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Citation for final published version:

Stokes, Elen 2021. Beyond evidence: anticipatory regimes in law. *Law and Policy* 43 (1) , pp. 73-91. 10.1111/lapo.12159

Publishers page: <http://dx.doi.org/10.1111/lapo.12159>

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# BEYOND EVIDENCE: ANTICIPATORY REGIMES IN LAW

Elen Stokes\*

**ABSTRACT:** This article lays the groundwork for a new approach to understanding how law engages with the future, based on the social science theory and practice of anticipation. Anticipation, as depicted by an extensive interdisciplinary literature, encourages a shift in attention from the future as a matter solely of probability and effect, to the future as a wider array of possibilities operating on the present. Notably absent from the literature is law. This article offers a framework for analysing how law mobilises future possibilities to serve present regulatory purposes, focusing in particular on the role of legal horizons, forms and affect.

## INTRODUCTION

If a defining characteristic of contemporary liberal-democratic society is its “state of anticipation” (Adams, Murphy and Clarke 2009, 246; see also Anderson 2010; Alvial-Palavicino 2015) – a constant compulsion to look to, live towards and act upon the future – then it is surprising that the sizeable literature on the subject has yet to find a central place in the study of law. Although much has been written about the relationship between law and science, particularly the role of scientific methods of prediction in legal decision-making, the focus has remained on the narrow range of knowledge practices involved in translating future risks and uncertainties into objects of governance. The question of how law *knows* has received considerable attention from scholars working in cross-disciplinary fields such as criminology, risk regulation, and science and technology studies (see generally Sarat, Douglas and Umphrey 2007), generating important insights into how techniques of risk assessment, cost-benefit analysis and systems modelling have become conventionalised legal tools (e.g. Jasanoff 2005; Fisher, Pascual and Wagner 2010; Hutter 2010; Lee et al. 2018). No doubt, legal systems and their epistemological foundations have provided incredibly fertile ground for examining how society’s most powerful institutions represent and organise the future. There is scope to take this further, however, by adopting a broader view of how ‘the future’ enters into and operates through law, by means other than scientific evidence and policy-relevant expertise.

This new, more expansive research agenda offers the opportunity to re-examine legal rules and doctrine so ordinary and ubiquitous that they go unappreciated as practices of future-making. It is not that law’s most routine encounters with the future – such as its deadlines (e.g. targets to be achieved by 2020, 2030 and 2050), durations (e.g. 25-year licensing

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\* This article has benefitted greatly from the helpful comments of Barbara Adam, John Coggon, Olivia Hamlyn, Marie-Andrée Jacob, Bettina Lange, Maria Lee, Richard Lewis and the anonymous referees. I am also grateful to the participants in the University of Oxford’s Centre for Socio-Legal Studies workshop, “Beyond Evidence: How Do Knowledge Practices Inform the Governance of Environmental Challenges?”, at which an earlier version was presented and discussed. Responsibility for views, errors and omissions remains my own.

arrangements) and processes of change (e.g. transitional provisions) – avoid attention altogether. It is rather that their future effects are accepted at face value, without systematic investigation into the considerable power wielded behind apparently neutral, run-of-the mill legal formalisms and technicalities. So numerous and familiar are these provisions that their designations of the future seem inevitable, or at the very least unremarkable, even though there is ample room for ambiguity or doubt. The point is that futures are made, legitimated and normalised in places besides ‘headline’ legislation, away from the glare of public scrutiny. While the search is on for better means of addressing ongoing struggles over the future of the world’s economy, energy systems and climate, many fundamental questions of our time are being answered quietly, even incidentally, through regulation backstage.

In other fields, the everyday acts of relating to and constructing the future have not been underestimated as they have been in law. Several disciplines across the arts, humanities and social sciences have widened the scope of ‘futures studies’ through sustained, reflective and critical theorising about the future not as self-evident fact but as less obvious structural, material and even visceral qualities (e.g. Borup et al. 2006; Adam and Groves 2007; Appadurai 2013; Currie 2013; Weszkalnys 2014; Coleman 2017). Legal analysis has a great deal to contribute in this regard, not simply because law brings distinct empirical and conceptual material to the table, but also because legal texts and actions are deeply implicated in producing the futures they then seek to govern, in ways that are not always recognised as such. Law, in other words, is an important but neglected *site of anticipation*.

‘Anticipation’, both as an idea and a framework for understanding contemporary modes of future-making, has untapped potential to widen the field of legal inquiry beyond the epistemological domain, to reveal a greater diversity of perspectives on law’s engagement with the ‘not yet’. Instead of seeing the future primarily as a problem of unknown but in principle *knowable* quantities, it redirects attention to what Adams, Murphy and Clarke (2009, 247, *emph. original*) call ‘*speculative forecast*’, which is less concerned with statistically measurable outcomes than with threats and promises that are *felt* to be real even if they do not come to pass. That is not to say that conventional mechanisms of future-knowing, such as risk assessment, are no longer relevant to law. The value of organising the discussion around anticipation, however, is that it encourages an approach that treats evidence-gathering as but one element of a bigger set of legal arrangements in respect of the future. This, in turn, prompts consideration of how the future is disclosed, enabled and maintained not through any single technique and but through the combination of different anticipatory styles, material forms and sensory affects (Anderson 2010; Groves 2017). So far, law has not featured prominently in debates about how futures are constructed and ‘held together’ (Brown et al. 2012), even though legal rules and techniques are key components in this process.

The aim, then, is to see that law assumes its rightful position alongside cognate disciplines at the centre of futures research. While this may be too ambitious a task to fulfil in the limited space available here, I take an initial step in that direction by exploring what a ‘futures perspective’ can bring to the study of law. I begin by explaining how futures research takes

us beyond issues of evidence to consider other means by which the future is made sense of and deployed in regulatory settings. This provides a powerful new angle on legal futurity, one that rejects any conception of the future as a neutral temporal space into which law is projected. Next, using established concepts and categories of futurity and anticipation, I offer a framework for developing this approach in legal scholarship, based on three sets of questions about law's capacity to draw the future into its present functioning. The first deals with the future horizons set by law. The second is concerned with the specific legal forms that reach into, engage with and use the future to serve current regulatory purposes. The third addresses how law also operates on an affective plane, contributing to various states of hope, possibility, precariousness and so on, which give the future an immediate and palpable intensity. These are by no means the only questions to ask of law's future-orientation, but they set out a path to understanding legal futurity in the round. I end the article with two brief examples of legal anticipation from the UK's recent regulation of unconventional oil and gas development, specifically shale gas operations. Although fields of energy, planning and environmental law are the low-hanging fruits of this line of inquiry, in that they are often consciously geared towards the long-term, even they have escaped much of the critical scrutiny characteristic of futures theory and practice.

### **ANTICIPATING THE FUTURE: MORE THAN A QUESTION OF EVIDENCE**

As De Jouvenel (1967, 5) famously put it, “‘knowledge of the future’ is a contradiction in terms”. Whereas the past is said to have a specificity or definiteness to it, because it has already been accomplished and can readily be attested to, the future is conceived of as open and unknown, still in the process of being formed and capable of panning out in any number of ways. In other words, “*there are no past possibilities, and there are no future facts*” (Brumbaugh 1966, 649, *emph. original*). Although the distinction between ‘facts’ and ‘futures’ is conveniently neat and continues to hold appeal (e.g. Nordmann 2014; cf. Selin 2014), it is not without difficulties.

One problem is that treating the future as undefinable is of little practical value in situations involving new and uncertain risks, where decisions need to be made before those risks materialise. This pragmatic concern has led to the development of dozens of future-oriented tools and practices, including roadmapping, modelling, scenario planning and horizon scanning, which, despite their disciplinary and methodological differences, are commonly bundled together under the headings ‘foresight’, ‘forecasting’ and ‘futurology’ (Sardar 2010). Some of these methods are deployed more than others to aid decision-making in the public sphere, with government and regulatory agencies tending to favour quantitative techniques that produce ‘actionable data’ (Jasanoff 2017) – numerical representations showing something actual (in the sense of statistically defensible probabilities) to elicit a social response. This is as close to ‘tangible proof’ as it gets in such contexts, and while the future cannot be ‘known’ in any strict sense, quantitative methods such as risk assessment and cost-benefit analysis are widely considered to offer the most credible approximations of the ‘truth’ about future social and technological change (Selin 2008; Selin 2014; Jasanoff 2015). In this regard, *knowing the future* is not about reaching absolute certainty as the basis for decisions. It is about producing evidence that is certain enough to justify or compel intervention – a task

which is typically seen as the preserve of predictive science (see generally Porter 1996; Bernstein 1998; Poovey 1998).

