## Therapeutic Capture K

**Performance of the aff is an invitation for therapeutic capture. Fighting for subjectivity and self-actualization locates politics on the terrain of psychological modalities. This process leads our attention away from the material realities that have created suffering in the first place. Their relationship to the ballot is therapeutic – Individual and social problems are viewed as stemming from improper thoughts and that only by correcting our views of ourselves can produce more fulfilled lives.**

**Stewart 9** Tyrone Anthony Stewart, Ph. D., Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, WHAT IS A BLACK MAN WITHOUT HIS¶ PARANOIA? : CLINICAL DEPRESSION AND THE POLITICS OF AFRICAN AMERICANS’ ANXIETIES TOWARDS EMOTIONAL VULNERABILITY

On the first front, I will address the pervasive tendency in our culture¶ toward the therapeutic and the ways in which “acknowledging our weaknesses” and¶ “sharing our feelings” may ultimately **lead our attention away from the social¶ inequalities that may have caused our suffering in the first place.** And on the second¶ front, I will explore a confluence of circumstances (i.e., government, business, and¶ science) with have made the dominant paradigms of depression as an illness seem so¶ normal in dealing with prolonged or persistent sadness.8¶ In performing this deconstruction, I must make it clear that in dismantling¶ clinical depression as discursive construct my goal is not to construct another term to¶ take its place, for to fill the space left by its absence would invariably be only another¶ name for another pathology of affect. Rather, I am interested in disarming the¶ indisputability of the diagnosis and how it has led us to view the bodies of individuals¶ as detached from society and culture. It is my belief that the pervasive sadness and¶ despondency that is called “depression” in our society is in large part circumstantial¶ rather than biological and that by exploring matters of the social expectancies and¶ cultural values the frame emotional experience we can create a new understanding of¶ depression. Thus, my primary goal in leaving the concept of depression “in pieces” is¶ to bring social circumstance and cultural values (i.e. story) back into our¶ understanding of depression and to free-up the concept so that I can explore it in¶ different dimension in later chapters.¶ I began this dissertation with the example of Dave Chappelle on Oprah’s¶ couch because I am interested in the ways in which his story becomes a public story,¶ and the ways in which the meaning and value of that story changes in the process of¶ its retelling. On its surface, the Oprah Winfrey show is perhaps the most revered¶ daytime talk show in the present moment; however, the show is also part of a cultural¶ phenomenon that is much larger than its parts. The Oprah Winfrey Show is an¶ example of Americans’ investment in the therapeutic ethos, an investment which is¶ **girded by the belief that personal healing can best be accomplished through**¶ **fellowship and open confessions of suffering**; however, this investment is problematic¶ because it **restructures the relationship of the subject** to their social context, through¶ the re-interpretation of individual experiences and their repackaging as shared and¶ universal human experiences. As a democratic and equalizing ritual of sharing, the¶ therapeutic ethos creates a milieu in which individual differences can become¶ **depoliticized and intersections of race and gender become less salient** in¶ understanding the political nature and material realities of suffering.¶ The therapeutic ethos has been addressed in many different ways. It has been¶ seen as a “culture” and “gospel”; however, the historian Christopher P. Wilson views¶ it as “an ethos characterized by an almost obsessive concern with psychic and¶ physical health.”10 “Ethos” is perhaps a better term than “culture” as ethos signifies¶ the ways in which therapeutic language has permeated not only the precincts of¶ American society and culture which are charged with matters of health and wellbeing¶ (i.e., medicine) but also those realms not traditionally associated with those matters¶ (i.e., religion, education, government, advertising).11 Furthermore, in using the term¶ “ethos” we can also better approximate the way the power of its claims are often¶ unquestioningly **regarded as conventional wisdom**, as the term “depression,” as a¶ signifier of illness and pathology, can be taken up by anyone in our society regardless¶ of their authority or knowledge of psychology or psychiatry.¶ In commenting upon the therapeutic ethos, I must make it clear that I am not¶ addressing the clinical technique of psychotherapy or other means of counseling, nor¶ am I addressing its practitioners or patients. The assumption that the practice of¶ therapy is the same as the therapeutic ethos is a connection that I strongly wish to¶ dismantle. Unlike therapy itself (e.g., psychoanalysis or cognitive behavioral¶ therapy) the therapeutic ethos is not a structured practice, but rather it is a more¶ pervasive and paradigmatic way of viewing the **quest for selfhood and selfactualization**¶ **as a libratory process of reinvention.**12 The therapeutic ethos is a¶ commoner’s or lay viewpoint of psychic wellbeing, however it does influence expert¶ opinion and vice-versa. For the purposes of this dissertation, I am more so interested¶ in the phenomenon of employing therapeutic models in our understanding self,¶ suffering, and subjectivity in public discussions of emotional experience. 13 I am¶ interested in the therapeutic ethos and its more casual relationship with science and¶ the way in which the therapeutic is made into ‘common sense’ through this¶ relationship.¶ Furthermore, in my interest in the therapeutic ethos and its relation to black¶ men, I will not be pursuing an argument that black men resist the therapeutic out of¶ gender anxiety for to do so would be overly simplistic. Such writing has already been¶ done, and it has focused on white men to the exclusion of race.14 “Macho” (read:¶ white hegemonic masculinity) and “Cool” (read: black hegemonic masculinity) have¶ divergent histories and to look at gender to the occlusion of race would neglect black¶ men’s different emotional politics, although gender is an important factor. I will be¶ primarily be addressing the therapeutic in terms of the ways it erases the significance¶ of matters of race and gender, which will enable me to talk of its implications for¶ African American’s in general and African American men, in specific, in later¶ chapters.¶ Lastly, it has been argued elsewhere, and in varying ways, that the therapeutic¶ ethos has helped to create an “illness identity” within the phenomenon of depression,¶ ¶ wherein the effect (the “disorder” or “disease” of depression) becomes a **more** salient¶ and **visible than structural encounters** within the individual’s biography.15 In regards¶ to people in actual therapeutic situation (i.e., therapy with a trained professional) this¶ viewpoint has lead to the omission of more institutional forces of racism and¶ economic inequality, such as Euro-American physicians’ misinterpretation of African¶ Americans’ idioms of distress16 and the systemic lack of access to affective health¶ care among less affluent communities. The question that I want to answer in this¶ section is what are the political consequences of acquiescing to therapeutic models of¶ understanding subjective experiences which are, in part, caused by identity specific¶ encounters with such structural inequality? The short answer to that question is the¶ erasure of the structural factors of racism and classism that may have contributed to¶ the individual’s feelings of depression in the first place.¶ America’s Relationship with Therapeutic Cultures¶ American’s fascination with the therapeutic extends from what Eva¶ Moskowitz calls the “therapeutic gospel.”17 In her examination of America’s¶ relationship with therapy, she describes our reflex dependence on psychological cures¶ and hunger for personal fulfillment as having a “long and strange history.” According¶ to Moskowitz, the drive toward therapy began out of a desire for guidance and life direction¶ at a time when the influence of traditional religion (i.e. Protestantism) was¶ waning in the nineteenth century. Due to a convergence of factors, such as the rising¶ belief in science and the meta-physical, changing notions of individualism, and the¶ rise of consumer-based culture, Americans in the nineteenth century, increasingly¶ sought out strategies and products rather than parables and prayer to become better¶ people.18¶ Through this “therapeutic gospel,” Moskowitz argues, individual and social¶ problems began to be viewed as stemming from improper thoughts and poor self esteem,¶ **and that only by correcting our views of ourselves as individuals and as a¶ nation, would we may be able to live** happier and more fulfilled lives. Key to the¶ operation of the Moskowitz’s “therapeutic gospel” was the idea of the malleable¶ inner-self or “the mind,” which created another dimension of social identity that did¶ not exist prior to the professionalization and growing authority of medicine in the¶ late 19th century. Previous conceptualizations of the individual had dealt with the¶ notion of a “soul”; however, as the baggage of morality and guilt associated with this¶ concept and the authority of the religious officials charged with this work began to¶ lose favor the rational belief in science and self-improvement began to encroach upon¶ the religious perspective, but the belief in the malleable “inner-self” never fully¶ displaced religion. Rather, “ministers and other moralist began increasingly to¶ conform to medical models in making judgments and dispensing advice.”19 20 In this¶ way, the “mind” as the seat of rationality and enlightenment, in turn, established a¶ new locus of moral authority in the construction of the individual will. Ultimately, the¶ “therapeutic gospel” **helped to create a terrain** in which the problems of anxiety and¶ phobias as well as desire for social status could be fixed by the right attitude and the¶ right advice.21¶ Our reliance on such a conception of ‘the self’ is so prevalent in today’s¶ society that it is almost invisible. From talk shows to twelve-step programs to selfhelp¶ bestsellers, we are continually bombarded with solutions that suggest that we can¶ **transcend our troubles and angst by talking about them openly** and honestly; however,¶ it is through this same process of “sharing our feelings” that we may, in fact, **be**¶ **erasing the very matters of our social and cultural experience** that created our¶ discomfort in the first place. In a strange set of circumstances, the individualistic¶ ethos that permeates our common culture and inspires us to view ourselves as unique¶ and autonomous beings, may in the end generalize our experiences and identities.