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Condition?

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Is Climate-Related Pre-Traumatic Stress Syndrome a Real Condition?

Pre-Traumatic Stress Syndrome (PreTSS) is but one of several mental health conditions being theorized in the humanities and social sciences as a result of climate change and the environmental desecration resulting from it. This turn to climate illness is important in the context of efforts to change course as regards the current petro-culture world, or at least to mitigate its impact on humans, non-humans, and the planet. It seems, as William Davies (2019) puts it in his work on declining democracy, that societies world-wide are moving from logic to emotion, from reason to feelings.¹ Interest in climate illness responds to such a situation in the sense that too much unconscious emotion may prevent publics from acting to remedy what is happening. Theoretically, if publics can understand the negative emotions and psychic conditions that prevent positive action, society can begin to confront the resistance to tackling what humans are doing to the biosphere. Indeed, it may be helpful to acknowledge that, given the situation, panicking may be appropriate. Further, as Heather Houser (2014), for one, has argued, creating narratives about humanity's dire condition might be more effective than gathering scientific facts and data, widely available already.²

Pre-Traumatic Stress Syndrome, my focus here, is unlike most other mental health climate concepts—e.g. solastalgia (Albrecht), ecosickness (Houser), or Anthropocene disorder (Clark)—because, like ecophobia (Estok), it has a specific clinical reference. In my case it links to, but is different from, the familiar *Post-Traumatic Stress Disorder* (PTSD); it also differs from other climate illnesses in being focused on the future rather than the past or present.³ In what follows, I'll first look at what psychological research there is showing PreTSS as a disorder so as to assess its viability as a clinical diagnosis; I will

then address briefly how humanists (and film directors) represent PreTSS as a mental illness in climate change narratives. In both discussions, I raise issues to do with race and gender. Finally, 1) I'll ask why the status of official diagnosis matters; 2) explore whether other psychological research suggests climate trauma implicitly if not citing case studies; and 3) argue that while PreTSS might not be the best formulation, or verifiable by narrow scientific methods, what it stands for is useful in regard to affects and illness related to climate change.

Project Context

In the wake of 9/11, I had written extensively about trauma and PTSD in the media, looking at modernist, post-modernist, and postcolonial contexts (Kaplan, 2005). As debates about climate change accelerated around 2007, I became fascinated with dystopian films and fiction about future worlds in which human action had brought about the collapse of both the natural world and civil infrastructures. Known as cli-fi, these films form a subset of regular science fiction, which involves time-travel, aliens, and cyborgs. From the perspective of PTSD, it made sense to see the increasing dystopian fantasies in cli-fi as related to social anxieties and anticipations about a catastrophic future—that is, *anxieties about what has not yet happened*. It occurred to me that viewers of such fictions may experience what I first called “trauma future-tense,” and discussed in regard to Alfonso Cuarón’s 2006 film *Children of Men* (Kaplan, 2012). I saw a connection between anticipatory anxieties for the future (which is what I meant by “trauma future-tense”) and the familiar related phenomenon of *Post-Traumatic Stress Disorder*. I suggested that symptoms similar to those in PTSD could emerge from extreme anxiety about a future when the natural environment, and related human systems, would have failed (Kaplan, 2015). Symptoms, I theorized, might include flash-forwards, nightmares, and fear-induced disassociation, now caused by reference to a *future* rather than *past* event.

I called this new disorder “Pre-Traumatic Stress Syndrome” (PreTSS) and only later discovered that Paul Saint-Amour was pondering a similar futurist mental state in his *Tense Future*:

Modernism, Total War and Encyclopedic Form (2015). In that work, Saint-Amour first notes that according to classical Freudian theory, “the very notion of a *pre*-traumatic syndrome is practically nonsensical” (p. 14), before going on to show that it may *not* be so. Saint-Amour looks back (as I had also) to Freud’s later work noting the differences amongst anxiety, fear, and fright, where anxiety is about an anticipated event (Freud, 1925 [1955], pp. 11–12). With this support, Saint-Amour develops an account of “the traumatizing power of anticipation” (p. 17), in relation to nations constantly living in fear of a future war, even as the past war recedes. He comes close to PreTSS when he asks what a study of trauma might look like if “it could see in the experience of an apparently inescapable future, or of a wounding anticipation, *something in addition to a symptom of past experience*” (p. 30)—issues I return to below.

Clinical Research and PreTSS

I hoped I could find support for the PreTSS disorder in research by clinical psychologists. *DSM-5*, published in 2013, vastly expands its discussion of PTSD so as to cover a far wider range of contexts for the disorder than before, and finally it takes race and gender into account. But it does not include any PreTSS as such. The only reference to pre-trauma is in relation to stressors that might make people more vulnerable to PTSD following a traumatic event. In a section on “Pretraumatic Factors” in *DSM-5*, three factors—temperamental, environmental, and genetic and physiological—that might predispose subjects to adverse reaction to an event are cited (2013, p. 277).⁴ Notable here is that care is given to what is listed as “Cultural-Related Diagnostic Issues” (2013, p. 278). If late in recognizing how “cultural syndromes and idioms of distress influence the expression of PTSD,” and in noting the range of disorders in different cultures, it’s good to have race and gender finally included, if only superficially.⁵ I found earlier studies focused (significantly) on pregnancy and gynecological procedures (*DSM-5* suggests women are more vulnerable to PTSD than men), as well as on terrorism, debating whether a “Pre-traumatic personality” predicted PTSD following birth or attacks (see for example, Engelhard et al., 2003; Menage, 1993).

Further search for clinical support for the syndrome yielded few in-depth studies. Work by cognitive psychologists Dorte Berntsen and David C. Rubin therefore stood out, even more for the irony that (as they state) the psychologists' research was inspired by mention of PreTSS in the satiric newspaper *The Onion* in 2006. There PreTSS in soldiers was described as a joke.⁶ Berntsen and Rubin nevertheless decided to see if science might support the syndrome. And, indeed, through in-depth experimental studies with war veterans deployed to dangerous war zones, Berntsen and Rubin found evidence for PreTSS. In their 2014 data report "Pre-Traumatic Stress Reactions in Soldiers Deployed to Afghanistan," they define pre-traumatic stress very much as I had been theorizing it. Working with Danish soldiers, they measured them before, during, and after their deployment to Afghanistan. Berntsen and Rubin are especially interested in the link to PTSD, and generated a clinical measure, PreCL (a pre-trauma checklist), containing similar items as the PCL (or the PTSD checklist). They predicted that pre-traumatic stress reactions as measured by the PreCL scale would form "an independent aspect of the phenomenology of PTSD"—that is, a disorder that's not exactly the same but that correlates with PTSD. And indeed, those about to be deployed did manifest symptoms of a Pre-Traumatic Stress Syndrome. In their own words, these researchers found "disturbing future-oriented cognitions and imaginations as measured in terms of direct temporal reversal of conceptualizations of past-directed cognitions in the PTSD diagnosis" (Berntsen & Rubin, 2014, p. 3). For these scientists, PreTSS is a valid clinical diagnosis, which I think (with some caveats) can be applied to anxieties about human beings able to survive dramatic ecological and species changes.