The role of quantitative methods of prediction in public policy and administration has long been the focus of efforts to explain wider developments in the relationship between science and law (see generally Jasanoff 1995; Jasanoff 2004; Fisher 2007; Silbey 2008a; Silbey 2008b; Lee 2014; Lee 2017; Hamlyn 2015; Weimer and De Ruijter 2017). I do not intend to revisit this terrifically rich scholarship here. Suffice it to say that the research shows just how firmly technical scientific knowledge and technical expertise is built into law's epistemic foundations.

Instead, I focus on a discrete strand of the literature which places less emphasis on epistemological methods and sources *external* to law, and more on law's *internal* tactics for handling competing or uncertain knowledge claims (e.g. Valverde 2007; Jacob 2011). Such work does not suggest any loss of scientific input into the legal domain; rather, it recognises that law makes additional use of its own techniques to bring decisions or transactions to a close, especially in situations where it is neither appropriate nor feasible to wait for more data. To borrow the language of Vaihinger (1952, 6-12), law undertakes 'ingenious operations', invents 'brilliant expedients' and creates necessary 'fictions' so it can come to faster and more stable conclusions than would be possible, if it depended solely on the accumulation of hard scientific facts. Specific legal techniques include the introduction of 'placeholders' which offer provisional solutions to potential problems by treating ambiguities as already determined (Riles 2010), and rules and procedures that govern 'as if' the world matched our models (Lang 2014).

That research has been crucial in broadening the conversation about the range of tools at law's disposal in dealing with the unknown and the uncertain. Another of its key contributions has been to examine how these techniques offer means of organising not only knowledge but also *time*. They are temporal devices as much as they are epistemological practices (Riles 2010, 801), in that they create timeframes in which evidence is compiled, fictions are mobilised and controversies are settled. So far, discussions have centred on how law condenses or abbreviates time by making effective use of cognitive shortcuts, curtailing debates on the adequacy or accuracy of the evidence base, and closing off alternative readings of events. There is still some way to go, however, to appreciate the sheer range and diversity of legal, scientific and cross-cutting manoeuvres involved in quelling conditions of contingency and indeterminacy so that decisions can be reached. As Sarat et al. (2007, 1) point out, "law's ways of knowing are as varied as are the institutions and officials who populate any legal system".

A further consequence of the focus on how law *knows* has been to overlook the other dimensions of law's relationship with time and, in particular, with the future. This is more than a question of evidence or of epistemic closure – it is about how law constructs futures that are simultaneously closed *and* open, complete *and* ongoing, quantitatively known (or unknown) *and* qualitatively experienced, intellectualised *and* felt, and so forth. The point is

that law operates on multiple registers of futurity which only really become apparent once a little more analytical distance is gained from conventionally-framed issues of knowledge production. One particularly promising avenue of inquiry into law's future-orientation is the theory and practice of anticipation.

## ANTICIPATORY REGIMES

There is good reason to extend the scope of legal analysis so that it reflects the wider range of ways in which law orients itself – epistemically as well as politically and morally – towards the future. So far, the focus has been on how law *knows*, but there are also potentially fruitful conversations to be had about how law *anticipates*. The distinction may be subtle but it is fundamental to uncovering the extraordinary ‘futures work’ that goes on in even the most mundane legal acts. As I explain below, anticipation includes the production of knowledge claims about the future but it is not limited to that. It encompasses a variety of ways of acting, knowing and sensing ahead of time, which, unlike dominant knowledge practices, are loosened from the grip of certainty and open to a greater complexity of possible outcomes.

Research into anticipation covers many different subject areas – including geography (Anderson 2010), sociology (Tavory 2018), emerging technologies (Alvial-Palavicino 2015), energy systems (Groves 2017), education (Amsler and Facer 2017) and urban planning (Davis and Groves forthcoming) – and inevitably this variety has resulted in some slipperiness of key concepts. Still, there are several features which the different disciplinary contributions have in common.

For instance, it is generally the case that ideas of anticipatory action emerged in response to challenges unmet by incumbent theoretical and practical approaches to the future. Whereas earlier futures research was concerned with finding ways of reducing future uncertainty and determining probable or preferred outcomes, anticipation studies recognise that making sense of the future also usually entails more fluid, ‘unfinalised’ and temporally open ways of approaching ongoing change. From this newer angle, the future is seen not so much as a cleanly separable category of assessment but as an all-pervading organising force on the present. And, since anticipation works in the spaces of possibility and potentiality (rather than aspiring only to concreteness and actuality), it is said to operate *affectively* – meaning that the future, however far-off it may be, is experienced ‘in’ and ‘as’ the present (Coleman 2017, 527). As such, anticipation is not just about estimating the risks and benefits that the future will bring. Whether or not those risks and benefits transpire, they have already had a bearing on our current lives.

This is key to understanding how the future exhibits a different sort of ‘factuality’ from that underlying conventional approaches to knowledge production. Just because a particular future has yet to become reality does not make it incapable of exerting a powerful influence on the present arrangement of things. There are even circumstances in which the future commands authority *precisely because* it is empirically inaccessible and impossible to prove wrong (Massumi 2015a). Adam (2004, 309) refers to this state of in-betweenness as the ‘immaterial real’ of our making: initially, futures may not exist as anything other than

promises and predictions, but they soon gain ontological currency by being acted upon and acted out (see also Stengers 2000). Future expectations can therefore be thought of as generative, because they reproduce the social and material conditions necessary for their survival.

For example, policy and industry visions of the future development of biotechnologies, stem cells and nanotechnologies drive technical and scientific activity in those areas, attracting the levels of interest and investment needed to achieve seemingly unstoppable momentum (see generally Borup et al 2006). In a similar vein, Groves (2017) shows how the construction of a gas pipeline in South Wales came to be seen not simply as positive but as unavoidable, through mutually reinforcing demand forecasting, upward trajectories of economic growth and a favourable governance environment. Writings on the politics of possibility are similarly concerned with the ‘double life’ of projections, promises and imagination, both as depictions of likely or desirable futures, and as constitutive of those ends (e.g. Appadurai 2013). Weszkalnys (2014) describes this as the politics of the ‘not yet’ – a specific temporal disposition by which future events have a significant bearing on the present, prior to and *in anticipation* of their occurrence. The example she gives is of multinational corporations vying to extract oil in the island state of São Tomé and Príncipe, which the government fears could have disastrous consequences for the local environment and economy. Ahead of and indeed regardless of its realisation, this expectation paved the way for whole new legal arrangements, governing agencies and ministerial posts all dedicated to protecting the nation’s natural resources. To anticipate, in this context, “is not simply to expect; it is to realize that something is about to happen and, importantly, to act on that premonition” (Weszkalnys 2014, 212). The ‘not yet’ is therefore a politically charged time and space, not an empty placeholder. It is “productive of new entities, organizational forms, and subjectivities” (Weszkalnys 2014, 213). It is “filled with busy activity” (Weszkalnys 2014, 217).

The ‘busy activity’ of anticipation comes to the fore in Anderson’s (2010) conceptualisation of the *presence* of the future, by which he means the mobilising potential of things that have not happened and may never do so. As already intimated, this ‘future-presence’ is achieved not by any single instruments of policy or governance but by an amalgam of different approaches (see also Tavory and Eliasoph 2013; Alvial-Palavicino 2015). Futures are anticipated, says Anderson (2010), through heterogeneous blends of anticipatory *styles* (general ways of relating to the future, such as statements that treat climate change as a complex and systemic problem that defies simple categorisation and resolution), *practices* (which enable futures to be represented in the present, like simulation models for predicting the spread of infectious disease, or architectural plans for visualising urban regeneration) and *logics* (strategies by which intervention is legitimated, guided and enacted, for example the doctrine of pre-emptive self-defence against the threat of terrorism). While the individual elements may reveal something about the tenor of the relationship with the future, the full anticipatory effect is only felt when they work alongside or in combination with each other, producing what Adams, Murphy and Clarke (2009) refer to as an ‘anticipatory regime’.

