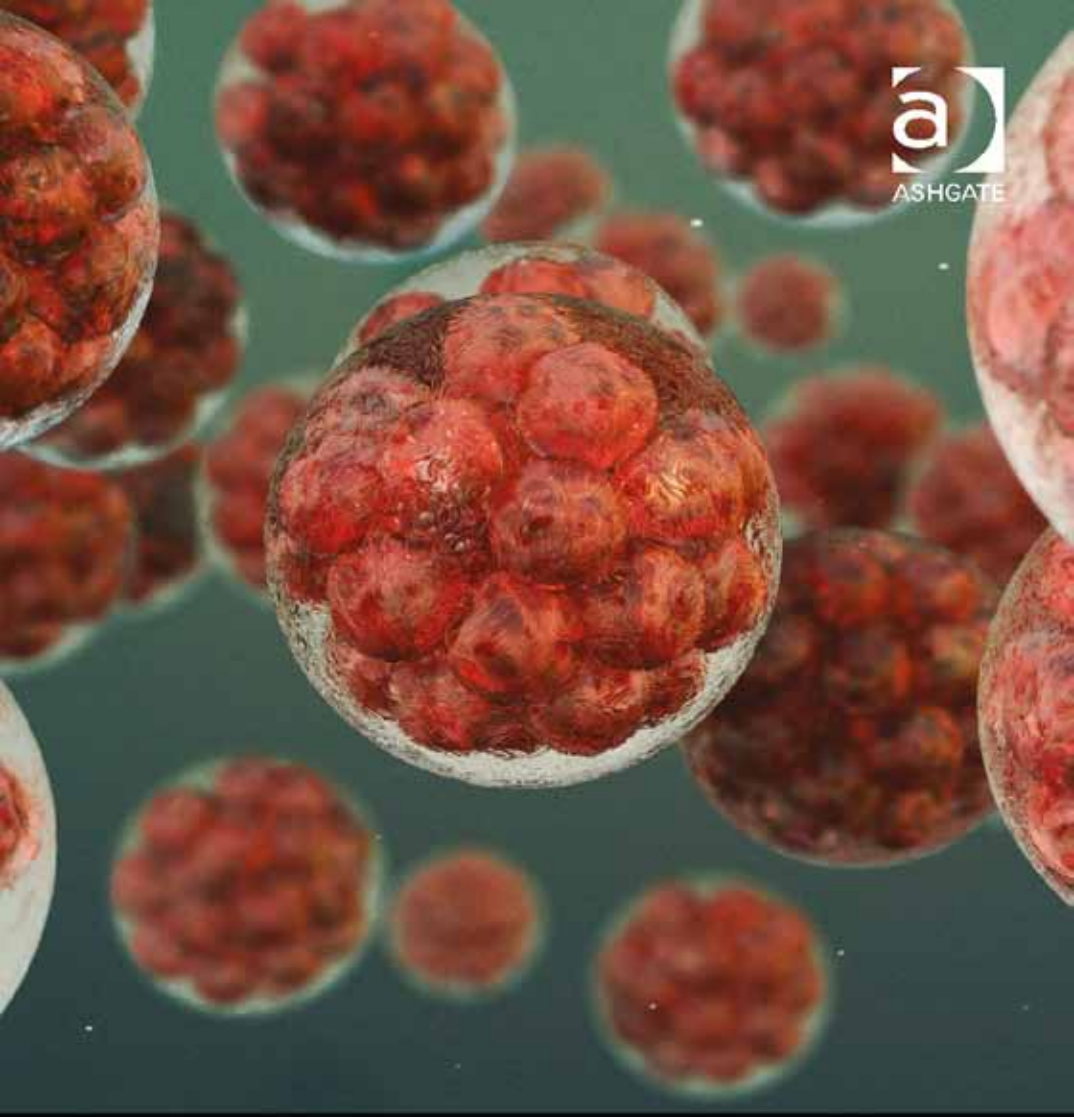

The Therapeutic Cloning Debate

Global Science and Journalism in the Public Sphere

ERIC A. JENSEN

THE THERAPEUTIC CLONING DEBATE

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Global Science and Journalism in the Public Sphere

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ASHGATE

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Chapter 1
Introduction

This book articulates the role of news media in the communication of scientific developments, with a particular emphasis on controversial bioscience. The role of journalism in communicating (controversial) science is examined using the case example of the debate surrounding human cloning and its potential therapeutic uses. The book introduces the controversy surrounding therapeutic cloning, using examples from media coverage of this issue to illustrate the book's assessment of science journalism in the twenty-first century.

Over the past century, modern medicine has effectively eradicated a wide range of once devastating and incurable diseases from large swathes of the globe. Today, modern science offers new hope that there are more cures within reach for some of the most serious diseases of the current century. For millions of people afflicted by Parkinson's disease, cancer, spinal cord injuries and infertility, biomedical research is a source of unprecedented hope. Indeed, in pursuit of this hope, one of the first executive orders by US President Barack Obama was to reverse the Bush-era ban on federal funding for biomedical research with human embryos, including therapeutic cloning. Obama announced his decision with the hope that such research may 'cure, some of our most devastating diseases and conditions: to regenerate a severed spinal cord and lift someone from a wheelchair; to spur insulin production and spare a child from a lifetime of needles; to treat Parkinson's, cancer, heart disease and others that affect millions of Americans and the people who love them' (Obama, 2009). At the same time, debates over scientific risk and uncertainty increasingly define the public understanding of science in the twenty-first century. According to social theorist Ulrich Beck (1992) and others, contemporary society should be understood as an age of globalised technological risks (one of which may be therapeutic cloning). This 'risk society' is shaped by a rise in public scepticism about science rooted in the intrinsic uncertainties of scientific development, including embryo research and human cloning.

Within the context of risk society, science-based controversies over genetically modified foods, cloning and stem cell research have become major flashpoints in global politics, with important implications for the future of contemporary societies. In the case of therapeutic cloning, there is a promise of cures for many debilitating diseases and injuries. However, therapeutic cloning and its more controversial concomitant reproductive cloning have also sparked a prolonged debate over the ethical, legal and social implications of human cloning research. In this debate, the 'lives' of early human embryos destroyed by the research are weighed against the hope that it will end the suffering of patients with debilitating illnesses. Although this issue remains a global scientific controversy

with 'hotspots' in Southeast Asia, Europe and North and South America, this book will focus special attention on the two leading scientific nations in terms of research outputs, the United Kingdom and the United States. I will argue that the movements of scientists, controversy and scientific glory in and out of these nations offers valuable insights for understanding the tense relationship between the globalised nature of contemporary biomedical science and national economic and moral concerns.

While 'reproductive' human cloning (cloning for live birth) has been overwhelmingly opposed by governments and publics around the world, 'therapeutic' cloning has found a significantly more positive public reception according to both British and American public opinion polls (Evans, 2002b; Nisbet, 2004). Although therapeutic cloning has been highly controversial in the US, it remains legal and has been allocated research funding by a number of individual states with the enthusiastic support of patient groups, scientists and the biotechnology industry. Backed by similar stakeholders, the UK government embraced this technology as a harbinger of hope for patients and the promotion of scientific progress. These outcomes are inextricably intertwined with the communication of this bio-political issue through mass media, policy deliberation and audience discourse.

Also known as 'medical cloning', 'embryo cloning' or 'embryonic stem cell research', therapeutic cloning represents the fusion of two recently developed lines of biomedical research. It combines the somatic cell nuclear transfer (SCNT) technology that created Dolly the sheep in 1996 (Wilmut, et al., 1997) with techniques for deriving embryonic stem cells first published in 1998 (Thomson, et al., 1998). In combination, it was hoped that these technologies could be used to create human embryos genetically identical to the adult patients for use in stem cell treatments. This tissue would be used to avoid immune system rejection. However human embryos would be destroyed in this process, a fact that has fuelled expressions of moral opposition by anti-abortion activists and some religious leaders. Moreover conservative bioethicists such as Leon Kass (2000) and Francis Fukuyama (2002), criticised therapeutic cloning as part of modern biomedicine's hubristic quest for immortality. They argue that this quest portends a myriad of long-term negative consequences for nearly all aspects of life, ranging from gender and family relations to the very essence of human nature.

Just as therapeutic cloning represents the convergence of mammalian cloning and human embryo research, this hybrid concept also united the ethical concerns from both these scientific fields. Since 1998, therapeutic cloning has occupied a substantial symbolic space each year within science news and Anglo-American politics. It reignited an international debate over the ethical and social implications of allowing the creation and destruction of early human embryos for medical research. This debate had remained largely dormant in the UK since 1990. In the 2004 US Presidential campaign and subsequent political debates, the issue of therapeutic cloning research received a remarkable level of attention.

The keynote address at the 2004 Democratic National Convention[1] and numerous mentions by defeated presidential candidate, John Kerry, served to raise the profile of therapeutic cloning on the media and the political agenda. In response the *Economist* ran the headline 'The two main presidential candidates go head-to-head over the Petri dish', demonstrating the high level politicisation of the debate surrounding therapeutic cloning (Anonymous, 2004) Since this high point in political publicity, the issue has periodically returned to the political arena, while maintaining a more consistent presence in news media.

Although the focus of this book is *therapeutic* cloning, broader notions of human cloning are indelibly imprinted on the debate. Indeed, the genealogy of therapeutic cloning as an idea within the public sphere developed over the course of the twentieth century along intersecting ancestral lines from the biological sciences and the cultural industries. First, the science of therapeutic cloning is based upon the same SCNT technique as reproductive cloning, a technology which dates back to at least the late nineteenth century. Second, the social construction of therapeutic cloning in the public sphere cannot be separated from the long and storied history of the concept of 'cloning' in Western culture, a history most enduringly defined by Aldous Huxley's *Brave New World*.

The book's analysis is underpinned by original research on science journalists and media content, which is primarily reported from Chapter 10 onwards. This research provides a number of reasons for questioning the quality of debate about scientific research and development within mass media. Individual professional journalists have much less power to influence the content and quality of such debate than is often thought. Professional motivations, commercialism, news sources and other factors have a great influence over how science is reported and covered within mass media, which will be demonstrated in this book. The implications of this research for the nature of democratic debated in a mediated political environment are far-reaching and generally negative. However, a realistic understanding of the way in which scientific issues are communicated in the mediated public sphere is an essential precursor to the development of more effective democratic processes.

Book Preview

This book presents the historical, cultural and policy context of the debate over therapeutic cloning, alongside relevant theory and original research analysing news coverage of the issue from 1997 to 2013. The book begins with a discussion of the struggle over terminology in the debate surrounding therapeutic cloning. It then traces the dual scientific and cultural genealogies of therapeutic cloning. Furthermore, it provides a brief historical sketch and assessment of the Anglo-American political context *vis-à-vis* cloning and scientific development. Next,

1 This speech received a high level of media attention because it was delivered by conservative US President Ronald Reagan's son, Ron Reagan.

I discuss key ideas relevant to the development of this scientific controversy, including engaging with current thinking on how publics are engaged with the sciences, the role of scientific risk, the public sphere, science journalism and sources.

Chapters 2 and 3 chart the struggle over terminology in debates surrounding human cloning in both the historical and contemporary era. 'Cloning' was first used as a scientific concept in the context of research on asexual plant breeding. However, this concept has undergone considerable semantic and cultural transformations over the years. This study highlights the ways in which different factions jockeyed for position by seeking to define therapeutic cloning in ways that were advantageous to their position. Some therapeutic cloning advocates tried to detach this biomedical technology from the 'cloning' label altogether by claiming that cloning human embryos for stem cell therapies is not 'human cloning'. This approach was aimed at disguising the scientific fact that the same somatic cell nuclear transfer technology is used in both 'reproductive cloning' (cloning for live birth) and 'therapeutic cloning' (cloning for embryonic stem cells). Meanwhile, opponents of therapeutic cloning sought to conflate 'therapeutic' and 'reproductive' cloning so that the negative science fiction connotations associated with human cloning would attach to therapeutic cloning.

Chapter 4 provides an account of the development of the therapeutic cloning debate, from Dolly the sheep to the present day. This account reviews the interwoven scientific, social and political aspects of the debate. The chapter proposes that there was a fundamental shift in the therapeutic cloning debate that occurred in early 2004, with South Korean researcher Hwang Woo-Suk's purported breakthroughs dominating the media debate. Ultimately, Hwang's averred successes were revealed to be fraudulent and his seminal publications in the flagship journal *Science* were withdrawn. The repercussions of this high profile scientific scandal continue to reverberate within the aspects of the scientific, media and political fields that were activated by the therapeutic cloning debate. This chapter sets the stage for later discussion of the responsibilities of science journalism in terms of addressing scientific hype, fraud and truth claims.

Chapter 5 places the therapeutic cloning debate in the context of the globalisation of scientific development and the shifting global landscape for the public understanding of science. Scientific development is no longer allowed to progress unquestioned. Rather, the scientific risk is now a much greater concern across the board. The roles of public understanding and perceptions of scientific risk in the therapeutic cloning debate are explored in this chapter.

The role of mass media and the public sphere in scientific controversies such as therapeutic cloning is addressed in Chapter 6. Science journalism in mainstream news media frames science in the mediated public sphere. Chapter 7 discusses how the professional practice of science journalism and the broader context of science in the public sphere affect the issue of therapeutic cloning. Chapter 8 summarises existing empirical research on the topic of media coverage of human cloning and

stem cell research. This chapter identifies weaknesses and gaps in this literature, which are addressed by the research underpinning this book.

At this point, the original empirical research conducted for this book moves to centre stage. This research shows that, just as in the UK embryo research debate in the 1980s, patient groups, scientists and politicians deployed a narrative of hope to argue for therapeutic cloning. Chapter 9 identifies how this hope narrative was constructed on the basis of scientific hype, which held up therapeutic cloning as the means by which many of the worst illnesses in contemporary society could be eradicated. However, with the revelation of Hwang's scientific fraud in late 2005, this hope was temporarily dashed. The symbiotic relationship between science journalists and scientists helped to perpetuate the hype surrounding therapeutic cloning. This cycle of 'boom and bust' in the field of biomedical science has important implications for scientists, journalists and publics, which will be examined in this chapter.

Chapter 10 addresses the dystopianism in the therapeutic cloning debate and its role in constructing dualistic hype that served to create a fog of exaggeration around the mediated public debate over this issue. Chapter 11 shows how science fiction in particular emerged as a key vehicle for communicating fears about human cloning and fuelling the dystopian dimension of anti-therapeutic cloning hype. Indeed, the public debate over therapeutic cloning was rife with doomsday scenarios conjuring 'dreaded risk', many of which were rooted in cultural works such as *Brave New World* and *Frankenstein*. This dystopianism was based in part on eliding the distinction between cloning for live birth and cloning for embryonic stem cell research. However, apocalyptic pronouncements are a recurring feature within public controversies over new developments in the life sciences. This chapter explores whether such scientifically implausible expressions of fear might serve a positive role within certain public sphere contexts. Yet, it is acknowledged that debate based on unrealistic scientific and technological notions can have negative implications for the quality of mediated democratic debate over controversial science.

