



Addressing Tipping Points for a Precarious Future

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Commentary 7.5

Endgame

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[-] Abstract and Keywords

Tipping points are troublesome metaphors. They may be more the products of our own imagination than any possible reality. Confusion and uncertainty, together with the possible suddenness and catastrophe, make our imaginings even more lurid. We depend on models but more so because they are the only ones we use to predict. We may reach a state of justifiable alarm, but this is not a recipe for purposeful collective action. What is now required is a sense of common humanity which instils hope and courage and a sense that a better future is still within our grasp.

Keywords: tipping points, metaphors, imaginings, common humanity, moral sentiments

HAMM (anguished): What's happening, what's happening?

CLOV: Something is taking its course.

(Samuel Beckett, *Endgame*)

Metaphors are revelatory. At least successful ones are. They expand our understanding, but they hardly provide explanations. 'Juliet is the sun'? On the other hand, as Susan Sontag's caustic assault showed, they can be misleading or worse, obstructive; particularly when trying to grapple with life-threatening conditions such as cancer or HIV/AIDS, where what is required is diagnosis and treatment, and explanation that offers at least the prospect of management or even cure (Sontag 1978).

So are tipping points, or rather 'tipping points', a metaphor, and if so an illuminating or an obscuring one – faced as we are with the mounting and incontrovertible evidence of damage to

the life-support systems on which we all depend, and the need above all for diagnoses and effective responses?

'The final straw' may be a metaphor for a tipping point, and one that results in abrupt, irreversible, and systemic, or at least structural, change. But we don't have to rely on analogical understanding to grasp the idea of an incremental variation that passes a critical threshold, resulting in a fundamental change of state. So while the graphic sense of 'tipping' may apply better to some such changes than others, such as the potentially reversible tipping of scales, or the potentially irreversible tipping of a glass of wine, it stretches 'metaphor' out of shape to think that 'tipping points' is one (unless we go to the vertiginous, and vacuous, lengths of saying all language is metaphor).

(p.286) Behind the idea of it as a metaphor there may however be a different and also troubling thought: that what we see as critical thresholds, or tipping points, are a construct of our own forms of explanation, imposed on rather than reflective of an underlying reality which would require a different approach if we were ever properly to grasp it. Again, we don't need to go to the lengths of speculating on a metaphysical realm that puts what is really going on permanently out of our reach, but the worry is nonetheless salutary. It reminds us that, faced with the immense complexity of the natural and social worlds we are trying to encompass and – as far as possible – manage, identifying and relating all the relevant causal factors involved is anything but straightforward, and the lines we fear to cross over may simply be ones we've drawn ourselves.

Yet, even if we recognize that abruptness is relative to the frame of reference applied, that irreversibility – at least where that means more than the sense in which all change is irreversible or the continuous fulfilment of the second law of thermodynamics – may be a function of our limited knowledge, and that the system subject to change is one that exists first and foremost through our construction, it remains hard to deny that radical and sudden changes do occur. And moreover, with more than seven billion of us now on the scales, that in all probability significant geo-biophysical changes will occur and as a result of human activity.

Having acknowledged as much, what then? In controlled environments, science is able by elimination and confirmation to predict when states will alter, when water will freeze or critical mass be achieved. But confronting the biosphere, a mother of all complex systems, and the possibility of transgressing its vital boundaries, what we most evidently lack is any semblance of comparable control. Nor, without limitless spare planets, not to speak of spare centuries within which to test for the crucial variables, have we much hope of approximating to the probative value of experimental results in figuring out what the relevant causal factors are in its metabolism. We have no option but to fall back on constructed models, with all their admitted limitations. In the light of which, however exactly these models may capture experimental results and the limited historical data available to reflect current understanding, relying on them seems to be akin to looking under the streetlamp for the car keys you've lost, not because you dropped them there but because that's where the light is. Even with oscilloscopes going haywire, suggesting a major disruption is pending, the unknowns, both known and unknown, undermine confidence that our models have included and correctly weighted all the significant **(p.287)** causal variables, so as to enable us correctly to anticipate what is coming or analyse it when it has.

Take the most publicized of the thresholds we may be approaching, a 2°C average global warming. Ignoring the element of political expediency in fastening on it, and the arbitrariness of drawing any line across a range of more or less graduated climate impacts, it is difficult to see how climate models can tell us not only the initial distribution of impacts from this level of warming but also the subsequent, cumulative cascade of further, ever-less-tested-for consequences, and to believe they can give us an accurate picture of the state in which the biosphere will eventually stabilize. If not for 2°C, there is no reason to suppose the picture is different for any other level of warming, including the 1.5°C already generated over the last 250 years (according to the recent Berkeley Earth Surface Temperature project (Muller 2012)) – or that we can say what the final reckoning of the experiment we have already begun with the Earth’s systems will be. It seems perfectly conceivable that we may already have passed crucial thresholds, and that fundamental and, by the appropriate measures, abrupt changes in the conditions for life on Earth are under way. We have to hope otherwise, but without knowing exactly what counts as the relevant evidence, that may be what we have to fall back on, as the balance of probabilities appears to be imprecise and subjective. Our position is one of justifiable apprehension: a lot to suggest that we’re approaching a precipice, but little assurance that we know precisely where it is or how far we may fall. In a collectively rational world, one would expect this to be a very strong incentive to arrive at a collectively rational response.

Given the state of the world as it is, however, the idea of a collectively rational response may seem absurd. If not, it does at least take us into quite a different area where tipping points may need to be found, or engineered: in our behaviour and in the social realm. It was here that Malcolm Gladwell’s book, which pushed tipping points into the limelight, focused (Gladwell 2002). His account, like Sontag’s, was grounded in medicine, in the spread of epidemics, using the poorly understood phenomenon of emotional contagion to extend from there to the rapid adoption of new technologies and behaviours, new social forms and norms (though his story did stretch the analogies and arguably itself tip over into metaphor).

Nevertheless, the communication of feeling, from earliest infancy on, is at the heart of our common humanity, and may indeed underpin the ‘moral sentiments’ that motivate and justify our concern for others, including those spatially and temporally distant from us. So our response should **(p.288)** perhaps be, not to try and geo-engineer a way round confining planetary boundaries, but to look for ways to reinforce and employ the bonds we do share so as to inspire widespread change of social attitudes and behaviour. Replacing the self-fulfilling picture we have of ourselves, as greedy, short-sighted, and fundamentally maladapted individuals – for which the accumulating stock of atmospheric greenhouse gases could stand as an expression – may be where we need to start. Only with an expanded understanding of how we toll for one another are we likely to be able to inch our way back together from whatever precipices lie ahead.

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