

A Timely Prophet? The Doomsday Clock as a Visualization of Securitization Moves with a Global Referent Object

JUHA A. VUORI*

Department of Political Science, University of Turku, Finland

There have been numerous calls to include images in the analysis of securitization and the social construction of security issues. The present article answers these calls by examining a longstanding process of securitization in which speech acts have been interwoven with a powerful symbol. Looking into the past and a visualization of possible futures, the article traces the resets of the so-called Doomsday Clock of the Atomic Scientists as securitization/desecuritization moves with a global referent object. While the Scientists' securitization arguments have pleaded to rationality, the symbol of the Clock has worked to evoke people's sensibilities. The article reasons that while images and symbols can facilitate, or impede, securitization moves, it is difficult to fathom how images, without anchorage, could bring about securitization that would not have been institutionalized previously.

Keywords Copenhagen School • macrosecuritization • visualization of global catastrophe • Doomsday Clock

Introduction

MOST OF THE EMPIRICAL ANALYSIS that has been guided by the Copenhagen School approach to security studies has focused on regional-level and state-level securitization dynamics. An increase of interest in global or system-level empirical dynamics and the theorization of larger wholes, however, can be detected in the recent work of the leading figures of the Copenhagen School (Buzan, 2006; Buzan & Wæver, 2009). Accordingly, this article examines a process involving securitization moves of global scope in terms of their referent objects. Looking into the past and a visualization of possible futures, the article traces the resets of the Atomic Scientists' so-called Doomsday Clock as securitization/desecuritization moves with global referent objects.

The Doomsday Clock, displayed on the cover of the *Bulletin of the Atomic Scientists*,¹ is a widely recognized visualization of the likelihood of a global catastrophe for human civilization. The image came to represent the imminence of nuclear annihilation in 1947 when the clock-face first appeared on the cover of the *Bulletin*. For this first appearance, the Clock was set at seven minutes to midnight. While this 1947 issue of the *Bulletin* contained the initial securitization move bound to the symbol of the Clock, the choice of seven minutes to midnight was more about 'good design' (*Bulletin of the Atomic Scientists*, 2002) than about a specific scale or mechanism for assessing the likelihood of 'doom'. The idea of resetting the Clock in accordance with trends in world events was only initiated in 1949, when the Soviet Union conducted its first nuclear tests. Thereafter, the Atomic Scientists² have set their Clock in accordance with their assessments of world politics: when tensions and dangers rise, the time is moved closer to 'doom' at midnight, while improved relations among nuclear powers have resulted in turning the Clock back. Nevertheless, the Clock is meant as a symbol, dependent not on single events but rather on the perceived trend of 'human society'. With the most recent reset in 2010, it now stands at six minutes to midnight. Although the Atomic Scientists had emphasized environmental issues before (see, for example, *Bulletin of the Atomic Scientists*, 1991), a new feature of the two most recent resets was the consideration now of 'the two gravest threats to civilization – the terror of nuclear weapons and runaway climate change' (*Bulletin of the Atomic Scientists*, 2010). Thus, the impetus of the Atomic Scientists remains the same: the Clock serves as a warning of how imminent global catastrophe is.

The resets of the Doomsday Clock provide an ample archive to study such warnings, and thus the archive is also an appropriate source to discuss securitization moves with global referent objects – that is, macrosecuritization moves (Buzan, 2006; Buzan & Wæver, 2009). Buzan & Wæver (2009) have 'postulated' four candidate discourses for macrosecuritization status, viz. the Cold War, anti-nuclear discourse, global climate change and the 'Global War on Terror'. While the Cold War and the 'Global War on Terror' can be deemed more or less 'successful' macrosecuritizations, what can the Doomsday Clock tell us about securitization/deseuritization moves with global referent objects that have not been all that 'successful'?

In examining the resets of the Clock, the article engages with some of the tenets of recent critical debate on the theory of securitization. How is the use of images connected to securitization?³ When is a securitization successful, and

¹ The *Bulletin of the Atomic Scientists* was founded in 1945 by former Manhattan Project physicists who were concerned with the problem of nuclear weapons. As of 2009, the *Bulletin* has been published only online.

² Until 1974, the editor-in-chief of the *Bulletin* made the assessment of when to reset the Clock. Since then, the board of directors has been responsible for this task in consultation with the *Bulletin's* board of sponsors.

³ See, for example, Williams (2003), Möller (2007), McDonald (2008).

when is it a failure?⁴ Is securitization a constitutive or a causal theory?⁵ The resets of the Clock constitute an archive that comprises 63 years of securitization discourse, enhanced by a widely recognized and intertextualized symbol, thereby providing an interesting opportunity to engage in these debates.

The article will first introduce the concept of macrosecuritization, before moving on to discuss the aesthetics of doom and how they are bound to the attempted securitization of nuclear weapons. This will be followed by a reading of the resets of the Doomsday Clock as stops in a lengthy process of macrosecuritization that spans seven decades. The final section of the article reasons what this process entails for the theory of securitization.

Supersize Me: Securitization with Global or Universal Referent Objects

In terms of its wide 'purchase', one of the most successful concepts developed within security studies during the past two decades has been that of securitization (Huysmans, 1998; Williams, 2003). Guided by this 'leading idea', 'securitization studies' aim to gain an increasingly precise understanding of who can securitize which issues (threats), for whom (referent objects), why, with what kinds of effects, and under what conditions (what explains when securitization is successful) (Buzan, Wæver & de Wilde, 1998: 32).

Securitization is generally viewed as a form of the power politics of a concept (see, for example, Wæver, 1995; Buzan, Wæver & de Wilde, 1998). To speak about security is thought to provide legitimacy for the political actions of the securitizing actor. The theory of securitization directs our attention towards certain aspects of such 'speech acts', where the most important internal, or constitutive, rule of a securitization move is the form of security, its grammar. The 'plot' of a securitization argument contains an existential threat, a point of no return and a possible way out (Buzan, Wæver & de Wilde, 1998: 32–33). Beyond the internal rules of speech acts, the social status of the actor (the securitizing actor has to be in a – not necessarily formal – position of authority with respect to the audience) and aspects related to the threat itself (issues are easier to produce as threats if similar issues are generally considered to be threats) are taken as relevant for achieving 'successful securitization'. Such 'success', however, cannot be guaranteed for anyone, as the effectiveness of securitization moves depends on their audiences' acquiescence (cf. Wæver, 1995; Balzacq, 2005). Accordingly, as an open social process, securitization can always fail (Buzan, Wæver & de Wilde, 1998; cf. Derrida, 1988).

⁴ See, for example, Salter (2008).

⁵ See, for example, Balzacq (2005).