¶ Frank Füredi, in his examination of the therapeutic impulse, argues that¶ “despite its individualistic orientation, therapeutic intervention…often leads to the¶ pursuit of the standardization of people rather than to encourage a self-determined¶ individuality.”22 **Instead of creating individuals who have social agency**, Füredi¶ argues, the therapeutic ethos creates identities which rely upon various “publics” for¶ affirmation or recognition, be they ten alcoholics in a church basement or a national¶ television audience. The success of such a process of affirmation depends upon an¶ individual’s willingness to **defer the meaning of their experiences to the authority of**¶ **the group** and to relinquish any claims to difference which may threaten the cohesion¶ of the group;23 however, belonging has its benefits. Acquiescence to the therapeutic¶ ethos allows the individual a sense of identity and helps them to “make sense of their¶ predicament and gain moral sympathy.”24¶ The concept of “moral sympathy” is important in the construction of a “public¶ of the depressed,” because, as a disease of the mind – a mental illness – its lesions are¶ invisible. Moral sympathy is thus needed to assuage the beliefs that individuals can¶ “feel better” and “do better” for themselves out of will and discipline. Other mental¶ illnesses, such as schizophrenia or bipolar disorder, do not fare as well as depression¶ in terms of gaining moral sympathy, since they can sometimes be associated with¶ violent crime, particularly in news media.25 But arguably, perceptions of the mentally¶ ill have changed dramatically over the past twenty years, amounting to a virtual¶ reshaping of lay understandings and public attitudes toward various mental illnesses.¶ This change has not been the result of a single influence, but rather it has been the¶ result of a confluence of factors, from anti-stigma groups to cultural representations.¶ No longer are the mentally largely portrayed as violent or disturbed one-dimensional¶ characters, rather they are presents as characters who are “ill but talented, impaired¶ but not stupid, troubled but attractive.”26 Take for example, popular films such as¶ Rain Man (1988), Sling Blade (1996), A Beautiful Mind (2001), I Am Sam (2001),¶ Radio (2003), the Aviator (2004), the Soloist (2009) which have helped to create the¶ sentiment of understanding mental illnesses as a result of defective or damaged brain¶ processes and not the result of the moral faults of the individual.27 However the¶ absence of ‘fault’ or ‘blame’ does not preclude questions of responsibility or the need¶ for an explanation.¶ Within the therapeutic ethos, the “public of the depressed” are able to account¶ for their despondent moodiness, and ultimately their difference, through the general¶ belief that the human mind is fragile and can “break” just like a bone can fracture. It¶ is through this process, which Charles Barber calls the “physicalizing of behavior,”¶ that depression becomes a normalized;28 however, it is a process of normalization that¶ leans heavily upon a recent shift in common understandings of the **mind as a fallible body part.** The therapeutic ethos borrows from **scientific authority** the belief that the¶ body is knowable, generalizable, and universal, but in the end **replaces lived social**¶ **experiences with scripted ones** based upon medical authorities and the “physicalizing¶ of behavior.”¶ It is the lure that there is something “out there,” authenticated by¶ medical knowledge, that can describe people’s “indescribable” encounter with¶ depression **which makes the therapeutic ethos both attractive and limiting**; as much as¶ they may **gain in the articulation of their experiences, they may lose in regard to**¶ **context.**¶ Hostile Homogenization in the Therapeutic Encounter¶ At the core of the therapeutic ethos is the idea that our minds and our¶ thoughts are the essence our being and that by aligning our thinking with accepted¶ definitions of “illness” and practices of “healing” we can change our perceptions as¶ well as our circumstances. Viewing the mind in such a way is attractive because it¶ mobilizes the idea that we are ultimately in control of our health, our well-being, and¶ our material existence, but in the exchange we lean upon the wisdom and expertise of¶ medical institutions and the belief that such wisdom is neutral. It is the casual bridge¶ that is formed between the therapeutic ethos of “sharing feelings” and “self realization”¶ and the practice of therapy that **lends the therapeutic ethos its¶ normativity.** Thus, having access to medical discourses of self, suffering, and¶ **subjectivity** **enables** the depressed to make meaning of their experience; however, the¶ costs of that acquiescence are seldom considered. Take for example Andrew¶ Solomon, the author of the Noonday Demon: an Atlas of Depression and proponent of¶ the medicalization of depression, who argues:¶ To be given the idea of depression is to master a socially¶ powerful linguistic tool that segregates and empowers the¶ better self to which suffering people aspire. Though the¶ problem of articulation is a universal, it is particularly acute¶ for the indigent, who are starved for this vocabulary – which¶ is why basic tools such as group therapy can be so utterly¶ transforming for them.29¶ The ideas of a “transforming” vocabulary and a “socially powerful linguistic tool” are¶ noble concepts in Solomon’s crusading for the depressed, but what is downplayed in¶ this statement are the power dynamics involved in the therapeutic encounter and how¶ the simple adoption of such a “vocabulary” cannot change an individual’s¶ relationship to power and privilege.30¶ Absent from Solomon’s view are the ways in which the therapeutic encounter,¶ and the language and values that gird its appeals, are ordered by a particular¶ relationship to the culture of therapy, a relationship which black men and other¶ marginalized groups do not share in equally. This is not meant to imply that group¶ therapy cannot work in more culturally attuned settings among black men, as such¶ groups and their varied methods have been written about in work on minority¶ counseling.31 Nor is it meant to imply that African Americans are in any way not¶ participatory in the viewpoint expressed by Solomon. Rather, what is at issue is how¶ such a process dangerously simplifies healing as a matter of adopting the¶ “vocabulary” of depression and the therapeutic ethos of a “better self.” Viewing¶ **healing as a matter of “education”** ultimately dismisses any skepticism as an¶ individual act of resistance and unmoors it from the milieu of its occurrence. What¶ must be considered are how racism, environment, and self-esteem issues affect black¶ men in ways that are culturally political as well as personal.¶ The literature on African American’s experiences of “stress” does a much¶ better job of discussing the political nature of the depressive experience than does the¶ writing from within a therapeutic framework. This is because the therapeutic¶ discussion of depression often assumes the individual as a self-contained and¶ autonomous being, while the literature on stress takes into consideration the social¶ milieu of the individual. The literature on African American stress has examined the¶ way in which structural racism (i.e., institutional policies of inequality, cultural¶ messages of black inferiority, and unhealthy and/or toxic physical environments) has¶ had a negative impact on African American’s health and quality of life.32 Chappelle’s¶ use of the term “stress” in reference to his emotional state instead of “depression,”¶ perhaps, owes its rationale to this difference. Therefore, the factors that contribute to¶ stress must be considered when thinking of the etiology and experience of depression¶ and black men’s participation in therapy.¶ It is known that African American men underutilize formalized therapy and¶ counseling.33 African American men’s resistances to the practice of therapy are¶ conditioned by several factors, such as African American’s suspicions of therapists,¶ past negative experiences with public agencies and institutions, and the often¶ superficial relationships that black men must form with therapist: things that exist in¶ addition to the possible issue of gender.34 Furthermore, in many cases, black men in¶ therapy or counseling do not attend out of their own volition, as third party entities¶ (e.g., employers, clergy, or the judicial system) are often the primary reasons for¶ black men to begin to participate in therapy.35 Other researchers have called this¶ phenomenon a “forced process,” by which the process of “help,” reinforced across¶ many of society’s institutions, is viewed as a matter of coercion to the status quo.36¶ These factors make the therapeutic encounter not only foreign, but also possibly¶ hostile to black men. In these ways, the democratic appeal of such therapeutic¶ thinking on depression can erase matters of gendered and racial experience which are¶ part of the story and obstruct the individual’s authority to come to less mainstream¶ interpretations of the sadness of depression and its larger meaning, **for themselves.**