What sets this approach apart is its ability to capture something of the productive tension between the ‘structural’ (or compositional) and the ‘unstable’ (or contingent) aspects of future-making (see generally Marcus and Saka 2006; also Anderson et al. 2012). Key in this respect is the simultaneous play of inevitability *and* uncertainty: the future is necessarily coming and thus demands action, but we cannot know which future will arrive so must be prepared for any eventuality. Adams, Murphy and Clarke (2009) explain how anticipatory regimes support and feed off both characteristics. Not only is anticipation a strategy for the avoidance of surprise because it ensures that the future arrives fully formed, *as if* the expected outcome or event has happened, but it is also a strategy that “must continually keep uncertainty on the table” in order to induce specific practical interventions and affective states tied to hope or fear (Adams, Murphy and Clarke 2009, 250). This brings a new awareness of the future not as a singular and discrete condition (known or unknown etc.) but as a process of ensuring that disparate parts (e.g. practices, things, contexts) are strategically aligned, however tentatively, to give particular meaning and significance to things yet to come.

Space precludes any more detailed examination of the literature in this field, but it should by now be clear that ‘anticipation’ has gained considerable traction across a wide range of subject areas. This trend looks set to continue, given that anticipation is considered an indispensable resource of the modern state (Anderson 2010; Anderson 2017). Notably absent from the mix, however, is law.

## **LEGAL DIMENSIONS OF ANTICIPATION**

As noted, the upsurge in interest in anticipation has still to be reflected in the study of law, even though law is among the most powerful social institutions in shaping future selves and future worlds. Anticipation in this context matters because legal rules and regulations are constantly introduced in readiness for what lies ahead. In any field, understanding how anticipatory action works means understanding the *presence* of the future, or the “telescoping of temporal possibilities” (Adams, Murphy and Clarke 2009, 249). My aim is to go some way towards meeting this challenge in the legal context by developing conceptual tools for understanding the various ways in which law is actively oriented to futures already made ‘real’ in the present.

This approach offers something additional to existing accounts of the exchange between science and law in establishing future facts. Instead of focusing on law’s tried and tested ways of *knowing* the future, I am interested in broader questions of how the future unfolds processually through law, the various legal forms and future horizons that this entails, and the manner in which law contributes to different affective states – of hope and possibility, for instance, but also of fear and anxiety. These questions are not unconnected to questions of knowing, however they acknowledge that the future is of more than epistemic value to law. The future affords law many different ways of being in, practising and relating to time. Critically, it provides policymakers, regulators and other governing actors with considerable latitude in deciding which course of action to follow – a latitude that is missed when the focus remains only on narrow issues of risk. To be clear, invoking ‘the future’ – that



nebulous and imperfectly understood category of time – to justify legal intervention does not automatically mean that anything goes. But it does leave more questions open than have previously been recognised. Below, I identify some of the questions that can usefully be asked of law’s interrelationship with the future, in the hope that it will generate analysis that is more sensitive to the different ways in which law builds anticipatory regimes. These questions have to do with legal horizon, form and affect.

### **Legal Horizon**

First, law plays an important role in disclosing the future as having a particular character or *horizon* (see generally Adam and Groves 2007; Anderson 2010; Groves 2017). ‘Horizon’ is used here as a figurative and analytical device to help illuminate how expectations present themselves (Koselleck 2004; Pickering 2004). Instinctively, it conveys a sense of the future as open and unlimited – it is “the supreme locus of promise and possibility” (Pickering 2004, 272) – but that is not its only connotation. A horizon can also be narrow and constraining, and result in the diminution of imaginative potential. Whatever its nature, it describes the predominant outlook or perspective at any one moment. It is not fixed, rather it changes depending on the standpoint. It is the temporal field of vision “into which we move and that moves with us” (Gadamer 2013, 315).

In law, the concept of ‘horizon’ offers the necessary degree of flexibility to account for the variety of ways in which legal rules and regulations make the future conceivable. Accordingly, it marks an advance on existing analyses of law’s temporal reach that focus on the most common legal units of time. Previous research has, for example, reviewed the different types and uses of temporal boundary in law, such as fixed deadlines, open-ended obligations, break clauses, limitation periods and sunset provisions (e.g. Khan 2009; Richardson 2017). Other work has paid closer attention to the reasons behind law’s specific deadlines and durations – for instance, examining the rationale for the principle of intergenerational equity (Brown Weiss 1992), the doctrine of preemption (Scheppele 2004) and the rule against perpetuities (Harding 2009). Such explanations for the adoption of one timeframe over another provide immensely useful insights into the oft-fraught processes by which an image of ‘the future’ gains political acceptance and legal status (see generally Pierson 2004). They tend, however, to place greater emphasis on where the temporal lines are drawn, and divulge little about how legal timeframes subsequently take on a life of their own, through their elaboration and implementation. One way of extending our understanding in this respect is by becoming more cognisant of law’s ‘horizontal’ qualities. This approach reveals how law allows the future a fuller presence than is apparent from the face of the provisions enacting specific schedules and time limits. The idea is to downplay questions of what, or rather when, the future is (e.g. 10 years, 50 years or a lifetime away) in favour of asking about how the future eventuates – for example, as continuity (Greenhouse 1989), as an extended present (Nowotny 1994), as punctuated (Guyer 2008) or as a series of intervals (Anderson 2017).

### **Legal Form**

The second set of questions is more familiar in legal scholarship but remains an underexplored aspect of future-making. It relates to the *form* of law, meaning the full panoply of legal provisions, procedures, discourses and institutions. There has been a conscious attempt particularly in socio-legal studies to zoom-in on the routine materials, everyday practices and seemingly uneventful moments involved in administering law (e.g. Faulkner, Lange and Lawless 2012; Cloatre and Cowan 2019). Riles (2005, 975), for example, urges legal scholars to “take on the technicalities” because technical legal devices “are precisely where the questions that interest us actually are played out”. This agenda has been taken up especially fervently by those working in the sub-field ‘law and space’ (e.g. Valverde 2009; Braverman 2014; Bennett and Layard 2015) and, more recently, in its equivalent ‘law and time’ (e.g. Valverde 2015; Grabham 2016a; Grabham 2016b; Harrington 2018; Keenan 2019). As Grabham (2016a) shows, it is in the functioning of legal ‘things’ – contracts, patents, reference materials, legislative drafts – that law’s unique role in concocting or ‘brewing’ social time can be explicitly discerned. Such work goes beyond mere assertion that law and time interact to illustrate in fine empirical detail just how the commingling of material structures, legal artefacts and social relations takes place.

This approach may be taken further, into the realm of anticipation to take a more specific look at how differences in legal form determine how the future is drawn into the present. So far, there has been little direct consideration of how, in any one policy context, legal approaches characterised by inconsistent anticipatory logics are kept from clashing. The answer may reasonably be expected to lie in the work of ‘jurisdiction’, perhaps the ultimate technicality of law, aimed at smoothing over temporary frictions by ensuring that different governance styles are separated by hierarchies of scale (e.g. international, national, sub-national) (Valverde 2015, esp. 82-87). Different fields of power are often studied along these vertical lines, which demarcate ‘the view from above’ from ‘the view from below’ (e.g. Scott 1998). Other scalar dimensions – including place, locality, territory and temporality (see generally Brenner 2001; Braverman et al. 2014) – have also been incorporated into analyses of the structuration of legal and regulatory space, but it has proved difficult to dispense entirely with the idea that law’s relationship with the future is predetermined by the level at which the governing activity takes place. It is sometimes assumed, for example, that long-term, strategic target-setting is best carried on a large scale at state level or above, whereas short-term, day-to-day issues are more appropriately handled locally. Certainly, there are legal regimes which operate under this assumption, and which go to considerable lengths to maintain conceptual distance between ‘global phenomena’ (e.g. climate change, terrorism, biosecurity) and ‘local phenomena’ (e.g. land use planning), so that problems can be broken down into distinguishable parts and decisions can be made without unnecessary complication (e.g. Hilson 2015). Important though this vertical manoeuvring is, however, it does not fully account for how legal mechanisms with quite different ways of folding the future into the present coexist, especially if they operate at the same hierarchical scale. Jurisdiction, as it is conventionally understood, only takes us so far. Therefore, there are legitimate questions to be asked about how differences in legal form (not just scale) translate into different practices of anticipation, for it is in specific legal mechanisms that futures quietly incubate.