Chapter 12 articulates the role of scientific nationalism in the therapeutic cloning debate from the very beginning. Metaphors of competition, or a 'race to the cure', have been seen in the framing of previous scientific developments, most notably the human genome project. However, the therapeutic cloning debate was defined by a systematic pattern of nationalism extending well beyond the standard media frames of 'competition' and 'conflict'. This pattern of nationalism infused this debate with pernicious anti-cosmopolitan framing, shifting the focus away from the ethics of the scientific technology itself. In this chapter, I briefly identify the key therapeutic cloning events around which nationalist rhetoric clustered during this debate. Across these events, different permutations of scientific nationalism emerged, including the construction of Anglo-American competitive nationalism, the conceptual metaphor of the 'nation-as-landlord' and the frame of 'global risk' that privileged a 'Western Alliance' of established nations over Southeast Asian bioscience.

Chapters 13–17 focus on news sources. Chapter 13 provides an introduction to the role of news sources as the raw materials for news coverage. Chapter 14 identifies a heavy reliance on institutionally recognised scientist sources to provide these raw materials. Such expert sources help 'fix the parameters of discourse and interpretation, and the definition of what is newsworthy' (Herman and Chomsky, 1988, p. 2). But on what basis are scientists selected as sources of information, analysis and expert commentary? What forms of scientific expertise are employed by the selected sources? What positions and ideas are promoted by scientist sources? The answers to these questions align with the findings of other studies of the political economy of science journalism.

Chapter 15 shows that patient groups were a key source of support for scientific utopianism in the therapeutic cloning debate, providing touching human interest stories of medical suffering and science-based hope. Meanwhile, a grisly discourse describing the destruction of early human embryos interacted with the dystopian science fiction imagery of human cloning to construct scientific dystopianism in this debate. The resulting 'patient cures versus abortion opposition' framing of the debate is analysed in this chapter, along with the implications for the public sphere and science policy. Chapter 16 charts the rise of anti-abortion activists within the debate over therapeutic cloning.

Chapter 17 discusses the role of professional ethics experts quoted extensively in the news coverage of therapeutic cloning. The ethical dimensions of the therapeutic cloning debate were constructed by a number of government-sponsored expert committees and by a relatively new profession known as 'bioethics'. For example, bioethics committees, such as then US President George W. Bush's Presidential Bioethics Advisory Council (PBAC), were given considerable media attention during the therapeutic cloning debate. This chapter evaluates the role of professional bioethicists in the public debate over therapeutic cloning. In addition, it considers the benefits and limitations of bioethicists increasing role as 'ethics experts' with the power to limit the scope of policy and practice debates in both science and medicine.

Chapter 18 identifies a number of key limitations inherent in the practice of contemporary science journalism, which may make the journalistic field an irremediably flawed venue for engaging publics and sciences in pluralistic dialogue and debate. These flaws remain salient despite a shifting media landscape. There is a greater than ever need for reporting and analysis of new scientific developments in a manner that can be critical and independent, holding scientists and scientific institutions to account for their truth claims. The general failure of contemporary journalism to perform this fourth estate function has negative consequences for both science and society within democratic nations.

Finally, methodological details underpinning the empirical research conducted for this book are described in the methodological appendix at the end of the book.

Chapter 2
The Struggle to Define Therapeutic Cloning

This short chapter addresses the contested concept of therapeutic cloning. The first documented use of the term 'cloning' was in the context of asexual plant reproduction (Webber, 1903).[1] Since then, the concept of cloning has changed substantially, taking on new literal and figurative meanings. As with other scientific controversies, there has been an intensive struggle over the definition of therapeutic cloning within the public sphere. To shed the apocalyptic cultural history of the concept of human cloning, some therapeutic cloning advocates deliberately parsed their phrasing by declaring that cloning human embryos for stem cells was not 'human cloning'. For example, in the following press extract a therapeutic cloning researcher seeks to distance his company's activities from the notion of 'human cloning':

> Dr. Robert P. Lanza foresaw criticism and said: '*Our intention is not to create cloned human beings*, but rather to make lifesaving therapies for a wide range of human disease conditions, including diabetes, strokes, cancer, AIDS and neurodegenerative disorders such as Parkinson's and Alzheimer's disease'. (Anderson, 2001)

This distinction can also be seen in the following extract in which a stem cell scientist (George Daley, director of the stem cell transplantation programme at Boston Children's Hospital) provides an unprompted statement declaring the reproductive/therapeutic cloning distinction:

> I want to go on record as saying that there's a clear, bright line between legitimate scientific applications of nuclear transfer, of cloning, and that is to make stem cell, that is different from what I would say is an illegitimate and unsafe application, which would be in reproduction, in making babies. I don't think any legitimate scientist wants to take this technology forward to making babies, but to make cells and to study cells is of great medical value. (Flatow, 2013)

Instead of 'human cloning', advocates of this research have proposed terms such as 'therapeutic cloning', 'embryonic stem cell research' (especially in the US) or 'somatic cell nuclear transfer' (SCNT). The rhetorical purpose in constructing

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1 While the term 'cloning' began circulating in 1903, the science of plant cloning goes back to ancient times.

the concept of *therapeutic cloning* (the most widely used term) is to obscure the point that both 'reproductive cloning' (cloning for live birth) and 'therapeutic cloning' (cloning for embryonic stem cells) utilise the same scientific techniques. Obfuscating this fact was viewed as necessary 'to ensure that the public's perceived antipathy to human reproductive cloning does not "rub off" on therapeutic cloning' (Haran, 2007, p. 209). Indeed, embryonic stem cell research was much more positively received globally than human cloning (e.g. Jurberg, 2009), therefore more closely aligning therapeutic cloning with stem cell research was rhetorically expedient for supporters.

The culturally reinforced concerns associated with the concept of *cloning* prompted continuous challenging of the terms used to describe therapeutic cloning. For example, the following press extract challenges attempts to avoid the term 'cloning':

> Princeton's President Shirley Tilghman … [is] obfuscating the language. While she opposes reproductive cloning, she promotes 'nuclear transplantation to produce stem cells', a process that actually reproduces a living human embryo. It is in fact, the textbook definition of cloning. (Hansen, 2003)

At the same time, advocates of reproductive cloning sought to confound attempts by the scientific community, UK government and patient advocates to isolate and selectively support therapeutic cloning research while heaping scorn upon reproductive cloning. In particular, would-be cloner Severino Antinori, tried to reconstruct the therapeutic/reproductive cloning distinction in his favour by framing his attempts as 'therapeutic' to redress infertility problems through the use of human cloning for live birth.

> Controversial Italian embryologist Dr Severino Antinori … said: 'Ours will be an experiment of *therapeutic cloning* for those couples who have no hope of having children'. (Maclachlan, 2001; emphasis added)

By (mis)using the term 'therapeutic cloning' to mean cloning for live birth, Antinori was seeking to marshal the distinction to his own rhetorical advantage. Antinori and others interested in human cloning for live birth were often described as 'maverick scientists' in the news coverage. A 'maverick' is a rebel or individual who does not go along with the rest of the group.

Working in the opposite direction, opponents of all permutations of human cloning (particularly anti-abortion activists) also targeted this therapeutic/reproductive distinction. One opposition tactic was to deliberately conflate the 'therapeutic' and 'reproductive' cloning concepts so that negative frames from the longstanding science fiction template for human cloning could be mapped onto the new concept of therapeutic cloning.

Clearly the concept of therapeutic cloning has been the subject of extensive global contestation (also see Marks, 2012). Leach (1999, p. 218) notes that

‘“cloning” has metamorphosed through a number of names for a number of different procedures that have been used by agricultural biologists, molecular biologists and fertility researchers working on humans, animals and isolated genetic material’. Given the resulting ‘enormous difficulty involved in using precise language about cloning’ (Haran, 2007, p. 209), it is with careful thought that the following terms have been selected for this book. *Therapeutic cloning* will be used without quotation marks to refer to the use of SCNT to clone a human embryo from which stem cells can be derived for medical therapies. *Reproductive cloning* will be understood as the use of SCNT to clone a human embryo for implantation and live birth. These definitions reflect the most common usage within the Anglo-American public sphere. Furthermore, while the term ‘therapeutic cloning’ is semantically loaded and undeniably propagandistic, the distinction between therapeutic and reproductive cloning was a key distinguishing feature of the contemporary human cloning debate, which set it apart from historical human cloning discourse (Haran, et al., 2007). As such, the next chapter expounds upon the historically new concept of therapeutic cloning as well as exploring the on-going struggle over this controversial new domain of biomedical science within the mediated public sphere.

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Chapter 3
Human Cloning Before Dolly

> O wonder! How many goodly creatures are there here? How beauteous mankinde is? O brave new world, That has such people in it!
>
> (*The Tempest*, Shakespeare)

A number of key scientific and cultural developments relevant to human cloning have generated varying degrees of public interest and media speculation about this biotechnology's implications. The scientific history of human cloning dates back at least as far as the embryo splitting experiments on sea urchins conducted by German biologist Hans Driesch, most notably in 1895. Early in the twentieth century, Hans Spemann's 1902, 1914 and 1928 experiments with salamander eggs marked important scientific milestones in animal cloning. For example, in 1914 Spemann looped a strand of baby hair around a salamander embryo to cleave it in two and create the first animal 'clone'. In 1938, Spemann published *Embryonic Development and Induction,* in which he made prescient comments about the logical next steps for nuclear replacement research, foreshadowing Ian Wilmut's experiments with sheep almost 60 years later.

Meanwhile, constituting the single, most significant *cultural* development in the social history of human cloning, Aldous Huxley's 1932 seminal book, *Brave New World,* established an enduring groundswell of public, literary and mass media interest. Moreover, the book conjured powerful dystopian imagery that still resounds today (Jensen, 2008a). Although labelled 'Bokanovsky's Process' in the book, human cloning is central to the story. Set in twenty-sixth-century London, the novel opens with a tour of a clone 'Hatchery' by its 'Director':

> 'Bokanovsky's Process', … a bokanovskified [i.e. 'cloned'] egg will bud, will proliferate, will divide. From eight to ninety-six buds, and every bud will grow into a perfectly formed embryo, and every embryo into a full-sized adult. Making ninety-six human beings grow where only one grew before. Progress.
>
> … Buds … were returned to the incubators, where the buds began to develop … Two, four, eight, the buds in their turn budded … a prodigious improvement, you will agree, on nature. Identical twins. But not in piddling twos and threes as in the old viviparous days … Actually by dozens, by scores at a time. 'Scores', the Director repeated and flung out his arms, as though he were distributing largesse. 'Scores'. (Huxley, 1939, p. 3)

Some have argued that such cultural imagery has contributed to the scientific genealogy of cloning (e.g. Poon, 2000). As Donna Haraway (1989, p. 3) notes,

'it seems natural … to oppose fact and fiction; but their similarities run deep in western culture and language'. Indeed the ambivalent interplay of science fiction and science fact has been an endemic feature of media coverage of human cloning throughout the twentieth century as well as into the present decade (Haran, et al., 2007). Works of fiction frequently kindled the public imagination about this elusive science. Major developments around human cloning have in turn been apprehended with reference to such fictional representations.

However, in the 1950s and 1960s, the production of new fictional accounts of cloning declined, even as important scientific experiments cloning frogs were conducted by Briggs and King in the US (1952) and then Sir John Gurdon in Oxford (1962, 1966, 1975). These experiments yielded cloned tadpoles, but did not lead to a full-scale controversy about the prospect of human cloning. In the 1970s, these scientific developments gave way in the public sphere to key culture industry products. Ira Levin's 1976 novel, *The Boys from Brazil,* conjured a disturbing dystopia in which escaped Nazi doctor, Josef Mengele, was the mastermind of a plot to clone Hitler and reinstate the Third Reich worldwide. This popular novel was produced as a widely distributed and culturally generative Hollywood film in 1978 and is still frequently referenced in contemporary media coverage of human cloning (Holliman, 2004; Jensen, 2008a). Also in 1978, David Rorvik published the novel, *In His Image: The Cloning of a Man*, presenting an autobiographical story in which he assisted a millionaire in cloning himself. This book caused some controversy at the time, though it is now widely recognised as apocryphal.

In the US context, Jensen and Weasel (2006) found that the US abortion controversy was a significant upstream factor in the cultural genealogy of human cloning. The abortion controversy metastasised following the US Supreme Court's 1972 Roe v. Wade decision favouring federal abortion rights, becoming partly constitutive of the simmering discontent that would later confront therapeutic cloning research in America when it emerged almost thirty years later.

However, the most direct precedent in the UK for the therapeutic cloning controversy of the late 1990s and early twenty-first century was the highly contentious embryo research debate of the 1980s. This extended debate culminated in the defeat of anti-abortion and conservative religious forces by pro-science organisations, such as Progress and the Royal Society (see Mulkay, 1995b; 1997). The 1990 Human Fertilisation and Embryology (HFE) Act capped the victory for the forces of science and technocracy in Britain and, with some recent modification, remains the governing framework for embryo research to this day. Essentially, this Act follows the recommendations of the expert committee headed by Mary Warnock, allowing research on embryos under 14 days old with licensing by the Human Fertilisation and Embryology Authority.[1]

1 The two key provisions of this regulatory framework are (1) that the proposed research must be of significant scientific value and (2) that the embryo must be treated with 'respect'.

Many of the same pro- and anti- research forces that emerged during the UK embryo research controversy were also deployed in the subsequent debate over therapeutic cloning. Indeed, as far as some UK science journalists were concerned, the HFE Act prospectively resolved the issue of therapeutic cloning as well as embryo research. In the following extract from an interview I conducted with the Health Editor for an elite UK newspaper, he sought to legitimise his visible support for the principles enshrined in the HFE Act by attributing to the British public a widespread and enduring commitment to the Warnock committee's conclusions:

> I think there has been a particularly British attitude to stem cells which derives from Mary Warnock's report that led to the Human Fertilisation Embryology Act, which set the ethical parameters [for human embryo research]. And it was a very utilitarian ethic; that if destroying embryos improved the health of human beings, it's justified (subject to controls and time limits and all that sort of thing). And that's the ethic under which we operate. I think an ethicist would say that's a very rough and ready ethical framework, but then we're not a very religious nation. We don't have a Religious Right [as does the US]. We don't have many religious believers. And the population is perfectly happy with that. And that's the basis under which stem cells [i.e. therapeutic cloning] have been discussed really. ('Charles', 2005)

As we will see in later chapters, such examples of journalists' personal perceptions of the UK embryo research debate and its aftermath impinged directly upon the press framing of therapeutic cloning.