**Psychoanalytic critique causes passivity and destroys political struggle and coalitions.**

**Gordon 01** - Paul Gordon (Ph.D., professor of humanities at the University of Colorado Boulder), Race & Class, v. 42, n. 4, p. 30-31, April 2001 CL

The postmodernists' problem is that they cannot live with disappointment. All the tragedies of the political project of emancipation -- the evils of Stalinism in particular -- are seen as the inevitable product of men and women trying to create a better society. But, rather than engage in a critical assessment of how, for instance, radical political movements go wrong, they discard the emancipatory project and impulse itself. The postmodernists, as Sivanandan puts it, blame modernity for having failed them: `the intellectuals and academics have fled into discourse and deconstruction and representation -- as though to interpret the world is more important than to change it, as though changing the interpretation is all we could do in a changing world'.58 To justify their flight from a politics holding out the prospect of radical change through self-activity, the disappointed intellectuals find abundant intellectual alibis for themselves in the very work they champion, including, in Cohen's case, psychoanalysis. What Marshall Berman says of Foucault seems true also of psychoanalysis; that it offers `a world-historical alibi' for the passivity and helplessness felt by many in the 1970s, and that it has nothing but contempt for those naive enough to imagine that it might be possible for modern human- kind to be free. At every turn for such theorists, as Berman argues, whether in sexuality, politics, even our imagination, we are nothing but prisoners: there is no freedom in Foucault's world, because his language forms a seamless web, a cage far more airtight than anything Weber ever dreamed of, into which no life can break . . . There is no point in trying to resist the oppressions and injustices of modern life, since even our dreams of freedom only add more links to our chains; however, once we grasp the futility of it all, at least we can relax.59 Cohen's political defeatism and his conviction in the explanatory power of his new faith of psychoanalysis lead him to be contemptuous and dismissive of any attempt at political solidarity or collective action. For him, `communities' are always `imagined', which, in his view, means based on fantasy, while different forms of working-class organisation, from the craft fraternity to the revolutionary group, are dismissed as `fantasies of self-sufficient combination'.60 In this scenario, the idea that people might come together, think together, analyse together and act together as rational beings is impossible. The idea of a genuine community of equals becomes a pure fantasy, a `symbolic retrieval' of something that never existed in the first place: `Community is a magical device for conjuring something apparently solidary out of the thin air of modern times, a mechanism of re-enchantment.' As for history, it is always false, since `We are always dealing with invented traditions.'61 Now, this is not only nonsense, but dangerous nonsense at that. Is history `always false'? Did the Judeocide happen or did it not? And did not some people even try to resist it? Did slavery exist or did it not, and did not people resist that too and, ultimately, bring it to an end? And are communities always `imagined'? Or, as Sivanandan states, are they beaten out on the smithy of a people's collective struggle? Furthermore, all attempts to legislate against ideology are bound to fail because they have to adopt `technologies of surveillance and control identical to those used by the state'. Note here the Foucauldian language to set up the notion that all `surveillance' is bad. But is it? No society can function without surveillance of some kind. The point, surely, is that there should be a public conversation about such moves and that those responsible for implementing them be at all times accountable. To equate, as Cohen does, a council poster about `Stamping out racism' with Orwell's horrendous prophecy in 1984 of a boot stamping on a human face is ludicrous and insulting. (Orwell's image was intensely personal and destructive; the other is about the need to challenge not individuals, but a collective evil.) Cohen reveals himself to be deeply ambivalent about punitive action against racists, as though punishment or other firm action against them (or anyone else transgressing agreed social or legal norms) precluded `understanding' or even help through psychotherapy. It is indeed a strange kind of `anti-racism' that portrays active racists as the `victims', those who are in need of `help'. But this is where Cohen's argument ends up. In their move from politics to the academy and the world of `discourse', the postmodernists may have simply exchanged one grand narrative, historical materialism, for another, psychoanalysis.62 For psychoanalysis is a grand narrative, par excellence. It is a theory that seeks to account for the world and which recognises few limits on its explanatory potential. And the claimed radicalism of psychoanalysis, in the hands of the postmodernists at least, is not a radicalism at all but a prescription for a politics of quietism, fatalism and defeat. Those wanting to change the world, not just to interpret it, need to look elsewhere.

**Alt - Adopt a politics of “I want this for us” instead of “I am”. This uses identity as a resource for material change rather than a place of foreclosure and hopelessness. Brown ’95**

Wendy Brown [Professor of political science at Berkeley], States of Injury: Power and Freedom in Late Modernity (Princeton University Press) (1995), pp. 75-76.

What if it were possible to incite a slight shift in the character of political expression and political claims common to much politicized identity? **What if we sought to supplant the language of "I am"** -with its defensive closure on identity, its insistence on the fixity of position, its equation of social with moral positioning-**with the language of "I want this for us"?** (This is an "I want" that distinguishes itself from a liberal expression of self-interest by virtue of its figuring of a political or collective good as its desire.) What if we were to rehabilitate the memory of desire within identificatory processes, the moment in desire-either "to have" or "to be''-prior to its wounding?~2 What if "wanting to be" or "wanting to have" were taken up as modes of political speech that could destabilize the formulation of identity as fixed position, as entrenchment by history, and as having necessary moral entailments, even as they affirm "position" and "history" as that which makes the speaking subject intelligible and locatable, as that which contributes to a hermeneutics tor adjudicating desires? If every "I am" is something of a resolution of the movement of desire into fixed and sovereign identity, then this project might involve not only learning to speak but to read "I am" this way: as potentially in motion, as temporal, as not-I, as deconstructable according to a genealogy of want rather than as fixed interests or experiences. 43 The subject understood as an effect of an (ongoing) genealogy of desire, including the social processes constitutive of, fulfilling, or frustrating desire, is in this way revealed as neither sovereign nor conclusive even as it is affirmed as an "I.'' In short, if framed in a political language, this deconstruction could be that which reopens a desire for futurity where Nietzsche saw it foreclosed by the logics of rancor and ressentiment. **Such a** slight **shift in the character of the political discourse of identity eschews the** kinds of **ahistorical or utopian turns against identity politics made by a** nostalgic and broken **humanist Left as well as the reactionary and disingenuous assaults on politicized identity tendered by the Right. Rather than opposing or seeking to transcend identity investments,** the replacement-even **the admixture-of the language of "being" with "wanting" would seek to exploit politically a recovery of the more expansive moments in the genealogy of identity formation**, a recovery of the moment prior to its own foreclosure against its want, **prior to the point at which its** sovereign **subjectivity is established through** such **foreclosure and** through **eternal repetition of its pain.** How **might democratic discourse** itself **be invigorated by** such **a shift from ontological claims to** these kinds of more **expressly political ones**, claims that, rather than dispensing blame for an unlivable present, inhabited a necessarily agonistic theater of discursively forging an alternative future?