While this research is important for giving support to a clinical definition of PreTSS, worrying is the lack of explicit attention to the variables of race and gender, often implicitly present. In research with soldiers, the male gender is implied, even though women now are sent to combat zones, and race is not clarified. I would assume gender and race to impact future-thinking about deployment; perhaps more recent studies take these into account. Certainly, the American Psychological Association is currently working to remedy unconscious race

bias, as evident in the 2019 special issue of *American Psychologist* with articles by Riana Elyse Anderson, William Hartman, and William Ming Liu et al., among others, detailing research on racial trauma, white supremacist ideology, ethno-racial trauma, and racial stress.⁷

This psychological research, related to war, supports taking literally a Pre-Traumatic Stress Syndrome (analogous to the classic research findings on PTSD) yet an independent diagnosis. However, I could not find studies linking PreTSS to anticipatory anxieties about the broader environment and climate change specifically. Even in the war research, the focus is less on war as the environment for PTSD or PreTSS than on symptoms (such as hallucinations about the future, flash-forwards, nightmares, and phobias) in the individual soldier. PreTSS might be easier to find in the case of soldiers than in regard to climate because most citizens have a sense of what war entails from history lessons, documentary war footage, and war films. Their imaginations may already be primed for war PreTSS. My climate PreTSS sufferers may not have been exposed to any direct consequence of dramatic climate change or any related films. If they suffered a terrifying hurricane with all that entails (as in Katrina or Maria), some infrastructures returned after the crisis, enabling something approaching normal life to continue. Nevertheless, it seems to me plausible that anxious anticipation of climate catastrophe, which would leave subjects homeless and without support, could produce nightmares, flash-forwards, panic attacks, phobias, etc. In other words, as Saint-Amour puts it, PreTSS involves “something in addition to a symptom of past experience,” such as (in my words) a ghosting of the future.

Why PreTSS has not hitherto seemed of interest to other clinical psychologists remains unclear. Presumably they have few clients explicitly presenting with the syndrome, although this does not prove that people are not experiencing climate PreTSS, even if only semi-consciously. Clinicians may not be looking out for PreTSS in relation to climate because, as Susan Kassouf (2017; 2019) suggests, the very structure of psychoanalysis as a practice does not encourage attention to an environment larger than the clinical office and the client’s domestic space. Kassouf offers an interesting hypothesis when she asks, “Could

it be that our own profession conceptually discourages us from understanding climate change as an ethical and analytical matter?" (2019, p. 2). She goes on to wonder if "contemporary psychoanalytic thinking and practice shy away from acknowledging the profound ways in which humans and their psyches are a part of, and not distinct from, a larger environment, what I will describe as an unconscious 'anenvironmental' orientation?" (2019, p. 2). Elsewhere Kassouf suggests "psychoanalytic ethics" is seen "as exclusively an inter- and intra-human endeavor," relying on an idea of a stable larger environment that does not need attention (2017, p. 145).

Kassouf finds support for her views in research by Harold Searles (1972), who first wrote about the need for psychoanalysts to think about the larger environment in clinical practice. Kassouf discovers in Freud's unpublished work his interest in a phylogenetic trauma, that of the Ice Age, deeply embedded in the human psyche and relevant to the present anxiety about disastrous climate events. The profession is encouraged to respond to this strand of earlier psychoanalytic theory and contribute to "meeting the ecological crisis" (2017, p. 146).

More recently, Alan Bellamy has also revisited Searles's work, only now going back even further to argue that "explorations about climate change and environmental destruction" have in common "a set of conceptual ideas that were initially developed by Sandor Ferenczi" (2019, p. 105). Bellamy believes a "psychoanalytical perspective" will enable exploration of attitudes and beliefs and "so change damaging behaviors" (2019, p. 100). This is in line with my thinking about PreTSS as interfering with making climate-related changes.

Climate-Caused PreTSS in Select Hollywood Films

However odd it may sound, I did find *hypothetical* data of exactly such a climate-caused condition in a Hollywood film, namely Jeff Nichols's *Take Shelter* (2011). The film is remarkable in having a male hero who increasingly succumbs to a climate-linked mental illness that unravels his life. Even more remarkable is Nichols's showing his hero, Curtis, developing a PreTSS condition. Curtis suffers symptoms familiar from

Post-Traumatic Stress Disorder, only now in relation to *what has not yet taken place*. His extreme fears and vivid, terrifying hallucinations are all in regard to a future collapse of nature and his local environment that haunts him. The opening image of the film shows Curtis outside, watching unusual black clouds moving in ominous ways. Shortly, what looks at first like rain turns out to be oil pouring down on Curtis from the sky. But a quick cut takes us to Curtis having this hallucination while having a shower. Nichols repeats this pattern of starting out with Curtis in an ordinary daily life situation that suddenly turns into his hallucinations of ominous, terrifying, natural events: for example, as Curtis, a construction worker, operates machines with his pal, he sees waves of birds clouding the sky or dropping dead, piling up on the road; or as he takes care of his hearing-impaired child, Hannah, he imagines storms suddenly breaking out that are violent enough to raise the house furniture off the floor. Another time, when he is driving with Hannah in yet more violent weather, wild zombies appear to try to kill Curtis and his child. Curtis's pre-traumatic symptoms get worse as the film goes on; he has nightmares about violent storms making his usually friendly dog so aggressive that it wounds Curtis's arm dangerously. In one such nightmare, to his shame, Curtis wets the bed. For days, his arm hurts, and he is haunted by the dreams, making him lose his sense of who he is. He's unable to work efficiently any more. Curtis is driven to build a shelter to keep his family safe, and with this his life unravels.

While making a film showing PreTSS as a viable mental disorder, just like the familiar *Post-Traumatic Stress Syndrome* but without any past events triggering symptoms, Nichols has covered his bets by including the possibility that Curtis is just suffering from extreme schizophrenia, such as we learn his mother developed. Curtis is gradually persuaded that his fears are not real, that his PreTSS was just groundless fears caused by mental illness, when, as the family is on holiday at the beach, indeed an enormous, engulfing, catastrophic storm—the storm to end all storms and the planet as well—appears to be coming. Since this storm-event is experienced first by his child, and soon also by his wife, whereas all the other climate-change events were from Curtis's perspective alone, viewers are persuaded

(or assumed to be so persuaded) that catastrophic disaster for humans has finally arrived.

Another film, Paul Schrader's disturbing *First Reformed* (2018), offers a character, a young man, implicitly suffering from PreTSS, and another, older man who also succumbs through identification. The young man, Michael, about to be a father, is part of an activist climate change group believing that humans and planet Earth are doomed. Michael is haunted by this anticipation, suffering depression and suicidal thoughts. His deepest terrifying thought is that his child, once living in a desecrated, collapsed biosphere, will look him in the eye and ask why he brought her into such a world. Clearly traumatized by imagining a catastrophic future that, despite his activist efforts for humans to change course, is in full throttle, and unable to bear his responsibility for it, Michael ultimately commits suicide.