While securitization represents the social process of constructing an issue of security, desecuritization, the corollary of securitization, has been the preferred option for Wæver (1995). Desecuritization has largely been understood in terms of the deconstruction of collective identities in situations where relations between 'friends' and 'enemies' are constituted by existential threats (Roe, 2004: 280). Such a position has been criticized as representing and reinforcing a realist view of security (see, for example, McDonald, 2008: 579–580). From this critical viewpoint, 'security as emancipation' (see, for example, Booth, 2005) would be preferable to the negativity of security bound to threats that Buzan, Wæver & de Wilde (1998) highlight. Indeed, for Wæver (1995), desecuritization is a process by which security issues lose their 'securityness' and are thereby no longer restrictive by nature, as there is no need to repel threats, but become 'open' in an Arendtian sense.⁶

For Buzan & Wæver (2009; see also Buzan, 2006), at certain times, higher-order securitizations embed themselves into most political discourse and practice in a way that incorporates, aligns and ranks more parochial securitizations beneath them. They have termed the construction of these overarching conflicts that structure international security macrosecuritizations. In these instances, separate securitizations are bound together into durable sets. The most powerful macrosecuritizations will impose a hierarchy on lower levels (cf. the concept of overlay in regional security complex theory), but macrosecuritization may also simply group and tie other securitizations together without necessarily outranking them.

Macrosecuritizations are characterized by claims of universality (Buzan & Wæver, 2009). The referent objects in these discourses go beyond nation-states, as securitizing actors make claims for at least potentially the whole of humanity or 'civilization'. The most successful macrosecuritizations seem to form 'matched pairs', as exemplified by the two camps of the Cold War that claimed to represent the whole of the 'civilized world'. The Cold War macrosecuritizations were successful, as the struggle between the two ideological camps overrode many other security concerns and discourses. It even seems that macrosecuritizations and their consequently 'macro' desecuritizations define, or at least provide hegemonic labels for, contemporary political eras, viz. the 'Cold War', the 'post-Cold War period' and the 'Global War on Terror'.

Macrosecuritizations can be identified through two dimensions (Buzan & Wæver, 2009). The first dimension is the level of the referent object: the referent of macrosecuritization moves should be on a level above the national or regional. The second dimension is the encompassiveness of the claimed threat: macrosecuritizations are candidates for top-priority threats, even though they may not get this status. A third dimension of macrosecuritiza-

⁶ Wæver has outlined three options for this: (1) simply not to talk about issues in terms of security; (2) to keep responses to securitized issues in forms that do not create security dilemmas and other vicious spirals; and (3) to move security issues back to 'normal politics'; see also Huysmans (1995, 1998) for various strategies for achieving desecuritization.

tions is the level of their acceptance by relevant audiences, though this dimension is more indicative of whether the securitization has been successful or powerful than whether it is a macrosecuritization.

For Buzan, Wæver & de Wilde (1998: 25), the criteria of a successful securitization is not whether a securitization act leads to political actions, as the actors are able to break free of 'rules' that bind them, but the establishment of a basis for such actions.⁷ Here the use of 'watchwords', or institutionalized securitization (Buzan, Wæver & de Wilde, 1998: 27–29), is an important indicator of whether a security discourse has 'broken through'. Such institutionalization endows security discourse with 'master signifiers' (Buzan & Wæver, 2009) that decrease the need for elaborate arguments about the 'securityness' of specific cases. Certain words or concepts (e.g. 'terrorism') automatically bring the logic of danger, vulnerability and fear with them, whereby the necessity to combat them does not have to be elaborately argued every time. Indeed, the continuous use of watchwords (like 'counter-revolution', 'socialism' or 'terrorism') may indicate the institutionalization of a securitization. This seemed especially prevalent during the Cold War, as for example noted by Murray Edelman ([1964] 1972: 15): "'USSR" and "Khrushchev" can come to stand so repeatedly for danger that adaptive thinking becomes unlikely, and political actions that accept the USSR or Khrushchev as reasonable or as potential associates are met with hostility.' For most of the Cold War, the 'USSR' won over the 'Doomsday Clock' as a signifier of the most urgent threat in the USA, something that the Atomic Scientists wanted to change.

However, for the anti-nuclear macrosecuritization discourse, the Doomsday Clock is a candidate for a visualized master signifier – that is, the mention or display of the Clock brings with it a sense of imminent doom, as well as of the necessity of, for example, 'bringing about a radical change in the international system' or preventing disaster from which there is 'no place to hide' (Rabinowitch, 1969a: 16–17). Statements like 'time is running out' (Day, 1974), 'one world or none' (Feld, 1980: 3) or 'the clock is ticking' (*Bulletin of the Atomic Scientists*, 2010), crystallize the security argument maintained by the *Bulletin* and the anti-nuclear discourse in general.

'Not To Terrify, but To Warn and To Awaken': The Aesthetics of Doom

There have been numerous calls to include images in the analysis of securitization and the wider construction of security issues (see, for example, Williams, 2003; Möller, 2007; McDonald, 2008). Michael C. Williams (2003),

⁷ It is possible to 'do' security without 'speaking' security. However, security action without securitization entails different costs in terms of legitimacy, for example.

for example, asks not only how images affect securitization acts but also how the visual representation of various policy options influences security practices, and how images impact viewers in a way that is different from that of words on listeners, or text on readers. As a durable and a widely intertextualized symbol, the Doomsday Clock provides a good opportunity to examine the issue of images and securitization.

For Plato, speech was primary to text, as any text could become an 'orphan letter', while in a speech situation the sender and the receiver(s) were present and unambiguous (Rancière, [2000] 2008). While messages cannot be transmitted without interpretation even in situations of direct speech communication, with a written text 'authentic communication' or 'real meanings' become even more complicated, as shown by Jacques Derrida (see, for example, Derrida, 1988).⁸ For Michel de Certeau ([1984] 1988: xxi), even reading is not passive, for the reader enters the text, moves back and forth along it, and 'lives' within it. Indeed, reading a text creates an intertextual situation, where every instance of reading, even of the same text by the same person, has the potential to be unique, as the reader will connect the text being read with different connotations, texts and experiences.

While written text is more open to interpretation than a situation of direct speech involving non-verbal communication, the interpretation of images is even more open. Images do not necessarily constitute a language, which makes the communication of specific meanings rather challenging. Most importantly, images can convey emotions without recourse to language, which may be the aspect in which their relevance for acts of securitization is the most significant.

However, without a previous securitization that the image represents or connotes, it would be difficult to convey an act of securitization with images alone. If an image should have an influence on an act of securitization, it must be 'anchored' to a meaning – that is, the 'floating chain of signifieds' has to be affixed to a preferred reading of the image (Barthes, 1977: 38). Since images can convey emotion, affective images especially can have a facilitating effect in securitization processes, where threats and fear, on the one hand, and certainty and relief, on the other, play major roles. Just as with standard advertisement practice, when bound to securitization processes images can evoke emotions that thereby facilitate the 'purchase' of a securitization argument, in addition to providing either evidence or a degree of plausibility for the claims of the securitizing actor. But, as Frank Möller (2007) has argued, even textual interventions into images cannot guarantee that they will be understood and perceived the way the intervention suggests. Instead, it is important what the perceiver, or consumer, of the images does with them

⁸ One cannot conclusively know what kinds of effects a statement will have in the hearer/reader (Derrida, 1988). Indeed, as Murray Edelman ([1964] 1972: 13) had already noted, one person's reassurance is another's threat.



Source: Photo left – *Bulletin of the Atomic Scientists* 54(5): 4; © Chicago Sun Times, used with licence; photo right – US National Archive, photo number RG 77-AEC.

Figure 1: The spectacle of resetting the Doomsday Clock and the iconic image of the mushroom cloud

(Certeau, [1984] 1988). Images intended to facilitate an argument may actually, contrarily, end up impeding it. The consumer or receiver of an image can also resist the general flow of signs.