**Optimism and solidarity are the only hope - their strategy assumes the foundational premises of racism as its starting point for politics and teaches white people to act as though they can’t help to stop this oppression.**

hooks ’95 - hooks, bell (Distinguished Professor in Residence Berea College). “Killing Rage: Ending Racism”. New York: H. Holt and Co, 1995. [http://books.google.com/booksid=3JlNFYKLheUC&q=unitary+representations#v=snippet&q=unitary%20representations&f=false](http://books.google.com/books?id=3JlNFYKLheUC&q=unitary+representations#v=snippet&q=unitary%20representations&f=false), p.269]

More than ever before in our history, **black Americans are** succumbing to and **internalizing** the **racist assumption that there can be no meaningful bonds** of intimacy between blacks and whites. It is fascinating to explore why it is that black people trapped in the worst situation of racial oppres sion—enslavement—had the foresight to see that it would be disempowering for them to lose sight of the capacity of white people to transform themselves and divest of white supremacy, even as many black folks today who in no way suffer such extreme racist oppression and exploitation are convinced that white people will not repudiate racism. Con temporary black folks, like their white counterparts, have passively accepted the internalization of white supremacist assumptions. Organized **white supremacists have always taught that there can never be trust** and intimacy **between the superior white** race **and** the **inferior black race. When black people internalize these sentiments, no resistance** to white supremacy **is taking place; rather we become complicit** in spreading racist notions. It does not matter that so many black people feel white people will never repudiate racism because of being daily assaulted by white denial and refusal of accountability. We must not allow the actions of white folks who blindly endorse racism to determine the direction of our resistance. Like our white allies in struggle we must consistently keep the faith, by always sharing the truth that 270white people can be anti-racist, that racism is not some immutable character flaw. ¶ **Of course** many **white people are comfortable with a rhetoric** of race **that suggests racism cannot be changed**, that all white people are “inherently racist” simply because they are born and raised in this society. **Such** misguided **thinking socializes white people** both **to remain ignorant** of the way in which white supremacist attitudes are learned **and to** assume a posture of learned **helplessness as though they have no** agency—no **capacity to resist this** thinking. Luckily we have many autobiographies by white folks committed to anti-racist struggle that provide documentary testimony that many of these individuals repudiated racism when they were children. Far from passively accepting It as inherent, they instinctively felt it was wrong. Many of them witnessed bizarre acts of white racist aggression towards black folks in everyday life and responded to the injustice of the situation. Sadly, in our times so many white folks are easily convinced by racist whites and bLack folks who have internalized racism that they can never be really free of racism.¶ These feelings aíso then obsc]re the reality of white privi lege. As long as white folks are taught to accept racism as ‘natura]” then they do not have to see themselves as con sciously creating a racist society by their actions, by their political choices. This means as well that they do not have to face the way in which acting in a racist manner ensures the maintenance of white privilege. Indeed, denying their agency allows them to believe white privilege does not exist even as they daily exercise it. If the young white woman who had been raped had chosen to hold all black males account able for what happened, she would have been exercising white privilege and reinforcing the structure of racist thought which teaches that all black people are alike. Unfortunately,¶ 271so many white people are eager to believe racism cannot be changed because internalizing that assumption downplays the issue of accountability. No responsibility need be taken for not changing something ¡fit is perceived as immutable. To accept racism as a system of domination that can be changed would demand that everyone who sees him- or herself as embracing a vision of radai social equality would be required to assert anti-racist habits of being. We know from histories both present and past that white people (and everyone else) who commit themselves to living in anti-racist ways need to make sacrifices, to courageously endure the uncomfortable to challenge and change.¶ Whites, people of color, and black folks are reluctant to commit themselves fully and deeply to an anti-racist struggle that is ongoing because there is such a pervasive feeling of hopelessness—a conviction that nothing will ever change. How any of us can continue to hold those feelings when we study the history of racism in this society and see how much has changed makes no logical sense. Clearly we have not gone far enough. In the late sixties, Martin Luther King posed the question “Where do we go from here.” To live in anti-racist society we must collectively renew our commitment to a democratic vision of racial justice and equality. Pursuing that vision we create a culture where beloved community flourishes and is sustained. Those of us who know the joy of being with folks from all walks of life, all races, who are fundamentalls’ anti-racist in their habits of being. need to give public testimony. Ve need to share not only what we have experienced but the conditions of change that make such an experience possible. The interracial circle of love that I know can happen because each individual present in it has made his or her own commitment to living an anti- racist life and to furthering the struggle to end white supremacy 272 will become a reality for everyone only if those of us who have created these communities share how they emerge in our lives and the strategies we use to sustain them. Our devout commitment to building diverse communities is cen tral. These commitments to anti-racist living are just one expression of who we are and what we share with one an other but they form the foundation of that sharing. Like all beloved communities we affirm our differences. It is this generous spirit of affirmation that gives us the courage to challenge one another, to work through misunderstandings, especially those that have to do with race and racism. In a beloved community solidarity and trust are grounded in profound commitment to a shared vision. Those of us who are always anti-racist long for a world in which evezyone can form a beloved community where borders can be crossed and cultural hybridity celebrated. Anyone can begin to make such a community by truly seeking to live in an anti-racist world. If that longing guides our vision and our actions, the new culture will be born and anti-racist communities of resis tance will emerge everywhere. That is where we must go from here

## Asteroid Mining DA

### New V

#### The private sector is essential for asteroid mining – competition is key and government development is not effective, efficient, or cheap enough. Thiessen 21:

Marc Thiessen, 6-1, 21, Washington Post, Opinion: SpaceX’s success is one small step for man, one giant leap for capitalism, https://www.washingtonpost.com/opinions/2020/06/01/spacexs-success-is-one-small-step-man-one-giant-leap-capitalism/

It was one small step for man, one giant leap for capitalism. Only three countries have ever launched human beings into orbit. This past weekend, SpaceX became the first private company ever to do so, when it sent its Crew Dragon capsule into space aboard its Falcon 9 rocket and docked with the International Space Station. This was accomplished by a company Elon Musk started in 2002 in a California strip mall warehouse with just a dozen employees and a mariachi band. At a time when our nation is debating the merits of socialism, SpaceX has given us an **incredible testament to the power of American free enterprise.** While the left is advocating unprecedented government intervention in almost every sector of the U.S. economy, from health care to energy, **today Americans are celebrating the successful privatization of space travel.** If you want to see the difference between what government and private enterprise can do, consider: It took a private company to give us the first space vehicle with touch-screen controls instead of antiquated knobs and buttons. It took a private company to give us a capsule that can fly entirely autonomously from launch to landing — including docking — without any participation by its human crew. It also took a private company to invent a reusable rocket that can not only take off but land as well. When the Apollo 11 crew reached the moon on July 20, 1969, Neil Armstrong declared “the Eagle has landed.” On Saturday, SpaceX was able to declare that the Falcon had landed when its rocket settled down on a barge in the Atlantic Ocean — ready to be used again. That last development will save the taxpayers incredible amounts of money. The cost to NASA for launching a man into space on the space shuttle orbiter was $170 million per seat, compared with just $60 million to $67 million on the Dragon capsule. The cost for the space shuttle to send a kilogram of cargo into to space was $54,500; with the Falcon rocket, the cost is just $2,720 — a decrease of 95 percent. And while the space shuttle cost $27.4 billion to develop, the Crew Dragon was designed and built for just $1.7 billion — making it the lowest-cost spacecraft developed in six decades. SpaceX did it in six years — far faster than the time it took to develop the space shuttle. ***The private sector does it better, cheaper, faster and more efficiently than government***. Why? Competition. Today, SpaceX has to compete with a constellation of private companies — including legacy aerospace firms such as Orbital ATK and United Launch Alliance and innovative start-ups such as Blue Origin (which is designing a Mars lander and whose owner, Jeff Bezos, also owns The Post) and Virgin Orbit (which is developing rockets than can launch satellites into space from the underside of a 747, avoiding the kinds of weather that delayed the Dragon launch). In the race to put the first privately launched man into orbit, upstart SpaceX had to beat aerospace behemoth Boeing and its Starliner capsule to the punch. It did so — for more than $1 billion less than its competitor. **That spirit of competition and innovation will revolutionize space travel in the years ahead.** Indeed, Musk has his sights set far beyond Earth orbit. Already, SpaceX is working on a much larger version of the Falcon 9 reusable rocket called Super Heavy that will carry a deep-space capsule named Starship capable of carrying up to 100 people to the moon and eventually to Mars. Musk’s goal — the reason he founded SpaceX — is to colonize Mars and make humanity a multiplanetary species. He has set a goal of founding a million-person city on Mars by 2050 complete with iron foundries and pizza joints. Can it be done? Who knows. But this much is certain: **Private-sector innovation is opening the door to a new era of space exploration**. Wouldn’t it be ironic if, just as capitalism is allowing us to explore the farthest reaches of our solar system, Americans decided to embrace socialism back here on Earth?