The rest of the film focuses on the older man, a priest, Toller, played by Ethan Hawke. Toller tried to help Michael and then his young pregnant wife, but failing to save Michael, in turn develops PreTSS via his identification with him. The priest exemplifies the theory that post-traumatic stressors make people vulnerable to PreTSS. The young father-to-be's suicide triggers Toller, who (traumatized by having persuaded his son to go to Iraq, where he died) wonders what else he might have done to save Michael's life. Toller begins to identify with the young man's anticipation of a catastrophic climate future, as the politics of the larger local church's funding by a local fossil fuel company dawn on him. Toller's life then also unravels in especially disturbing ways, which include his deciding to carry out Michael's plan to be a suicide bomber. His repressed sexuality also emerges in fantasies of sex with Michael's pregnant wife.

The cinematic techniques used in both films brilliantly draw the viewer into the pre-traumatic stress each character experiences. Nichols shoots Curtis from behind, so that we see what he sees, suturing us to Curtis's terrifying visions. In a sense, Nichols plays with viewers in seeming to provide relief that what Curtis experiences is just hallucinations, not reality, only to apparently reverse this at the end, implicating viewers in an anticipation of planetary collapse of a devastating kind. Meanwhile, Schrader fills many scenes (especially when focus-

ing on Toller) with doom through lighting, rendering a stark, dark environment that reflects Toller's state of mind. These shots contrast strikingly with the stunning bright, still images of the First Reformed Church, dating back to 1767, suggesting a peaceful and godly past as against the polluted, disaster-ready present. Ethan Hawke's often monotonous voice-over conveys a desperate soul. Michael also speaks in a low monotone, as do deeply depressed people. Both films have unresolved narratives, leaving the viewer wondering just what went on, and with much to think, and have nightmares, about.

PreTSS ironically appears in popular culture other than film, namely journalism and online reports, some apparently again inspired by the 2006 article in *The Onion*. For example, Wray Herbert, who writes for *The Huffington Post*, in a report titled "Healing the Wounds of the Future" (2014) takes off from the *Onion* article, and goes on to cite the Berntsen and Rubin research already noted. Talking about the interviews the psychologists conducted, Herbert says the researchers "gathered other clinical information, some of which could be figured into a checklist of symptoms for pre-traumatic stress. These were essentially mirror images of the post-traumatic stress symptoms." Herbert concludes that Berntsen and Rubin "showed that soldiers experience involuntary, intrusive images of possible future events [...] at the same level as reactions to actual past battlefield events." Herbert also notes that the Berntsen and Rubin research is consistent "with a line of neuroscience research showing that episodic memory and future projections recruit overlapping brain structures," although he offers no citations in support of the statement. Meanwhile, in a 2017 article titled "Fearing the Future: Pre-Traumatic Stress Reactions," Stacey Colino quotes Lise Van Susteren, a psychiatrist she interviewed, noting that:

When you read the headlines about mass extinction and climate issues that are exacerbating (world) states that are already fragile, it's very difficult. People start wondering: Where are we going to be safe? Who's going to take care of us? This can lead to anger, despair and paralysis, an inability to do things, or a freezing out of emotions. (2017, para 4)

Van Susteren, who is the first psychiatrist I found who talks about clients coming to her with a PreTSS condition, has something to say more formally in an article in *The British Journal of Psychiatry International* (2018, pp. 25–26), but a lot more informally online, about PreTSS in relation to climate change. In an online interview by Danya Kerecman Myers (2017) on “Climate Change and Mental Health,” Van Susteren, asked about her statement that she is already seeing pre-traumatic stress disorder in clients, says that “many people already suffer from this disorder,” adding that “much of traumatic stress disorder is about how we imagine things are going to be.” She considers PreTSS “an entirely legitimate condition—accompanied by a non-stop gnawing sense that more needs to be done.”⁸ Intriguingly, in another online interview, with Rob Hopkins (2018), Van Susteren notes that, given everything the scientists say, “Maybe the disorder is *not* having a Pre-Traumatic Stress condition.” In his February 2019 article in *The New York Times Sunday Review*, “Time to Panic,” David Wallace-Wells urges us to do just that (i.e. panic) if we are to save ourselves and the planet. I’ll say more about saving humans (or not) in concluding. But let me add that the much discussed phenomenon of denial conveniently protects people both from panicking and from doing anything to remedy humanity’s dire situation.⁹

Ecology Implicit in Psychological Research

So why are there so few in-depth psychological studies on the impact of future climate disaster (like that Nichols shows in Curtis) by clinicians? Kassouf’s and Bellamy’s observations noted earlier might partly account for clinicians’ lack of interest, but I thought there might be more evidence of ecological concerns than appears in psychological research by clinicians who implicitly note climate-related anticipatory trauma if not undertaking straight-out studies of the phenomenon.¹⁰

For example, an article in a 2011 special issue of the American Psychology Association’s journal *American Psychologist* devoted to “Psychology and Global Climate Change” does deal with the impact of climate change on mental health and psychic well-being. Relying on an impressive range of psychological

studies, Thomas Doherty and Susan Clayton lay out three kinds of psychic impact: First, there's direct impact, when people in vulnerable areas are already experiencing extreme weather events, and suffering mentally in the aftermath. Second, there's a "psychosocial" impact, such as when extreme heat leads to aggression and violence (something that Kai Erikson has also researched);¹¹ finally (this gets close to the PreTSS concept), as they put it, people experience "anxiety, worry, vicarious trauma, apathy" (Clayton and Doherty, 2011, p. 269). In their brief discussion of this third kind of impact, the authors note that "individuals' worries about environmental health threats take a toll on their subjective well-being" (p. 269). They make an important point, namely differentiating "normal" from "pathological" anxiety in regard to climate change. Grieving for losses is taken into account along with the need to work these through. The problem of denial, when people "distort perception of internal and external reality so as to reduce subjective distress" (pp. 269–270), is attended to.¹² But unfortunately most other articles in the special issue only deal with behavioral issues and adaptation.

Most importantly, because rare in what psychology research I had access to, Doherty and Clayton briefly take media images into account as increasing anxiety. PreTSS may well develop in people exposed to terrifying images of human practices that are fouling the lives of those in specific geographical areas, as shown, for example, in Jennifer Baichwahl and Edward Burtynsky's terrifying documentary *Anthropocene: The Human Epoch* (2018). This film demonstrates the horror that results from relentless and vast international extractive processes, including the mountains of waste produced in the process and sent to developing nations or to those seeing a profit to be made. Images of people trudging through muddy fields of waste sites in Africa have haunted me ever since I saw the film.