The anti-nuclear macrosecuritization process has been bound to three metaphors that are also among the most powerful symbols of the Cold War era of world politics, viz. the Doomsday Clock, the ‘mushroom cloud’⁹ (see Figure 1) and the metaphor of ‘proliferation’ that has come to represent the horizontal increase and vertical spread of nuclear weapons.¹⁰ How, though, does the visual symbol of the Clock weave into the textual securitization moves of the Atomic Scientists? To examine this aspect of securitization requires entry into a less discussed aspect of securitization processes, namely securitization as symbolic action. Interestingly, while the relevance of ‘contexts’ for securitization speech acts has been widely examined, the symbolic settings of securitization speech acts have received relatively little attention.¹¹

As with much of ‘high politics’ and other formalized social processes, senders and receivers with the right kind of ‘social capital’ have to be present in order for ‘social magic’ to be successfully conjured (Bourdieu, 1991). Edelman ([1964] 1972: 95) has similarly argued that although all of an interlocutor’s acts take place in a particular setting, that is usually taken for

⁹ Even the most recognized symbols remain ‘polysemic’; see Heller (2007) on how the mushroom cloud has been turned into kitsch, while still remaining a strong representative of terror.

¹⁰ See Woods (2004) on how the metaphor of proliferation has institutionalized the threat of the multiplication of nuclear-weapon states, while the actual spread of such capabilities has remained relatively low since the 1960s. Comments by *Security Dialogue*’s anonymous reviewers were especially helpful here.

¹¹ Mark B. Salter (2008) has studied the effects of settings on securitization processes. Here the settings of securitization acts do not draw on dramaturgy and the stage and backstage of securitization speech, but on the symbolic settings of securitization: How do symbols present at security speech situations affect securitization? Thus, which symbols facilitate, and which impede, securitization acts?

granted, while the focus is instead on the actions of those involved. However, some formalistic acts greatly depend on their settings, which are not merely physical but in their essence social – and fundamental for symbol formation (Edelman, [1964] 1972: 103). Religious ceremonies often require a special setting, as do many official political events, such as sessions of parliament, where correct symbols have to be present, be they in the form of cloak or gavel. Settings may have conducive resonance for the political message delivered: think, for example, of the banner declaring ‘Mission Accomplished’ behind US President George W. Bush on the deck of the aircraft carrier *Abraham Lincoln* during his speech on 1 May 2003. The immediate setting of any political act can then be widely recognized as either appropriate or inappropriate for the kind of act committed.¹²

The symbolic uses of politics are closely connected to political speech acts in formal settings. Edelman ([1964] 1972: 98) has identified three functions for the settings of political acts: (1) to impress large audiences; (2) to legitimize a series of future acts and thus maximize acquiescence to and compliance with them; and (3) the establishment or reinforcement of a particular definition of the self as a public official. Although the Atomic Scientists have not had a formal political position, and they have emphasized that they do not wish to make national or international policy, they have wielded major social authority and influence: laypeople must to some extent trust what nuclear physicists state, even though, for example, most contemporary electronic devices vindicate scientists’ theoretical claims on ‘unobservables’. Yet, is such social capital sufficient to affect or even effect securitization?

For de Certeau ([1984] 1988: 7–8), competence is transmuted into social authority in the ‘expert’. This social authority allows the intervention of experts into debates outside their particular fields of expertise so that, in effect, experts can convert competence in a certain field into authority in another. In these cases, the expert’s capacity and capability to initiate and engage in discussion with authorities in other fields is not due to his or her expert knowledge; rather, such opportunities are gained from the socio-economic function an expert plays in the knowledge production in another field.

Political spectacles can be of massive or majestic scale, which emphasizes the difference between the mundanity of everyday life and the importance of the political ritual. Artificial settings facilitate an audience’s concentration on suggestions, connotations, emotions and authority (Edelman, [1964] 1972: 96). The symbolic setting of the political act guides the emotional response of the audience and can have important facilitation or impediment influences on the perlocutionary effect of the illocutionary political act. While the *Bulletin* has remained relatively isolated in terms of a mass audience or coverage in other media, the performances, or spectacles, of resetting the *Bulletin*

¹² This is where Michael Moore also derives some of his satire in the film *Fahrenheit 9/11*: it seems an inappropriate symbolic setting for President Bush to securitize terrorists while he plays golf.

Clock have 'received the world's attention' (McCrea & Markle, 1989: 53–54).¹³ These spectacles have operated to impress audiences and reinforce a particular understanding of the public role of the Atomic Scientists viz. that of the modern-day prophet or oracle.

Indeed, through the symbol of the Doomsday Clock, the Scientists have been able to combine their social capital as voices of reason and objectivity with that of the soothsayer to influence society and behaviour. While science deals with concepts, the symbol of the Clock relates to emotions; while the Scientists' textual arguments try to awaken the reason of their audience, the symbol of the Clock tries to reach its bare sensibilities (cf. Stegeman, 1969). Indeed, for Eugene Rabinowitch, a Manhattan Project scientist and founding editor of the *Bulletin*, one of the aims of the *Bulletin* was to 'frighten men into rationality' (Moore, 1996). Through the Clock, which 'is intended to be symbolic',¹⁴ the Scientists could give advice with prophetic qualities. Where religious prophets have had association with God(s), the Atomic Scientists have had access, via science, to 'the facts'; where religious prophets have expressed what God(s) want(s), the Atomic Scientists have 'revealed' what 'the facts demand'. This mix thus blends the 'real' and the 'fictional', a process that has occurred widely in the various fields of science and scholarship in the 'aesthetic age' (Rancière, [2000] 2008: 38–39). Levels of discourse have intermixed: political, scholarly and even fictional statements can produce effects in reality. Statements on the real, or statements of pure fiction, can have a modulating effect on the 'seeable', the 'doable' and the 'sayable' (Rancière, [2000] 2008).

Thus, with their Clock, the Atomic Scientists could combine the aesthetics of science and prophecy. While conveying an image of clockwork-like precision, they could also emphasize that 'the Bulletin may be wrong. It may actually be one minute – perhaps seconds – to midnight. The spectre of atomic peril hovers constantly near.'¹⁵ Thereby, scientists alone could not be responsible as saviours: 'the public' would instead have to be awakened in order to achieve the 'radical solution' of the surrender of national sovereignty to international cooperation, even perhaps to a world government: 'The moving of the Clock should thus not be construed as a counsel of despair. It is an expression of alarm, a warning, a call to attention' (*Bulletin of the Atomic Scientists*, 1984). The securitization moves of the Scientists, then, are assumed to work via a different route than that on which securitization is generally assumed to operate. Instead of sovereign decisions, or legitimization of the exceptionality of state action, their securitization moves have strived for increased awareness of the

¹³ The board of directors of the *Bulletin* has followed developments in the presentation of spectacles: the Doomsday Clock also has an online presence, and contemporary resets are presented in press conferences, where an actual metallic clock is used to perform and demonstrate the reset (Moore, 1998; see Figure 1). Contemporary resets can also be viewed live at <http://www.turnbacktheclock.org/>.

¹⁴ The back cover of *Bulletin of the Atomic Scientists* 9(7).