#### Taking away property rights scares investors away and spills over to other space activities. Freeland 05

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V. THE NEED FOR CELESTIAL PROPERTY RIGHTS? ¶ The fundamental principle of "non-appropriation" upon which the international law of outer space is based stems from the desire of the international community to ensure that outer space remains an area beyond the jurisdiction of any state(s). Similar ideals emerge from UNCLOS (in relation to the High Seas) as well as the Antarctic Treaty, 42 although in the case of the latter treaty, it was finalised after a number of claims of sovereignty had already been made by various States and therefore was structured to "postpone" rather than prejudice or renounce those previously asserted claims.43 In the case of outer space, its exploitation and use is expressed in Article I of the Outer Space Treaty to be "the province of all mankind," a term whose meaning is not entirely clear but has been interpreted by most commentators as evincing the desire to ensure that any State is free to engage in space activities without reference to any sovereign claims of other States. This freedom is reinforced by other parts of the same Article and is repeated in the Moon Agreement (which also applies to "other celestial bodies within the solar system, other than the earth")." Even though both the scope for space activities and the number of private participants have expanded significantly since these treaties were finalised, it has still been suggested that the nonappropriation principle constitutes "an absolute barrier in the realization of every kind of space activity., 4 ' The amount of capital expenditure required to research, scope, trial, and implement a new space activity is significant. To bring this activity to the point where it can represent a viable "stand alone" commercial venture takes many years and almost limitless funding. From the perspective of a private enterprise contemplating such an activity, it would quite obviously be an important element in its decision to devote resources to this activity that it is able to secure the highest degree of legal rights in order to protect its investment. Security of patent and other intellectual property rights, for example, are vital prerequisites for private enterprise research activity on the ISS, and these rights are specifically addressed by the ISS Agreement between the partners to the project and were applicable to the experiments undertaken by Mark Shuttleworth when he was onboard the ISS.46

#### Asteroid mining can happen with private sector innovation and is key to solve a laundry list of impacts--climate change, economic decline and asteroid collisions. Taylor 19

Chris Taylor [journalist], 19 - ("How asteroid mining will save the Earth — and mint trillionaires," Mashable, 2019, accessed 12-13-2021, https://mashable.com/feature/asteroid-mining-space-economy)//ML