Documentary images, then, such as those in *Anthropocene*, perhaps create a context for the extreme anticipatory anxiety about the future that I call PreTSS if publics have access to them. But much of the research to date about climate illness (e.g. Albrecht, 2010; Albrecht, 2012; Cunsolo & Landman, 2017) seems to be at odds with the PreTSS concept since the focus is so much first on grief for past fullness of nature, and

then on present emptiness: Instead, I am interested in *future-oriented* anxieties. PreTSS sufferers are focused on, and deeply anxious about, future survival and the loss of infrastructures. For them, nature is already lost, beyond mourning. Very likely, similarly to Curtis in *Take Shelter*, they envision nature hitting back at humans for what humans have done to it. Sequences in *The Road* (2009), adapted from Cormac McCarthy's powerful novel, or *The Book of Eli* (2010) would closely resemble their imagining, since the films show either the brutal, glaring, pitiless sun beating down on humans and eviscerating everything in its path or the violence of a collapsed nature, with trees falling in loud crashes around the protagonists, fires burning wildly, blinding snow and rainstorms, and desolation all around.

It is via attention to these imaginary future selves, trying to survive in a depleted world, that PreTSS contributes to discussion regarding climate illness. Envisaging utterly deprived future selves may produce pre-traumatic anxieties if not full-blown symptoms like PTSD. Psychologists have shown how envisaging traumatic future selves impacts our current view of self; they show how significant future-thinking is for our present mental health. Earlier work on future selves by Hazel Markus and Paula Nurius, dating back to 1986, perhaps predictably found that the subjects' pool of possible selves depended heavily on the particular socio-cultural and historical context, as well as local models and images in the media. But they go on to argue that "possible selves [...] reflect the extent to which the self is socially determined and constrained" (1986 p. 954). In my context, their conclusion that possible selves "function as incentives for future behavior" (1986, p. 955) is important in thinking about how to change behavior so as to mitigate climate change or adapt to what is about to come.¹³

Indirect support for the importance of how we imagine our future selves, and implicitly for recognizing a PreTSS condition, comes from research by Donna Orange, a clinical psychoanalyst, philosopher, and literary scholar. In a sense, Orange's work, especially her powerful book *Climate Crisis, Psychoanalysis, and Radical Ethics* (2017), offers a prolonged meditation on a pre-traumatic future (and the selves that we could become), although she does not mention this explicitly. Orange's aim is to convince readers to avoid precisely that

catastrophic future, those future selves. Within this futurist meditation, perhaps her most salient contribution, because not addressed enough in other research, involves attention to climate justice (which is really about the *injustice* of the most vulnerable people being the first victims of climate change). Orange's definition of climate justice involves first, developed nations urgently reducing carbon emissions to an acceptable level, but second, doing this in a way that does not further harm vulnerable people around the world. "Implicitly," Orange says, "this definition claims that climate justice is restorative justice, that the rich of the world must come to see ourselves as having perpetrated [...] massive injustice against the world's poorest, and see ourselves as owing restitution" (p. 21). Orange draws not only on Indigenous peoples "who knew and know how to live close to the earth" (p. 21), but on both Western and Asian philosophies and religions as she moves toward advocating an activist stance for all of us. She calls on her colleagues to attend more to what's going on in the world outside their consulting offices, but also to what people might not even know is bothering them about the environment.

Scholars like Orange, then, without naming it, write from a position of recognizing a pre-traumatic condition (rather than a Pre-Traumatic Stress Syndrome). Replacing "syndrome" with "condition" now seems to me the wisest course, and something Lise Van Susteren also advocated. But I would not abandon using pre-traumatic stress to name the condition. Naming an illness can add knowledge and clarify what's ongoing (see Goldman, 2017). If, on the other hand, it can also generate a fixed focus, sidelining other perspectives, it's worth the risk. Publics may benefit from naming a hitherto vague sense of being lost, having fearful dreams, dreading the future, etc. The fears, arguably, seem more manageable once named, especially in the context of sharing them with others in a community.¹⁴

Dreading the Future: The Potential Impact of Dystopian Films

Indeed, dreading the future is perhaps especially what we now *need* to do. While we are continually told to live in the

present (and while that may usually be good advice), in the face of the desecration of the biosphere through humans' long use of petro fuels and resulting damaging carbon emissions (and much more), we have to focus on the future, if not for ourselves, then for our children and grandchildren. Indeed, a public discourse focusing on generational issues (prompted, that is, to think about our grandchildren and even great-grandchildren) might motivate climate activism.

The futurist worlds shown in the climate films I studied in *Climate Trauma* (for example, *The Road* and *The Book of Eli*) may also prepare viewers for a disastrous future unless action is taken. These are worlds where all infrastructures are gone, and survival is the only task that remains. Richard Crownshaw argues that James Kunstler's novels (like *The Book of Eli*) "provide [us] with a new geography of post-oil energy consumption," which he calls "a geographical uncanny," where "old materials are recycled, and new artefacts are fashioned using traditional methods" (2017, p. 254).

But debates circulate about the impact of dystopian films and fiction: Can we be certain of public response? Three kinds of response to films about depleted and dangerous post-apocalyptic worlds seem plausible: First, viewers may be vicariously traumatized by the films and seek to shut out such visions, essentially retreating into denial; second, the futurist films may function as a warning or a wake-up-call, prompting viewers to pay attention and seek to learn more about the probability of the cinematic disaster scenarios; and finally, best of all, watching the desperate humans seeking to find food, water, shelter, and safety, viewers may be prompted to join local Green organizations, participate in protests against polluting corporations, support artists pushing for the "truth" about climate change, and vote for candidates taking a progressive stance on the dangers of climate change.¹⁵ This latter outcome is becoming more likely as pressure on the biosphere increases, and as scientists grow more certain that global warming (with its extreme climate experiences) is happening even more rapidly than earlier assumed (see, for example, Fountain, 2019; Sengupta, 2019). While some psychologists refer to dystopian fictional worlds on film or TV, there are few in-depth psychological studies of their impact on mental health.¹⁶

Future-oriented thinking tends to be omitted or, as we saw, only referred to in passing in humanities work on climate illness.¹⁷ Climate scholars tend to focus on mourning losses in the natural world in the present, or, most controversially, conceive of our already being immersed in the Anthropocene viewed as a hyperobject (Morton, 2013) that now contains us. Timothy Clark's provocative "Anthropocene disorder," building on Tom Cohen's formulations (2012), all but eviscerates time, since the incredibly complex three-dimensional and simultaneous temporality he vividly describes is, he claims, how we now exist (Clark, 2015). Clark is skeptical of humanists' continuing to focus on representation and narratives. He might argue that my work is an example of what he calls "individualist reading," which is limited because not addressing the larger complex scale within which humans are now enmeshed. Such research also uses "old" categories (like psychoanalysis) which, like others, Clark deems no longer viable.

However, while indeed I approach PreTSS via the individuals struggling with it, implicitly it's understood that the symptoms individuals suffer from are a result of that larger complex scale of undoing of systems and infrastructures humans have always relied on. The frame I take is one that, as Clark understands, I feel I can deal with. But it is also one that brings the scale down to where change might still be possible.