¹⁵ The back cover of *Bulletin of the Atomic Scientists* 9(7).

threat of nuclear weapons and, thereby, for the inclusion of this issue on the agenda of decisionmakers via the pressure of public opinion.¹⁶

Indeed, the Clock was meant to convey urgency (Langsdorf, 2007) – that is, that time was running out. Similarly, the ticking hand of time reminds us of the ‘final countdown’, a major aesthetic aspect of military and scientific operations. ‘The midnight hour – the black point of history’ (Lapp, 1953: 234) is a potent metaphor for doom, but midnight could here also refer to a privileged time as being up, to the moment when the carriage again reverts to a pumpkin, when finally revealing the emperor’s nakedness, or even tapping the heels of your silver or ruby slippers will not save you. As sentient biological beings, humans have a limited existence. Thus, a circular chain of events with a beginning and an end is effectively turned into a most apt metaphor by the Clock. In the Doomsday Clock, this is taken beyond single human lives, as the clock-face represents the beginning and the end of human civilization: it represents an apocalypse. While a new day would dawn after a thermonuclear war, civilization as known would highly likely be extinguished. The last quarter of a day underlines that the end is nigh; fortunately, though, depicted as a two-handed clock, time can also be reset, even reversed. Although a prediction of doom, the Clock is simultaneously a symbol of hope: there is time yet for human society to reverse its course away from conflagration.

As this brief discussion of the aesthetics of the Clock has shown, it evokes and thereby facilitates all of the crucial ingredients involved in a securitization ‘plot’: the lateness of the hour (urgency) and impending doom (existential threat), as well as the possibility to reverse course by moving the hands of time far away from midnight (way out).¹⁷ This has made the Clock a potent symbol for the anti-nuclear macrosecuritization discourse.

Reading the Doomsday Clock as a Macrosecuritization Process

The initial securitization move presented along with the ‘unveiling’ of the Doomsday Clock appeared as ‘a statement’ of the ‘Emergency Committee of Atomic Scientists’, led by Albert Einstein,¹⁸ on the inside cover of the sixth

¹⁶ The anti-nuclear peace movement has been mainly led by Western nongovernmental organizations (see, for example, McCrea & Markle, 1989) and demonstrates how some have been convinced by the Scientists’ arguments. However, such movements have not occurred everywhere. For example, in Mao’s China, to suggest that humanity’s existence was threatened by nuclear war was deemed reactionary, if not counter-revolutionary, whereby the macrosecuritization of nuclear weapons was itself effectively securitized.

¹⁷ Which is generally thought to entail exceptional, immoral or illegitimate measures. Here it seems that the actions of the Atomic Scientists differ from more ‘conventional’ securitization measures: their call for exception is from sovereignty rather than in support of it.

¹⁸ The other trustees of the Committee included Harold C. Urey, Hans A. Bethe, Thorfin R. Hogness, Philip M. Morse, Linus Pauling, Leo Szilard and Victor F. Weisskopf.

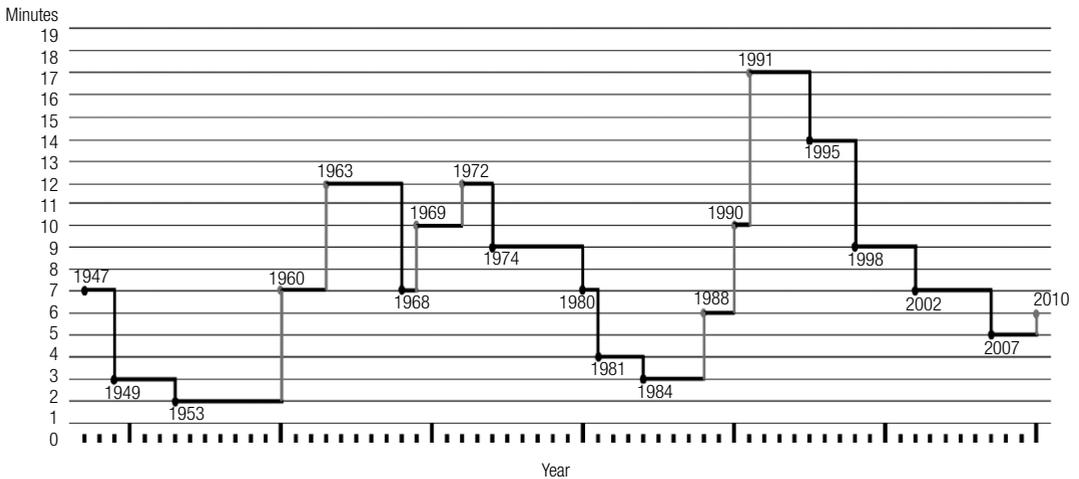


Figure 2: The timeline of Domsday Clock resets

issue of the third volume of the *Bulletin* in 1947. Some atomic scientists had voiced their concern over the implications of atomic energy – and especially atomic weaponry – already during the Manhattan Project,¹⁹ but the Clock became the overriding symbol of this discourse, and it has remained on the cover of the *Bulletin* for already 63 years. While the Clock is only a part of the total anti-nuclear macrosecuritization process,²⁰ this discourse is examined here through the issues of the *Bulletin*, where the Clock has been reset (see Figure 2). This provides a systematic archive for studying the evolution of the securitization moves symbolized by the Clock.

Securitizing actors are often presumed to be political decisionmakers with formal positions of authority, and thereby to have the possibility to put their proposed measures into effect to counter a claimed threat. Furthermore, securitization acts are often understood as a means to legitimize policies that go beyond ‘normal’, or somehow ‘break the rules’ of the regular ebb and flow of political debate and practice. Securitization is understood to create space for ‘special procedures’ by state authorities.

However, there can be a variety of securitizing actors: not all securitization speech is uttered by the powers that be, who also do not always have to be state powers. People outside official authority can utilize securitization speech to achieve certain aims, provided they have sufficient social capital.

¹⁹ The most renowned of these before the bombing of Hiroshima are the Franck Report and the Szilard petition, both of 1945; see <http://www.atomicarchive.com/Docs/ManhattanProject/FranckReport.shtml> and <http://www.dannen.com/decision/45-07-17.html>, respectively (accessed 25 March 2010).

²⁰ Another relevant archive would be the Russell–Einstein Manifesto (1955), which also contained a macrosecuritization argument, and which turned into the Pugwash process in 1957; for the text of the Manifesto, see <http://www.pugwash.org/about/manifesto.htm> (accessed 22 February 2010).

One such aim can be to raise an issue on the agenda of decisionmakers. The intended perlocutionary effect of these types of acts is to convince decisionmakers of the urgency of a threat, so that they will raise the issue on their agenda and put the suggested measures into effect. The illocutionary point²¹ of this type of securitization is directive, where the point is to try to get other people to do things, to get the hearer to carry out the course of action represented by the propositional content – for example, to ‘do X in order to repel threat Y’. This complex speech act consists of a sequence of three speech acts: a claim, a warning and a speech act with a directive illocutionary point (e.g. recommend, suggest, request, deplore or insist) (Vuori, 2008).