How much, exactly? We’re only just beginning to guess. [Asterank](http://www.asterank.com/), a service that keeps track of some 6,000 asteroids in NASA’s database, prices out the estimated mineral content in each one in the current world market. More than 500 are listed as “>$100 trillion.” The estimated profit on just the top 10 asteroids judged “most cost effective” — that is, the easiest to reach and to mine, subtracting rocket fuel and other operating costs, is around $1.5 trillion.¶ Is it ours for the taking? Well, here’s the thing — we’re taking it already, and have been doing so since we started mining metals thousands of years ago. Asteroid strikes are the only reason rare metals exist in the Earth’s crust; the native ones were all sucked into our planet’s merciless iron core millions of years ago. Why not go to the source?¶ As a side project, space mining can grab water from the rocks and comets — water which, with a little processing makes rocket fuel. Which in turn makes even more currently unimaginable space operations possible, including ones that could give the planet all the energy it needs to avert climate catastrophe. Cislunar space — the bit around us and the moon, the local neighborhood, basically — is about to get very interesting.¶ It’s hard, even for the most asteroid-minded visionaries, to truly believe the full scope of this future space economy right now. Just as hard as it would have been in 1945, when an engineer named Vannevar Bush first proposed [a vast library of shared knowledge that people the world over would access via personal computers](https://en.wikipedia.org/wiki/Memex), to see that mushroom into a global network of streaming movies and grandmas posting photos and trolls and spies who move the needle on presidential elections. ¶ No technology’s pioneer can predict its second-order effects.¶ The space vision thing is particularly difficult in 2019. Not only do we have plenty of urgent problems with democracy and justice to keep us occupied, but the only two companies on the planet to have gone public with asteroid-mining business plans, startups that seemed to be going strong and had launched satellites already, were just bought by larger companies that are, shall we say, less comfortable executing on long-term visions.¶ Planetary Resources was founded in 2012 in a blaze of publicity. Its funding came from, among others, Larry Page, Eric Schmidt, Ross Perot, and the country of Luxembourg. It had inked an orbital launch deal with Virgin Galactic. And it was sold last October to a blockchain software company. (To 21st century readers, this paragraph would look like I’m playing tech world mad libs.)¶ In January, the other company, Deep Space Industries, also partly funded by Luxembourg (way to get in the space race, Luxembourg!), was sold to Bradford Space, owned by a U.S. investment group called the American Industrial Acquisition Corporation. Maybe these new overlords plan on continuing their acquisitions' asteroid mining endeavors rather than stripping the companies for parts. Both companies have been notably silent on the subject. “The asteroid mining bubble has burst,” [declared The Space Review](http://www.thespacereview.com/article/3633/1), one of the few online publications to even pay attention.¶ That’s also to be expected. After all, anyone trying to build Google in 1945 would go bankrupt. Just as the internet needed a half-dozen major leaps forward in computing before it could even exist, space industry needs its launch infrastructure.¶ Currently, the world’s richest person and its most well-known entrepreneur, Jeff Bezos and Elon Musk, respectively, are working on the relatively cheap reusable rockets asteroid pioneers will need. (As I was writing this, Bezos announced in an email blast that one of his New Shepherd rockets had flown to space and back five times like it was nothing, delivering 38 payloads for various customers while remaining entirely intact.) ¶ Meanwhile, quietly, Earth’s scientists are laying the groundwork of research the space economy needs. Japan’s Hayabusa 2 spacecraft has been in orbit around asteroid Ryugu for the last year and a half, learning everything it can. (Ryugu, worth $30 billion according to Asterank, is the website's #1 most cost-effective target.) The craft dropped [tiny hopping robot rovers](https://www.space.com/41941-hayabusa2-asteroid-rovers-hopping-tech.html) and a [small bomb](https://www.space.com/japan-hayabusa2-asteroid-bomb-video.html) on its target; pictures of the small crater that resulted were released afterwards.¶ Officially, the mission is to help us figure out how the solar system formed. Unofficially, it will help us understand whether all those useful metals clump together at the heart of an asteroid, as some theorize. If so, it’s game on for asteroid prospectors. If not, we can still get at the metals with other techniques, such as optical mining (which basically involves sticking an asteroid in a bag and drilling with sunlight; sounds nuts to us, but [NASA has proved it in the lab](https://www.nasa.gov/directorates/spacetech/niac/2017_Phase_I_Phase_II/Sustainable_Human_Exploration/)). It’ll just take more time.¶ Effectively, we’ve just made our first mark at the base of the first space mineshaft. And there’s more to come in 2020 when Hayabusa 2 returns to Earth bearing samples. If its buckets of sand contain a modicum of gold dust, tiny chunks of platinum or pebbles of compressed carbon — aka diamonds — then the Duchy of Luxembourg won’t be the only deep-pocketed investor to sit up and take notice.¶ The possibility of private missions to asteroids, with or without a human crew, is almost here. The next step in the process that takes us from here to where you are? Tell us an inspiring story about it, one that makes people believe, and start to imagine themselves mining in space. How would you explain the world-changing nature of the internet to 1945? How would you persuade them that there was gold to be mined in Vannevar Bush’s idea? You’d let the new economy and its benefits play out in the form of a novel.¶ As Hayabusa dropped a bomb on Ryugu, Daniel Suarez was making the exact same asteroid the target of his fiction. Suarez is a tech consultant and developer turned New York Times bestselling author. His novels thus far have been techno-thrillers: his debut, [Daemon](https://www.amazon.com/dp/B003QP4NPE/ref=dp-kindle-redirect?_encoding=UTF8&btkr=1), a novel of Silicon Valley’s worst nightmare, AI run rampant, made more than a million dollars.¶ So it was a telling shift in cultural mood that Suarez’s latest thriller is also a very in-depth description of — and thinly-disguised advocacy for — asteroid mining. In [Delta-v](https://www.amazon.com/Delta-v-Daniel-Suarez-ebook/dp/B07FLX8V84/ref=sr_1_1?crid=UMNUUSR3NCBX&keywords=delta-v&qid=1556930756&s=digital-text&sprefix=delta-v%2Cdigital-text%2C204&sr=1-1), published in April, a billionaire in the 2030s named Nathan Joyce recruits a team of adventurers who know nothing about space — a world-renowned cave-diver, a world-renowned mountaineer — for the first crewed asteroid mission.¶ Elon Musk fans might expect this to be Joyce’s tale, but he soon fades into the background. The asteroid-nauts are the true heroes of Delta-v. Not only are they offered a massive payday — $6 million each for four years’ work — they also have agency in key decisions in the distant enterprise. Suarez deliberately based them on present-day heroes. The mission is essential, Joyce declares, to save Earth from its major problems. First of all, the fictional billionaire wheels in a fictional Nobel economist to demonstrate the actual truth that the entire global economy is sitting on a [mountain of debt](https://www.washingtonpost.com/opinions/the-247-trillion-global-debt-bomb/2018/07/15/64c5bbaa-86c2-11e8-8f6c-46cb43e3f306_story.html?noredirect=on&utm_term=.5fb3ff1155d9). It has to keep growing or it will implode, so we might as well take the majority of the industrial growth off-world where it can’t do any more harm to the biosphere.¶ Secondly, there’s the climate change fix. Suarez sees asteroid mining as the only way we’re going to build [solar power satellites](https://en.wikipedia.org/wiki/Space-based_solar_power). Which, as you probably know, is a form of uninterrupted solar power collection that is theoretically more effective, inch for inch, than any solar panels on Earth at high noon, but operating 24/7. (In space, basically, it’s always double high noon). ¶ The power collected is beamed back to large receptors on Earth with large, low-power microwaves, which researchers think will be harmless enough to let humans and animals pass through the beam. A space solar power array like [the one China is said to be working on](https://www.forbes.com/sites/scottsnowden/2019/03/12/solar-power-stations-in-space-could-supply-the-world-with-limitless-energy/#2d3f78a54386) could reliably supply 2,000 gigawatts — or over 1,000 times more power than the largest solar farm currently in existence. ¶ “We're looking at a 20-year window to completely replace human civilization's power infrastructure,” Suarez told me, citing the report of the Intergovernmental Panel on Climate Change on the coming catastrophe. Solar satellite technology “has existed since the 1970s. What we were missing is millions of tons of construction materials in orbit. Asteroid mining can place it there.”¶ The Earth-centric early 21st century can’t really wrap its brain around this, but the idea is not to bring all that building material and precious metals down into our gravity well. Far better to create a whole new commodities exchange in space. You mine the useful stuff of asteroids both near to Earth and far, thousands of them taking less energy to reach than the moon. That’s something else we’re still grasping, how relatively easy it is to ship stuff in zero-G environments. ¶ Robot craft can move 10-meter boulders like they’re nothing. You bring it all back to sell to companies that will refine and synthesize it in orbit for a myriad of purposes. Big pharma, to take one controversial industry, would [benefit by taking its manufacturing off-world](https://medium.com/fitch-blog/why-is-big-pharma-interested-in-the-space-economy-c078ac1bf67c). The molecular structure of many chemicals grows better in microgravity.¶ The expectation is that a lot of these space businesses — and all the orbital infrastructure designed to support them — will be automated, controlled remotely via telepresence, and monitored by AI. But Suarez is adamant that thousands if not millions of actual human workers will thrive in the space economy, even as robots take their jobs in old industries back on Earth.¶ “Our initial expansion into space will most likely be unsettled and experimental. Human beings excel in such environments,” he says. “Humans can improvise and figure things out as we go. Robots must be purpose-built, and it's going to take time and experience for us to design and build them.”¶ Which is another way startups back on Earth will get rich in the new economy: designing and building those robots, the nearest thing to selling picks and shovels to prospectors in the space gold rush. Thousands of humans in space at any one time will also require the design and construction of stations that spin to create artificial gravity. Again, this isn’t a great stretch: Using centrifugal force to simulate gravity in space was first proposed by scientists in the 19th century. NASA has had workable designs for spinning cislunar habitats called [O’Neill cylinders](https://en.wikipedia.org/wiki/O%27Neill_cylinder) since the 1970s. We just haven’t funded them. ¶ But the trillionaires clearly will.¶ In short, Suarez has carefully laid out a vision of the orbital economy that offers something for everyone in our divided society. For Green New Deal Millennials, there’s the prospect of removing our reliance on fossil fuels at a stroke and literally lifting dirty industries off the face of the planet. For libertarians and other rugged individualists, there’s a whole new frontier to be developed, largely beyond the reach of government. ¶ For those who worry about asteroids that could wipe out civilization — though luckily, [this isn't likely to happen any time soon](https://mashable.com/article/armageddon-asteroid-threat) — here is a way for humanity to get proficient in moving them out of the way, fast. Indeed, the National Space Society has offered [a proposal](https://space.nss.org/technologies-for-asteroid-capture-into-earth-orbit/) to capture the asteroid Aphosis (which is set to miss Earth in the year 2029, but [not by a very comfortable margin](https://www.space.com/asteroid-apophis-2029-flyby-planetary-defense.html)), keep it in orbit, and turn it into 150 small solar-power satellites, as a proof of concept. ¶ For the woke folks who care about the bloody history of diamond production, there’s the likelihood that space mining would wipe out Earth’s entire diamond industry. “They will be found in quantities unattainable on Earth,” claims Suarez, with good reason. We are starting to discover that there is more crystalized carbon in the cosmos than we ever suspected. Astronomers have identified one [distant planet made entirely of diamond](https://www.nationalgeographic.com/science/phenomena/2014/06/24/diamond-the-size-of-earth/); there may be more, but they are, ironically, hard to see. ¶ We don’t have diamond planets in our solar system (and we can’t do interstellar missions), but we do have diamond-studded asteroids. Mine them for long enough and you will wear diamonds on the soles of your shoes.¶ For investors and entrepreneurs, there is the thrill of racing to be the first member of the four-comma club. ([Neil deGrasse Tyson believes that the first trillionaire will be an asteroid mining mogul](https://www.nbcnews.com/science/space/neil-degrasse-tyson-says-space-ventures-will-spawn-first-trillionaire-n352271); Suarez isn’t sure whether they’ll be the first, but he suspects that asteroid mining “will mint more trillionaires than any industry in history.”) ¶ For the regular guy or gal with a 401K, there’ll be a fast-rising stock market — inflated not by financial shenanigans this time, but an actual increase in what the world counts as wealth.¶ For workers, there is the promise of sharing in the untold riches, both legally and otherwise. It would be hard to stop miners attaining mineral wealth beyond their paycheck, under the table, when your bosses are millions of miles away. Then there’s the likelihood of rapid advancement in this new economy, where the miners fast gain the knowledge necessary to become moguls.¶ “After several tours in space working for others, perhaps on six-month or year-long contracts, it's likely that some workers will partner to set up their own businesses there,” says Suarez. “Either serving the needs of increasing numbers of workers and businesses in space, marketing services to Earth, or launching asteroid mining startups themselves.” All in all, it’s starting to sound a damn sight more beneficial to the human race than the internet economy is. Not a moment too soon. I’ve written encouragingly about asteroid mining several times before, each time touting the massive potential wealth that seems likely to be made. And each time there’s been a sense of disquiet among my readers, a sense that we’re taking our rapacious capitalist ways and exploiting space.¶ Whereas the truth is, this is exactly the version of capitalism humanity has needed all along: the kind where there is no ecosystem to destroy, no marginalized group to make miserable. A safe, dead space where capitalism’s most enthusiastic pioneers can go nuts to their hearts’ content, so long as they clean up their space junk. ¶ ([Space junk](https://mashable.com/category/space-junk) is a real problem in orbital space because it has thousands of vulnerable satellites clustered closely together around our little blue rock. The vast emptiness of cislunar space, not so much.)¶ And because they’re up there making all the wealth on their commodities market, we down here on Earth can certainly afford to focus less on growing our stock market. Maybe even, whisper it low, we can afford a fully functioning social safety net, plus free healthcare and free education for everyone on the planet.¶ It’s also clearly the area where we should have focused space exploration all along. If we settle on Mars, we may disturb as-yet-undiscovered native bacteria — and as the character Nathan Joyce shouts at a group of “Mars-obsessed” entrepreneurs in Delta-V, Mars is basically filled with toxic sand and is thus looking increasingly impossible to colonize. (Sorry, Mark Watney from The Martian, those potatoes would probably kill you.)