## Legal Affect

A study of legal form and horizon will provide only part of the picture of law's future-engagement. There is a further dimension to this which does not figure in legal scholarship and which represents a third line of inquiry into how law anticipates. It concerns the anticipatory *affect* of law, meaning the ability of law to convert a possible future outcome into something taking-actual-effect in the present, producing an intensity of feeling that makes the future seem palpably real before it has concretised into anything determinate (Massumi 2015a, 12-19; see also Leys 2011). The idea that the future may be 'felt into existence' is not an unfamiliar one, particularly in political and social theory, but the role of law in this has gone almost without mention. This raises questions, then, about law's capacity to 'dynamise' the future (Massumi 2015a, 7), amplifying events that are not yet fully formed to the point of perceptibility. In particular, it requires an understanding of how law stakes out and operates within a field of emergence, in which threats or promises remain in potential but exert a powerful pull on the present because they operate affectively – generating an emotional response and inducement to action which become valuable resources for legal acts and argument. Times of crisis or disaster, for example, have their own temporality, often evoking the need to feel prepared (e.g. Watanabe 2013). Similarly, 'sociotechnical imaginaries' propagate and work off certain understandings of 'hope' and 'progress' to govern future technological development (e.g. Van Lente and Rip 1998; Jasanoff and Kim 2015), and political discourse mobilises fear of unpredictable 'catastrophe' (Aradau and Van Munster 2011) or 'emergency' (Anderson 2017) to justify exercises of state power. Law plays its own part in producing, multiplying and exploiting this surfeit of possibility – or, as Massumi (2015b, 58) puts it, this "unacted-out potential that is collectively felt". Of course, the governance of *and through* emergencies, catastrophes, technological progress and so forth inevitably involves law, but the details of how specific legal regimes set off sparks of futurity and fuel the circulation of anticipatory affect remain undiscussed. A fuller appreciation of legal encounters with the future means taking seriously not just law's leveraging of tangible evidence and expertise but also its evocation of the virtual, the potential and the forces to come.

## EXAMPLES FROM THE REGULATION OF UNCONVENTIONAL OIL AND GAS

To demonstrate how the framework just outlined could assist in analysing law from the perspective of anticipation, and to offer insights into relatively undeveloped ideas about how law effectively 'holds' the present in a state of futurity, I will use two brief examples from the UK's recent regulation of onshore unconventional oil and gas development. The examples centre on proposals to explore for, extract and produce shale gas using a deep drilling technique called hydraulic fracturing or 'fracking'. There are two main reasons for this choice of context. First, because there is little law specific to shale gas fracking, regulation in this field is predominantly based on mainstream UK and EU environmental and planning law. Hence, the ensuing discussion has a broader relevance than it might at first sight appear. Secondly, in the UK as elsewhere, shale gas fracking has become one of the most high-profile battlegrounds upon which future-related issues (e.g. security of energy supply, greenhouse gas emissions) are fought out. To say that the law here is 'anticipatory' may seem so glaringly evident as to require no further explanation. Arguably, however, these

overtly and unmistakably future-oriented legal regimes are where assumptions about law's relationship with the future are most entrenched and taken-for-granted, made invisible by their normalcy. Hidden in plain sight, as it were. Analysing these legal regimes is every bit as important as looking to the less obvious examples.

### **Example One: Legal Eras, Continuity and Progress**

The first example concerns the application of the Strategic Environmental Assessment (SEA) Directive 2001/42/EC, which requires that development 'plans' and 'programmes' are assessed for their environmental effects before being approved and formally adopted (SEA Directive 2001/42/EC, Art. 4(1)). Accordingly, the UK Government is required to undertake a strategic assessment of its plans to issue licences for onshore oil and gas production. The purpose of the assessment is to give an overall view of the likely environmental consequences of all activities subject to the licensing requirements. This is achieved by assessing for effects over the full course of the proposed developments. The UK's most recent plan included proposals to license the exploration and production of shale gas (DECC 2010; DECC 2013). Its strategic assessment, therefore, was required to cover shale gas across its entire operational lifecycle – from preliminary drilling and exploration to well construction, gas production, monitoring, decommissioning and site restoration. Together, these stages are expected to last more than 30 years (DECC 2013, 32; see also Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004, Sch. 6 paras. 1(1) and 3). A lifecycle approach to regulation is by no means unusual in energy and environmental law (e.g. Waste Directive 2008/98/EC, Art. 4(2); Nuclear Safety Directive 2009/71/Euratom, Art. 3(4)). In this particular context, though, it can be seen to have a distinct temporalising effect, which it is important to recognise because it tells us something about how the future of shale gas development is anticipated or made 'presently felt'. By establishing regulatory oversight of consecutive phases of development, the SEA Directive 2001/42/EC works in a way that is consciously all-encompassing, endowing the future with a temporal unity or "the sense of an epoch" (Davis 2010, 39).

'Epochal time' is a term often used about historical periodisation, a process by which the past is categorised according to abstract generalisations that give order to an otherwise unruly tangle of events and circumstances (see generally Williams 1977; Osborne 1995; Knight and Stewart 2016; Stubbs 2018). As Davis (2008) shows, periodisation is essentially a political act, positing singular conceptions of history – 'the middle ages', 'the industrial revolution', 'modernity', 'postmodernity' – which standardise historical time, homogenise diverse experiences and radically reduce the possibility of alternative readings of the past.

Consequently, historical periods or eras produce partial and distorted accounts of times gone by, all the while laying claim to "ontological completeness" (Fitzpatrick 2013, 66). As universalising timeframes, they "operate on the basis of such sweeping assumptions that they easily rationalize and absorb contradictory empirical evidence" (Davis 2010, 50). Hence, they create the impression of stability and coherence, by being imposed after the fact in displays of "fabulous retroactivity" (Fitzpatrick 2013, 70). But periods or eras can apply just as easily to the future. Periodisation as a *prospective* practice has not been subject to

anything like the same extent and intensity of review, despite it being a major technique of future-making – especially in law.

Understood in this light, ‘plans’ and ‘programmes’ under the SEA Directive 2001/42/EC amount to future legal eras in which different events – in this case, lifecycle stages – are laid out as a continuous sequence and subsumed within systematic wholes. Of course, a legal era of, say, 30 years, pales into insignificance compared with ‘the middle ages’, the period conventionally used to denote A.D. 400-1400, or with the tens of millions of years usually encompassed by a geological epoch. Even so, the process of piecing together diverse components in an effort to reify sameness and erase difference – described by Latour (1993, 72) as the “whole supplementary work of sorting out, clearing up” – can also be seen at play in law. In the example under consideration here, the SEA Directive 2001/42/EC works by assimilating different future events into broader structures of meaning. It can be described as “configurational” because it involves “grasping together in a single mental act things which are not experienced together, or even capable of being so experienced, because they are separated by time, space, or logical kind” (Mink 1970, 547). A plan or programme, then, provides the ‘intelligible whole’ that turns a succession of instants into a more significant ‘plot’ (Ricoeur 1980, 171). It operates “through the slippage . . . from singular event to narrative fulcrum” (Davis 2008, 4-5). The result is a future horizon of unbroken continuity and relative constancy of experience, which readily accommodates new risks and opportunities without losing stability and structure. This ‘horizon of expectation’ can be especially useful to legal and policy reasoning because, as I demonstrate next, it puts distant future events at the service of the present.

One of the most important features of era-making here is its strenuous inclusion of temporally distinct phenomena, so that even remote future possibilities appear concrete and inevitable. By way of illustration, the strategic environmental assessment report on the UK’s onshore oil and gas licensing plan concluded that shale gas production has the potential to exacerbate climate change, but that the risk could be counteracted in the longer-term by deploying carbon capture and storage (CCS) technology (DECC 2013, 15; DECC 2014, 138). The report also pointed out that, because the UK’s shale gas industry is not expected to be at a substantial scale before the 2020s, there is time for further investment and development in facilities needed to mitigate any significant adverse effects (DECC 2013, 89). The report found broadly in favour of shale gas development, citing the potential benefits to local communities and to the UK’s energy security, for example, but noted that appropriate steps would be needed to manage the potential risks caused, for instance, by increased greenhouse gas emissions and volumes of waste.