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Chapter 4
Epochal Change in the Contemporary Human Cloning Debate

Contemporary news practice tends to create clusters of reporting on a given issue centred on significant 'media events' – and human cloning is no exception. In tracing the recent history of press interest in human embryo cloning over the last decade, the obvious starting point is Dolly the sheep's media debut. This event played a key role in constructing the media template for the most recent incarnation of the human cloning debate. News coverage of therapeutic cloning developed slowly at first, following the derivation of viable human embryonic stem cell lines in 1998. The volume of therapeutic cloning press coverage spiked in the UK around Parliamentary deliberations in 2000 (Kitzinger and Williams, 2005). Various organisations formed working groups or expert committees to make official policy recommendations about human cloning. The most prominent of these organisations included the following: the Royal Society, American Association for the Advancement of Science (AAAS), UK Human Genetics Advisory Commission, House of Lords and US National and Presidential Bioethics Advisory Commissions (NBAC and PBAC). In addition to covering the reports from the UK-based groups in the lead up to the Parliamentary votes in 2000–2001, the British press also reported policy positions expressed by activist non-governmental organisations (NGOs) as both for and against the technology. In the US, the first success in creating a cloned blastocyst was widely reported in 2001 with important political developments unfolding during the 2004 campaigns for US President and the California referendum funding therapeutic cloning.

This book will identify a key shift in the therapeutic cloning debate, which occurred between January 2004 and February 2004. At this time, a new cast of characters entered the scientific and public domains through the announcement of a key breakthrough in therapeutic cloning research. This breakthrough shifted the focus of the therapeutic cloning debated eastward, while raising new concerns about scientific ethics and the globalisation of scientific research.

Phase 1: From Dolly to Cloning Apocrypha

The first phase of the contemporary human cloning debate (viz. 1996–January 2004 inclusive) began with news of the 'twinned' sheep Morag and Megan and finished with the fabricated declaration of the birth of a cloned baby by 'maverick' Italian scientist, Panos Zavos. The most widely publicised development during this phase

of the coverage was the birth of Dolly, the first mammalian clone created from an adult cell. This was followed by the successful derivation of embryonic stem cell lines in 1998. The idea of combining these two distinct developments to comprise 'therapeutic cloning' began to surface shortly thereafter, building momentum until 2000 when the brief UK Parliamentary debate over therapeutic cloning caused a sharp increase in media attention on this issue with the British press (Kitzinger and Williams, 2005). The first successful derivation of *cloned* embryonic stem cells was reported by the American company, Advanced Cell Technology, in 2001 and generated even more news media coverage in the US and Britain. Throughout Phase 1 of the contemporary human cloning debate, so-called 'maverick' or 'rogue' scientists proffered numerous unsubstantiated claims and false promises. These high profile claims had significant implications for the public and political reception of this issue.

Wilmut's Sheep

Professor Ian Wilmut's team at the Roslin Institute in Scotland first found highly publicised success with their embryo splitting experiments in July 1995, resulting in the birth of two 'twinned' (or cloned) sheep: Morag and Megan. While the volume of coverage fell short of the international furore that would follow Dolly's birth (Holliman, 2004), this news story was nevertheless an important precursor to the gathering storm of human cloning controversy. As Holliman (2004, p. 114) argues, 'the coverage [of Morag and Megan] raises many issues relevant to further reporting of cloning[,] … suggesting that the media template for cloning was reconstructed over the two year period [from 1 January 1996 to 31 December 1997]'.

Born on the 5 July 1996, Dolly is no doubt the most famous sheep in modern history. Her birth was revealed to the world on the 22 February 1997 by *The Observer* newspaper's science correspondent, Robin McKie. McKie circumvented the scientific journal *Nature*'s press embargo[1] by publishing the story well in advance of the 27 February official embargo end date (Marshall, 1998). Nuclear transfer experiments had created a cloned lamb, the first mammal ever created from an adult donor cell. 'We now report the birth of live lambs from three new cell populations established from adult mammary gland, fetus and embryo' (Wilmut, et al., 1997, p. 810). However, the mediation of this scientific milestone in successfully moving DNA from one organism to another of the same species immediately and irrevocably framed its significance around the possibility that the technology could be used to clone humans (Holliman, 2004). There was widespread concern – especially outside the UK – that the development of this

1 Embargoes are placed on articles provided to reporters in advance of their official publication date by scientific journals in order to facilitate the news gathering process and encourage media coverage.

technology indicated an imminent apocalyptic outcome reminiscent of the science fiction literature reviewed in Chapter 3.

US President Bill Clinton's immediate response to Dolly's birth was to renounce the putative technology of human cloning. He then empanelled the National Bioethics Advisory Commission (NBAC) to provide both the President and the nation with expert recommendations on the issue of human cloning. Three months later, the NBAC report was released. It called for a five-year moratorium on reproductive cloning based upon concerns for the safety of any children born using such an untested technology. This rationale for temporarily blocking human cloning effectively sidestepped the most difficult and substantive ethical questions surrounding human cloning (Evans, 2002a). Nevertheless, in March 1997, President Clinton exercised his executive authority to ban the use of federal funds for human cloning research of any kind. Congressional debate failed to yield action on the NBAC recommendations.

Seed and Stem Cells

In January 1998, Richard Seed (widely referred to in news accounts as a 'maverick scientist') announced his intention to open a clinic for cloning babies.[2] Though completely unsubstantiated, journalists across America reported on Seed's claims. Also in 1998, Italian fertility doctor, Severino Antinori, made his first highly publicised announcement that he planned to use human cloning as a 'therapy' to offer infertile couples the possibility of genetically related offspring. Both Seed and Antinori's declarations were used as evidence of the imminent danger of reproductive cloning during subsequent Congressional deliberations in the US. This was the first major skirmish in the battle over human cloning terminology described in Chapter 2.

Partly responding to the media furore over Antinori and Seed, a full-scale legislative response was marshalled against human cloning by US Congressional Republicans with the support of religious and pro-life lobbyists (Gerlach and Hamilton, 2005, p. 92). A number of anti-cloning bills were proposed with a great deal of support in Congress, including an 'emergency' measure brought to the floor of the Senate on 3 February 1998. Ultimately, however, powerful counter-pressures from patients' groups, scientists and the biotechnology industry have to this day staved off all attempts to enact a comprehensive ban on human cloning. Later in the year, the second half of therapeutic cloning's scientific genealogy saw a widely publicised breakthrough: In November, Professor James Thomson et al. (1998) reported the first successful isolation of human embryonic stem cell lines.

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2 Seed first indicated his intention to create cloning clinics on 5 December 1997. However, the international news media did not begin to broadcast his claims until 7 January 1998 when he made similar comments in a National Public Radio interview.

UK Government Committee Reports

Meanwhile in the UK, a December 1998 report was released by the Joint Working Group on human cloning comprised of representatives of the Human Genetics Advisory Commission (HGAC), Human Fertilisation and Embryology Authority (HFEA) and House of Commons Science and Technology Select Committee. The report set forth two key recommendations. First, human reproductive cloning should be banned immediately. Second, it was suggested there should be further examination of the medical potential of cell nucleus replacement (i.e. cloning) for treating serious diseases. It was suggested that this second recommendation be enacted through the extension of existing regulations governing embryo research under the auspices of the UK's 1990 Human Fertilisation and Embryology Act. In the presentation of this second recommendation, the promissory science of therapeutic cloning was already being constructed as a possible panacea. In a press release accompanying the report, then chairman of the HGAC, Sir Colin Campbell, said that cell nucleus replacement could be 'helpful with research into and eventually treatment of serious conditions such as Parkinson's, Huntington's, Alzheimer's and various types of cancer. New treatments might also be developed for diseased or damaged tissue' (HGAC, 1998).

When the issue of therapeutic cloning entered UK politics by arriving at Parliament's door about a year later, it was soon re-assigned to an expert committee headed by the Chief Medical Officer, Professor Liam Donaldson. This decision displaced responsibility for this issue from the realm of elected politics to the bureaucratic domain of technocracy, where it remained until the Donaldson Committee's report was released to the press in August 2000. Indeed, Kitzinger and Williams (2005) identified two spikes in UK media coverage of therapeutic cloning in 2000. The first period of 13–30 August followed the publication of the Donaldson report. This report detailed the panel's recommendations, concluding that therapeutic cloning was ethical and should proceed under existing embryo research legislation from the 1990 Human Fertilisation and Embryology Act. It was recommended that researchers should be allowed to use both embryos generated for in vitro fertilisation (IVF) treatments that go unused (i.e. 'supernumerary' or so-called 'surplus' or 'leftover' embryos) and, more controversially, embryos created specifically for therapeutic cloning research purposes. Such debate echoes broader struggles over the morality of embryonic stem cell research that has taken place across Europe and throughout the world (Salter, 2007). Indeed, this distinction between 'surplus' and specifically created embryos was important in the global therapeutic cloning debate, helping to define the boundaries of legal embryonic stem cell research in Australia (Harvey, 2005).

The second period of heightened press interest occurred 19–21 December following the House of Commons vote, which approved the extension of the 1990 Act to cover 'cell nuclear replacement' (i.e. SCNT or therapeutic cloning) as recommended by the Donaldson commission. This followed the distinctive British approach of developing bioethical regulation of new domains of biomedical

research through the incremental extension of existing policy (Hauskellera, 2004). On 22 January 2001, the House of Lords added its approval to the amendment allowing therapeutic cloning. This placed the task of licensing and regulating such research under the purview of the HFEA. Also in 2001, Parliament approved the Human Reproductive Cloning Act, making reproductive cloning a criminal offence in the UK.

Therapeutic Cloning Breakthrough

In the US, the science of therapeutic cloning was again in the news throughout 2001. Scientists from the small American biotechnology company, Advanced Cell Technology, published a study on 25 November reporting the first successful derivation of cloned embryonic stem cells (Cibelli, et al., 2001). They summarised their findings as follows:

> Three somatic cell-derived embryos developed … up to the six-cell stage. [This] represents the first step towards generating immune-compatible stem cells that could be used to overcome the problem of immune rejection in regenerative medicine. (Cibelli, et al., 2001, p. 25)

This widely reported breakthrough dramatically increased the level of both media and public interest in the promise of medical cures in the near future.

Anglo-American Politics, Culture and 'Maverick Scientists'

In British politics, the House of Lords Select Committee Report on Stem Cell Research was released in February 2002. In American politics, another Republican-led attempt to pass a complete ban on human cloning was stymied by then Senate Majority Leader, Democrat Tom Daschle[3] in June 2002, who prevented the bill from coming up for a vote. On the cultural side, three major Hollywood films featuring human cloning appeared in cinemas in 2002: *Impostor*, *Blade 2* and *Star Wars: Attack of the Clones* (see for analysis, Jensen, 2008a).

At a press conference on 27 December 2000 Brigitte Boisselier, the scientist leading the human cloning programme for the Raelian religious sect,[4] declared that a cloned baby had been born to an American mother. Allegedly, the child's name was 'Eve' and incontrovertible evidence of her cloned identity would be forthcoming, according to Boisselier. Although this evidence never materialised, the Raelians garnered extensive global media attention for this fictitious claim

3 Daschle temporarily ascended to the agenda-setting Majority Leader position after a surprise defection by Republican Senator Jim Jeffords, who switched his party affiliation to 'Independent' giving Democrats a 50–49 advantage in the US Senate.

4 For more information about the Raelian belief system and its orientation towards cloning, see http://clonaid.com. (Last accessed 26 June 2013).

(e.g. Neresini, 2007; Bloomfield and Vurdubakis, 2003). Moreover, it was used to reinforce the distinction between reproductive human cloning as 'bad' and therapeutic cloning of embryonic stem cells as 'good' (Ingram-Waters, 2009). In February 2003, Dolly was euthanised after being diagnosed with a lung disease. This raised fresh fears about the dangers of reproductive human cloning. Finally, in January 2004 'maverick' scientist, Panos Zavos, announced that he had implanted a cloned human embryo in an infertile woman. This claim also received substantial international media attention, even though no evidence was ever produced to support his claim.

Phase 2: Therapeutic Cloning on the Global Stage

The second phase of the coverage of therapeutic cloning (viz. Feb. 2004–2013) was dominated and then overshadowed by Professor Hwang Woo-Suk's two publications in the flagship journal, *Science*. In February 2004, his first article reported the development of cloned embryos up to the 100-cell blastocyst stage and the collecting of usable stem cells, thereby proving therapeutic cloning to be technically achievable (Hwang, et al., 2004). This report was met by a storm of international commentary, controversy and soaring interest in the curative potential of therapeutic cloning (Augoustinos, Russin and LeCouteur, 2009).

In August 2004, Newcastle Centre for Life and researchers, Miodrag Stojkovic and Alison Murdoch, received the first HFEA license to conduct somatic cell nuclear transfer cloning research with surplus IVF embryos, as well as embryos 'altruistically' donated (no financial or other incentives were offered) specifically for therapeutic cloning purposes (for discussion of the feminist implications of these embryo donation practices, see Haran, et al., 2007). Driven by frustration over the lack of US federal funding[5] and enthusiasm stemming from Hwang's reported success, the New Jersey legislature approved $9.5 million in funding for stem cell research to be distributed through the newly created Stem Cell Institute of New Jersey. On 2 November, California voters approved Proposition 71, authorising a total of $3 billion (over 10 years) to fund embryonic stem cell research, including therapeutic cloning. The aims of this state-level initiative are identified in the following press extract:

5 Republican Congressional attempts to pass therapeutic cloning legislation failed due to the 'all or nothing' approach taken by the technology's culturally conservative opponents. Rather than accepting a compromise measure, Republicans in the US House of Representatives twice passed complete bans on cloning human tissue for any purpose. These bans then stalled in the US Senate where majority support for embryonic stem cell research (though possibly not therapeutic cloning) has persisted even when under Republican control. Despite the lack of federal prohibitions on therapeutic cloning, this Congressional deadlock and Bush's executive order blocked any possibility of federal funding.

> California voters signed off on a $3-billion investment in embryonic stem cell research … [California is] poised on the scientific cutting edge, armed with the money to circumvent White House policy viewed by many as holding the U.S. back. (Garvey, 2005)

Hwang's Second Major Publication

Despite sporadic reports of ethical violations in the process of conducting his 2004 study, Hwang's second article in *Science* cemented his position as the leading researcher in the global field of therapeutic cloning. Published 19 May 2005, the study reported the successful derivation of patient-specific embryonic stem cell lines cloned using SCNT:

> Eleven [human embryonic stem cell] lines were established by somatic cell nuclear transfer (SCNT) of skin cells from patients with disease or injury into donated oocytes. (Hwang, et al., 2005, p. 1777)

On the day the press embargo on Hwang et al.'s (2005) article was lifted, Newcastle researcher Alison Murdoch made overtures to British science journalists, personally informing them of the therapeutic cloning research that Murdoch and Stojkovic's team had just submitted to a scientific journal. This direct lobbying for coverage by a British therapeutic cloning researcher was revealed in an interview I conducted with a science journalist in the UK.