#### Warming causes extinction.

Bill McKibben 19, Schumann Distinguished Scholar at Middlebury College; fellow of the American Academy of Arts and Sciences; holds honorary degrees from 18 colleges and universities; Foreign Policy named him to their inaugural list of the world’s 100 most important global thinkers. "This Is How Human Extinction Could Play Out." Rolling Stone. 4-9-2019. https://www.rollingstone.com/politics/politics-features/bill-mckibben-falter-climate-change-817310/

Oh, it could get very bad. In 2015, a study in the Journal of Mathematical Biology pointed out that if the world’s oceans kept warming, by 2100 they might become hot enough to “stop oxygen production by phyto-plankton by disrupting the process of photosynthesis.” Given that two-thirds of the Earth’s oxygen comes from phytoplankton, that would “likely result in the mass mortality of animals and humans.” A year later, above the Arctic Circle, in Siberia, a heat wave thawed a reindeer carcass that had been trapped in the permafrost. The exposed body released anthrax into nearby water and soil, infecting two thousand reindeer grazing nearby, and they in turn infected some humans; a twelve-year-old boy died. As it turns out, permafrost is a “very good preserver of microbes and viruses, because it is cold, there is no oxygen, and it is dark” — scientists have managed to revive an eight-million-year-old bacterium they found beneath the surface of a glacier. Researchers believe there are fragments of the Spanish flu virus, smallpox, and bubonic plague buried in Siberia and Alaska. Or consider this: as ice sheets melt, they take weight off land, and that can trigger earthquakes — seismic activity is already increasing in Greenland and Alaska. Meanwhile, the added weight of the new seawater starts to bend the Earth’s crust. “That will give you a massive increase in volcanic activity. It’ll activate faults to create earthquakes, submarine landslides, tsunamis, the whole lot,” explained the director of University College London’s Hazard Centre. Such a landslide happened in Scandinavia about eight thousand years ago, as the last Ice Age retreated and a Kentucky-size section of Norway’s continental shelf gave way, “plummeting down to the abyssal plain and creating a series of titanic waves that roared forth with a vengeance,” wiping all signs of life from coastal Norway to Greenland and “drowning the Wales-sized landmass that once connected Britain to the Netherlands, Denmark, and Germany.” When the waves hit the Shetlands, they were sixty-five feet high. There’s even this: if we keep raising carbon dioxide levels, we may not be able to think straight anymore. At a thousand parts per million (which is within the realm of possibility for 2100), human cognitive ability falls 21 percent. “The largest effects were seen for Crisis Response, Information Usage, and Strategy,” a Harvard study reported, which is too bad, as those skills are what we seem to need most. I could, in other words, do my best to scare you silly. I’m not opposed on principle — changing something as fundamental as the composition of the atmosphere, and hence the heat balance of the planet, is certain to trigger all manner of horror, and we shouldn’t shy away from it. The dramatic uncertainty that lies ahead may be the most frightening development of all; the physical world is going from backdrop to foreground. (It’s like the contrast between politics in the old days, when you could forget about Washington for weeks at a time, and politics in the Trump era, when the president is always jumping out from behind a tree to yell at you.) But let’s try to occupy ourselves with the most likely scenarios, because they are more than disturbing enough. Long before we get to tidal waves or smallpox, long before we choke to death or stop thinking clearly, we will need to concentrate on the most mundane and basic facts: everyone needs to eat every day, and an awful lot of us live near the ocean. FOOD SUPPLY first. We’ve had an amazing run since the end of World War II, with crop yields growing fast enough to keep ahead of a fast-rising population. It’s come at great human cost — displaced peasant farmers fill many of the planet’s vast slums — but in terms of sheer volume, the Green Revolution’s fertilizers, pesticides, and machinery managed to push output sharply upward. That climb, however, now seems to be running into the brute facts of heat and drought. There are studies to demonstrate the dire effects of warming on coffee, cacao, chickpeas, and champagne, but it is cereals that we really need to worry about, given that they supply most of the planet’s calories: corn, wheat, and rice all evolved as crops in the climate of the last ten thousand years, and though plant breeders can change them, there are limits to those changes. You can move a person from Hanoi to Edmonton, and she might decide to open a Vietnamese restaurant. But if you move a rice plant, it will die. A 2017 study in Australia, home to some of the world’s highest-tech farming, found that “wheat productivity has flatlined as a direct result of climate change.” After tripling between 1900 and 1990, wheat yields had stagnated since, as temperatures increased a degree and rainfall declined by nearly a third. “The chance of that just being variable climate without the underlying factor [of climate change] is less than one in a hundred billion,” the researchers said, and it meant that despite all the expensive new technology farmers kept introducing, “they have succeeded only in standing still, not in moving forward.” Assuming the same trends continued, yields would actually start to decline inside of two decades, they reported. In June 2018, researchers found that a two-degree Celsius rise in temperature — which, recall, is what the Paris accords are now aiming for — could cut U.S. corn yields by 18 percent. A four-degree increase — which is where our current trajectory will take us — would cut the crop almost in half. The United States is the world’s largest producer of corn, which in turn is the planet’s most widely grown crop. Corn is vulnerable because even a week of high temperatures at the key moment can keep it from fertilizing. (“You only get one chance to pollinate a quadrillion kernels of corn,” the head of a commodity consulting firm explained.) But even the hardiest crops are susceptible. Sorghum, for instance, which is a staple for half a billion humans, is particularly hardy in dry conditions because it has big, fibrous roots that reach far down into the earth. Even it has limits, though, and they are being reached. Thirty years of data from the American Midwest show that heat waves affect the “vapor pressure deficit,” the difference between the water vapor in the sorghum leaf’s interior and that in the surrounding air. Hotter weather means the sorghum releases more moisture into the atmosphere. Warm the planet’s temperature by two degrees Celsius — which is, again, now the world’s goal — and sorghum yields drop 17 percent. Warm it five degrees Celsius (nine degrees Fahrenheit), and yields drop almost 60 percent. It’s hard to imagine a topic duller than sorghum yields. It’s the precise opposite of clickbait. But people have to eat; in the human game, the single most important question is probably “What’s for dinner?” And when the answer is “Not much,” things deteriorate fast. In 2010 a severe heat wave hit Russia, and it wrecked the grain harvest, which led the Kremlin to ban exports. The global price of wheat spiked, and that helped trigger the Arab Spring — Egypt at the time was the largest wheat importer on the planet. That experience set academics and insurers to work gaming out what the next food shock might look like. In 2017 one team imagined a vigorous El Niño, with the attendant floods and droughts — for a season, in their scenario, corn and soy yields declined by 10 percent, and wheat and rice by 7 percent. The result was chaos: “quadrupled commodity prices, civil unrest, significant negative humanitarian consequences . . . Food riots break out in urban areas across the Middle East, North Africa, and Latin America. The euro weakens and the main European stock markets lose ten percent.” At about the same time, a team of British researchers released a study demonstrating that even if you can grow plenty of food, the transportation system that distributes it runs through just fourteen major choke-points, and those are vulnerable to — you guessed it — massive disruption from climate change. For instance, U.S. rivers and canals carry a third of the world’s corn and soy, and they’ve been frequently shut down or crimped by flooding and drought in recent years. Brazil accounts for 17 percent of the world’s grain exports, but heavy rainfall in 2017 stranded three thousand trucks. “It’s the glide path to a perfect storm,” said one of the report’s authors. Five weeks after that, another report raised an even deeper question. What if you can figure out how to grow plenty of food, and you can figure out how to guarantee its distribution, but the food itself has lost much of its value? The paper, in the journal Environmental Research, said that rising carbon dioxide levels, by speeding plant growth, seem to have reduced the amount of protein in basic staple crops, a finding so startling that, for many years, agronomists had overlooked hints that it was happening. But it seems to be true: when researchers grow grain at the carbon dioxide levels we expect for later this century, they find that minerals such as calcium and iron drop by 8 percent, and protein by about the same amount. In the developing world, where people rely on plants for their protein, that means huge reductions in nutrition: India alone could lose 5 percent of the protein in its total diet, putting 53 million people at new risk for protein deficiency. The loss of zinc, essential for maternal and infant health, could endanger 138 million people around the world. In 2018, rice researchers found “significantly less protein” when they grew eighteen varieties of rice in high–carbon dioxide test plots. “The idea that food became less nutritious was a surprise,” said one researcher. “It’s not intuitive. But I think we should continue to expect surprises. We are completely altering the biophysical conditions that underpin our food system.” And not just ours. People don’t depend on goldenrod, for instance, but bees do. When scientists looked at samples of goldenrod in the Smithsonian that dated back to 1842, they found that the protein content of its pollen had “declined by a third since the industrial revolution — and the change closely tracks with the rise in carbon dioxide.” Bees help crops, obviously, so that’s scary news. But in August 2018, a massive new study found something just as frightening: crop pests were thriving in the new heat. “It gets better and better for them,” said one University of Colorado researcher. Even if we hit the UN target of limiting temperature rise to two degrees Celsius, pests should cut wheat yields by 46 percent, corn by 31 percent, and rice by 19 percent. “Warmer temperatures accelerate the metabolism of insect pests like aphids and corn borers at a predictable rate,” the researchers found. “That makes them hungrier[,] and warmer temperatures also speed up their reproduction.” Even fossilized plants from fifty million years ago make the point: “Plant damage from insects correlated with rising and falling temperatures, reaching a maximum during the warmest periods.”