The reality is, however, that these risk reduction measures may very well not be taken, at least not on the timescale envisaged. CCS, in particular, has a chequered history in the UK. By the time the strategic assessment of shale gas was carried out, the Government’s initial attempt at supporting CCS projects had been cancelled. The Government had also, by that point, been publicly reprimanded for its poor management of CCS development, particularly its failure to take into account ongoing technical, market and regulatory uncertainties

(National Audit Office 2012). The House of Commons' Committee of Public Accounts has since warned that despite such initiatives costing taxpayers £168 million, "the UK is no closer to establishing CCS" and there is "now a significant gap in . . . plans for achieving decarbonisation" (Committee of Public Accounts 2017, 5, 14). Yet the political and practical obstacles to introducing cost-competitive CCS did not feature in the strategic assessment report. That is not to say the report was deliberately silent on such matters. The point is that, because CCS had only a small part to play in a bigger 'plan', the contextual detail was left out of the frame. Epochal time and era-making work by ensuring that tentative and uncertain elements lose some of their contingency as the 'unfinished business' of the future. In this case, the promise of CCS was simply folded into a narrative of technological innovation. Taken in isolation, these promises have the status of hypothetical 'ifs' – but, acting in concert, as mutually implicated elements of the 'plan' or 'programme', they look more like a succession of 'whens'. Plans and programmes are *anticipatory* because they enact a sense of the inevitability of 'the end'.

This is how law stimulates affect, by working with and through a surplus of possibility, "superimposing one moment upon the next, in a way that is not just thought but also bodily felt as a yearning, tending, or tropism" (Massumi 2002, 91). In the strategic assessment of shale gas development, for instance, what matters is not whether CCS is eventually developed, but that the *prospect* of its development has already had a bearing on the assessment's findings. This is a prime example of law organising around virtual causes as well as actual, hard evidence, to produce affective legal eras – totalising systems in which all manner of future dispositions and potentialities become seamlessly interrelated so that universal stories of development and progress can be told. Here, the legal horizon incites us "to conceive beyond what we can actually see" (Pickering 2004, 272), and in so doing, it engenders a particular politics of hope, characterised by "a constant opening up into something better" (Nowotny 1994, 48). It gives the future its own vitality, from which regulatory power is able to be generated and on which government can operate, making it not only justifiable but also necessary to keep pushing at the limits of possibility. As long as there is recognised potential, there is a legitimate basis for seeking to turn political aspiration into facilitative practice. In this instance, the promise of a viable shale gas industry and ancillary carbon reduction technology makes fulfilling that promise the central object of decision-making – even if, as is the case here, the claims underwriting such action are buried deep in interpretive layers of standard legal procedure.

### **Example Two: Legal Interims, Contingency and the Unknown**

To give a flavour of the diversity of futures practices at work in this context, I now turn to consider a second example of anticipation in law. My aim is not to describe it in detail but rather to highlight how it contrasts with the example discussed above. By focusing on points of divergence, I hope to show that legal anticipatory regimes come alive in different ways to produce richly variable patterns of future-making. The example involves the Environmental Impact Assessment (EIA) Directive 2011/92/EU. Like the SEA Directive 2001/42/EC discussed above, the EIA Directive 2011/92/EU also establishes a regime of environmental assessment, so it might reasonably be expected to display many of the same anticipatory

characteristics. In fact, quite the opposite is true. Whereas legal devices of ‘plans’ and ‘programmes’ under the SEA Directive 2001/42/EC are universalising, combining multiple stages of development so that the future presents itself as a cumulative, continuous whole, the EIA Directive 2011/92/EU, as applied to UK shale gas production, functions through temporal discontinuity and short-term legal interims. Legal interims take what can be referred to as a ‘conjunctural’ approach to time because they create an image of the future as fundamentally unresolved and open to “the play of contingency” (Hall 2007, 279). Whereas long epochal sweeps allow for the formation of developmental narratives that tell of technological progress and regulatory oversight, a focus on contingency forces attention on episodes or events that rupture and destabilise. Rather than presenting the future as a sequence of interconnected happenings, then, legal interims approach the future as a bundle of disconnected or only loosely connected ‘nows’ (Dawson 2014). They work to fragment and foreshorten, not to elongate and encompass. Their operational logics are of temporal breaks (not continuity), provisionality (rather than certainty of outcome and direction), and flux (instead of flow).

One of the key differences in legal form is that the EIA Directive 2011/92/EU applies to ‘projects’, which are more narrowly defined than strategic ‘plans’ and ‘programmes’. A project includes only certain types of development listed in the implementing regulations, such as nuclear power stations, integrated chemical works, and oil and gas pipelines (Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Reg. 2(1)). Regulated activities must undergo an environmental impact assessment before receiving planning permission (EIA Directive 2011/92/EU, Art. 2(1)). Whether a shale gas operation triggers this requirement is determined when the prospective operator applies for permission to proceed. Planning permission is needed for three separate phases of shale gas development: exploration (when initial works determine whether gas is present), appraisal (when the viability of extraction is tested) and production (when the gas is produced commercially) (DCLG 2013, 2). This means that a separate environmental impact assessment may have to be carried out for each of these stages, to inform a local planning authority’s decision to grant or decline permission and where relevant to impose conditions of operation. Although the implementing regulations make no mention of ‘shale gas’ or ‘fracking’, they contain such broad categories of activity (e.g. deep drilling where the area of the works exceeds one hectare) that an impact assessment will in many cases be required, at least at the more advanced stages of appraisal and production (Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Sch 1 para 14, Sch 2 para 2). It is plausible, however, that an impact assessment will also be conducted at the exploration stage – either because the operator does so voluntarily or because the operation meets the relevant legislative thresholds for a ‘project’. Where an impact assessment is completed, the question is whether the assessment should consider the impacts not just of exploration but also of subsequent development, if the project proceeds to commercial production sometime in the future. How far, in other words, should earlier stages of assessment ‘pretend’ later ones (Husserl 1983; Tavory and Eliasoph 2013)? To what extent should exploration, appraisal and production be treated as temporally distinct events? Law’s handling of these issues is

revealing of a distinct anticipatory mode, one that looks markedly different from that manifesting in strategic plans and programmes.

While the legislation makes clear that an environmental impact assessment must have regard to the project's 'indirect' and 'cumulative' effects, there is some ambiguity in the meaning of these terms. EU and UK case law shows that the courts take seriously issues of indirect and cumulative environmental effects where two or more planning applications are interlinked, and will strike down any attempt to avoid completing an impact assessment where an applicant makes separate proposals for activities (which, on their own, do not meet the legislative thresholds) if they ought really to be considered together (e.g. *Ecologistas en Acción-CODA v. Ayuntamiento de Madrid* 2007). Proposals should not be considered in isolation if they are properly to be regarded as integral parts of an inevitably more substantial development (e.g. *R v. Swale BC ex p. RSPB* 1991), or are 'functionally interdependent' (*R (Burrige) v. Breckland DC* 2013). The issue in the context of shale gas development is whether there is a sufficient functional link between a proposal for exploration and any development contemplated beyond that.

Planning policy on shale gas states that applications for the exploratory stage "should *not* take account of hypothetical future activities for which consent has not yet been sought, since the further appraisal and production phases will be the subject of separate planning applications and assessments" (DCLG 2013, 14, *emph. added*). This position has been confirmed by the Court of Appeal, which held that the shale gas scheme under consideration was a "clearly defined project limited to exploration" and therefore the environmental impact assessment and granting of planning permission "*did not, and could not, pre-empt or pre-judge the determination of that future application, if it were ever made*" (*Preston New Road Action Group v. Secretary of State for Communities and Local Government* 2018, para. 63, *emph. added*). Moreover, the Court found that "it was not only unnecessary, and inappropriate, for the environmental effects of that unknown development to be included in the [environmental impact assessment] for the present project" – it was also "impossible" because what any future extraction project might comprise was still "a matter of conjecture" (*Preston New Road*, para. 64). This is in line with previous decisions and policy statements that the planning authority need not speculate about proposals the future may bring (e.g. European Commission 1999, 76; *R (Catt) v. Brighton Hove City Council* 2013; *Hockley v. Essex CC* 2014). It is difficult to imagine, of course, that favourable results from the exploration and appraisal stages of shale gas development would not lead the operator to seek permission for full-scale production. Additionally, the legislative definition of a project requiring environmental assessment is such that it is at least arguable that the exploration phase applied for is in fact "*to provide*" for later stages of development (Town and Country Planning (Environmental Impact Assessment) Regulations 2017, Sch 1, Sch 2 para 1, *emph. added*). Still, the project is used in legal reasoning as a means of isolating future events.