Conclusion

For the time being, then, I pull back to where many people today experience themselves, which is fearing the future and suffering from PreTSS, even if, looked at through the Morton/Clark/Cohen lens, this is but one level of an ultimately complex Anthropocene existence. But work like mine is not at all necessarily antithetical to what Morton, Cohen, and Clark are doing. I rather see complementarity, with each of us working at different levels. I am aware of recent trends in trauma studies worrying about diagnostic "creep" (Craps & Rothberg, 2011; Gibbs, 2014; Bond et al., 2018; Buelens et al., 2014), with too many experiences suddenly being drawn under the trauma

umbrella. This can result in over-diagnosis and an unnecessary over-medicalization of psychic conditions—also a danger in regard to dementia and unhelpful medicalization via diagnoses (Kaplan & Chivers, 2018). But naming a potential condition can be useful as a way of signaling something that needs attention and might not get it without a diagnostic category: We all recall historically the ongoing trauma experienced by women without its being named, and the difference it made once it was named as a viable clinical condition (Brown, 1995). Once it had been accepted as an important aspect of women’s lives, we were able to move on to the next stage of integrating knowledge we had gained into changing conditions for women. Similarly, with climate illness: once a condition is named—pre-traumatic stress condition—we then retreat to an understanding that a psychic condition without specific or normative symptoms pertains and requires attention.

It is clear that the pre-traumatic stress condition may well be quite common among ethnic groups already experiencing climate conditions so disrupting that people leave their homes for places as yet less affected.¹⁸ (As I write, devastating images have flooded the networks showing people in the Bahamas struggling to leave in the wake of the violent hurricane Dorian.) Work cited earlier (Cunsolo & Landman, 2017; Kahn & Hasbach, 2012) addresses the grief and losses of indigenous peoples facing decimation of their lands and environments by climate change and corporate take-overs (Cunsolo, 2017, p. xv). Their anticipatory fears for the future may well represent a pre-traumatic condition.

Garrett Hardin’s essay on “The Tragedy of the Commons” (1968), a concept originating with William Forster Lloyd in 1833, perhaps more than anything I’ve read, captures and correctly calls humanity’s situation what it is: a *tragedy*. Clark at least seems to have this “tragedy” in mind when conceiving what he calls “Anthropocene disorder.” For Hardin as for Clark, the individual does not understand the full implications of her actions because the scales are so vast and incomprehensible.¹⁹ The example Clark gives comes from Morton’s discussion of art projects that express Morton’s “hyperobjects”: In this case, the art work *Untitled (Plastic Cups)*, by Tara Donovan, reveals deep implications of drinking from and abandoning a plastic

cup. The individual involved only sees her cup; but millions of others taking the same action results in billions of plastic cups stifling the oceans (Morton, 2013, p. 114; Clark, 2015, p. 183). Might it help those suffering from a pre-traumatic stress condition to be educated about the implications of daily actions like drinking from a plastic cup? Might such education change behavior? Or is this the human tragedy, resulting in an Anthropocene disaster, namely that, while we are rational creatures, we strive each day to make the most of what we have, enjoy ourselves as we can, consume and profit and progress, as our genes tell us to, yet all the while we are essentially soiling our nest without having a clue that that's what we are doing?

Meanwhile, David Wallace-Wells thinks we ought to be panicking. He would not consider pre-traumatic stress a condition that needs to be "cured." His book *The Uninhabitable Earth* aims to give a portrait of suffering that he hopes is "horrifying" (2019b, p. 220). It is also, he says, entirely elective. If we allow global warming to proceed, and so punish us with all the ferocity we have fed it, it will be because we have chosen that punishment—collectively walking down a path of suicide.

However, if we avert it, it will be because we have chosen to walk a different path, and endure (Wallace-Wells, 2019b, p. 220). Jonathan Lear (2014) offers a potentially useful way forward in his concept of "radical hope." Lear borrows this concept from Indigenous Americans. By "radical hope," Lear means the ability to adapt after a catastrophe, such as the traumatic loss of land, livelihood, and culture Indigenous Americans suffered. Understanding that culture shapes, and is in turn shaped by, people living in it, Lear shows how hard it is to change. Yet, once a catastrophe totally disrupts the culture that people have long lived within so that it no longer serves their new post-disaster situation, it becomes crucial to retain what can be retained while shifting into a new way of being—one appropriate for the new conditions. "There is the possibility," Lear argues, "that our wishes could be integrated into an overall functioning of our imaginative capacity in such a way as to facilitate a creative and appropriate response to the world's challenges" (2014, p. 117). Richard Crownshaw's description of Kunstler's "petromelancholic pre-meditation of the environmental future," despite its limitations, "returns us

to the problem of scale and the difficulty of imagining deep history and planetary space, capital *and* species” (Crownshaw, 2017, p. 255).

I read this as warning for people worldwide to begin to change long-held habits and ways of being to adapt to the new conditions: I say *adapt* deliberately to note that humans have forgone the opportunity to *prevent* desecration of the biosphere, leaving adaptation as the only course. The conditions will be dire and will include random violence over resources, with ever more people worldwide on the move for where conditions may be better. It’s a slim slice of hope because human nature is not flexible, and the sacrifices of making needed changes to ways of living, and expectations for the future, are awesome. But having this perspective of radical hope at least offers something to start toward as against succumbing to PreTSS and other traumatic climate illnesses.

I began this project seeking scientific evidence for climate-related PreTSS (the diagnosis is valid in the context of war), but I end thinking it may be unwise to rely so much on science. Scientific thinking is only one kind of mental processing, and its truths may not necessarily outweigh truths arrived at by other means. Christopher Bollas puts it nicely in a recent book on schizophrenia:

It may be useful to draw a distinction between arguments that are based in the humanities or the sciences. Carl Schorske [...] said that in the humanities universal conclusions are often drawn from the detailed examination of a single work. The sciences approach the epistemological in a different way. Scientists claim a universal truth only by casting a wide net to search for very particular phenomena that can be cross-checked by other scientists. (2018, p. 121)

Bollas goes on to clarify that he is not against science (nor am I) but making the case that humanists’ “truths” (such as my hypothesis about PreTSS) should also qualify for a certain “truth” status in light of exploring texts and various public discourses.

As I hope this essay investigating what, in 2015, I called PreTSS has made clear that I now consider climate-related pre-

trauma to be a legitimate (if not, per Wallace-Wells, actually a *needed*) condition, regardless of whether it's scientifically verified as an actually existing clinical syndrome. According to an online article by Ned Colin and Carly Stern (2019), interest in climate and health is expanding as climate refugees pack into hospital emergency rooms. From practical experience, doctors in emergency rooms discover that changing weather patterns are leading to "a ballooning global mental health burden" (Colin & Stern), sure to lead to pre-traumatic flash forwards once patients are back home.²⁰ Being aware of the danger of a climate-linked pre-traumatic stress condition in patients may enable doctors to deal with them more effectively; it may also enhance public awareness of damage humans are doing to our species and the urgent need for action.