The initial statement of the Emergency Committee of Atomic Scientists²² consisted of a three-part claim, a two-part warning and an exhortation. The statement claimed that ‘(1) atomic bombs can now be made cheaply and in large numbers. They will become more destructive. (2) There is no military defence against atomic bombs, and none is to be expected. (3) Other nations can rediscover our secret processes by themselves.’ It warned that ‘(4) preparedness against atomic war is futile and, if attempted, will ruin the structure of our social order. (5) If war breaks out, atomic bombs will be used, and they will surely destroy our civilization.’ And, finally, the statement urged that ‘(6) there is no solution to this problem except international control of atomic energy, and ultimately, the elimination of war’. The claimed threat in this initial securitization move was the use of atomic weapons, which jeopardized the referent objects of ‘our social order’ and ‘our civilization’. A way out of this urgent and dangerous situation was presented in the form of international control of atomic energy and the eventual abolishment of war.

The structure of the statement was supported by its stated intentions, and by the authority in whose name the statement was made. The securitizing actor of this initial move was the Emergency Committee of Atomic Scientists, chaired by Albert Einstein. Einstein’s social capital, which had had a major influence on the initiation of work towards building an atomic weapon, was enhanced in the statement by the claim that ‘all scientists accept the facts’ listed in the statement. As the emergency in the name of the Committee suggests, this move was presented as urgent indeed. The evident audience of the securitization was ‘the public’, yet, in a democracy, public opinion is understood to influence public policy. So, while ‘the Committee does not propose to make government policy, either on the national or international level’, the intention was to influence public policy, as the Committee’s stated ‘purpose is to make available an understanding of the atomic era on which such policy must depend’.

²¹ Each type of illocution has a point or purpose internal to its being an act of that type. If the act is successful, this point is achieved (Searle & Vanderveken, 1985).

²² Inside cover of *Bulletin of the Atomic Scientists* 3(6), published in 1947.

The editorial of the same *Bulletin* (Rabinowitch, 1947) elaborated on the statement of the Committee. The 'intrusion' of scientists into national and international affairs was inspired and justified by the 'necessity for a factual, realistic attitude as a basis of political decisions of our statesmen and political thinking of our citizens'.²³ The proposed remedy of the Committee was 'special' or 'broke the rules', as it would entail 'the sacrifice of American sovereignty' in the form of submitting US atomic research and industry to international authority, as well as the renunciation of a veto right. The proposition went against the two other paths that were debated at the time, viz. 'keeping the secret of the atomic bomb' and 'let's destroy the bombs'. 'To achieve security and survival of America', the USA would have to sacrifice the belief in the supreme virtue of private enterprise and national sovereignty, while the Soviet Union would have to sacrifice the belief in the supreme virtue of socialistic isolationism in the capitalist world. 'Both sides must take risks – the alternative being an almost complete certainty of a catastrophe for both of them.'

Going Macro: From Our Civilization to Human Civilization

While already the initial securitization move referred to 'our civilization', the 'our' in the statement left room for ambiguity. At the time of the first statement, decisionmakers still dealt with potentialities,²⁴ as the United States was the only nuclear power and nuclear weapons were still in their rudimentary stages. However, the Scientists already warned that nuclear bombs would become more powerful. The eventual possession of nuclear weapons by more states and the increase in their firepower removed all ambiguity from the referent of the securitization: human civilization was in jeopardy.

The second reset of the Clock, in *Bulletin of the Atomic Scientists* 9(7), clearly shifted the securitization process onto the macro level:

These words, directly from the lips of our national leaders, are addressed not only to Americans, but to all nations. That we live in imminent danger, that an untoward event tomorrow may trigger a tense world to erupt in flames of atomic or thermonuclear warfare, that there will be 'no place to hide' for the great masses of civilized mankind.

The referent object of the securitization, then, was the 'great masses of civilized mankind'. The referent has remained on the macro level ever since, as exemplified by the 1969 reset: The 'only realistic foundation [of security] lies in all nations recognizing that their political and ideological self-interest must

²³ The discussion of the role of scientists, or 'whether scientists should be on top or on tap' in political decisionmaking, has also been a major feature of the *Bulletin* through the decades of its publication; see, for example, Simpson (1960).

²⁴ In Bernard Brodie's (1947) assessment at the time, it would take the Soviet Union 8–15 years to develop the bomb. However, the Soviet Union carried out its first test explosion already in 1949, which was reflected in the first reset of the *Bulletin* Clock and most of the contents of the October 1949 issue of the *Bulletin*.

be subordinated in the future to mankind's common concern for survival' (Rabinowitch, 1969b).

The shift to a clear macro level was eventually evident also in the aesthetic of the Clock. While for the first five resets the last quarter of the clock-face was all that was present on the covers of the issues, after the 1969 reset the Clock was accompanied with images that referred clearly to the entire planet or humanity (see Figure 3 on the evolution of the Clock). Planet Earth, or some other symbol of humanity, also began to appear more frequently in other illustrations within the *Bulletin*. In 1989, the clock-face of the *Bulletin* Clock was redesigned: the Earth was embossed upon it, thereby emphasizing the global aspect of the *Bulletin*. Similarly, the small description of the Doomsday Clock in each issue has been transformed from a 'symbol of the threat of nuclear doomsday hovering over mankind',²⁵ to the 'symbol of nuclear war',²⁶ and eventually to the 'symbol of the threat of global catastrophe'.²⁷ These shifts in the aesthetic of the Clock and its 'anchor' support the 'macrosecurityness' of the maintained textual securitization moves and have worked towards the institutionalization of humanity, or the globe, as the referent object of the *Bulletin's* securitization moves. With the transformation from nuclear war to global catastrophe, the Clock has become a floating signifier, where 'global catastrophe' may also refer to other threats beyond major nuclear war. This is reflected in the self-descriptive scope of concern of the *Bulletin*, which 'now includes nuclear weapons, nuclear energy, climate change, and biosecurity' (Clock Keepers, 2007).

Moving Back the Hands of Time: Symbolic Moves Towards Desecuritization?

The resets of the Doomsday Clock have not always brought the minute hand closer to midnight. In the first issue of 1960, the Atomic Scientists for the first time reset their Clock from two minutes to seven minutes to midnight. While 'not succumbing to facile optimism', the first reset of its kind emphasized three 'broad changes in man's awareness': a change in relation to war, a change in attitudes toward the rule of force, and 'a growing feeling of personal and national responsibility for the security and prosperity of mankind as a whole, and not only one's own country' (*Bulletin of the Atomic Scientists*, 1960: 4). Hannes Alfvén (1981) has argued that proponents of the elimination of nuclear war – that is, proponents of the macrosecuritization of nuclear war – should be neither fatalists, saying that the catastrophe is coming no matter what, nor defeatists, saying that nuclear omnicide would be equivalent to an inevitable natural disaster. Accordingly, the backward resets have suggested the possibility of avoiding nuclear conflagration: with the first reset away

²⁵ See, for example, *Bulletin of the Atomic Scientists* 28(6).

²⁶ See, for example, *Bulletin of the Atomic Scientists* 44(1).

²⁷ See, for example, *Bulletin of the Atomic Scientists* 46(3).



© *Bulletin of the Atomic Scientists*, used with permission.