> Alison Murdoch had rung up a number of journalists who she knew to say that [her research would be] coming out as well … Alison felt that she had no option given the Korean story coming out that week … She felt that despite the fact her work hadn't been [peer] reviewed yet, she felt she had to put it out. ('Richard', 2005)

Evincing the success of Murdoch's media outreach efforts, the British press foregrounded Murdoch's UK-based research. The UK-based research was given prominent placement on the front page ('above the fold'), and the Hwang story was relegated to secondary placement. Conversely, the American press ran with the Hwang story and made no mention at all of Murdoch's UK-based research.

Despite the reduced coverage in UK news media, Hwang's scientific, media and public standing was at an all-time high both in South Korea and abroad in the wake of the 19 May 2005 publication in *Science*. Yet, as the year wore on, allegations of ethical improprieties escalated, whistleblowers and defections began to appear. In November 2005, Hwang's American collaborator, Professor Gerald Schatten, reported ethical lapses and technical mistakes relating to the therapeutic cloning research. He then severed his connection with Hwang. Subsequent revelations ultimately resulted in Hwang's spectacular public disgrace

as the comprehensive nature of his deception became increasingly visible. By the end of 2005, there could be no doubt that Hwang's therapeutic cloning articles in *Science* were fraudulent, despite his repeated protestations of innocence. On 15 December 2005, Hwang finally admitted 'serious errors' in the two *Science* articles and asked that they be retracted. At the end of 2005 and beginning of 2006, two Seoul National University investigations confirmed the fraud.[6] Finally, in May 2006 Hwang was brought up on criminal charges for fraud, embezzlement and violating South Korea's bioethics laws. In the end, the Hwang scandal was a major setback for the science and hope of therapeutic cloning. However, Hwang was framed in news media as just a 'bad apple' in order to insulate the broader scientific enterprise from the negative publicity of this episode (Augoustinos, Russin and LeCouteur, 2009).

Therapeutic cloning research continues today in the US, Britain and elsewhere around the world, with sporadic pronouncements of success. Pronouncements have included a report of a paralysed mouse gaining enough benefit from stem cell therapy to enable it to walk. A report from the UK announced that human pancreatic tissue had been successfully developed from embryonic stem cells. A January 2013 news story about the potential for cloning Neanderthals in the interests of 'de-extinction' sparked global headlines, although this discussion was purely speculative. A publication in the journal *Cell* from an Oregon (USA) research team in May 2013 described a scientific breakthrough, using cloning to create embryonic stem cells that were genetically matched to patients. Such periodic 'breakthroughs' have served to keep therapeutic cloning in the news year after year, while also keeping hopes for cures alive.

Science, Politics and Society

Often viewed as the two most scientifically accomplished nations in the world, the US and UK political and regulatory responses to therapeutic cloning have taken diverging paths pathways. Whilst the US has maintained an incoherent patchwork of regulations and funding restrictions (Knowles, 2004), Britain acted quickly to support research on therapeutic cloning. In fact, the UK is the only Western European nation that allows the creation of embryos for the sole purpose of research (Plomer, 2002, p. 133). British government support for this technology takes place within the context of an explicitly pro-science policy stance designed to promote scientific knowledge and the economic benefits stemming from its exploitation. The UK government envisions an increasingly technology-based, 'knowledge-driven' economy capable of sustaining a high standard of living for its citizens well into the twenty-first century. The Department of Trade and Industry (DTI, 2000) published a White Paper in conjunction with the Office of Science and Technology detailing the Government's view of the role of science in the

6 However, the government investigators did conclude that the world's first cloned dog, attributed to Hwang's team, was legitimate.

future of British society. This White Paper contends that 'For Britain to prosper in the twenty-first century', it must be 'pursuing scientific advance … We must have the ability to generate, harness and exploit the creative power of modern science' (DTI, 2000, p. 8). This pro-science viewpoint has been reinforced by UK political leaders across all the major parties, with the current Chancellor (responsible for UK government spending) stating:

> We are concerned that, unless investment in science in the UK keeps pace with that elsewhere in the world, the UK could lose its competitive edge in science and innovation, with consequential impacts on the economy. (CaSE, 2013)

Partly in response to public scepticism and grassroots pressure over the handling of issues such as genetically modified (GM) foods and the mad cow disease (BSE) crisis (e.g. see Jensen and Wagoner, 2009), this pro-science ethos has been widely espoused by the UK government. The following press extract appeared under the headline, 'Blair condemns protesters who thwart science':

> Tony Blair has promised to break down the 'anti-science fashion' in Britain … 'It is time to speak up for science', he said. [Otherwise,] research work would be lost to Britain and Europe and go elsewhere in the world. (Webster and Henderson, 2002)

Science in the United States is similarly valued for its economic benefits. However, the more pluralistic and diverse political situation in the US has meant that issues related to the 'red' genetics (i.e. human biomedical research) have been heavily contested. Research on human embryos is controversial on ethical grounds. Likewise, the waxing and waning political dominance of Christian conservatives in Congress and the White House has given their moral concerns a privileged position, especially in a few high profile areas of techno-scientific development, such as human cloning and embryo research. Indeed, former US President George W. Bush banned federal funding for therapeutic cloning and most other embryo research by executive order until President Obama reversed the decision in 2009. Privately funded companies, individual states and non-profit ventures, on the other hand, were free to conduct the research under minimal or non-existent federal regulatory supervision. Globally, the formal and informal regulation of therapeutic cloning, and embryonic stem cell research more generally, varies substantially from country to country (Songa, 2011; Prainsacka, 2011; Sleeboom-Faulkner, 2011). Ultimately, the regulation of therapeutic cloning in the US and Britain was tied to the ascendant representations of the technology in these nations' respective mediated public spheres.

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Chapter 5
Therapeutic Cloning Science in the Global Risk Society

The therapeutic cloning debate has taken place within a shifting global context for the public understanding of science. Scientific development is no longer allowed to progress unquestioned. Rather, scientific risk is now a much greater concern overall within the public sphere. The role of public understanding of scientific risk in the therapeutic cloning debate is explored in this chapter.

Science Engagement in the Risk Society

As nations and individuals negotiate the increasingly globalised domains of the economy, politics and techno-scientific development (Bauman, 2000; Bauman, 2005; Beck, 1999; Beck, 2006), relations between science and society have undergone a transformation:

> Traditionally, the public has looked to the state to harness science in its service, enforce social norms in research and development, and ensure that technoscientific developments are for the social good. However, the emerging biogovernmental order seems unwilling and unable to meet those expectations. (Gerlach and Hamilton, 2005, p. 96)

Beck (1992) argues that for many of the denizens of today's 'risk society', science and other expert systems no longer offer certainty or unquestioned Truth. In this 'new modernity', science's 'claim to truth' and 'enlightenment' has been 'demystified' (Beck, 1992, p. 155; cf. Corrado and Carluccio, 2002).[1] In this context, science faces an increasingly sceptical public, which has lost its trust in technocratic systems of government. Thus, issues that were previously defined as purely 'scientific' or 'technical' – and therefore governed through undemocratic

1 There is certainly counter-evidence for this thesis of a widespread 'disenchantment' with scientists and expert authority, despite controversies surrounding, for example, the handling of the BSE crisis in the UK. Indeed, polls have consistently found that scientists and doctors are some of the most trusted professionals in British society. For example, a 2002 poll commissioned by the British Medical Association found 'trust' in doctors and scientists to tell the truth indicated by 91 per cent and 64 per cent of respondents respectively, compared with 13 per cent saying the same for journalists (Corrado and Carluccio, 2002).

mechanisms – have increasingly become open to public scrutiny and debate. However, public opinion research on biotechnology attitudes in the US and UK has indicated that the level of public scepticism depends on the specific kind of technology being developed (Marks, et al., 2007).

For many years, the dominant approach to 'public understanding of science' has been the deficit model, in which greater scientific literacy is viewed as the remedy for any public distrust in scientific institutions or opposition to techno-scientific development (e.g. Bodmer, 1985). Indeed, Barnoy et al. (2006) argued that greater scientific knowledge was needed in the context of a study of expert and non-expert knowledge about human cloning in Israel. Likewise, Marks (2012) found that some Australian scientists participating in the public debate about therapeutic cloning suggested that publics needed to become educated before they could be legitimate participants in the debate.

In recent years however, this simplistic model has largely been eclipsed by social research showing that it is inaccurate (e.g. Jensen and Wagoner, 2009; Holliman and Jensen, 2009; Sturgis, Cooper and Fife-schaw, 2005; cf. Sturgis and Alum, 2004). There has been a shift in social scientific and UK policy discourse by calls for a two-way dialogue between science and the public. Research Councils and organisations, such as the Wellcome Trust and the Royal Society, have joined high-level government officials in declaring a commitment to facilitating active public involvement in decision-making about techno-scientific development (Irwin, 2006). Most notable in this regard is the House of Lords report from the year 2000 on *Science and Society*, which concluded that 'direct dialogue with the public should move from being an optional add-on to science-based policy-making … [to] become a normal and integral part of the process' (Select Committee on Science and Technology, 2000, p. 43). In a similar manner, former Prime Minister Tony Blair 'challenged scientists in an address to the Royal Society in May 2002 to communicate better. He urged them to engage in a "robust, engaging dialogue with the public"' (Hurst, 2004). Yet, despite such expressions of governmental commitment to 'engaging the public' in decisions about techno-scientific development, the evidence thus far suggests that government-sponsored initiatives in this area have failed to give the public any real power to impact the focus or speed of the juggernaut of scientific progress.

Further complicating the framing of the science-society interface, Collins and Evans (2002) have questioned the ascendant notion that the public's role in decision-making about scientific issues should be expanded (cf. Collins and Evans, 2003; Jasanoff, 2003; Rip, 2003; cf. Wynne, 2003). Rather, they argue that *expertise* and *experience* should be the primary criteria for legitimate participation in 'technical decision-making' (cf. Wynne, 2003). Furthermore, Collins and Evans (2002) suggest that scientific issues should remain quarantined within the 'core-set' of topic specialists inside the scientific community and out of the public eye, until an 'apex of certainty' is reached. This proposal is aimed at protecting the image of science and limiting the range of participants in the formative stages of scientific debates. However, such arguments must be contextualised and evaluated

in the light of broader theoretical frameworks addressing the relationship between sciences and society. This chapter now turns to a review of to one such theoretical framework. The next chapter will connect the risk society theory with theoretical accounts of the public sphere.

Risk Society

Social theorist Ulrich Beck has proposed an influential theoretical model based upon the role of risk as an engine of change within modern societies. Beck argues that Western nations have moved from a stage he labels *industrial society* to one of *risk society*. According to Beck, industrial society was characterised primarily by wealth distribution and risks that were manageable, insurable and controllable. By contrast, he argues that the risks of today are uncontrollable, uninsurable and unseen, yielding pervasive uncertainty in society. Risk society is defined by the increasing ubiquity of globalised risks such as pollution, nuclear disaster and genetic engineering (Beck, 1992; Bond, 1997, p. 52). In this context, it is noteworthy that human cloning has been framed as a 'dreaded risk' alongside these other potential hazards (Marks, et al., 2007). These risks cannot be controlled at the level of the individual nation-state and their consequences spread with minimal regard for national borders.

According to Beck, awareness of the catastrophic potential inherent in techno-scientific development has prompted restless reflexivity across society. For Beck, reflexive modernisation is the mechanism by which societies move from first to second modernity. First, society compulsively engages in self-confrontation, resulting in 'the autonomous, unintentional and unseen, reflex-like transition from industrial to risk society' (Beck, 1996, p. 28). In reflexive modernity, it is argued that the public has reacted with an exceptional level of concern to the pervasive, 'low probability, high risk' hazards produced by modern society such as nuclear technology, BSE and, potentially, therapeutic cloning (also see Jensen, 2012b). This 'historically new phenomenon of the socially produced but unaccountable possibility of destroying all life' is known as 'risk society' (Beck, 1995, p. 85). As will be argued later in the book, Beck's argument that there is an increasingly widespread preoccupation with scientific risk in contemporary societies is at least partially born out in the analysis of dystopian science fiction's role in the human cloning debate. However, this book will identify some of the limitations of the risk society theory, highlighting its inadequate theorisation of the process of mediation of scientific risk in the public sphere.

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Chapter 6
Mediating Scientific Risk in the Public Sphere

Today, science offers new hopes that cures are within reach for some of the most serious diseases. For millions of people afflicted by Parkinson's disease, cancer, spinal cord injuries and infertility, new biomedical technologies such as those promised by therapeutic cloning can be viewed as harbingers of unprecedented utopian possibilities. At the same time, discourses of risk and uncertainty increasingly define the public understanding of science in the twenty-first century. Since 1998, therapeutic cloning has occupied a substantial symbolic space each year within science news and Anglo-American politics. The debate over this issue is at the nexus between science, religion, media, national interest and bioethics. This chapter further excavates theoretical arguments about scientific risk, placing these arguments within the context of public sphere theory. The detailed review of public sphere theory in this chapter will lay the groundwork for evaluating the degree to which news coverage of therapeutic cloning aligns with the ideas that have been developed by social theorists.

Mediating Scientific Risk

Young (2000, p. 173) argues that, at the base level, democracy is 'a process that connects "the people" and the powerful', with the public sphere acting as the 'primary connector between people and power'. This 'connector' can be a tool for maintaining the dominance of 'the powerful', or a site for the promotion of public interests. Either way, the public sphere is at the nexus of science, society and politics. Within this sphere, the news media play a central role in making science public and managing the interface between science and society (House of Lords Select Committee on Science and Technology, 2000; Kitzinger, 2006). The press helps to frame the popular definitions of scientific risks, such as those associated with human cloning within the mediated public sphere (Marks, et al., 2007). The news media play an important role both in reinforcing elements of the status quo and in the social construction of risk and uncertainty. Thus, Luhmann (2000, p. 35) contends that 'news generates and reproduces future uncertainties – contrary to all evidence of continuity in the world we know from daily perception'. As Nelkin (1987, p. 2) notes, 'for most people the reality of science is what they read in the press. They understand science … through the filter of journalistic language and imagery'. Indeed, a study of the news media content and audience reception

patterns in the UK and Hungary concluded that the news coverage played a powerful role in guiding the development of public understanding and attitudes about stem cell research (Vicsek and Gergely, 2011).

The high profile of therapeutic cloning in global news media means that the ways in which nations confront this particular biotechnology may be disproportionately important as a harbinger of future societal negotiations between public sensibilities, scientific imperatives and political considerations. In order to gain insight into substantive discourses that transverse the spectrum of stakeholder interests in this issue, this book explores the discursive construction of therapeutic cloning in Anglo-American news media.