#### An asteroid collision would ensure extinction – would fundamentally alter the biosphere, don’t underestimate its risk. Hudson 19

Wesley Hudson ’19, news reporter for Express, “Asteroid alert: NASA warning as kilometre long space rock set to skim Earth at 25,000mph”, 8/28/19, Express, https://www.express.co.uk/news/science/1170826/asteroid-news-NASA-latest-space-rock-asteroid-1998-HL1-earth-danger-apocalypse

AN ASTEROID almost a kilometre wide is currently barreling through space at more than 25,000mph and is due to skim the earth towards the end of October. NASA’s Jet Propulsion Laboratory (JPL) claim the space rock will shoot past the earth within a “close” proximity of the planet in the early hours of October 26. The asteroid, dubbed 1998 HL1, is a so-called Near-Earth Object (NEO) flying on a Close Approach Trajectory. NASA expects the 1998 HL1 to come flying by dangerously close around 1.21am BST (17.21pm PDT). The daunting moment will mark anther journey around the sun for the asteroid since it was discovered in 1998. The asteroid will be travelling at a staggering speed of over 25,000mph as it barrels past the Earth. The JPL predict the asteroid could be between 440m and 990m wide. At its largest an asteroid of this size is bigger than the tallest building in the world, the Burj Khalifa in Dubai. Even at it’s smallest, 1998 HL1 is still bigger than The Shard. Since it was discovered, 1998 HL1 has been seen up to 408 times. An NEO is an asteroid or comet which is on an orbital path intersecting that of the Earth's. This asteroid will miss the Earth by almost four million miles. If it were to strike the Earth, an asteroid of this size would cause catastrophic damage. The extinction of the dinosaurs in the Cretaceous-Tertiary event 65million years ago is famously believed to have been caused by a massive asteroid impact. The Chicxulub Crater in Mexico is the most commonly accepted point of impact, with the responsible body thought to be around 10km in diameter. A car-sized asteroid is estimated to hit the Earth roughly once a year. The majority of asteroids on track for the planet are usually burnt up as they enter the Earth's atmosphere. NASA administrator Jim Bridenstine has previously warned a potential asteroid collision is more likely then people realise. He said: "We have to make sure that people understand that this is not about Hollywood, it's not about the movies. "This is about ultimately protecting the only planet we know, right now, to host life - and that is the planet Earth.” NASA is currently in the process of developing the Double Asteroid Redirection Test (DART). DART will test if it is possible to redirect asteroids that are threatening to impact with Earth. SpaceX chief Elon Musk had previously tweeted fears of a deadly collision that Earth was not prepared for. Mr Musk tweeted: “A big rock will hit Earth eventually & we currently have no defence.”

#### Don’t write our impacts off as low probability – asteroid collision is complex and the existence of space keyholes exponentially increases the risk of collision. Vereš ’19

Peter Vereš ’19, Harvard-Smithsonian Center for Astrophysics, “Chapter 6 Vision of Perfect Observation Capabilities”, 2019, Planetary Defense, Space and Society, https://dl1.cuni.cz/pluginfile.php/634091/mod\_resource/content/1/Planetary%20Defence.pdf

Often, uncertain orbits are a source of elevated impact risks of some NEOs with the Earth. The impact probability of an asteroid with Earth is a complex problem. First, the orbits of Earth and the asteroid should be close enough or even intersect; second, the Earth and asteroid should meet at the intersection at the same time. If these conditions are met, then one can assess how close the asteroid flies around the Earth at a given time, or whether it will hit the Earth. One must remember that each asteroid orbit comes with uncertainties and therefore, instead of a single accurate solution where the asteroid will hit the Earth or miss it, there is always a realm of possible solutions within the orbit uncertainties. The tangent plane to the asteroid’s trajectory at the time of impact, or close approach, is called a b-plane. At a given time of a predicted impact, all possible closest distances to the Earth of possible orbits create an area on the tangent plane. If the area contains the Earth, then the impact probability for that epoch is non-zero and in a simple approximation can be denoted as a ratio of an area of Earth cross section and the entire area with possible orbits going through the b-plane. It happens that a newly discovered NEO with a short arc that is coming very close to the Earth has a non-zero impact probability, because its orbit is highly uncertain and the area on the b-plane is very large. Typically, further observations improve the orbit, and the impact risk for a given epoch falls to zero. Some objects, however, have orbits with low orbital uncertainty, but still have non-zero impact probability, such as Bennu. The non-zero impact probability is computed for a given time in the future, but even if the orbit is known very well today, small perturbations from planets and non-gravitational forces increase the uncertainty for future impacts. That is why NASA’s Sentry is providing predictions only for the next 100 years. A close flyby of a spacecraft around an asteroid may improve the asteroid’s orbit significantly, however, it does not fully mitigate its impact in the future, due to the presence of keyholes (Chodas 1999)—small areas in space near Earth. Keyholes are specific for asteroids flying very close to the Earth and are rather small, from a few to hundreds of kilometers across. If the keyhole is hit during the NEO flyby, the orbit of the NEO becomes resonant with Earth and the NEO will return to Earth regularly, increasing its impact probability. Thus, in case of a very near Earth flyby, the orbit needs to be known with such precision (~km) that keyhole avoidance is confirmed. NASA has even created the NEO Deflection App,1 where the public can try to change the orbit of a hypothesized NEO on direct impact trajectory. For Earth impact monitoring, the accuracy of orbits and orbital uncertainties is crucial and deserves more attention. The future of orbit determination and uncertainty mitigation will depend more and more on sophisticated software that will be able to handle orbital computation in detail; assess uncertainties and errors of measurements; coordinate a list of objects that are crucial for follow-up or orbit improvement, or even automatically point the telescopes in a network to observe those asteroids; measure their positions; and submit the data to MPC. This automated process is more or less implanted by several surveys (CSS, LCOGT) and agencies (ESA, MPC).