Notes

1. Obviously, the issue regarding emotion depends on context. Davies has in mind, I think, the negative emotionality of extreme political views, where careful study of what's at stake (say, in relation to climate change) is replaced by misplaced anger at science or liberalism. Reason is not necessarily better. A balanced combination of emotion and cognition of course works best.
2. As will become clear, this (humanities) way of thinking about narratives has come under severe attack from, among others, Timothy Clark (2015). The debate is important, but I have yet to be persuaded that stories do not potentially influence behavior. As Adrian Ivakhiv (2008) pointed out some time ago, humanists have been slow to undertake in-depth empirical studies of audience response to dystopian visions so as to address the issue of producing behavioral or ideological change. Debates, Ivakhiv argues, can "only be resolved through detailed ethnographic studies of audience perceptions." He goes on to assert that bringing together interest in visually with the factual basis in documentary films would enable humanists to think about how film shapes public opinion (p. 13).
3. The scholars involved come from diverse disciplines, ranging from literature and art to philosophy to the social sciences, and include neuroscience as well. This interdisciplinarity is an important aspect of the work on climate illness.
4. Long before the actual publication of *DSM-5*, of course, debates raged about proposed diagnostic categories and descriptions. See Steeves Demazeux and Patrick Singy (2003) and David Kupfer et al. (2002), among others.
5. This is not to say that the practice and language of diagnosing mental health is acceptable to, or advisable for, a range of cultures including Indigenous groups. *DSM-5* still offers a medical model increasingly being critiqued across national and cultural divides, as I discuss below.
6. *The Onion's* ironic "Report" online was called "More U.S. Soldiers Suffer from Pre-Traumatic Stress Disorder." Where they found the concept is a mystery, but further online popular discussion about the syndrome appeared only recently (Wray Herbert, 2014; Colino, 2017; Van Susteren, 2018). Van Susteren alone mentions the syndrome in regard to climate change. A practicing psychoanalyst, she has clients suffering from PreTSS (see below). Others relate it to soldiers and war combat because in-depth experimental studies have been done with that population.

7. For example, articles related to race in *American Psychologist*, 74(1), 2019 include Riana Anderson et al.'s "Recasting Racial Stress and Trauma," William Ming Liu et al.'s "Racial Trauma: Microaggressions and Becoming Racially Innocuous," and William Hartman et al.'s "American Indian Historical Trauma." Anecdotally, I witnessed the tension around race in clinicians working at the William Allanson White Institute at their 75th anniversary conference in November 2018.
8. Van Susteren also claims that in 2017 she coined the term "pre-traumatic stress disorder," which only goes to show that great minds think alike! My coining of it in print was in 2015, and Saint-Amour, as noted, was onto something similar the same year. It all adds to the prevailing interest in this kind of climate illness. Van Susteren is active in "Mom's Clean Air Force," and has given many online interviews talking about the profound despair of children about what's happening in the world. She sees denial as a defense against extreme anxiety. People are too anxious to know the truth, she says, in an interview with Molly Rauch (2017). She has also pioneered a Climate Alliance for clinicians.
9. For an in-depth socio-political analysis, see Timothy Clark's chapter "Denial: A Reading" in his *Ecocriticism on the Edge* (2015, pp. 159–174).
10. In a talk that I only just had access to, Susan Kassouf very usefully details attention to climate change in the PEP directory. As she puts it:

There is a growing conversation about climate change taking place within psychoanalysis [...] PEP (the Psychoanalytic Publishing Directory) saw an increase in articles appearing on climate change over the last few years—roughly 5 mentions in 2010, with one article focused on it, in 2017, 23 mentions with two articles focused on it. In 2017, however, to give some context, there were also 88 mentions of Trump and 79 mentions of terrorism. (2019)

See also Kassouf's 2017 *American Imago* essay, "Psychoanalysis and Climate Change."
11. See Kai Erikson's book *Everything in Its Path: Destruction of Community in the Buffalo Creek Flood* (1976).
12. Susan Kassouf offers a productive account of efforts by various psychoanalysts to prod the profession into attending to climate change. See her essay "Psychoanalysis and Climate Change" (2017), which I discuss below.
13. Elsewhere, I detail more recent work on future selves, such as that by Adam D. Brown and his team, who found that "individuals with PTSD viewed their [...] pretrauma self more favorably than their current or anticipated future self" (Brown et al., 2013, p. 129). For more discussion, see Kaplan (2015, pp. 25–33).
14. See discussion of this naming issue in Marlene Goldman's *Forgotten Narratives* (2017). Goldman quotes David Shenk noting that "The Disease name is public recognition of a shared affliction," and also says "caregivers were immensely grateful" (p. 207). On the other hand, Goldman also quotes David Wright noting that "The very label of a disorder threatens to obscure our view of the individual and, indeed, most insidiously, affects the self-identity and behavior of the persons themselves" (p. 207–208).
15. It is encouraging that, as I write in 2019, the remaining Democratic presidential candidates are creating platforms centering on climate change initiatives of various kinds. It's something that should have happened years ago, but it's good that it's finally happening now.
16. But see in this regard an essay by Julian Wangler titled "Internalization or Social Comparison? An Empirical Investigation of the Influence of Media (Re)presentations of Age on the Subjective Health Perception and Age Experience of Older People" (2014).
17. See Yifat Gutman's co-edited volume *Memory and the Future* (Gutman et al., 2010).
18. A devastating review of new books on climate change details how it is the poor people living in areas most vulnerable to the initial impact of rising sea levels, flooding, and wild fires who are already being displaced and rendered homeless (Rabateau, 2019).

19. In describing the problem of “scale,” Clark relies on French authors B. R. Allenby and D. Sarewitz’s *The Techno-Human Condition* (2011).
20. As Stern puts it,

PTSD and trauma are commonly associated with living through wildfires, flooding and severe drought. But these impacts aren’t limited to extreme events. Projected temperature increases through 2050, for instance, could lead to an additional 21,000 suicides in the U.S. and Mexico, research from Stanford in 2018 found. Physical conditions—from asthma exacerbated by polluted air to chronic pain triggered by weather fluctuations—can also lead to psychological problems. (2019, para 7)