Numerous studies have identified the central role of mass media in the human cloning debate (Einsiedel, et al., 2002; Haran, 2007; Hellsten, 2000; Holliman, 2004; Huxford, 2000; Jensen, 2008a; Jensen and Weasel, 2006; Kitzinger and Williams, 2005; Nelkin and Lindee, 2001; Nerlich and Clarke, 2003; Nerlich, Clarke and Dingwall, 1999; Nerlich, Clarke and Dingwall, 2000; Nisbet, Brossard and Kroepsch, 2003; Priest, 2001b; Weasel and Jensen, 2005; Wellcome, 1998; Williams, Kitzinger and Henderson, 2003). None of these studies have systematically examined the debate over therapeutic cloning in the Anglo-American press using in-depth qualitative analysis since its inception. This study aims to address this lacuna in the empirical literature by exposing the processes of mediation shaping therapeutic cloning discourse within the public sphere. The following review of the literature explores the role of news media as the major forum for framing scientific issues within the mediated public sphere.

The Public Sphere

In ancient Greece, the private realm of the household (*oikos*) was distinguished from the public realm of the city-state (*polis*) (Nevett, 1999). The *polis* was the forum in which citizens assembled to engage in ostensibly free and open debate about the issues of the day. This public/private distinction has left an enduring imprint on Western political structures and modes of thought. However, this distinction underwent a fundamental transformation with the rise of modern societies in the seventeenth and eighteenth centuries. During this period, the modern state emerged and expanded into the public realm through institutionalised systems of political control. At the same time, modern capitalism infiltrated the private realm. This led to the expansion of the private sphere to include private economic transactions as well as family life. In principle, each of these private fields of action occurred outside the direct control of politics and the state. Meanwhile, between the public and private realms a new, symbolic space emerged, which social theorist Jürgen Habermas (1989) describes as the 'public sphere' (cf. Eley, 1992).[1]

1 Geoff Eley notes that 'public sphere' is not an adequate translation of the Öffentlichkeit referred to in Habermas's (1989) study. 'An unwieldy aggregation of terms

Creating an ideal type from eighteenth-century Paris and London bourgeois café culture, Habermas defines the public sphere as a single, unitary space; a nexus where citizens not directly involved in the issue could come together to discuss the issues of the day.

> The public sphere consists of an intermediary structure between the political system, on the one hand, and the private sectors of the lifeworld and functional systems, on the other. It represents a highly complex network that branches out into a multitude of overlapping international, national, regional, local, and subcultural areas. (Habermas, 1996, p. 373)

Habermas traces the structural transformation of the public sphere from its supposedly pure historical form to the fundamentally degraded condition in which he finds it today. For Habermas (1989, p. 51), this realm for critical-rational debate is ideally based upon a 'public of private people making use of their reason'. In this model, the 'streams of communication' that enter the public sphere are 'filtered and synthesized in such a way that they coalesce into bundles of topically specified *public* opinions' (Habermas, 1996, p. 360). In his later work, Habermas (1987) makes it clear that he envisions these bundles of critical public opinion within the public sphere as the locus of resistance to instrumental and technocratic modes of thinking imposed by overbearing elements of the state and the economy. Thus, the public sphere is viewed as the 'main tool through which organized citizens can limit power and hold powerful actors accountable' (Young, 2000, p. 174).

Although the significance of the public sphere in the development and ongoing functioning of modern societies is rarely questioned, there are numerous critics of the influential view Habermas offers about its historical transformation. Firstly, Habermas's thesis has been subjected to a number of historical criticisms, challenging the accuracy of his account of the early public sphere. For example, Eley (1992, p. 304) notes that Habermas failed to acknowledge the existence of a 'combative *and* highly literate' 'plebeian public sphere' operating in the eighteenth century (Eley, 1992, p. 304). Habermas has also been criticised for ascertaining unsupported conclusions about the nature and extent of the public sphere's alleged decline (e.g. Schudson, 1992; Thompson, 1995). Schudson (1992, p. 161) concludes that 'our place in the [contemporary] world is different from that of [the early bourgeois public sphere], but not, I think, fallen'.

Habermas's idealised account of the early bourgeois public sphere has been further challenged for failing to adequately describe the flawed and systemically exclusionary character of the early bourgeois public sphere (e.g. Fraser, 1992; Ryan, 1992). In her historical analysis of nineteenth-century women's movements and their struggles for political equality and social justice in the American public

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like publicness, publicity, public culture, and public opinion translates the term perhaps more accurately', connoting 'something more like "the quality or the condition of being public"' (Eley, 1992, p. 225).

sphere, Ryan (1992, p. 284) finds that 'gender restrictions … built exclusion into the very foundations of the public sphere'. Ryan (1992, p. 285) concludes that the history of women's politics stands as a warning against Habermasian 'spatial or conceptual closure[,] constrain[ing] … the public to a bounded sphere with a priori rules about appropriate behavior'. As such, she advocates a 'plural and decentred concept of the public' based on the principle that 'notions of interest and identity need not be antithetical to public good'. Finally, she emphasises the inadequacy of a public realm dominated by bourgeois values, pointing out that those most disenfranchised and in need of a voice in the public sphere tend to express their views in a manner that is viewed negatively within the formal bourgeois public sphere (cf. Baumann, 1996). Indeed, the protests of the disenfranchised are often perceived as 'loud, coarse, and, yes, abrasive' (Ryan, 1992, p. 286). Young (2000, p. 178) concurs by identifying the difficulty of engagement for the disenfranchised:

> The public sphere will properly be a site of struggle – often continuous struggle [because] … it often takes considerable organizing, dramatic action, and rhetorical shrewdness for people whose concerns are excluded from that agenda to break through and gain access to public media that will … disseminate their issues so that state institutions eventually deal with them.

In a similar vein, Benhabib (1992) criticises Habermas's (1989) narrow and exclusionary conception of public discourse as being limited to critical-rational debate over 'public' issues. She argues that Habermas's theory relegates lifeworld issues, such as 'housework; reproduction; nurture and care for the young, the sick and the elderly', to the private realm of 'nongeneralizable interests' outside the purview of public debate (Benhabib, 1992, pp. 89–90). Benhabib (1992, p. 93) contends that the exclusion of private issues from the public domain has promoted a 'discourse of domination that legitimizes women's oppression and exploitation in the private realm'. Thus, she says that such 'private' questions must be understood as public issues of common concern, 'accessible to debate, reflection, action and moral-political transformation' (Benhabib, 1992, p. 94). This proposal is intended to 'democratize' these 'private' concerns, opening them up to 'discursive will formation' and 'moral reflection' (Benhabib, 1992, p. 94).

Beyond the historical and theoretical limitations identified by the critics discussed above, postmodernists (e.g. Villa, 1992) have levelled criticisms on the basis of Habermas's reliance on elements of the Enlightenment meta-narrative, his inadequate consideration of the implications of ubiquitous disciplinary power (i.e., as discussed in Foucault, 1977/1991), and his alleged advocacy for suppressing pluralism in public discourse (also see Delanty, 1999, pp. 73–98; for counterarguments see Johnson, 1994). Moreover, Habermas's theory of the public sphere ignores those with 'voices that are mute' within public discourse: 'those who do not or cannot speak in public, who from inarticulateness, fear, habit, or oppression are removed from participation in public life' in his model (Gould, 1996, pp. 175–6). Gould (1996, p. 176) attributes this exclusionary current in

Habermas's theory to his 'exclusively discursive' conception of rationality and his reduction of 'communication' to 'rational verbal discourse'.

Nancy Fraser (1992) criticises Habermas's promotion of a public sphere in which consensus through communicative reason is the primary objective. She argues that his normative model of a single, consensus-oriented public sphere would result in the suppression of dissent and homogenisation of public debate and reason. This recalls Hannah Arendt's (1958, p. 220) contention that modernity views plurality as a threat to order and profitability because of its inherent 'haphazardness' and perceived 'moral irresponsibility'. However, Fraser favours the way in which pluralism infuses public debate with a rich variety of voices and perspectives, mirroring the diversity of publics in modern societies. She argues that 'arrangements that accommodate contestation amongst a plurality of competing publics better promote the [Habermasian] ideal of participatory parity than does [the] single, comprehensive, overarching public sphere' Habermas proposes (Fraser, 1993, p. 14).

Arendt (1958, p. 220) goes further than Fraser in defending pluralism, arguing that 'plurality … is the condition sine qua non for … the public realm. Hence the attempt to do away with this plurality is always tantamount to the abolition of the public realm itself'. Broadly endorsing Arendt's argument, Zygmunt Bauman (1999) contends that pluralism is the key to revitalising the contemporary public sphere. Bauman understands the public sphere in terms of the *agora* of Ancient Greece, which, in its ideal form, would allow for the coordination of citizens' public and private concerns. In sum, the *agora* model of the public sphere comprises a 'territory of constant tension', 'tug-of-war' and 'dialogue, co-operation or compromise' (Bauman, 1999, p. 87), where the 'communal search for the common good' can take place under pluralistic conditions (Bauman, 1999, p. 167). These theoretical arguments about the nature of the public sphere are applied to the present case of therapeutic cloning in subsequent chapters.

Mediating the Public Sphere

Embedded within the theoretical perspectives of public realm theorists, such as Habermas, Fraser and Bauman, are latent assumptions about the nature of publicness in modern life. John Thompson (1995; 2000b) explicates a distinctive view of publicness which emphasises the transformation of *visibility* in modern society. Thompson defines an action as public or private on the basis of its visibility. Public actions are performed in the open for all to see (i.e. they are visible), while private actions remain hidden from view. Thompson argues that the mass media, which now dominate the modern public sphere, have transformed the nature of visibility from its past reliance on the prerequisites of co-presence and shared locales to a *mediated publicness* in which actions can be made instantly visible and thus *public* to a national, or even global, audience through mass media. Thompson argues that this transformation in the nature of visibility has changed the ways in

which political rulers govern. In the past, rulers only allowed themselves to be viewed by a limited audience. Now, it is expected that rulers will regularly make themselves visible and their opinions publicly available, explaining their decisions directly to the governed in a way that was simply impossible before modern mass media. As Young (2000, pp. 174–5) contends, 'public communication … help[s] to limit arbitrary power by exposing it and demanding that persons with public and private power give an account of themselves'.

Today, rather than meeting in a common physical space to witness an event or to engage in political debate, citizens meet in symbolic, virtual spaces like sharing newspaper or website readership, or collectively witnessing a televised political speech (see Anderson, 1991). This fundamentally alters the relationship between the leaders and the governed. Television viewers, newspaper readers and radio listeners learn about the actions of their government and are sometimes able to respond through the news media. Although political leaders can exercise substantial control over the time, place and format of their mediated public performances, they are also made vulnerable because of their visibility, according to Thompson (2000a). Mass media allows the public to scrutinise the minutiae of their leaders' visible actions, thus necessitating public explanations. These explanations are routinely manipulated using information subsidies provided by well-resourced, government bureaucracies and other large-scale institutions (Fishman, 1980; Herman and Chomsky, 1988). However, even manipulated visibility places issues into the public sphere and, to an unprecedented extent, opens them up to mediated public debate through the rise of electronic news media (cf. Brothers, 2000). Indeed, nineteenth-century historian, Thomas Carlyle, identified mediated visibility, even in its embryonic form, as fundamental to the very functioning of democracy:

> Democracy is virtually there [in the press] … Whatsoever power exists will have itself … working secretly under bandages, obscurations, obstructions, it will never rest till it get to work free, unencumbered, visible to all. Democracy virtually extant will insist on becoming palpably extant. (Carlyle, 1841/1888, pp. 349–50)

In sum, modern social and political theorists have imbued mass media with a crucial democratic role. This chapter has summarised the development of this theorisation towards a pluralistic? model of the public sphere. In later chapters this model will be compared to the patterns evident in the sub-set of the mediated public sphere that hosted the debate over therapeutic cloning in the US and UK. In order to establish the link between the theoretical arguments reviewed above and the mediated debate over therapeutic cloning debate, the next chapter addresses the role of science journalism as a site for the communication of scientific ideas.

Chapter 7
The Role of Science Journalism

Beyond its role in facilitating mediated visibility, the journalistic field has long played a vital role in the development of modern politics. The 'agenda-setting' power of the mass media has been well-established by media researchers over the last three decades (McCombs, 2005; McCombs and Shaw, 1972). Moreover, the news media frame political issues within particular schema, highlighting some aspects of social reality while obscuring others. The importance of this 'framing' process of 'selecting, highlighting, and sorting into a coherent narrative some facts or observations and deleting many others' (Entman and Herbst, 2001, p. 203) has been demonstrated by numerous studies (Akhavan-Majid and Ramaprasad, 1998; Callaghan and Schnell, 2001; Chyi and McCombs, 2004; Ferree, et al., 2002; Price, Tewksbury and Powers, 1997; Ryan, 2001; Shah, et al., 2002; Shen, 2004). This chapter reviews current theory and research on the nature of mass media and journalism in general, before turning to a specific focus on science journalism.

Despite surface-level political biases, the mainstream Anglo-American press does not tend to wield this influence in a deliberately ideological manner (Kieran, 1997). Rather, the press operates, above all, according to the external pressures of the economy and concomitant organisational norms that help to maintain the profitability of media corporations. Herman and Chomsky (1988, p. 2) highlight the determinative, upstream factors of 'the size, concentrated ownership, owner wealth, and profit orientation of the dominant mass-media firms', as well as 'advertising as the primary income source of the mass media'. Such economic 'news filters' 'fix the premises of discourse and … the definition of what is newsworthy' (Herman and Chomsky, 1988, p. 2).

In his 'market-based model of news production', John McManus (1995) describes the extensive relationship between commercial and journalistic interests at every major level of news production. The distribution of resources from the parent corporation powerfully affects the media companies in which news operations are based. Decisions about personnel and budgets within the news department of the media company are in turn shaped by such financial considerations (McManus, 1995, pp. 311–12). The defining role of the market within news production helps to explain the standardised way in which press content is structured, regardless of the ideological biases of particular news organisations (e.g. see Adorno, 1991; Adorno, 1994; Fishman, 1980). In sum, 'the news is principally produced by market forces and shaped by the particular economies of information goods' (Hamilton, 2004, p. 1).

Professional Norms

Hallin (2000) argues that the market's role in governing news production has been moderated in the twentieth century by journalistic 'professionalism'. This 'professionalism' encompasses the ideals of 'objectivity' and critical, 'Fourth Estate' journalism.