Figure 3: Key *Bulletin* covers in the aesthetic evolution of the Doomsday Clock, from left to right: June 1947, April 1969, September 1974, December 1991, January/February 1996, and January/February 2007

from midnight, the Scientists wanted to express their ‘belief that a new cohesive force has entered the interplay of forces shaping the fate of mankind, and is making the future of man a little less foreboding’ (*Bulletin of the Atomic Scientists*, 1960: 6).

If the Doomsday Clock can be viewed as an institutionalized ‘master signifier’ for the anti-nuclear macrosecuritization discourse, can ‘setting the minute hand back’ (*Bulletin of the Atomic Scientists*, 1960: 6) constitute some type of a desecuritization move, achieved through a visualized symbol?

The editorial of the first backward-reset issue did not argue that the existential danger posed by nuclear weapons no longer existed, nor was it silent on the threat, but, on the contrary, still maintained it. The same applies to the most recent backward reset of 2010: ‘the small increment of the change reflects both the threats that remain around the globe and the danger that

governments may fail to deliver on pledged actions on reducing nuclear weapons and mitigating climate change' (*Bulletin of the Atomic Scientists*, 2010). This indicates that, for the Atomic Scientists, desecuritization of the claimed nuclear threat would mean the complete abolishment of nuclear weapons or some other means of rendering nuclear war impossible, as indicated by Bernard T. Feld (1984): 'Short of complete and universal disarmament . . . it is difficult to be complacent about the possibility of avoiding nuclear war in any major struggle between nuclear-capable powers.' This would suggest that to reset the Clock back does not concur with what has been understood as constituting desecuritization or even a move towards it. Indeed, the Atomic Scientists' backward resets demonstrate the difficulty of explicit desecuritization, as these vocal moves entail the possibility of renewed securitization, as argued by Andreas Behnke (2006). Similarly, for Rabinowitch (*Bulletin of the Atomic Scientists*, 1960), the success of the *Bulletin* is paradoxical, in that 'its measure of success is also a measure of failure'. The same can be said for the Doomsday Clock and the anti-nuclear macrosecuritization discourse: while the avoidance of nuclear war and some anti-nuclear activism count as successes, the continued existence of nuclear weapons, and thereby the possibility of such a war, counts as a failure in their securitization.

Thereby, instead of desecuritization, backward resets could perhaps be understood as a relaxation of the urgency of the claimed threat: the symbolic Clock acts like a gauge to indicate the urgency of the 'continuous danger in which mankind lives in the nuclear age, and will continue living, until society adjusts its basic attitudes and institutions' (Board of Directors, 1998: 5). Understood like this, the Clock suggests that there can be degrees of urgency in respect to the general trend of existential threats. During the Cold War, it was as though the whole of humanity was moving across a minefield where a misstep could have led to nuclear annihilation in a matter of hours, if not even minutes. When the possibility of such rapid acceleration of destruction is compared to the slowness of the degradation brought about by global climate change, it seems that the threshold of doom and the pace at which it can approach have changed in respect to the most prominent of catastrophes that constitute contemporary (mainly Western) threat registers.

Indeed, Buzan (1991: 133–134) has noted how the nature of a threat and its intensity of operation can have an effect on whether and when an issue becomes an issue of national security, and that here the Clock provides an interesting benchmark for securitization moves bound to it (Buzan & Wæver, 2009). The mechanical clockwork of the Clock evokes urgency and inevitability, but the option to reset the gauge suggests that the threats claimed in securitization moves can have degrees of urgency or likelihood.²⁸ To reset the Clock signals a change in the likelihood of the risk becoming a reality (e.g.

²⁸ Interestingly, US President George W. Bush's administration also developed a similar symbolic system for suggesting the urgency of threats: the terrorist threat-warning system based on colours.

descending the ladder of escalation). This modulation of the risk is also a modulation of the urgency of the claim and warning present in the securitization move. The Clock can urge action ('act now before it is too late, act before midnight'), or it can support acts already taken ('the course taken is positive, continue further').

The backward resets of the Clock, then, have not been desecuritization moves as such, but they have indicated and emphasized the possibility of desecuritization through a symbolic act with positive connotations (when securitization is a negative act, suggesting action for blocking negative developments): 'a turn of the road may have been reached, that mankind may have begun moving, however hesitantly, away from the dead end of history; and so, with a hesitant hand, we are setting back the Bulletin's clock' (*Bulletin of the Atomic Scientists*, 1960: 6).

It seems that the way in which the Atomic Scientists perceive security, exceptionality and desecuritization differs from the way they are generally approached within the framework of securitization studies. While nuclear weapons are often viewed as means to achieve the security of states and their sovereignty, the security that the Scientists seek is security from such weapons. Final desecuritization could be achieved only once the possibility of waging war with these weapons was eliminated – that is, when the world would be 'emancipated' from nuclear weapons. The 'exceptional' the Atomic Scientists are proposing, then, is not more powers or measures for the state, but a new international order, where state sovereignty would be reduced. The 'radicality' of such proposed remedies is apparent in a text bound to the 1969 reset (Rabinowitch, 1969a: 2, 16):

the challenges of the scientific revolution cannot be answered adequately by any decisions not transcending the traditional framework of international relations. . . . Only a radical new beginning in international relations can reverse – rather than merely delay – mankind's trend towards the catastrophe of a nuclear war. . . . What is needed is no less than . . . an international revolution against the worldwide establishment of sovereign nations.

The Scientists' means for desecuritizing – that is, for resolving the threatening situation – would be to break the rules of national sovereignty and to set up a new international political *Ordnung*. That the Scientists have reset their Clock also backwards, however, suggests that there are two 'ways out' of the conundrum: either security through international control of nuclear weapons and their abolishment after successful securitization, or desecuritization after this has been achieved regardless of the Scientists' warnings and securitization moves.

Transforming the Macrosecuritization of the Doomsday Clock

In addition to 'turns in the road' that might lessen the likelihood of nuclear war, or even make it impossible, the macrosecuritization discourse has also experienced twists and turns with the changing contents of world politics. Indeed, as a lengthy process of securitization moves, spanning seven decades, the history of the Doomsday Clock also exemplifies the transformation of macrosecuritizations. The resets of the Clock followed the contours of the Cold War macrosecuritization intimately. For example, the second reset issue of the *Bulletin* clearly engaged in the other prevalent macrosecuritization discourse of the time: Project East River, which studied the vulnerabilities of the USA and its possibilities for survival in the atomic age, clearly contained a matched-pair setting vis-à-vis the two nuclear powers: 'We find ourselves paired off with an aggressor nation that possesses some hundreds of atomic weapons. . . . The Soviets have made it clear that they will match our pace of weapon development' (Lapp, 1953: 234). The Clock followed the Cold War until its macro-desecuritization, when the Clock was reset to 17 minutes to midnight in 1991, the farthest away from the 'end of human civilization' so far.

