panoptic and anatomo-political, and the most

sophisticated form of this technique of governance is the social welfare state. This becomes abundantly clear in the following words of Mika Ojakangas, responding to Agamben's claims that the western bio-political paradigm is embodied in the concentration camp: "*The biopolitical paradigm of the West is not the concentration camp, but, rather, the presentday welfare society and, instead of homo sacer, the paradigmatic figure of the biopolitical society can be seen, for example, in the middleclass Swedish socialdemocrat. Although this figure is an object – and a product – of the huge biopolitical machinery, it does not mean that he is permitted to kill without committing homicide.*"(Ojakangas, 2005:25)

Besides, Negri&Hardt's (2004) examples of the distinction between immaterial labour, biopower and biopolitics and the space of their discussion are European, and American countries. According to Negri & Hardt, although nation-states have been dissolved and replaced by empire, and class has been dissolved and replaced by the multitude, especially the fiction of 'class' immanent in the bio-politics called multitude (Negri&Hardt, 2004) is a fiction related to the central/metropolitan states of the empire. Here, the recognition of class not as a transcendental subjectivity through economic production but through effect, sexuality, identity, and immaterial labour may be valid, but in totalitarian mafia countries such as China, Russia, North Korea, Serbia, Montenegro, or in countries/regions such as India, South East Asia, the Middle East or North Africa, for example, there cannot be a bio-political immanent multiplicity that would create a short circuit within the transcendence of biopower. This is because the basic legal plane on which the plurality can construct itself as an immanence does not exist in these geographies, and instead a rather archaic colonial law has been substituted. Therefore, the transcendence of biopower functions here as an agent between bio-capital and its colonial lawless exploitation of bio-value resources such as the appropriation of seeds, intellectual property rights, and bodies, rather than as an immanent agent to ferment biopolitical multiplicity. Therefore, the task of biopower, especially in the poorer parts of the world, is not to docilise the body, to increase its productive capacity, to reproduce its life, to regulate its sexual relations in line with the interests of heteronormative patriarchy, or to create discourses of power-relation and to shape the dispositives of power; it is to create plunderable geographies, registered seeds, patented intellectual property rights and disposable bodies for metropolitan countries or wealthy classes, all of which are highly archaic colonialist activities.

Middle Passage or Object Subject of Neo-Colonialism

First of all, we need to clarify what we understand by (neo)colonial subjectivity or the object subject of colonialism. The aim of the early 20th century anti-colonial movements is independence and freedom. It is the struggle of colonies to establish their own states, to develop an independent economy and free identity, just like Western States. In post-colonial criticism, which developed from the 1950s onwards, the question is why the subjects of the 'independent' states achieved by anti-colonial movements continue to think like Westerners.

One of the important debates in post-colonial theory is over the prefix "post". This debate gave birth to the concept of Neo-colonialism (neo-colonialism), which is fundamental to the theory. According to Anie Loomba (2000), it is early to say 'post' until the inequalities and damage of colonialism are erased. The concept of neo-colonialism corresponds to the claim that imperialism continues in new modern forms in the post-imperial period and that this is decisive in international relations.

Therefore, by neo-colonialism, I am referring to the linear line of colonialism from empire to imperialism in the sense that Anie Loomba (2000) talks about, what Vandana Shiva (1999) calls the second coming of Columbus, the suspension of all the fundamental rights (including bio-political practices) that humanity has built over five hundred years, starting from the colonies with the new forms of property of imperialism, and its insatiable plunder. In this regard, for a clearer understanding, I refer to a specific concept of the history of colonial-slavery, the middle passage.

The Middle Passage was the most important stop of the colonial/slaver trade during the mercantile period in Europe. The Middle Passage is the middle stop of the ships that set sail from Europe with manufactured goods such as muskets, rum, textiles, gunpowder, etc. The Middle Passage is the coast of South Africa, where the ships load slaves in exchange for selling some of the commodities they have, and then set sail again, this time stopping at plantations in Latin America and North America, where they sell most of the slaves they bought in Africa and the manufactured goods they have left, and buy raw materials in return and sail back to Europe. And in Europe, the raw material is transformed back into commodities. This cycle lasted approximately 350 years.