This approach uses an entirely different index of 'nextness' from that under the SEA Directive 2001/42/EC, considered above. In the formation of strategic plans and programmes (those legal forms characterised by epochal time and long-term eras), the present is expressed



“only in the nextness that comes of it” (Massumi 2011, 76) – which, in this context, is in the promise of technological improvement. It is forward-driving and proliferative, working through what is not yet present but may be expected to come. By contrast, legislation governing the environmental assessment of individual projects is applied so as to suspend the potentials presented, fixing the temporal gaze on the immediately proximate. It does not propel forwards but arrests in the moment. This is not quite the same as the ‘extended present’, or the ‘extreme presentism’ displayed when current interests are privileged over those of the future (e.g. Tarkowska 1989; Nowotny 1994). Nor is it only about achieving certainty and ‘closure’, by delineating the time within which decision-makers think and act on a particular problem (Riles 2009). Rather, the ‘project’ works additionally to cultivate a sense of the future – the future beyond its jurisdictional remit – as temporally open and up for grabs. A “storehouse of . . . potentialities”, to use Whitehead’s (1968, 99-100) words. Accordingly, its present functioning depends, somewhat counter-intuitively, on constructions of future uncertainty, precariousness and multiplicity – not on a line of narrative continuity. Here, the future discloses itself as disrupted and unsettled, not static and preconfigured. Indeed, one of the features of legal interims is that they govern the future through tentativeness, rather than through the stabilising effect of long-term regulatory structures. Actions within these interims are decided and legitimated not despite but *because* of future contingency. Being able to point to looming unknowns helps to shore up legal and political authority in the present. It is key to creating a future amenable to control – not, as is often the case, through rational calculation and the taming of chance, but by rendering times to come as shifting and unpredictable. It enables the machinery of government to operate on the basis of contentiousness and uncertainty. In this mode, the ‘not yet’ enters the present not as a promise of order and progress but as the prospect of unforeseeable novelty. The future is ready-to-be-all-sorts but undetermined and kept out of sight. Therefore, notwithstanding its potential, the present emerges as a time dispossessed of any specific future. It is felt, but as an ‘affective absence’.

## CONCLUSION

If ‘anticipation’ is indeed a defining feature of Western modernity, and if law is as critical to future-making as it is made out to be, it is vital that legal scholars reflect not only on how law depicts the future but also on how law mobilises the future in real time to orchestrate decision-making, construct public reason and manage uncertainty. My aim in this article has been to work towards conceptual innovation both in law and in anticipation studies, so that they may be seen less as discrete areas than as interwoven lines of inquiry. By repositioning law as a distinct site of anticipation, the article has sought to open up new avenues of research into characteristically legal ways of operating with and through the future. As has been shown, law has yet to receive the same level of attention as other fields of anticipatory practice. While law brings new dimensions to this area of study, legal scholarship also stands to benefit from a combined approach. In particular, it can reveal the considerable ‘futures work’ that goes on behind the scenes of largely uncontroversial, often undeliberated legal rules and regulations. The examples given above show that law’s routine activities (in this case, strategic assessment and impact assessment) inculcate powerful truth claims about the future (here, the future as one continuous process towards predetermined technological ends,

or as a matter of contingency and surprise) that are shielded from direct attention because they are embedded in everyday practices or treated as settled. These different readings of the future are neither wholly independent nor totally reconcilable. They are held in tension, creating both dormant and energised states of power, whereby governing bodies can justifiably act not just on future ‘dead certs’ but also on the latency of unactualised possibility. The role of law in creating and sustaining this field of emergence, a potent source of decisional legitimacy, has so far been under-analysed. This is problematic because it allows for only a partial account of future-making, one that overlooks the nature and extent of law’s involvement in imagining and actively working towards the realisation of some future developments but not others.

Using the UK’s regulation of shale gas development to illustrate, my aim has been to show that the future is not pre-legal or extra-legal, but rather the product of legal reasoning and routine, captured here under the headings legal form, horizon and affect. This challenges the notion of the future as a neutral temporal space into which law emerges – an idea rarely articulated but often assumed – and reveals instead how different legal measures can show real diversity in their treatment of the future, even in the same policy context. Whereas legal forms operating through ‘epochal time’ and distant horizons bring internal coherence and functional coordination to long-term eras, those reliant on ‘conjunctural time’ and temporal proximity bring law’s focus to the meantime and the intensity of the interim. More than that, however, law convenes the future in ways that engender a political and moral imperative to inhabit different kinds and degrees of uncertainty. For instance, the strategic environmental assessment of onshore oil and gas licensing incorporate not just predictive data but also speculation about future technological innovation – speculation which is not grounded in ‘fact’ as such, but which was able to gain the status of an ‘affective fact’ (Massumi 2015a, ch. 7) because of its empirical ambiguity. Regardless of whether the promise of innovation is fulfilled, it has already left its mark on the present. Focusing like this on specific examples of the interpretation and implementation of rules, and subjecting them to anticipatory-style analysis, shows how law’s relationship with the future is not simply a matter of knowledge production but is also about drawing horizons, creating expectations through multiple forms and enacting times of promise, possibility, precariousness and so on. In this respect, there is also tremendous scope to develop ‘sensory’ legal methods that are more attuned to law’s futurity (e.g. Coleman 2017). A first step, however, is to make the future and all its complexity an analytical object in legal research. This article begins in that direction.

## REFERENCES

- Adam, Barbara. 2004. ‘Memory of Futures.’ *KronoScope* 4(2): 297-315.
- Adam, Barbara and Chris Groves. 2007. *Future Matters: Action, Knowledge, Ethics*. Leiden: Brill.
- Adams, Vincanne, Michelle Murphy and Adele E. Clarke. 2009. ‘Anticipation: Technoscience, Life, Affect, Temporality.’ *Subjectivity* 28(1): 246-265.

- Alvial-Palavicino, Carla. 2015. 'The Future as Practice: A Framework to Understand Anticipation in Science and Technology.' *Tecnoscienza* 6(2): 135-172.
- Amsler, Sarah and Keri Facer. 2017. 'Contesting Anticipatory Regimes in Education: Exploring Alternative Educational Orientations to the Future.' *Futures* 94: 6-14.
- Anderson, Ben. 2010. 'Preemption, Precaution, Preparedness: Anticipatory Action and Future Geographies.' *Progress in Human Geography* 34(6): 777-798.
- Anderson, Ben. 2017. 'Emergency Futures: Exception, Urgency, Interval, Hope.' *The Sociological Review* 65(3): 463-477.
- Anderson, Ben et al. 2012. 'On Assemblages and Geography.' *Dialogues in Human Geography* 2(2): 171-189.
- Appadurai, Arjun. 2013. *The Future as Cultural Fact: Essays on the Global Condition*. New York, NY: Verso.
- Aradau, Claudia and Rens van Munster. 2011. *Politics of Catastrophe: Genealogies of the Unknown*. Abingdon: Routledge.
- Bennett, Luke and Antonia Layard. 2015. 'Legal Geography: Becoming Spatial Detectives.' *Geography Compass* 9(7): 406-422.
- Bernstein, Peter L. 1998. *Against the Gods: The Remarkable Story of Risk*. New York, NY: John Wiley & Sons, Inc.
- Borup, Mads et al. 2006. 'The Sociology of Expectations in Science and Technology.' *Technology Analysis and Strategic Management* 18(3-4): 285-298.
- Braverman, Irus. 2014. 'Who's Afraid of Methodology? Advocating a Methodological Turn in Legal Geography.' In *The Expanding Spaces of Law: A Timely Legal Geography*, edited by Irus Braverman et al., Chapter 5. Stanford: Stanford University Press.
- Brenner, Neil. 2001. 'The Limits to Scale? Methodological Reflections on Scalar Structuration.' *Progress in Human Geography* 25(4): 591-614.
- Brown, Gavin et al. 2012. 'Holding the Future Together: Towards a Theorisation of the Spaces and Times of Transition.' *Environment and Planning A: Economy and Space* 44(7): 1607-1623.
- Brown Weiss, Edith. 1992. 'Intergenerational Equity: A Legal Framework for Global Environmental Change.' In *Environmental Change and International Law: New*

*Challenges and Dimensions*, edited by Edith Brown Weiss, Chapter 12. Tokyo: United Nations University Press.