Objectivity

> Objectivity is an umbrella concept that encompasses a range of journalistic values, including factual accuracy, balance between opposing views, and neutrality in presentation. These values are deeply ingrained in the professional culture of journalism in both England and the United States. (Clayman and Heritage, 2002, pp. 150–51)

Schudson (1978, p. 7) defines objectivity as a 'faith in facts, a distrust of "values", and a commitment to their segregation'. According to McNair (1994, p. 25), 'the concept of objectivity has become a key professional ethic; the standard to which all journalists should aspire'. Indeed, the UK's National Union of Journalists enshrines these notions of 'objectivity' and 'impartiality' within their Code of Conduct for news reporting:

> A journalist shall strive to ensure that the information he/she disseminates is fair and accurate, avoid the expression of comment and conjecture as established fact and falsification by distortion, selection or misrepresentation. (Journalists, 2006)

The 'penny press' of the early nineteenth century was the first major precursor of the objectivity principle operant in modern journalism. 'The impartiality … claimed by the penny press … successfully ushered in … the enduring foundation upon which the structure of news objectivity was built' (Schiller, 1981, p. 75). However, Hamilton (2004) traces the emergence of objectivity to economic and technological transformations that emerged from 1870–1900. He shows that the percentage of American daily newspapers identifying as 'independent' of political parties increased from 13 per cent to 47 per cent in this 30-year window. By the 1920s, the norm of objectivity had achieved widespread acceptance amongst journalists (Hallin, 1994, p. 24). Hamilton (2004) identifies the changes in the news market that propelled this shift towards 'independent' or 'objective' journalism:

> An increase in the number of potential readers; a decline in the cost of paper; changes in printing technology that increased the number of papers a press could print an hour and that increased the cost of presses; and the rise of advertising as a way to market goods. (Hamilton, 2004, p. 38)

With the rising significance of advertising revenues from the 1870s onward coinciding with decreases in printing costs, expanding circulation and federal subsidies for distribution costs (Starr, 2004), the performance of 'objectivity' was a way for newspapers to appeal to the widest possible audience in order to attract advertisers and sell newspapers. In addition to these economic factors, Nelkin (1990, p .46) contends that the rise of objectivity was part of the nineteenth-century ascendance towards 'the scientific attitude that facts, standing high above the distorting influence of interests and pressures, can and should be distinguished from values'. Today, American journalists in particular continue to use objectivity as a 'strategic ritual' (Tuchman, 1972, p. 61) intended to foster attributions of legitimacy and credibility amongst audiences. Drummond (1938, p. 59) declared that 'printing the news objectively is the highest ideal' of journalism. The journalistic values surrounding objectivity have even 'penetrated the wider Anglo-American culture, so that public officials, professional pundits, ordinary citizens, and numerous well-financed watchdog organizations now regularly monitor news output for the presence of "bias"' (Clayman and Heritage, 2002, p. 151).

The Fourth Estate

> Burke said there were Three Estates in Parliament; but, in the Reporters' Gallery yonder, there sat a Fourth Estate more important far than they all. It is … a literal fact … [that] Literature is our Parliament too. Printing … is equivalent to Democracy … Whoever can speak, speaking now to the whole nation, becomes a power, a branch of government, with inalienable weight in law-making, in all acts of authority … The nation is governed by all that has tongue in the nation. (Carlyle, 1841/1888, pp. 349–50)

While the 'objectivity' ideal arose from within the field of news production, the notion of the press as a bulwark against excessive state power was initially and effectively promoted by commentators outside the journalistic field. Specifically, political philosophers and journalists themselves have long assigned the press a pivotal role in politics as a critical defender of the public interest (Donohue, Tichenor and Olien. 1995). This 'Fourth Estate' status has been attributed to news publications by philosophers, such as Milton, Bentham, Condorcet and, more recently, Jürgen Habermas (1989). Indeed, the press has long been envisioned as an independent pole of symbolic power in modern society, 'generally outside the direct control of the Church and the state' (Donohue, Tichenor and Olien, 1995; Thompson, 1995, p. 53). John Stuart Mill (1859, p. 22) commended 'the press as one of the securities against corrupt or tyrannical government'. Likewise, Milton (1644) inveighed against Parliamentary support for press censorship by declaring that 'the cruse of truth must run no more oil, liberty of printing must be enthralled again'. Such philosophical visions of a powerful and autonomous press capable of challenging overbearing state power have clear echoes to contemporary theories on the public sphere, such as Habermas's (1989) account.

Significantly, the notion of the press as a critical counter-force to state power still has purchase in contemporary journalism (Nelkin, 1990). Drummond (1938, p. 60) connects this critical role with the objectivity ethos described above:

> The tradition of news-column fairness and impartiality in the selection and display of news must be maintained and strengthened if the press is to fulfil its urgent function in democratic government. (Drummond, 1938, pp. 60–61)

He contends that the press's critical function is to 'protect' and 'preserve' the 'free processes of democratic government' (Drummond, 1938, p. 61). While such an ideal is rarely realised in today's science news coverage (Jensen, 2008a; Nelkin, 1990, p. 46), this self-conception of the news media as Fourth Estate is an essential component of the belief system that defines journalism as a field of practice.

Journalistic professional values, such as the commitment to objectivity, impartiality and the 'Fourth Estate' model of the press, are part of the 'illusio' of the journalistic field. Pierre Bourdieu (1998b) developed the notion of *illusio* to denote the unquestioning belief in the intrinsic value of the capital at stake in a given field, as well as the naturalness of the rules that govern the acquisition of such capital.

> Illusio is the fact of being caught up in and by the game [within a given field], of believing the game is … worth the effort … That is, the fact of attributing importance to a social game, the fact that what happens matters to those who are engaged in it, who are in the game … To participate, to admit that the game is worth playing and that the stakes created in and through the fact of playing are worth pursuing. (Bourdieu, 1998b, pp. 76–7)

'Illusio' is closely tied to Bourdieu's conception of the taken-for-granted assumptions of a particular historical period and field or, what he terms, the *doxa*. This term refers to a practical sense about the nature of the field, by which 'the natural and social world appears as self-evident' (Bourdieu, 1977, p. 164). Bourdieu (2005, pp. 36–7) defines the doxa as comprised of 'practical schemes which make it possible to organize the world, but which remain implicit'. There is a general doxa or 'common sense' comprising the 'universe of the tacit presuppositions that we accept as the natives of a certain society' (Bourdieu, 2005, p. 37). But, there is also a field-specific doxa (i.e. 'professional common sense') encompassing a 'system of presuppositions inherent in membership in a field' (Bourdieu, 2005, p. 37). Both illusio and field-specific doxa (referred to as 'professional common sense' from this point on) are directly implicated in judgments of 'newsworthiness' that are fundamental to the field of Anglo-American journalism. The implicit assumptions that underpin the specific professional practices within Anglo-American journalism are identified in later chapters using interview and media content data. These assumptions help to explain some of the significant limitations of news media as a site for public sphere discourse about the issues of the day.

Newsworthiness

The first task of journalists (including science journalists) is to identify newsworthy events to cover. According to Fishman (1980, p. 33), 'journalistic event detection depends on both methods of exposure and schemes for interpreting … possible newsworthy occurrences'. This process of event detection is highly influenced by the aforementioned market forces, as well as the provision of institutionally-sponsored information subsidies (Gandy, 1982). Reporters depend upon 'bureaucratic self-reporting apparatus[es]' to provide them with 'reliable quantities of information' that has the imprimatur of official state or corporate institutions (Fishman, 1980, p. 52). This information is pre-packaged for journalists in order to facilitate the flow of bureaucratic knowledge into the public domain.

> Government and business-news promoters go to great pains to make things easy for news organizations. They provide … advance copies of speeches and forthcoming reports; they schedule press conferences at hours well-geared to news deadlines; they write press releases in usable [journalistic] language. (Herman and Chomsky, 1988, pp. 21–2)

Such information is treated as unquestioned 'fact' by reporters facing pressure from their news organisations to produce news on a daily basis (Fishman, 1980).

Apart from information subsidies, journalists determine the newsworthiness of a potential story on the basis of criteria, such as 'timeliness', 'relevance' and immediacy for the audience (in terms of both geographical proximity and shared experience), perceived significance and the likelihood of coverage by other news organisations (Billig, 1995; Fishman, 1980; McCombs, 2005; Park, 1940). Shoemaker and Reese (1996, p. 111) identify six, essential criteria for judgments of newsworthiness: proximity, timeliness, the unusual, conflict/controversy, human interest and prominence/importance (also see Rensberger, 1997, pp. 11–13). Luhmann (2000, p. 28) adds to this list: 'surprise' (i.e. 'break[s] with existing expectations'), 'quantities' (i.e. quantifying events or values in order to 'generate sudden insights without any substance'), 'norm violations' (e.g. moral scandals) and 'the expression of opinions'. Based upon all of these criteria, journalists perceive some activities within their jurisdiction as 'new' and significant facts likely to interest readers, while other happenings are journalistic 'nonevents' 'deemed foolish and a waste of time' (Fishman, 1980, p. 82). Nelkin elaborates this process of news selection and framing within the context of science journalism:

> For [science] journalists, especially at daily newspapers, the interest lies in new and dramatic … research. Time pressures and the need to find an 'angle' that will define their writing as news cause them to focus on controversy, competition and 'breaking news'. (Nelkin, 1990, p. 46)

In addition to the patterns of news selection that Nelkin identifies, Williams and Miller (1998) emphasise the idiosyncratic dimension of journalistic event detection. Although reporters often reify newsworthiness by characterising themselves as 'powerless' to resist the inherent news value of a given story, Williams and Miller (1998, p. 155) argue that 'what constitutes an "amazing story" is a matter of disagreement between not only news organisations but journalists'. They contend that 'news values … are a matter of negotiation and struggle inside the newsroom', with the main newsdesk acting as the final authority on what is 'newsworthy' (Williams and Miller, 1998, p. 155). Although Williams and Miller may be overstating the degree of contestation within the newsroom, the present study does support the notion that journalists' news judgments are not wholly determined by the structural influences of elite information sources and bureaucratic self-reporting apparatuses. The precise nature of such influences within the context of therapeutic cloning news will be explored in Chapter 5.

Science Journalism

When scientific issues, such as genetically modified crops and therapeutic cloning, are contested within the public sphere 'there is one forum that overshadows all others … *General-audience mass media provide a master forum*', (emphasis added) comprising '*the* major site of political contest because all of the players in the policy process assume its pervasive influence (whether justified or not)' (Ferree, et al., 2002, p. 10). This notion of the news media as a 'master forum' is applicable to the therapeutic cloning debate. One US study showing that news media played a direct role in establishing the context for the development of public opinion on this topic (Nishet and Goidel, 2007). A UK study pointed to the influence of television media coverage on audience attitudes about therapeutic cloning (Reid, 2012). Scientific controversies are constituted through mediated visibility, journalistic practice, and a form of bio-politics that is unavoidably mediated. For many years, specialist science journalism has played a key role in framing such scientific controversies.

In the American context, the history of science journalism as a professionalised cadre of science writers dates back to the 1930s with the formation of the National Association of Science Writers (NASW). Nelkin (1990) identifies the founding of the 'Science Service' in 1921 by Edward Scripps as an important precursor to this professionalisation. The Science Service acted as press agent for the major US scientific societies, feeding articles to the press that had been pre-framed by the professional common sense and illusio of the scientific community. Until 1978, however, only the *New York Times* had a dedicated 'science section' to guarantee the steady flow of scientific information into the news pages from the major medical and scientific journals and the contemporary incarnations of the Science Service (e.g. EurekAlert in the US and the Science Media Centre in the UK). Since then, science news has burgeoned, becoming a stable news 'beat' within most major newspapers

in both the US and Britain. For example, a longitudinal study of the science news section in the *New York Times* found an increase in the volume of coverage from 1.7 pages per issue (excluding advertising) in 1980 to 5.4 pages per issue in 2000 (Clark and Illman, 2006). Moreover, the introduction of such designated 'science sections' within newspapers has important implications for the quality and quantity of science and medical news coverage (Bader, 1990), forcing journalists to fill the space regardless of the shifting event horizon on their beats.

By and large, the domain of science and medical journalism operates according to the same principles as the news media in general. However, there is some variation in the particular means of achieving the journalistic ends identified above. First, although the role of 'bureaucratic self-reporting apparatuses' (Fishman, 1980) is still salient in the domain of science news, major scientific and medical journals have routinised the delivery mechanism for information subsidies, using 'embargoes' to achieve the maximum mediation of the studies they publish. Kiernan (2003, p. 903) summarises this public relations system:

> Each week, the [scientific and medical] journals distribute advance copies of their articles to journalists throughout the world, on the condition that the journalists agree not to report their stories until a common time, several days later. The result is pack competition, by inducing [journalists] all to cover the same articles from the same journals.

In addition to making journalists' lives more predictable, the embargo system makes scientific studies appear more newsworthy by making them seem new and timely even though they are reporting past research from months or years ago.

Beyond managing this embargo system, the journals employ trained journalists to write press releases that identify studies of possible interest to the news media. These press releases are crafted to appeal to journalists' 'news sense' and they are exceedingly effective at setting the agenda of science and medical news coverage. One study of US press coverage found that studies that had been published by journals with a press release received a significantly greater volume of news media coverage than studies not accompanied by press releases (Stryker, 2002). In the same vein, an analysis of the coverage in two British newspapers found that only articles accompanied by a journal-produced press release received coverage (Bartlett, Sterne and Egger, 2002). A German case study found that fully one-third of those reporting about the Max Plank Society was directly attributable to public relations materials crafted by PR professionals working for the Society (Machill, Beiler and Schmutz, 2006). In the present study, the influence of the embargoes, press releases and other elements of the major scientific and medical journals' 'public relations' system were evident. Embargoes governed the release of the news that Dolly had been born, as well as all other key, scientific 'breakthroughs' that garnered press coverage in the present sample. Moreover, journalists took cues from the journals' press releases in their decisions to cover particular scientific studies. Most significantly, these PR materials directly influence the

illusio and professional common sense of the science journalism sub-field through the promotion of reverence for science and of a scientific worldview that Nelkin (1990) identified in the Science Service's first attempts to influence coverage in the early twentieth century.

Finally, in addition to the institutional provision of pre-packaged news, the methods of framing particular science news stories follow many of the standard conventions of the larger journalistic field. Although it was nineteenth-century American publishing magnate, Joseph Pulitzer, who presided over the proliferation of the 'human interest' news frames within Anglo-American journalism (Starr, 2004, pp. 255–8), the first editor of Science Service, Edwin Slosson, pioneered their use within the domain of science news. The Science Service advertisements boasted that 'drama and romance are interwoven with wondrous facts, helpful facts' within their news releases and that 'drama lurks in every test tube' (as quoted in Nelkin 1990, p. 44). According to Nelkin (1990, p. 44), the 'Science Service created a market for science news and set the purpose and the style of contemporary science journalism'. Contemporary science journalists continue to employ dramatic metaphors and 'organizing analogies' in order to construct explanations of science and technology (Knudsen, 2003) (Rowan, 1990).[1] Moreover, Henderson and Kitzinger (1999) identified an escalating pattern of such 'soft' or 'human interest' framing in their study of press coverage regarding inherited breast cancer.