The reason for referring to the classical period of the slave trade is, of course, to make the difference between the biopolitical subject, and the colonial subject a little clearer. Slaves transported from colonies to plantations and

metropolises are not seen as subjects in any way. They were bought, sold, and worked, often naked, with the tattoo of the subsidiary to which they belonged on their chests. It is not known exactly how many people were enslaved during all this colonial activity, but the estimated numbers are as follows:

It was claimed that 11,698,000 people were transported by ships during the African slave trade and 9,778,500 of them set foot on the American continent. In another study, it was stated that 293,400 slaves were imported between 1451-1600, 1,494,600 slaves between 1601-1700 and 5,737,600 slaves between 1701-1810. Thus, from the mid-1500s to the mid-1800s, approximately 9 million Africans were sent to Latin American countries such as Brazil and Cuba under inhumane conditions. (Klein, 1986: 16)

During the voyage, the death rate of slaves was noticeable.

Slave deaths were common due to the harsh conditions on board the ships. For example, between 1680 and 1688, only 45,396 of the 60,783 slaves transported on 249 ships by the royal African company were able to complete the voyage. In 1790, the mortality rate on 522 ships trading from West Africa was 6.6%, while in later periods, mortality rates as high as 18% to 52% were observed in one study, 12.4% of the slaves carried on 5966 voyages by Portuguese, Spanish, French, English and Dutch traders between 1590 and 1867 died during the voyage. (Reynolds, 2004: 22)

For colonialism, therefore, the slave is a raw material or a source of energy. The last thing that is thought of in relation to the slave is the reproduction of the slave's life. The colony is a world of disposable bodies, body-labor, made of blood, sweat, and death. What we call bio-capital is the transformation of the disposable body into a sustainable and therefore profitable long-lasting body. In other words, for bio-politics, the body is like an energy source or a mine that is used prudently and efficiently. Therefore, the difference between the colonial body and the bio-political body lies in the technologies of reproduction of life. Foucault's (1980) hygiene, population, borders, nation-state, family, heteronorm sexuality, control and especially the control of fluids that control body energy are related to this. Therefore, bio-politics is inevitably a process of subjectivization, similar to the definition of a republic as "self-governance of the people". The colonial body is only objectification.

That is why in the colony there is a minimum of laws, social rights, and other things to organize the reproduction of life. In this sense, the abandonment of slavery in Europe, as Foucault (1977) often underlines, is a question of system utilization, the industrial leap of capitalism could only be made by subjects who saw themselves as free. This approach, embodied in Bentham's panopticon, the prohibition of slavery throughout the 19th century, is ultimately a matter of profitability. This is similar to the Treaty of Versailles, the treaty that ended the First World War, which regulated the conditions of production and competition of European capitalism, from the pension conditions

of workers to working conditions, from the 8-hour shift to the 5-day working day, and the establishment of the ILO, which was to follow all this.

Second Coming of Columbus

In the discussion of immaterial labor in relation to biopolitics, we have already stated that we agree with Negri & Hardt's (2000) idea that the figure of the worker has historically lost its significance, but we disagree with the idea that the bio-political vocation still produces the bio-politics of informatic culture, especially the alternative construction of multitude. The bio-political subject, that is, the diminishing need for a particularly obedient, efficient, and therefore profitable and sustainable cycle of life reproduction, is moving from the classical colonial geographies of the capitalist system to its centers.