References

- Albrecht, G. A. (2010). Solastalgia and the creation of new ways of living. In J. Pretty & S. Pilgrim (Eds.), *Biodiversity and Culture: Rebuilding Lost Connections* (pp. 217–234). London: Earthscan.
- Albrecht, G. A. (2012). Psychoterratic conditions in a scientific and technological world. In Kahn and Hasbach (Eds.), *Ecopsychology: Science, Totems, and the Technological Species* (pp. 241–264). Cambridge, Mass: MIT Press.
- Allenby, B. R., & Sarewitz, D. (2011). *The Techno-Human Condition*. Cambridge, MA: MIT Press.
- American Psychiatric Association. (2013). *DSM-5: Diagnostic and Statistical Manual of Mental Disorders: Fifth Edition*. Washington, DC: American Psychiatric Association.
- Anderson, R. E., et al. (2017). Recasting racial stress and trauma: Theorizing the healing and potential of racial socialization in families. *American Psychologist*, 74(1), 63–75.
- Anthropocene: The Human Epoch*. (2018). [Motion Picture]. Dir. J. Baichwahl with E. Burtynsky. Mercury Films.
- Bellamy, A. (2019). Trauma, fragmentation and narrative: Sandor Ferenczi’s relevance for psychoanalytical perspectives on our response to climate change and environmental destruction. *International Journal of Applied Psychoanalytical Studies*, 16, 100–108.
- Berntsen, D., & Rubin, D. C. (2015). Pretraumatic stress reactions in soldiers deployed to Afghanistan. *Clinical Psychological Science*, 3(5), 663–674.
- Bollas, C. (2018). *Meaning and Melancholia: Life in the Age of Bewilderment*. London: Routledge.
- Bond, L., Craps, S., & Vermeulen, P. (Eds.). (2018). *Memory Unbound: Tracing the Dynamics of Memory Studies*. New York: Berghahn.
- Brown, A., et al. (2013, March). Over-generalized autobiographical memory and future thinking in combat veterans with post-traumatic stress disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, 44(1), 129–134.
- Brown, A. D., et al. (2012) The impact of perceived self-efficacy on mental time travel and social problem solving. *Consciousness and Cognition*, 21(1), 299–306.
- Brown, L. S. (1995). Not outside the range: One feminist perspective on psychic trauma. In C. Caruth (Ed.), *Trauma: Explorations in Memory* (pp. 100–112). Baltimore, MD: Johns Hopkins University Press.
- Buelens, G., Durrant, S., & Eaglestone, R. (Eds.). (2014). *The Future of Trauma Theory: Contemporary Literary and Cultural Criticism*. London: Routledge.
- Clark, T. (2015). *Ecocriticism on the Edge: The Anthropocene as a Threshold Concept*. London: Bloomsbury.
- Colin, N., & Stern, C. (2019, July 22). Tomorrow’s doctors will diagnose the mental toll of climate change. *OZY*. Retrieved from <https://www.ozy.com/fast-forward/tomorrows-doctors-will-diagnose-the-mental-toll-of-climate-change/95540/>
- Colino, S. (2017, May 24). Fearing the future: Pre-traumatic stress reactions. *U.S. News*. Retrieved from <https://health.usnews.com/wellness/mind/articles/2017-05-24/fearing-the-future-pre-traumatic-stress-reactions>

- Cohen, T. (2012). Introduction: Murmurations—"Climate change" and the defacement of theory. In T. Cohen (Ed.), *Telemorphosis: Theory in the Era of Climate Change, Vol. 1* (pp. 13–42). Ann Arbor, MI: Open Humanities Press.
- Craps, S. (2013). *Postcolonial Witnessing: Trauma Out of Bounds*. Basingstoke: Palgrave Macmillan.
- Craps, S., & Rothberg, M. (2011). Introduction: Transcultural negotiations of Holocaust memory. *Criticism: A Quarterly for Literature and the Arts*, 53(4), 517–521.
- Crownshaw, R. (2017). Cultural memory studies in the epoch of the Anthropocene. In L. Bond, S. Craps, & P. Vermeulen (Eds.), *Memory Unbound: Tracing the Dynamics of Memory Studies* (pp. 242–257). New York: Berghahn.
- Cunsolo, A., & Landman, K. (Eds.). (2017). *Mourning Nature: Hope at the Heart of Ecological Loss and Grief*. Montreal & Kingston: McGill-Queen's University Press.
- Davies, W. (2019). *Nervous States: Democracy and the Decline of Reason*. New York: W. W. Norton & Co.
- Demazeux, S., & Singy, P. (2003, July) The DSM-5 in perspective. *Personality and Individual Differences*, 35(2), 381–388.
- Doherty, T., & Clayton, S. (2011, May-June). The psychological impacts of global climate change. *The American Psychologist*, 66(4), 265–276.
- Eaglestone, R. (2014). Knowledge, "afterwardsness" and the future of trauma theory. In G. Buelens, S. Durrant, & R. Eaglestone (Eds.), *The Future of Trauma Theory: Contemporary Literary and Cultural Criticism* (pp. 11–21). London: Routledge.
- Engelhard, I. M., van den Hout, M. A., & Kindt, M. (2003, July). The relationship between neuroticism, pre-traumatic stress, and post-traumatic stress: A prospective study. *Personality and Individual Differences*, 35(2), 381–388.
- Erikson, K. T. (1976). *Everything in Its Path: Destruction of Community in the Buffalo Creek Flood*. New York: Simon & Shuster.
- Estok, S. H. (2018). *Ecophobia Hypothesis*. London: Routledge.
- First Reformed*. (2017). [Motion Picture]. Dir. P. Schrader. Perf. E. Hawke, A. Seyfried, P. Ettinger. GEM Entertainment.
- Fisher, A. (2002). *Radical Ecopsychology: Psychology in the Service of Life*. Foreword by D. Abram. Albany, NY: SUNY Press.
- Fisher, A. (2012). What is ecopsychology? A radical view. In Kahn and Hasbach (Ed.), *Ecopsychology: Science, Totems, and the Technological Species* (pp. 79–114). Cambridge, Mass: The MIT Press
- Fountain, H. (2019, January 20). Glaciers are retreating: So is a reservoir for Asia. *New York Times*, A 12–13.
- Freud, S. (1925/1955). *Beyond the Pleasure Principle. Standard Edition*. Vol. 18 (pp. 3–64). London: Hogarth Press.
- Gibbs, A. (2014). *Contemporary American Trauma Narratives*. Edinburgh: Edinburgh University Press.
- Gutman, Y., Brown, A. D., & Sodaro, A. (Eds.). (2010). *Memory and the Future: Transnational Politics, Ethics and Society*. New York: Palgrave Macmillan.
- Hapke, U., et al. (2006, August). Post-traumatic stress disorder: The role of trauma, pre-existing psychiatric disorders, and gender. *European Archives of Psychiatry and Clinical Neuroscience*, 256(5), 299–306.
- Hardin, G. (1968). The tragedy of the commons. *Science*, 162, 1243–1248.
- Hartman, W. E., et al. American Indian historical trauma: Anticolonial prescriptions for healing, resilience and survivance. *American Psychologist*, 74(1), 6–19.
- Herbert, W. (2014, August 6). Healing the wounds of the future. Updated October 6. *The Huffington Post*. Retrieved from https://www.huffpost.com/entry/healing-the-wounds-of-the_b_5655197
- Hopkins, R. (2018, April 25). Pre-traumatic stress disorder and the imagination with Lise Van Susteren. Retrieved from <https://www.postcarbon.org/pre-traumatic-stress-disorder-and-the-imagination-with-lise-van-susteren/>
- Houser, H. (2014). *Ecosickness in Contemporary U.S. Fiction: Environment and Affect*. New York: Columbia University Press.