With the end of the Cold War, the *Bulletin* also increased its interest in 'the new concepts of security' (*Bulletin of the Atomic Scientists*, 1991). The post-Cold War resets have noted how the threats to humanity, or the definition of midnight, have become 'murkier' (Moore, 1998), and how some believe that the Clock is losing its effectiveness as a symbol of global disaster: 'the nature – if not the effect of doomsday has changed'.²⁹ This is evident in 'new threats', such as terrorism and the 'confluence of sacrificial extremisms and weapons of mass destruction', as well as the threats scientific achievements in genetic engineering have produced for humanity (Strauss, 2007), being the impetus for post-Cold War negative resets. This tendency is even clearer in the statements bound to two of the most recent resets in 2007 and 2010, which emphasized the role of 'global climate change':

The dangers posed by climate change are nearly as dire as those posed by nuclear weapons. The effects may be less dramatic in the short term than the destruction that could be wrought by nuclear explosions, but over the next three to four decades climate change could cause irremediable harm to the habitats upon which human societies depend for survival. (Board of Directors, 2007)

As this reading of the Doomsday Clock resets has shown, this symbol of macrosecuritization has become enduring, and in terms of the threat to the referent of human civilization has also eventually turned into a floating signifier. The Doomsday Clock has clearly been integral to the Atomic Scientists' macrosecuritization moves: its referent objects have been on a global scale, and very much all-encompassing. But the endurance of the Atomic Scientists' macrosecuritization moves would also testify to their failure to obtain

²⁹ Special Issue of the *Bulletin of the Atomic Scientists* in 2007.

success vis-à-vis the stated objective of concern of their macrosecuritization arguments.

Direct causal effects of the anti-nuclear macrosecuritization discourse or the symbol of the Doomsday Clock on political decisions to acquire, use, or dismantle nuclear weapons are, in practice, 'impossible to quantify' (cf. Landau, 1996). It is therefore prudent to separate the felicitous achievement of a securitization speech act, and even the successful constitution of a security issue, from the success of the politics of constructing a security issue. The assessment of these types of issues requires tools beyond securitization theory, which demonstrates how security issues are constituted through speech acts.³⁰ A phenomenon (e.g. the social construction of security) can be modelled in various ways, allowing various interventions or understandings. The social construction of security can be studied through the theory of securitization, but there are other options as well.

The quantification of causality in social relations is indeed difficult, while linguistic causality and physical causality function in different ways, as already noted by Austin ([1962] 1975: 113): causality in saying must operate through the conventions of language, and it is a matter of influence exerted by one person on another. This illustrates the insight of Wæver in his formulation of securitization theory as a constitutive theory: since it is virtually impossible to quantify the causal effectiveness of social constructions, it is prudent to understand the constitution of social reality. To reveal the contingency of these constructions, and their political nature vis-à-vis issues that include even security, creates an opportunity for an ethical intervention, by either the scholar who studies securitization or the reader of scholarly work. The study of securitization can, for example, be utilized for double readings or the dissection of *doxa*. That students of securitization cannot say what is 'real' security, or what is a 'real' threat, in a 'scientifically objective' sense does not mean that a scholar could not make ethical interventions.³¹ Scholarly models can be used in the manner of artistic models that represent relationships – that is, used to deal with actual problems (Stegeman, 1969: 29).

Conclusions: Implications for Securitization Theory

The Atomic Scientists have maintained their macrosecuritization moves against nuclear weapons, symbolized by the Doomsday Clock on the cover of

³⁰ For example, McCrea & Markle (1989: 58) suggest resource-mobilization theories that focus on mobilization, mass-media manipulation and coalition-building to explain the ebb and flow of the nuclear peace movement. The question is how to combine norms, material constraints and social constructions into one study. How do securitization arguments and moves weave into the more general practices of social mobilization, its legitimization and its suppression?

³¹ For various views on this contended issue, see, for example, the 'Eriksson debate' (Eriksson, 1999; Goldman, 1999; Wæver, 1999; Williams, 1999) and Booth (2005).

the *Bulletin of Atomic Scientists*, for 63 years already. During these numerous attempts at securitization, the image of the Clock has been interwoven with the textual arguments and claims of the Atomic Scientists. While the arguments of the Scientists have pleaded to rationality, the symbol of the Clock has attempted to provoke the sensibilities of people – in Eugene Rabinowitch's words, to frighten people into rationality. Images and symbols can facilitate or impede securitization moves, but it is difficult to fathom how images without anchorage could bring about securitization that would not have been institutionalized previously. The causal influence of the Clock, or even of the more general anti-nuclear discourse on the political decisions on acquisition, use or dismantlement of nuclear weapons, is beyond the reach of the theory of securitization – perhaps beyond the reach of any theory? However, the theory of securitization does provide a means of analysis for this discourse and, thereby, a renewed opportunity to discuss also the object of concern of the anti-nuclear discourse, as well as why the discourse has failed to reach its final objective.

Accordingly, with this examination of a by and large failed securitization process that has spanned seven decades, the article has demonstrated that while securitization theory is best understood as a constitutive theory, it does not mean (as some critics and commentators seem to suggest) that the analysis of securitization would have to be limited to the 'creation' or the 'constitutive moment' of securitization. The analysis here has indeed focused on key constitutive moments and transformations of the sequence of securitization moves, but it also, in the process, demonstrated how 'real' securitization can be a lengthy process indeed, and not purely a decision or a moment of creation. Since reality and political speech is fuzzier than the elegant models scholars create, the value of such models is to attempt a focus on relevant aspects of infinitely complex phenomena. This is where securitization theory reveals its value, be it as a heuristic device, as a magnifier of contingency for ethical intervention, or as an avenue for understanding the relationships of actors, objects and meanings – in the end, to comprehend the functioning of power.

* Juha A. Vuori is a Senior Research Fellow at the Department of Political Science, University of Turku. E-mail: juhvu@utu.fi. His research has mainly focused on securitization theory and its application to the study of Chinese politics. His publications have appeared in, *inter alia*, the *European Journal of International Relations*, the *Asian Journal of Political Science* and *Issues & Studies*. A previous version of this article was presented at the 50th Annual Convention of the International Studies Association, held in New York in February 2009. Acknowledgements go to Thierry Balzacq, Lene Hansen, Mika Harju-Seppänen and especially the three anonymous referees for their helpful comments, to Timo Honka for research assistance, and to the *Bulletin of Atomic Scientists* for kind help and permission to reprint covers of the *Bulletin*.