First of all, alternative optimization, digitalization, robotization, thermal surveillance, surveillance from space, transhuman, biometrics, artificial intelligence, and alternative reproductive technologies (motherless reproduction) render bio-politics in the sense of the reproduction of life meaningless. In other words, power no longer needs its subjects who discipline themselves and try to profitably participate in the system. As capital becomes digitalized and speculative, more and more people in the poorer geographies of the world are being discarded, and turned into garbage. Moreover, looking at the AIDS crisis in Africa, the surrogacy experiences of the Balkans and India, or the people left behind by organ harvesting practices in the poorer countries of the world, people are again reduced to bodies, blood-sweat, death, body parts, and bodily fluids, similar to colonial times. In this sense, with all these experiences, we see that people are now seen as bio-waste, bio-residues, or bio-values. What we call bio-capital is the exploitation and abuse of the whole world and of lawlessness by speculative capital driven by the medical industry, where the bio-waste that remains when the bio-value is consumed is seen as garbage.

But the analogy between bio-capital and colonialism is not only about bio-value and the bio-waste it leaves behind. There is an important emphasis in Negri & Hardt's (2000) writings on empire. This is that empire blurs the inside and the outside. A perpetually needed outside and borders that have no meaning other than to be crossed (Negri&Hardt, 2000). Hence, neo-liberalism as an ultimate or extended version of capitalism of which bio-capitalism is lately emergent sub-branch, is a reassertion of some of its characteristics of the 18th-19th century; such as exploitation, colonialism, confiscation, appropriation, and the continued diversification and securing of forms of property through legal contexts, as well as elements and instruments that already

existed within the system, but which have been reinforced by neo-liberal law, and a hybrid transformation that includes the transformation of the human body and natural biological production (agricultural and animal husbandry) into bio-value (both as commodity and property). In other words, capitalism is expansion, capture, re-capture, definition and re-definition of sources and market conditions. Thus, this re-definition of nature, body, commodity, value by neo-liberal capitalism that covers bio-capitalism is blurred the boundaries between humanity and commodity, expanding capitalist markets' and transactions' borders against humanity and nature.

The transgression of capital and definitions and re-definitions to transform from nature to natural sources, from peasant to worker, from raw material to the commodity figure out the infinite and expanding loop of expansion and capture that is embedded in the gene codes of capitalism. Melinda Cooper formulates this character of capitalism as follows: "*the drive of capital to overcome its material limitations not only finds new resources but also constantly redefines the 'nature' of resources (e.g. through turning debt or other crisis moments into value) to create a surplus.*" (Cooper, 2007: 30).

Cooper's emphasis on the discovery and redefinition of resources and the development of an appropriate property law is brought here as the definition/appearance of capitalism in the context of this study: Because in the mercantile, colonial, industrial, and speculative phases and forms of capitalism, for example, when nature is seen as nature and when it is seen as natural resources is a highly contested area in which many actors are involved, especially in the clash between customary law and the demands of capital. We see a similar debate in the conflicts over when people are considered slaves, when they are peasants, when they are laborers, when they are serfs, when they are subjects and when they are citizens. This debate over the definition of natural resources and forms of employment actually wants to move us towards capitalism's desire for unlimited movement and exploitation, in this respect colonialism, speculative capital and neo-liberalism are similar stages of capitalism. Industrial capitalism and the commercial capital that feeds it, on the other hand, is more concerned with when natural resources are commodities, when animals are commodities, and the savage industrial era, biopower and biopolitics, found itself most prominently in welfare states and welfare states..

On the one hand, capitalism intervened in nature, natural resources, and traditional communities in such a way as to transform them from rural peasantry society to capitalism, on the other hand, it intervened, captured, and transformed traditional forms of subjectivity. The expansion of modern

capitalism's sphere of influence by means of bodies utilization is the notion of biopolitics that Foucault (1977, 1980, 2015) has described in great detail.

However, since the post-Fordist period, the body has shifted its bio-political meaning, which comes from the state's domain of influence and the capitalist market's source of labor, to the next level. First of all, the robotization and digitalization of production processes, the decline of labor-intensive jobs in labor employment, and the replacement of these by the useless labor of the service sector brought tensions between capital and labor to other contexts, while the disciplinary power that Foucault (1977, 1980) constantly alluded to, was designed as a need of the capitalist production system. There is no longer a need for one dimensional, discipline producer, bio-political sanctions of institutions. At this point, the body is an object of biopolitics not as a sphere of influence of the state or a source of labor in the market, but more than that, as both a customer and a source of raw materials, especially in the market of medicine, pharmacology and body technologies (blood, tissue, retina, organ, hair, fetus, etc.).