- Ivakhiv, A. (2008). Green film criticism and its futures. *ISLE*, 15(2), 1–28.
- Kahn, P. H., Jr., & Hasbach, P. H. (Eds.). (2012). *Ecopscology: Science, Totems, and the Technological Species*. Cambridge, MA: MIT Press.
- Kaplan, E. A. (2005). *Trauma Culture: The Politics of Loss and Terror in Media and Literature*. New Brunswick, NJ: Rutgers University Press.
- Kaplan, E. A. (2012). Trauma future-tense (with reference to Alfonso Cuarón's *Children of Men*). In J. Koehne (Ed.), *Trauma and Film* (pp. 364–381). Berlin: Kulturverlag Kadmos Publishing.
- Kaplan, E. A. (2015). *Climate Trauma: Foreseeing the Future in Dystopian Film and Fiction*. New Brunswick, NJ: Rutgers University Press.
- Kaplan, E. A., & Wang, B. (Eds.). (2004). *Trauma and Cinema: Cross-Cultural Explorations*. Hong Kong: Hong Kong University Press.
- Kaplan, E. A., & Chivers, S. (2018, July). Alzheimer's, age panic, neuroscience: Media discourses of dementia and care. *Oxford Research Encyclopedia for Communication*. Retrieved from <https://oxfordre.com/communication/view/10.1093/acrefore/9780190228613.001.0001/acrefore-9780190228613-e-765>
- Kassouf, S. (2017). Psychoanalysis and climate change: Revisiting Searles' *The Non-Human Environment*, rediscovering Freud's *Phylogenetic Fantasy and Imagining a Future*. *American Imago*, 74(2), 141–171.
- Kassouf, S. (2019, April 12). Thinking catastrophic thoughts: Psychoanalysis on a warming planet. Scientific Program Talk. Cited with permission of the author.
- Kupfer, D. J., First, M. B., & Regier, D. A. (2002). *A Research Agenda for DSM-5*. Washington, DC: American Psychiatric Association.
- Latour, B. (2018). *Down to Earth: Politics in the New Climactic Regime*. Trans. C. Porter. Cambridge: Polity Press.
- Lear, J. (2006). *Radical Hope: Ethics in the Face of Cultural Devastation*. Cambridge, MA: Harvard University Press.
- Liu, W. M., et al. (2017). Racial trauma, microaggressions, and becoming racially innocuous: The role of acculturation and white supremacist ideology. *American Psychologist*, 74(1), 143–155.
- Menage, J. (1993). Post-traumatic stress disorder in women who have undergone obstetric and/or gynaecological procedures: A consecutive series of 30 cases of PTSD. *Journal of Reproductive and Infant Psychology*, 11(4), 221–228.
- Metzner, R. (1999). *Green Psychology: Transforming Our Relationship to the Earth*. Rochester, VT: Park Street Press.
- Moser, S. C., & Dilling, L. (Eds.). (2007). *Creating a Climate for Change: Communicating Climate Change and Facilitating Social Change*. Cambridge: Cambridge University Press.
- Moser, S. C. (2012). Getting real about it: Meeting the psychological and social demands of a world in distress. In D. R. Gallagher (Ed.), *Environmental Leadership: A Reference Handbook* (pp. 432–440). Los Angeles, CA: Sage.
- Myers, D. K. (2019). Climate change and mental health: Q&A with Lise Van Susteren, MD. Retrieved from <https://www.momscleanairforce.org/interview-lise-van-susteren-talks-mental-health-impacts-climate-change/>
- The Onion*. (2006). Report: More soldiers suffering from pre-traumatic stress disorder. Retrieved from <https://www.theonion.com/report-more-u-s-soldiers-suffering-from-pre-traumatic-1819568807>
- Orange, D. M. (2017). *Climate Crisis, Psychoanalysis, and Radical Ethics*. London: Routledge.
- Poland, J. (2015, February 7). The DSM-5 and research concerning mental illness. In S. Demazeux & P. Singy (Eds.), *The DSM-5 in Perspective: Philosophical Perspectives on the Psychiatric Babel* (pp. 25–42). Dordrecht: Springer.
- Rabateau, E. (2019, November 21). Lessons in survival. *The New York Review of Books*. Retrieved from <https://www.nybooks.com/articles/2019/11/21/climate-race-resilience-lessons-survival/>
- Rauch, M. (2017). Interview: Lise Van Susteren talks about mental health and climate change. Retrieved from <https://www.momscleanairforce.org/interview-lise-van-susteren-talks-mental-health-impacts-climate-change/>

- Rosen, G. M., Spitzer, R. L., & McHugh, P. R. (Eds.). (2008). Problems with the post-traumatic stress disorder diagnosis and its future in DSM-5. *The British Journal of Psychiatry*, 192(1), 3–4.
- Ryan, J. C. (2017). Where have all the boronia gone? A posthumanist model of environmental mourning. In A. Cunsolo & K. Landman (Eds.), *Mourning Nature: Hope at the Heart of Ecological Loss and Grief* (pp. 117–143). Montreal & Kingston: McGill-Queen's University Press.
- Saint-Amour, P. K. (2015). *Tense Future: Modernism, Total War, Encyclopedia Form*. Oxford: Oxford University Press.
- Salter, M. (2018). Finding a new narrative: Meaningful responses to “false memory” disinformation. In V. Sinason (Ed.), *Memory in Dispute* (pp. 1–11). London: Karnac.
- Schwartz, J., & Propovich, N. (2019, February 7). 2018 continues warming trend, as 4th hottest year since 1880. *New York Times*, A1, A19.
- Searles, H. F. (1960). *The Non-Human Environment in Normal Development and in Schizophrenia*. New York: International Universities Press.
- Sengupta, S. (2019, January 30). Today's weather: Stifling to frigid. *New York Times*, A1, 16.
- Take Shelter*. (2011). [Motion Picture]. Dir. J. Nichols. Perf. M. Shannon, J. Chastain, & S. Whigham. Hydraulx Entertainment.
- Van Susteren, L. (2018). The psychological impacts of the climate crisis. *British Journal of Psychiatry International*, 15(2), 25–26.
- Wallace-Wells, D. (2019a, February 17). Time to panic. *New York Times*, SR 1, 6.
- Wallace-Wells, D. (2019b). *The Uninhabitable Earth: Life after Warming*. New York: Dugan Books.
- Wangler, J. (2014). Internalization or social comparison? An empirical investigation of the influence of media (re)presentations of age on the subjective health perception and age experience of older people. In U. Kribernegg et al. (Eds.), *Alive and Kicking at All Ages: Cultural Constructions of Health and Life Course Identity* (pp. 117–130). Bielefeld: Transcript Verlag.