However, based on a study of scientists, science editors, science writers and both readers and non-readers of science news, Johnson (1963) found that only science news *editors* emphasised 'colour' and 'human interest' when evaluating a science story. He concluded that science *correspondents* tend to agree with their scientist sources in using the evaluative criteria of accuracy and study significance. On the other hand, Johnson's research is now over 45 years old. Indeed, the research presented in this book does not support his findings, as will be discussed in later chapters. Even though science correspondents do not typically view themselves as promoting sensationalism (Ryan, 1979), the empirical chapters in this book identify the extensive use of 'drama', 'human interest' and exaggeration within the coverage of therapeutic cloning. Science journalism selectively represents news within a set range of existing news frames, thereby distorting the scientific and social reality of issues such as therapeutic cloning. In sum, the salience and content of science news stories that are represented in the public sphere are determined primarily by institutional processes such as press releases and professional common sense assumptions about what is newsworthy. The news is *not* governed by the extent to which scientific developments are 'in the public interest' or scientifically significant.

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1 Rowan (1990, p. 27) describes these as 'quasi-scientific explanations', arguing that science writers must sometimes employ 'transformative explanations' in order to re-shape inaccurate 'folk theories' about scientific phenomena amongst their readership.

Chapter 8
Previous Research on Human Cloning in the Media

In addition to the general research on science news reviewed in the previous chapter, several key media studies have specifically examined coverage of human cloning.

Media Coverage of Dolly and Reproductive Human Cloning

Holliman (2004) traces the emergence of the contemporary 'media template' for human cloning to its inception in the coverage of the various sheep cloned by Ian Wilmut at the Roslin Institute. Holliman adduces data from the full 'circuit of mass communication' (Thompson, 1988). He conducted (1) semi-structured qualitative interviews with UK science journalists, (2) a content analysis of UK newspaper and television news coverage from 1 January 1996 to 31 December 1997 and (3) audience reception research with both 'scientists' and 'non-scientists' in the UK using questionnaires and focus groups. Holliman (2004) found that scientists and media professionals at the Roslin Institute, along with their corporate sponsor PPL Therapeutics, were partially successful in their attempts to 'manage' UK media coverage of Dolly. Wilmut, Campbell and other scientists 'dominated' the coverage, according to Holliman (2004, p. 125). However, this scientific influence was tempered by the 'news sense' of journalists, who emphasised 'science fiction and political extremis' in addition to scientists' views as part of the Dolly 'media template' (Holliman, 2004, p. 126). Holliman's reception study showed that media coverage of Dolly was influential in focusing participants' concerns on the 'implications of cloning research for humans and not for sheep or other animals' (Holliman, 2004, p. 126). Indeed, Holliman (2004) showed that Dolly set off a media firestorm reigniting concerns about the prospects for human cloning.

Edna Einsiedel et al. (2002) analysed frames, metaphors and other thematic content in elite European press coverage of the first 11 days of the Dolly story in 1997.[1] They found that notions of 'scientific progress' were developed by framing Dolly's birth as 'a unique event, a surprise, a "technological leap"' (Einsiedel, et al., 2002, p. 340). Moreover, Einsiedel et al. (2002, p. 340) contend that 'Dolly as a

1 The sample size for this study is not specified, but the sampling frame appears to be relatively narrow. For example, the sample for the UK was comprised of just three newspapers: *The Guardian*, *The Independent* and *The Times*.

technological event … instigated – even necessitated – an important restructuring of mental maps', transposing science fiction into the real world.

Priest (2001b) analysed coverage of the ethical controversy surrounding human cloning in elite US newspapers ($n = 130$) from 1994–1997. Her qualitative analysis of this press content revealed that the debate was concentrated around reproductive cloning in a way that constructed the issue as a 'safe controversy' for the biotechnology industry (Priest, 2001b). That is, the debate was limited to an 'abbreviated set' of ethical issues unlikely to 'challenge existing institutional arrangements', thus constituting the human cloning controversy in the US as 'harmless to the status quo arrangement' within biotechnological development (Priest, 2001b, p. 67).

A study of the UK press coverage in 1997 and 2002 emphasises the role of science fiction imagery in framing the implications of human cloning (Bloomfield and Vurdubakis, 2003). Based upon a qualitative analysis of 700 articles about Dolly, the Raelians' claim regarding the birth of the first cloned child (named 'Eve') and the birth of the first 'designer baby', Adam Nash, Bloomfield and Vurdubakis (2003) identify the cultural genealogy of cloning as the key factor in the news media framing of Dolly and 'Eve'. As discussed previously, this cultural genealogy includes science fiction and literary works such as Mary Shelley's *Frankenstein* and Aldous Huxley's *Brave New World*. Bloomfield and Vurdubakis (2003) demonstrate that the media framed reproductive cloning and putative Raelian cloner, Boisselier, as transgressing the boundaries of the 'natural' and legitimate.

Priest's and Bloomfield and Vurdubakis' findings would seem to conflict with Marks et al.'s (2007) conclusion that medical biotechnology stories, including Dolly, have received more positive treatment in the UK than in the US.[2] Marks et al. (2007) conducted a comparative content analysis of the coverage of both agricultural and medical biotechnology in the London *Times* and the *Washington Post* from 1990–2001. They found that coverage of medical biotechnology, in general – and the Dolly story in particular –, was significantly more negative in the *Washington Post* 'reflecting the more contentious debate over human cloning that took place in the United States' (Marks, et al., 2007, p. 194). Meanwhile, the *Times* science reporters 'took a more positive stance on Dolly', which Marks et al. (2007, p. 196) attribute to 'local framing'. That is, Dolly was treated more positively in the UK press because she was from the UK and represented British science. However, Marks et al. do not consider the possibility that the efforts of the Roslin Institute, PPL Therapeutics and *Nature* may have been a factor in leveraging this favourable UK coverage (see Holliman, 2004).

At the same time, Nik Brown's (2000) study[3] of the 'breakthrough motif' in the coverage of Dolly casts doubt on the power of scientific institutions to determine media content in the case of controversial science. The Roslin Institute's initial

2 However, Marks et al.'s finding is consistent with Einsiedel et al.'s results.

3 Brown does not provide any methodological details in his report.

press release to announce the cloning of Dolly explicitly described the event as a 'scientific breakthrough', a frame that was taken up by most journalists in the UK press. Yet, as Brown shows, this frame is open to questioning. The 'truncation of [the scientific] process and the removal of contingency' required to construct the myth of a 'breakthrough' is vulnerable to critical probing, which, in the case of Dolly, at least partially revealed the exaggerated nature of the 'breakthrough' framing (Brown, 2000, p. 107).

Another study of the way in which the cloning was framed in the UK press emphasised the role of science fiction templates, such as Frankenstein, as news sources (Nerlich, Clarke and Dingwall, 1999). The methods for this study were not specified. However, their analysis pointed to the symbolic power exercised by four key sources in the early coverage of cloning. According to Nerlich et al. (1999), Ian Wilmut initiated the 'discourse of reason', media-friendly American scientist, Lee Silver, fuelled the 'discourse of fantasy', media-friendly British scientist, Patrick Dixon, initiated the 'discourse of doom' and Richard Seed (i.e. 'the reincarnation of Frankenstein') initiated the 'discourse of hubris'. These discourses interacted with the cultural ancestry of dystopian science fiction to create the context within which the human cloning debate would occur (Nerlich, Clarke and Dingwall, 1999).

Taking a more linguistic approach to news framing, Hellsten (2000) compares the use of conceptual metaphors to describe human cloning in *The Times* and *Nature.*[4] She found that both publications used similar metaphors on a general level (e.g., 'CLONING IS MASS PRODUCTION'), but their intended meanings were much different (e.g., 'CLONES ARE LOUSY COPIES' vs. 'CLONES ARE USEFUL PRODUCTS'). Hellsten (2000) also found that both *The Times* and *Nature* portrayed cloning as progress in a journey. The key difference was in the metaphors used by *The Times,* which indicated a concern that cloning was part of a journey toward some negative and likely apocalyptic outcome. Whereas, *Nature* framed cloning as scientific progress and the public's opposition to cloning as a barrier to beneficial research. Finally, Hellsten concludes that the debate on cloning, and modern biotechnology in general, can be reduced to two opposing views:

> First, it is wrong to modify nature (to make lousy copies or to play God), and thus gene technology is just a new and dangerous way of interfering with nature. Second, modern biotechnology is a beneficial tool for controlling nature (to produce goods and to conquer the unknown). (Hellsten, 2000, p. 219)

Nerlich et al. (2000) examine a diverse group of newspaper and Internet sources for references to cloning. They found three primary conceptual metaphors (cf. Ritchie, 2003) depicting clones as 'copies', 'machines' and 'plants/animals'. The 'CLONES ARE COPIES' metaphor was very similar to 'CLONING IS MASS

4 For an introduction to conceptual metaphor theory, read Lakoff and Johnson, 1980; Ritchie, 2003; Vervaeke and Kennedy, 1996.

PRODUCTION' in Hellsten's (2000) study. However, in Nerlich et al.'s (2000) data, this metaphor was only negatively valenced. Second, Nerlich et al. found the root metaphor 'CLONES ARE MACHINES'. More specific metaphors portraying clones as machine-like entities that can be bought, sold for spare parts and mass-produced were placed under this broader category. Thirdly, Nerlich et al. identified the metaphor 'CLONES ARE PLANTS/ANIMALS'. Specifically, clones were said to be 'grown, grown to order, harvested, farmed, bred, butchered' and were capable of being 'bought and sold as wholes or parts' (Nerlich, Clarke and Dingwall, 2000, p. 232). Finally, both Nerlich, et al. (2000) and Hellsten (2000) found that, in many cases, writers drew on fictional accounts of cloning from the movies and elsewhere as the 'source domain' for cloning metaphors. Images of Frankenstein's monster, armies of cloned Hitlers, super races and superhuman warriors all made appearances in their data. Indeed, other studies have pointed to the importance of metaphor establishing public representations of biotechnologies such as human cloning (Liakopoulos, 2002).

Jensen and Weasel (2006) also focused on figurative language in their study of US specialist Christian and pro-science news publications, as well as mainstream American press coverage of human cloning. This study employed an intensive form of content analysis using three coders to identify statistically significant differences in the volume and quality of 'abortion-related rhetoric' across these three samples. Ultimately, they conclude that evangelical Christians have transferred their rhetorical arsenal from the abortion controversy to attack the concept of human cloning. Moreover, they conclude that 'abortion rhetoric will continue to expand into an even wider range of American bioethical debates' (Jensen and Weasel, 2006, p. 15). This finding supports Nelkin's (1992, p. xxiv) contention that 'based on competing social and political values, few conflicts are in reality resolved. Even as specific debates seem to disappear, the same issues reappear in other contexts'. Thus, news coverage of human cloning recycled and reinforced existing moral and political discourses in a new scientific context.

Research on scientists' attitudes about new genetics suggests that scientific experts hold generally similar attitudes in both Europe and the US (Rabino, 2006). However, the continuous struggle between religion and science in the US appears to be a particular flashpoint in the American debate over human cloning. In order to elucidate religious and scientific perspectives on this issue, Weasel and Jensen (2005) conducted a web-based qualitative survey with Christian fundamentalist leaders (n = 32) and university-based molecular biologists (n = 29). A grounded qualitative analysis of these data showed clear, divergent patterns in the perceptions of the two groups, not only in terms of their level of opposition or support for human cloning technology, but also in terms of their rationalisation and epistemic orientation towards the issue. For example, several scientist respondents expressed their support for human cloning with reference to the necessity of scientific progress, whereas some of the Christian leaders explicitly based their opposition to the technology on the notion that human cloning was an example of the hubris

of scientists seeking to 'play God' and usurp God's role as 'creator' (Weasel and Jensen, 2005).

Frequently accused of hubristically 'playing God', Richard Seed was the first 'maverick' scientist to seek out media attention for his alleged efforts at human cloning in the wake of the controversy surrounding Dolly's birth. Gerlach and Hamilton (2005) analysed 'English-language media coverage' of Seed from December 1997 to January 2004, including both print and broadcast media in the sample ($n = 185$). This study examined the construction of Seed as a 'bad scientist', a construction which constituted a 'biogovernmental event' that 'invited a response from regulators', according to Gerlach and Hamilton (2005, p. 79). Nerlich and Clarke (2003) conducted a small case study of press content surrounding a media event staged by Panos Zavos and Severino Antinori on 9 March 2001 in Rome to advertise their putative cloning services. This study concluded that Zavos and Antinori's own rhetoric (e.g. referencing dystopian science fiction) was working against them by reinforcing stereotypical conceptions of human cloning. Bloomfield and Vurdubakis (2003) identify a similar pattern at work in the coverage of Dolly. They compare a segment of text from *Frankenstein* with another from Ian Wilmut, showing that the Wilmut self-description 'echoes that of [Dr.] Frankenstein' (Bloomfield and Vurdubakis, 2003, p. 18). Finally, Haran (2007) analyses a small sample of UK press articles and television bulletins on the topic of Panos Zavos' apocryphal announcement of a forthcoming cloned baby and the ensuing backlash from scientists. The study finds three key boundary distinctions at work in the coverage: (1) between 'maverick' and established scientists, (2) therapeutic versus reproductive cloning and (3) good UK regulations versus bad regulations in other nations (Haran, 2007, p. 208).

Therapeutic Cloning

Turning now to studies focused specifically on therapeutic cloning coverage, there are three relevant journal articles. The first examines how the embryo is 'defined, envisaged, imagined' within British news coverage of therapeutic cloning (Williams, Kitzinger and Henderson, 2003). The sample comprises 55 newspaper articles and eight television news bulletins surrounding the publication of the Donaldson Report and the Parliamentary debate over therapeutic cloning in August and December 2000. The study identifies a multi-dimensional struggle over the framing of the human embryo in this debate. Most notably, they found that proponents of therapeutic cloning were using images of embryos that showed them to be undifferentiated (i.e. not babies in miniature) as a way of legitimising their use for scientific research. Apparently using the same sample of news coverage of therapeutic cloning from the year 2000, Kitzinger and Williams' (2005, p. 737) concluded that the use of 'science fiction is thus not so much a way of promoting concern about science … Rather it is here used … as a rhetorical weapon to discredit the opposition' by casting them as ignorant and unreasonable.

Jensen's (2008) qualitative analysis of 857 elite UK news articles on therapeutic cloning and five human cloning films largely supports this finding. His results showed excessively positive press coverage of therapeutic cloning, while the films conjured unrealistic dystopian scenarios. He concludes that both these forms of hype have negative implications for the quality of public bioethical discourse.