In the biopolitical world, bodies were controlled and classified by the state (men, women, soldiers, civil servants, workers, etc.) and were also disciplined by capitalism (working time, division of labor, production line, specialization in a particular field, etc.). However, both the biopolitical modern state and the classical capitalist mode of production had limited access to (worker-citizen) bodies. The body was producing power on behalf of the state, and in the factory, it was producing commodities and surplus value with its labor. However, after the 1970s, which corresponds to the beginning of the neoliberal era of capitalism, capitalism has expanded its demands on bodies a little more. The body would no longer be merely the producer of labor and the customer of the market, but also the producer of life (bio-tech) and the customer of life/bio-value.

In the neoliberal era of capitalism, a new layer is added to the classical antagonism between worker and capital: biological contradictions between body and capital. In this layer, the market and the state, which is not only trying to be a bio-political but a bio-capital actor, no longer aspire to the living labor of the citizens, but also to the dying body of the citizens and to the bio-values such as blood, tissue, and organs that the body produces organically.

Conclusion or What Does Bio-Capital Do to Humankind?

In conclusion, bio-capital is an evolved form of bio-politics socio-politically and venture/speculative capital economically. Since the 1960s, the results

that emerged with the discovery of DNA sequencing had extremely useful and profitable results for capitalism in the fields of informatics, agriculture, medicine and biology. As Cooper (2007, 2008) mentioned, the USA got through the recession and debt crisis thanks to bio-capital investments, pharmacology companies monopolized, and grew by speculatively buying know-how companies with their generic prospectus skates on the one hand. As seen quite clearly in the AIDS crisis in Africa, the marketization of medicine and treatment technologies, and their protection by patent rights and customs barriers made life more commercial and speculative.

At the macro level, organs, bodies, death, body part, knowledge and fluids have become bio-value.

Of course, all medical-biological developments are extremely promissory, operations such as IVF pregnancy, stem-cell, and organ donation/transplantation/trafficking further strengthen the speculative aspect of bio-capital and add future trade between its layers. Moreover, these promissory expectations can vary at the national or individual level, for example, while ordinary people desire to achieve a long (if possibly endless) and quality life with gene therapy, at the national level India is waiting to be a global player, while the USA is waiting for a millennial salvation (Rajan, 2006).

All these molecular, monopolized, promissory, and speculative alanine effects, of course, differ nationally, class, and regionally. As an Indian activist, Vandana Shiva (1999), in her work on bio-agriculture, defines bio-capitalism as bio-piracy in general and sees all these events as the new wave of colonialism and the second coming of Columbus, through the unequal relations between India, and the West.

However, all these changes and developments point to some fundamental changes in the ontology of modernity's construction of power and the body. First and foremost, the ontology of the body based on the reproduction of life in all respects, which modern capitalism has tried to establish for reasons such as population, power and reproduction, is in a serious transformation from sustainability to disposable technology.

At first glance, the medicalization and pharmaceuticalization of life, the achievements of plastic surgery, developments in organ and birth technologies, and the virtual world expanding from trans human to artificial intelligence seem quite promising. But amidst all this promise, the mode of production of bio-value and the progression of bio-capital within property relations

resemble the colonialist activities of capitalism on the one hand and the enclosures of Europe on the other.

This resemblance is of course not used here as a metaphor or a trope, but as an analogy between two different historical episodes. For what resembles European colonialism here is that in a similar way to how property in the early days of capitalism rapidly made to enclosure commons, pastures, and forests, bio-capital is rapidly transforming the body from a personal 'property' protected by the public to something that is presented by the public as private property. The jurisprudence that began in the late 1970s on the transfer of property rights to bio-value (gene code, software, information, or seed registration) to corporations, or the ability to buy and sell body parts and fluids, are in this sense the most obvious indicators of bio-capital's expansion of property relations in a way reminiscent of colonial history.

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