Brumbaugh, Robert S. 1966. 'Applied Metaphysics: Truth and Passing Time.' *Review of Metaphysics* 19(4): 647-666.

Cloatre, Emily and Dave Cowan. 2019. 'Legalities and Materialities.' In *Routledge Handbook of Law and Theory*, edited by Andreas Philippopoulos-Mihalopoulos, Chapter 21. Abingdon: Routledge.

Coleman, Rebecca. 2017. 'A Sensory Sociology of the Future: Affect, Hope and Inventive Methodologies.' *The Sociological Review* 65(3): 525-543.

Committee of Public Accounts, 2017. *Carbon Capture and Storage*. House of Commons 2016-17, 1036.

Currie, Mark. 2013. *The Unexpected: Narrative Temporality and the Philosophy of Surprise*. Edinburgh: Edinburgh University Press.

Davis, Juliet and Christopher Groves. Forthcoming. 'City/Future in the Making: Masterplanning London's Olympic Legacy as Anticipatory Assemblage.' *Futures*.

Davis, Kathleen. 2008. *Periodization and Sovereignty: How Ideas of Feudalism and Secularization Govern the Politics of Time*. Philadelphia, PA: University of Pennsylvania Press.

Davis, Kathleen. 2010. 'The Sense of an Epoch: Periodization, Sovereignty, and the Limits of Secularization.' In *The Legitimacy of the Middle Ages: On the Unwritten History of Theory*, edited by Andrew Cole and D. Vance Smith, 39-69. Durham, NC: Duke University Press.

De Jouvenel, Bertrand. 1967. *The Art of Conjecture*. Translated by Nikita Lary. London: Weidenfeld and Nicolson.

DCLG (Department for Communities and Local Government). 2013. *Planning Practice Guidance for Onshore Oil and Gas*. London: DCLG.

DECC (Department of Energy and Climate Change). 2010. *Strategic Environmental Assessment for a 14th and Subsequent Onshore Oil & Gas Licensing Rounds: Environmental Report*. London: DECC.

DECC. 2013. *Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing: Environmental Report*. London: DECC.

- DECC. 2014. *Strategic Environmental Assessment for Further Onshore Oil and Gas Licensing – Post Adoption Statement. Appendix A: Consultation Responses on the Revised Environmental Report*. London: DECC.
- European Commission. 1999. *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions*. Luxembourg: Office for Official Publications of the European Communities.
- Faulkner, Alex, Bettina Lange and Christopher Lawless. 2012. ‘Material Worlds: Intersections of Law, Science, Technology, and Society.’ *Journal of Law and Society* 39(1): 1-19.
- Fisher, Elizabeth. 2007. *Risk Regulation and Administrative Constitutionalism*. Oxford: Hart Publishing.
- Fisher, Elizabeth, Pasky Pascual Wendy Wagner. 2010. ‘Understanding Environmental Models in Their Legal and Regulatory Context.’ *Journal of Environmental Law* 22(2): 251-283.
- Fitzpatrick, Peter. 2013. ‘Marking Time: Temporality and the Imperial Cast of Occidental Law.’ *Birkbeck Law Review* 1(1): 63-79.
- Gadamer, Hans-Georg. 2013. *Truth and Method*. Translation revised by Joel Weinsheimer and Donald G. Marshall. London: Bloomsbury.
- Grabham, Emily. 2016a. *Brewing Legal Times: Things, Form, and the Enactment of Law*. Toronto: University of Toronto Press.
- Grabham, Emily. 2016b. ‘Time and Technique: The Legal Lives of the 26-Week Qualifying Period.’ *Economy and Society* 45(3-4): 379-406.
- Greenhouse, Carol J. 1989. ‘Just in Time: Temporality and the Cultural Legitimation of Law.’ *Yale Law Journal* 98(8): 1631-1651.
- Groves, Chris. 2017. ‘Emptying the Future: On the Environmental Politics of Anticipation.’ *Futures* 92: 29-38.
- Guyer, Jane I. 2008. ‘Prophecy and the Near Future: Thoughts on Macroeconomic, Evangelical, and Punctuated Time.’ *American Ethnologist* 34(3): 409-421.
- Hall, Stuart. 2007. ‘Epilogue: Through the Prism of an Intellectual Life.’ In *Culture, Politics, Race and Diaspora: The Thought of Stuart Hall*, edited by Brian Meeks, Chapter 13. Kingston, Jamaica: Ian Randle Publishers.

- Hamlyn, Olivia. 2015. 'Sustainability and the Failure of Ambition in European Pesticides Regulation.' *Journal of Environmental Law* 27(3): 405-429.
- Harding, Sarah. 2009. 'Perpetual Property.' *Florida Law Review* 61(2): 285-328.
- Harrington, John. 2018. "'We Can't Wait for the Bugs to Spread": Rhetorics of Time, Space and Biosecurity in Global Health Law.' *Transnational Legal Theory* 9(2): 85-109.
- Hilson, Chris. 2015. 'Framing Fracking: Which Frames Are Heard in English Planning and Environmental Policy and Practice?' *Journal of Environmental Law* 27(2): 177-202.
- Husserl, Edmund. 1983. *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy*. Translated by F. Kersten. Dordrecht: Kluwer Academic Publishers.
- Hutter, Bridget M. 2010. *Anticipating Risks and Organising Risk Regulation*. Cambridge: Cambridge University Press.
- Jacob, Marie-Andrée. 2011. 'Knowledge Games, Truthfulness and Organ Transplants Regulation.' *Biosocieties* 6(2): 243-261.
- Jasanoff, Sheila. 1995. *Science at the Bar: Law, Science, and Technology in America*. Cambridge, MA: Harvard University Press.
- Jasanoff, Sheila, ed. 2004. *States of Knowledge: The Co-Production of Science and Social Order*. London: Routledge.
- Jasanoff, Sheila. 2005. 'Law's Knowledge: Science for Justice in Legal Settings.' *American Journal of Public Health* 95(1): 49-58.
- Jasanoff, Sheila. 2015. 'Serviceable Truths: Science for Action in Law and Policy.' *Texas Law Review* 93(7): 1723-1749.
- Jasanoff, Sheila. 2017. 'Virtual, Visible, and Actionable: Data Assemblages and the Sightlines of Justice.' *Big Data and Society* (July-December): 1-15.
- Jasanoff, Sheila and Sang-Hyun Kim eds. 2015. *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. Chicago, IL: University of Chicago Press.
- Keenan, Sarah. 2019. 'Making Land Liquid: On Time and Title Registration.' In *Law and Time*, edited by Siân Beynon-Jones and Emily Grabham, Chapter 7. Abingdon: Routledge.