References

- Alfvén, Hannes, 1981. 'Human IQ vs. Nuclear IQ', *Bulletin of the Atomic Scientists* 37(1): 4–5.
- Austin, John L., [1962] 1975. *How To Do Things with Words*. Oxford: Oxford University Press.
- Balzacq, Thierry, 2005. 'The Three Faces of Securitization: Political Agency, Audience and Context', *European Journal of International Relations* 11(4): 171–201.
- Barthes, Roland, 1977. *Image–Music–Text*. London: Fontana.
- Behnke, Andreas, 2006. 'No Way Out: Desecuritization, Emancipation and the Eternal Return of the Political – A Reply to Aradau', *Journal of International Relations and Development* 9(1): 62–69.
- Board of Directors, 1998. 'Nine Minutes to Midnight', *Bulletin of the Atomic Scientists* 54(5): 4–5.
- Board of Directors, 2007. 'It Is 5 Minutes to Midnight', *Bulletin of the Atomic Scientists* 63(1).
- Booth, Ken, ed., 2005. *Critical Security Studies and World Politics*. London: Lynne Rienner.
- Bourdieu, Pierre, 1991. *Language and Symbolic Order*, edited by John B. Thompson; translated by Gino Raymond & Matthew Adamson. Cambridge: Polity.
- Brodie, Bernard, 1947. 'War Department Thinking on the Atomic Bomb', *Bulletin of the Atomic Scientists* 3(6): 150–155, 168.
- Bulletin of the Atomic Scientists*, 1960. 'The Dawn of a New Decade', *Bulletin of the Atomic Scientists* 16(1): 2–6.
- Bulletin of the Atomic Scientists*, 1984. 'Three Minutes to Midnight', *Bulletin of the Atomic Scientists* 40(1): 2.
- Bulletin of the Atomic Scientists*, 1991. 'A New Era', *Bulletin of the Atomic Scientists* 47(10): 3.
- Bulletin of the Atomic Scientists*, 2002. 'The History of the Bulletin Clock', *Bulletin of the Atomic Scientists* 58(2): 36–37.
- Bulletin of the Atomic Scientists*, 2010. "'Doomsday Clock' Moves One Minute Away From Midnight', press release; available at <http://thebulletin.org/content/media-center/announcements/2010/01/14/doomsday-clock-moves-one-minute-away-midnight> (accessed 22 February 2010).
- Buzan, Barry, 1991. *People, States, and Fear: An Agenda for International Security Studies in the Post-Cold War Era*. New York: Harvester Wheatsheaf.
- Buzan, Barry, 2006. 'Will the "Global War on Terrorism" Be the New Cold War?', *International Affairs* 82(6): 1101–1118.
- Buzan, Barry & Ole Wæver, 2009. 'Macrosecritization and Security Constellations: Reconsidering Scale in Securitization Theory', *Review of International Studies* 35(2): 253–276.
- Buzan, Barry; Ole Wæver & Jaap de Wilde, 1998. *Security: A New Framework for Analysis*. Boulder, CO: Lynne Rienner.
- Certeau, Michel de, [1984] 1988. *The Practice of Everyday Life*, trans. Steven Rendall. Berkeley, CA: University of California Press.
- Clock Keepers, 2007. 'The Doomsday Clock', handout brochure, *Bulletin of the Atomic Scientists*.
- Day, Samuel H., Jr, 1974. 'Editorial: We Re-set the Clock', *Bulletin of the Atomic Scientists* 30(7): 4–5.
- Derrida, Jacques, 1988. *Limited Inc*. Evanston, IL: Northwestern University Press.
- Edelman, Murray, [1964] 1972. *The Symbolic Uses of Politics*. Chicago, IL: University of Illinois Press.

- Eriksson, Johan, 1999. 'Observers or Advocates? On the Political Role of Security Analysts', *Cooperation and Conflict* 34(3): 311–330.
- Feld, Bernard T., 1980. 'Editorial: The Hand Moves Closer to Midnight', *Bulletin of the Atomic Scientists* 36(1): 1–3.
- Feld, Bernard T., 1984. 'Perspectives for 1984', *Bulletin of Atomic Scientists* 40(1): 3.
- Goldman, Kjell, 1999. 'Issues, Not Labels, Please! Reply to Eriksson', *Cooperation and Conflict* 34(3): 331–333.
- Heller, Steven, 2007. 'The Other Icon of Our Age', *Bulletin of the Atomic Scientists* 63(1): 22–23.
- Huysmans, Jef, 1995. 'Migrants as a Security Problem: Dangers of "Securitizing" Societal Issues', in Robert Miles & Dietrich Thranhardt, eds, *Migration and European Integration: The Dynamics of Inclusion and Exclusion*. London: Pinter (53–72).
- Huysmans, Jef, 1998. 'The Question of the Limit: Desecuritisation and the Aesthetics of Horror in Political Realism', *Millennium* 27(3): 569–590.
- Landau, Susan, 1996. 'Joseph Rotblat: The Road Less Travelled', *Bulletin of the Atomic Scientists* 52(1): 46–54.
- Langsdorf, Martyl, 2007. 'The History of the Bulletin's Clock', *Bulletin of the Atomic Scientists* 63(1): 49.
- Lapp, Ralph E., 1953. 'Editorial: Eight Years Later', *Bulletin of the Atomic Scientists* 9(7): 234–236.
- McCrea, Frances B. & Gerald E. Markle, 1989. *Minutes to Midnight: Nuclear Weapons Protest in America*. Newbury Park, CA: Sage.
- McDonald, Matt, 2008. 'Securitization and the Construction of Security', *European Journal of International Relations* 14(4): 563–587.
- Möller, Frank, 2007. 'Photographic Interventions in Post-9/11 Security Policy', *Security Dialogue* 38(2): 179–196.
- Moore, Mike, 1996. 'On the Scale', *Bulletin of the Atomic Scientists* 52(1): 2.
- Moore, Mike, 1998. 'Nine Minutes', *Bulletin of the Atomic Scientists* 54(5): 2.
- Rabinowitch, Eugene, 1947. 'Editorial: Let's Have Clear Thinking', *Bulletin of the Atomic Scientists* 3(6): 137–138.
- Rabinowitch, Eugene, 1969a. 'Scientists and Youth In Revolt', *Bulletin of the Atomic Scientists* 25(4): 2, 16–17.
- Rabinowitch, Eugene, 1969b. 'NPT: Movement Towards a Viable World', *Bulletin of the Atomic Scientists* 25(4): 48.
- Rancière, Jacques, [2000] 2008. *The Politics of Aesthetics*, trans. Gabriel Rockhill. London: Continuum.
- Roe, Paul, 2004. 'Securitization and Minority Rights: Conditions of Desecuritization', *Security Dialogue* 35(3): 279–294.
- Salter, Mark B., 2008. 'Securitization and Desecuritization: A Dramaturgical Analysis of the Canadian Air Transport Security Authority', *Journal of International Relations and Development* 11(4): 321–349.
- Searle, John & Daniel Vanderveken, 1985. *Foundations of Illocutionary Logic*. Cambridge: Cambridge University Press.
- Simpson, Mary M., 1960. 'The Scientist in Politics: On Top or On Tap?', *Bulletin of the Atomic Scientists* 16(1): 28–29.
- Stegeman, Beatrice, 1969. 'Science as Art', *Bulletin of the Atomic Scientists* 25(4): 27–30.
- Strauss, Mark, 2007. 'Time Out?', *Bulletin of the Atomic Scientists* 63(1): 4.
- Vuori, Juha A., 2008. 'Illocutionary Logic and Strands of Securitisation: Applying the Theory of Securitisation to the Study of Non-Democratic Political Orders', *European Journal of International Relations* 14(1): 65–99.

- Wæver, Ole, 1995. 'Securitization and Desecuritization', in Ronnie D. Lipschutz, ed., *On Security*. New York: Columbia University Press (46–86).
- Wæver, Ole, 1999. 'Securitizing Sectors? Reply to Eriksson', *Cooperation and Conflict* 34(3): 334–340.
- Williams, Michael C., 1999. 'The Practices of Security: Critical Contributions – Reply to Eriksson', *Cooperation and Conflict* 34(3): 341–344.
- Williams, Michael C., 2003. 'Words, Images, Enemies: Securitization and International Relations', *International Studies Quarterly* 47(4): 511–531.
- Woods, Matthew, 2004. 'Inventing Proliferation: The Creation and Preservation of the Inevitable Spread of Nuclear Weapons', *The Review of International Affairs* 3(3): 416–442.