- Knight, Daniel M. and Charles Stewart. 2016. 'Ethnographies of Austerity: Temporality, Crisis and Affect in Southern Europe.' *History and Anthropology* 27(1): 1-18.
- Koselleck, Reinhart. 2004. *Futures Past: On the Semantics of Historical Time*. Translated by Keith Tribe. New York, NY: Columbia University Press.
- Lang, Andrew. 2014. 'Governing "As If": Global Subsidies Regulation and the Benchmark Problem.' *Current Legal Problems* 67(1): 135-168.
- Latour, Bruno. 1993. *We Have Never Been Modern*. Translated by Catherine Porter. Cambridge, MA: Harvard University Press.
- Lee, Maria. 2014. 'Experts and Publics in EU Environmental Law.' In *The Oxford Handbook of European Union Law*, edited by Anthony Arnall and Damian Chalmers, Chapter 38. Oxford: Oxford University Press.
- Lee, Maria. 2017. 'Knowledge and Landscape in Wind Energy Planning.' *Legal Studies* 37(1): 3-24.
- Lee, Maria, et al. 2018. 'Techniques of Knowing in Administration: Co-production, Models, and Conservation Law.' *Journal of Law and Society* 45(3): 427-456.
- Leys, Ruth. 2011. 'The Turn to Affect: A Critique.' *Critical Inquiry* 37(3): 434-472.
- Mink, Louis O. 1970. 'History and Fiction as Modes of Comprehension.' *New Literary History* 1(3): 541-558.
- Osborne, Peter. 1995. *Politics of Time: Modernity and the Avant-Garde*. London: Verso.
- Pickering, Michael. 2004. 'Experience as Horizon: Koselleck, Expectation and Historical Time.' *Cultural Studies* 18(2-3): 271-289.
- Poovey, Mary. 1998. *A History of the Modern Fact: Problems of Knowledge in the Sciences of Wealth and Society*. Chicago, IL: University of Chicago Press.
- Porter, Theodore M. 1996. *Trusts in Numbers: The Pursuit of Objectivity in Science and Public Life*. Princeton, NJ: Princeton University Press.
- Marcus, George E. and Erkan Saka. 2006. 'Assemblage.' *Theory, Culture and Society* 23(2-3): 101-106.
- Massumi, Brian. 2002. *Parables for the Virtual: Movement, Affect, Sensation*. Durham, NC: Duke University Press.

- Massumi, Brian. 2011. 'Perception Attack: The Force to Own Time.' In *Theory After Theory*, edited by Jane Elliott and Derek Attridge, Chapter 5. London: Routledge.
- Massumi, Brian. 2015a. *Ontopower: War, Powers, and the State of Perception*. Durham, NC: Duke University Press.
- Massumi, Brian. 2015b. *Politics of Affect*. Cambridge: Polity Press.
- Nordmann, Alfred. 2014. 'Responsible Innovation, the Art and Craft of Anticipation.' *Journal of Responsible Innovation* 1(1): 87-98.
- Nowotny, Helga. 1994. *Time: The Modern and Postmodern Experience*. Translated edition. Cambridge: Polity Press.
- Richardson, Benjamin J. 2017. *Time and Environmental Law: Telling Nature's Time*. Cambridge: Cambridge University Press.
- Ricoeur, Paul. 1980. 'Narrative Time.' *Critical Inquiry* 7(1): 169-190.
- Riles, Annelise. 2005. 'A New Agenda for the Cultural Study of Law: Tacking on the Technicalities.' *Buffalo Law Review* 53(3): 973-1033.
- Riles, Annelise. 2010. 'Collateral Expertise: Legal Knowledge in the Global Financial Markets.' *Current Anthropology* 51(6): 795-818.
- Sarat, Austin, Lawrence Douglas and Martha Merrill Umphrey, eds. 2007. *How Law Knows*. Stanford, CA: Stanford University Press.
- Sarat, Austin et al. 2007. 'Complexity, Contingency, and Change in Law's Knowledge Practices: An Introduction.' In *How Law Knows*, edited by Austin Sarat, Lawrence Douglas and Martha Merrill Umphrey, 1-24. Stanford, CA: Stanford University Press.
- Sardar, Ziauddin. 2010. 'The Namesake: Futures; Futures Studies; Futurology; Futuristic; Foresight – What's in a Name?' *Futures* 42(3): 177-184.
- Scheppele, Kim Lane. 2004. 'Law in a Time of Emergency: States of Exception and the Temptations of 9/11.' *University of Pennsylvania Journal of Constitutional Law* 6(5): 1001-1083.
- Scott, James C. 1998. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven, CT: Yale University Press.
- Selin, Cynthia. 2008. 'The Sociology of the Future: Tracing Stories of Technology and Time.' *Sociology Compass* 2(6): 1878-1895.



- Selin, Cynthia. 2014. 'On Not Forgetting Futures.' *Journal of Responsible Innovation* 1(1): 103-108.
- Silbey, Susan S., ed. 2008a. *Law and Science: Volume I—Epistemological, Evidentiary, and Relational Engagements*. Aldershot: Ashgate.
- Silbey, Susan S., ed. 2008b. *Law and Science: Volume II—Regulation of Property, Practices, and Products*. Aldershot: Ashgate.
- Stengers, Isabelle. 2000. *The Invention of Modern Science*. Translated by Daniel W. Smith. Minneapolis, MN: University of Minnesota Press.
- Stubbs, Paul. 2018. 'Slow, Slow, Quick, Quick, Slow: Power, Expertise and the Hegemonic Temporalities of Austerity.' *Innovation: The European Journal of Social Science Research* 31(1): 25-39.
- Tarkowska, Elżbieta. 1989. 'Uncertainty of the Future and Domination of a Presentist Orientation: A New or Lasting Phenomenon?' *Sisyphus: Sociological Studies* 6: 175-187.
- Tavory, Iddo. 2018. 'Between Situations: Anticipation, Rhythms, and the Theory of Interaction.' *Sociological Theory* 36(2): 117-133.
- Tavory, Iddo and Nina Eliasoph. 2013. 'Coordinating Futures: Toward a Theory of Anticipation.' *American Journal of Sociology* 118(4): 908-942.
- Vaihinger, Hans. 1952. *The Philosophy of "As If": A System of the Theoretical, Practical and Religious Fictions of Mankind*, 2<sup>nd</sup> ed. Translated by C.K. Ogden. London: Routledge & Kegan Paul Ltd.
- Valverde, Mariana. 2007. 'Theoretical and Methodological Issues in the Study of Legal Knowledge Practices.' In *How Law Knows*, edited by Austin Sarat, Lawrence Douglas and Martha Merrill Umphrey, 72-92. Stanford, CA: Stanford University Press.
- Valverde, Mariana. 2009. 'Jurisdiction and Scale: Legal "Technicalities" as Resources for Theory.' *Social and Legal Studies* 18(2): 139-157.
- Valverde, Mariana. 2015. *Chronotopes of Law: Jurisdiction, Scale and Governance*. Abingdon: Routledge.
- Van Lente, Harro and Arie Rip. 1998. 'Expectations in Technological Developments: An Example of Prospective Structures to be Filled in by Agency.' In *Getting New*

*Technologies Together: Studies in Making Sociotechnical Order*, edited by Cornelis Disco and Barend van der Meulen, Chapter 7. Berlin: Walter de Gruyter.

Watanabe, Chika. 2013. 'Aid As Analogy: Ambiguities Of "Lessons Learned" In Post-Disaster Recovery.' <https://fukushimaforum.wordpress.com/online-forum-2/second-3-11-virtual-conference-2013/aid-as-analogy-ambiguities-of-lessons-learned-in-post-disaster-recovery/>

Weimer, Maria and Anniek de Ruijter, eds. 2017. *Regulating Risks in the European Union: The Co-Production of Expert and Executive Power*. Oxford: Hart.

Weszkalnys, Gisa. 2014. 'Anticipating Oil: The Temporal Politics of a Disaster Yet to Come.' *The Sociological Review* 62(1 suppl.): 211-235.

Whitehead, Alfred North. 1968. *Modes of Thought*. New York, NY: The Free Press.

Williams, Raymond. 1977. *Marxism and Literature*. Oxford: Oxford University Press.

#### **CASES CITED**

Ecologistas en Acción-CODA v. Ayuntamiento de Madrid, C-142/07 [2007] EU:C:2008:445.

Hockley v. Essex CC [2013] EWHC 4051 (Admin)

Preston New Road Action Group v. Secretary of State for Communities and Local Government [2018] EWCA Civ 9

R v. Swale BC ex p. RSPB (1990) 2 Admin. L.R. 790

R (Burridge) v. Breckland DC [2013] EWCA Civ 228

R (Catt) v. Brighton Hove City Council [2013] EWHC 977 (Admin)

#### **LAWS CITED**

Environmental Impact Assessment Directive 2011/92/EU [2012] OJ L26/1.

Nuclear Safety Directive 2009/71/Euratom [2009] OJ L172/18.

Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004

Strategic Environmental Directive 2001/42/EC [2001] OJ L197/30.

Town and Country Planning (Environmental Impact Assessment) Regulations 2017

Waste Directive 2008/98/EC [2008] OJ L312/3.