Giarelli (2006) conducted a semiotic analysis of editorial cartoons in US newspapers focusing on the representation of stem cell and cloning research. The analysis of 106 editorial cartoons published from 2001 to 2004 in 51 syndicated newspapers evaluated the portrayals of scientists and the users of science (Giarelli, 2006, p. 62). 86 of these cartoons referred to cloning and 20 of them were about stem cell research (Giarelli, 2006, p. 66).

Giarelli (2006, p. 66) analysed manifest and latent content of the cartoons. She identified seven variables, including four descriptive (kind of scientific research, sex, race and social role of the scientist character) and three connotative ones (general message of the cartoon, main consequence of the use of technology and the value of the portrayed technology). The research identifies significant gaps between the representations of men and women in these data. Men were shown more frequently (64 per cent) than women, and they were mostly placed in the roles of politicians, congressmen, scientists and doctors. In contrast, only 16 per cent of all the cartoons showed women, with only two of those cases representing women as scientists. Also, 'No women were cloned or were the users or beneficiaries of stem cell research' (Giarelli, 2006, p. 70). In addition, to skewed gender representations, ethnic representations evinced stereotypical judgements about non-whites. Indeed, ethnic groups were represented exclusively through stereotypes: 'Ethnicity was recognizable only in the characterization of Osama Bin Laden, Saddam Hussein, and Kim Jong II' (Giarelli, 2006, p. 70).

The last discernible gap was between the implied value of the stem cell research and cloning. Cloning in all cartoons, except only one case, was represented as a negative enterprise, which would metaphorically lead to the creation of Frankenstein monsters at the hands of 'mad scientists'. Also, cloning was connected to the Pandora's box myth or the story of the Garden of Eden and the Fall. In contrast, the stem cell research was depicted positively (n=11) (Giarelli, 2006, p. 71). Finally, Giarelli concluded that the editorial cartoons are reducing 'cloning and stem cell research into generally negative symbols suggests that there is a need to educate the public on accurate terminology and the difference between real and imagined risks and benefits' (Giarelli, 2006, p. 74).

In the most comprehensive study in the literature, Haran et al. (2007) bring together a wide-ranging but mainly UK-centred analysis of various kinds of media coverage on human cloning, including data from mainstream news media and 'liminal' media forms, such as two cloning-related websites and a BBC television documentary-drama on cloning (cf., Jensen, 2009). In addition, they utilise data from interviews with news sources, such as Zavos and Hwang, as well as focus group and 'mass observation' data on audience reception of media coverage of human cloning. Thus the full circuit of mass communication is covered in this

study, although the precise dimensions of the content sample are not specified. There is no data from news workers, such as journalists and editors, to shed further light on the production process and it is not clear how much impact 'liminal' media has had on the mediated public debate over human cloning.

Nevertheless, Haran et al. (2007) make several important contributions to the literature, including a valuable feminist perspective[5] and data on the audience reception dimension. In their analysis of the variously constructed 'mavericks, madmen and fallen heroes' within the media coverage of human cloning, Haran et al. (2007) emphasise the efforts to define the boundaries of good science in such a way as to exclude figures, such as Zavos and Antinori, as well as the fallen Hwang from late 2005 and onward. They also discuss the visions of the future conjured in dystopian science fiction films, such as *Aeon Flux* and *The Island*. Counter-intuitively, the authors interpret the narrative in the latter film as a 'reassuring tale' that comforts viewers with the idea that the morally strong individual can rein in any dangers that techno-scientific development may produce (Haran, 2007, p. 64).

Finally, Kitzinger (2008) conducted a study of public representations of the Hwang scandal. Kitzinger pointed to the initially positive image of Hwang's research and examined news media's strategies for coping with its failure. She analysed the reported statements of scientists and policy makers between 2000 and 2005 for this paper (Kitzinger, 2008, p. 2).

Kitzinger identified 'three crucial periods' in the development of the scandal (Kitzinger, 2008, pp. 2–5). (1) Phase one (2000-onward) was an initial period of visionary promise. In this phase 'hope' was not considered as an emotion but a 'basis' for claim-making (Kitzinger, 2008, p. 5). (2) Phase two (2004-mid 2005) was the moment of 'breakthrough' and partial fulfilling of the goals of Hwang's project. In this phase, Kitzinger recognised four rhetorical devices: (a) imagery of a scientific landmark, (b) accelerating hyperbole and retrospective qualifications, (c) the discourse of vindication (and a new sense of urgency) and, finally, (d) the words of caution as an 'admonition against premature expectations' (Kitzinger, 2008, pp. 5–8). (3) The last phase (late 2005-early 2006) was the moment of failure and setback. This was the phase of the scandal during which it was revealed that Hwang and his team had faked data (Kitzinger, 2008, p. 8).

Kitzinger observed that, after the last phase, the lost hope of therapeutic cloning research was rescued by public statements of scientists and policymakers seeking to save an 'optimistic framework' for scientific research (Kitzinger, 2008, p. 8). The main strategy for rescuing the hope narrative was to draw new boundaries between failed and successful stem cell projects. The main themes of this strategy were: (1) Other scientists 'divorcing' working relations with Hwang, (2) Asserting national distinctions (the project was Korean), (3) 'drawing distinctions between stem cell research based on cloning techniques and that pursued through the use of

5 Given women's central role in reproduction and, more specifically, in the provision of the embryos required for therapeutic cloning research, feminist theorising and research in this area is vitally important.

spare IVF embryos' (Kitzinger, 2008, pp. 9–10). Kitzinger concluded that after the scandalous failure of the project, scientists were heavily 'geared toward rescuing hope for (at least part of) the embryo stem cell enterprise (Kitzinger, 2008, p. 15).

Limitations of Previous Studies: A Brief Meta-Analysis

Although the various studies reviewed above offer important insights into Anglo-American press coverage of therapeutic cloning, they suffer from a number of methodological shortcomings. Additional criticisms could be levelled, but the most prevalent limitations can be summarised under five overarching categories: (1) study design addresses only one dimension of the circuit of mass communication, (2) small sample, (3) sample is limited to a single national context, (4) exclusionary sample and (5) unspecified method of data analysis. These categories are elaborated further below.

1. 'One Dimensional Design'

Most of the previous studies only addressed one dimension of the 'circuit of mass communication', which includes 'production', 'content' and 'reception', according to Thompson (1988). Thompson argues that these dimensions are most fruitfully analysed in concert:

> We can focus our attention on each of these object domains in turn, analysing their characteristic forms and processes. But the fact that these object domains are constituted by abstracting from other aspects of mass communication implies that an analysis focussed on a single object domain will be limited in certain aspects. A comprehensive approach to the study of mass communication requires the capacity to relate the results of these different analyses to one another, showing how the various aspects feed into and shed light on one another. (Thompson, 1988, p. 374)

Thus research on more than one dimension in the circuit of mass communication is preferable, in terms of providing a valid and complete account of the mediation of human cloning.

However, while a one-dimensional research design is limiting, it is only a *flaw* when sociologists over-reach and make unfounded claims about the dimensions not addressed by their data. For example, researchers conducting studies on media content are often tempted to exceed their data by making claims about the ways in which this content will be received by audiences. This 'fallacy of internalism' occurs when 'analysts … focus largely or exclusively on the structure and content of media messages, and … "read off" the consequences … by reflecting on the messages themselves' (Thompson, 1990, p. 24).

2. 'Small Sample'

A high proportion of studies in the literature on cloning news coverage have small samples or truncated sampling timeframes. One example is Kitzinger and Williams' (2005) study, which examines less than 3 weeks of media coverage in total. Such small samples face well-documented limitations in generalisability (e.g. Priest, 1996).

3. 'Mono-national Sample'

Although the use of the nation as the unit of analysis is well-established within sociology, focusing a study upon a single nation can yield a myopic and incomplete perspective on globalised phenomena such as biotechnology (Beck, 2006). Avoiding 'methodological nationalism' is also important for the detection of 'subtle' structural factors at work in the mediation of biotechnology:

> Subtler differences between the structures of media systems in Europe and the U.S … may be very important for understanding the character of public debate in the context of media reports on both sides of the Atlantic. (Priest and Eyck, 2003, p. 33)

4. 'Exclusive Sample'

The tendency for press studies to privilege broadsheets and other elite media to the exclusion of tabloids and populist American news publications, such as *USA Today,* has been justified by the claim that elite news publications are disproportionately influential in the political realm. While there is evidence that the readership of elite news publications is more politically engaged (Bauer and Bonfadelli, 2002), the privileging of these publications in studies of science news is unwarranted. Non-elite sources boast a much wider circulation, and there is no evidence that they exert any less influence on the public agenda than elite newspapers (indeed, it could be greater). Thus, the exclusion of these non-elite newspapers must be viewed as a largely arbitrary decision, which does not reflect the important role these newspapers play in the mediated public sphere. Indeed, Priest and Eyck (2003, p. 33) point to the fact that many significant issues can be missed by studies that are 'limited to a handful of elite publications'.

5. 'Unelaborated Data Analysis'

Most of the studies in the literature were qualitative. Amongst these articles, there emerged a pattern of authors failing to specify their methods of data analysis for reaching their reported conclusions. This omission leaves the reader uncertain of the quality of the analytic process (Johnson and Waterfield, 2004). That is, in these cases the reader must question whether the analysis was systematic and rigorous.

'Quantitative', 'Qualitative' or 'Combined'

This final category is not a limitation. It is simply an important, additional dimension for characterising the existing, empirical literature on this topic. The possible permutations in the previous studies were 'quantitative', 'qualitative' or 'combined' qualitative and quantitative within the same study. The quantitative studies used 'content analysis', whereas the qualitative analyses rarely elaborated their methodology.

Addressing the Limitations

The limitations of the studies identified above have been critically reviewed in order to inform the design of the present study. This study addresses each of the shortcomings reviewed above by employing an in-depth, iterative and qualitative analysis in order to excavate the discursive formations in the sample and elucidate their implications in light of sociological theory. The data for this study cover two of the three dimensions of mass communication: production and content. The sample size is very large, including 5,185 articles and 18 interviews. A cross-national comparison between the US and the UK is employed with a global perspective to moderate the concern of 'methodological nationalism'. Data from non-elite news publications are included, such as *USA Today* in the American sample and *The Daily Mail* and *The Sun* in the UK sample. Moreover, in the methodological appendix to this book the rigorous data analysis approach is delineated, as well as the multiple 'quality assurance' measures that were employed. Combined, these various elements of the research design address all five of the major, recurring limitations in the previous literature on human cloning media coverage.

Chapter 9
Scientific Utopianism and Balanced Hype

The research conducted for this book shows that, just as in the UK embryo research debate in the 1980s, a coalition of patient groups, scientists and politicians deployed a narrative of hope which resonated through the medium of the elite British press (Mulkay, 1994; Mulkay, 1995c; Mulkay, 1997). This hope narrative was constructed on the basis of scientific hype, as can be seen in the following extract.

> Imagine being able to grow magic cells to repair or replace any part of the human body … These create-a-cure wonders are called stem cells and they have the potential to prevent, or treat, almost any illness or injury. (Symons, 2005)

This hope narrative rhetorically transforms present-day suffering into an idealised future where the worst illnesses and genetic disorders of modern society have been largely eradicated. However, with the fall of Hwang in late 2005, just as with most promissory science before it, 'non-scientists suffered an emotional whipsaw of hope and the dashing of hope' (Toumey, 1996, p. 97).

The 'Rhetoric of Hope'

Therapeutic cloning was presented in the elite UK press as possessing an almost miraculous, curative power.

> Only somebody with the most absolute belief in the sanctity of all living human tissue could oppose *the near-miraculous ingenuity of this kind of science, with its almost miraculous benefits*. Jesus was rather keen on miraculous healing himself. (Marrin, 2002; emphasis added)

One facet of this narrative was the introduction of tragic personal stories, tied into the larger issue of therapeutic cloning within the media and political fields. The following data extract exemplifies the integration of the personal, political and scientific in this coverage:

> Samantha, a mother of five young children, has already had four strokes. *A controversial new technology which uses cells from human embryos could help her and millions of others* … Six days after the birth of her twins …, Samantha Panting suffered a massive stroke. Aged just 30, she was left partially paralysed

> and unable to talk – with five children under seven to care for. Although she made an almost complete recovery, since then she has had three more strokes …
>
> Today Panting … is forgetful because of the damage the strokes have done to her short-term memory; her right hand is also weak. Another stroke would cause more deterioration … she knows she could be struck down again at any time and fears not being able to play a full role in her children's lives. (Waterhouse and Rogers, 2000; emphasis added)

After establishing this personal narrative of a woman desperately in need of help, the political angle is grafted onto the story.

> *Last week MPs gave the go-ahead* to controversial research which offers hope to Panting, to thousands of other stroke victims and potentially to millions of others suffering from acute conditions and degenerative diseases. (Waterhouse and Rogers, 2000; emphasis added)

Finally, the article broadens the hope-based discourse from the personal example of Panting to an entire utopian vision of a 'new medical era' comprised of 'innumerable' cures and a specific timetable for their arrival (5–10 years).[1]

> This research, which uses cells from human embryos, could offer the prospect of a *cure for cancer* and a way of *repairing vital organs* such as the liver and heart. *It could herald a whole new medical era … New brain cells could cure Parkinson's and Alzheimer's disease* and even help to *prevent strokes* in people such as Panting. From stem cells, *new nerves* could be grown *to treat paralysis*; *new lung linings* could be grown *for cystic fibrosis sufferers*; *diabetes, blindness* and *innumerable other conditions could become curable*. The first treatments could be available within five to 10 years. (Waterhouse and Rogers, 2000; emphasis added)

The recounting of these future events as if they had already occurred, as well as the provision of a specific timeline, places this extract within the realm of prophecy. Mulkay (1997, pp. 70–71) identified a similarly prophetic 'rhetoric of hope' in UK embryo research debates: 'The primary message [in the elite press] … was that the use of science-based techniques offered hope … In these texts, the future accomplishments of embryo research become strangely tangible'. Haran et al. (2007, p. 47) describe this prophetic framing as a form of 'temporal contraction'. That is, 'discursive renderings involving the condensation of the timelines for curing through technoscientific cloning' (also see Kitzinger and Williams, 2005).

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1 Later in the book, the personal or 'human interest' dimension of this utopianism is explicated in much greater depth. This chapter focuses upon the role of the broader utopian vision in the therapeutic cloning debate and its relation to notions of scientific progress.

Indeed, this exaggeration of the imminence of human cloning has been visible in both US and UK media coverage since Dolly:

> [Mitalipov] was on the phone with reporters around the world, defending his techniques to harvest human embryonic stem cells for use in future treatment of Parkinson's disease and other conditions. The methods he detailed in a prestigious journal in May are viewed as within scientific spitting distance of creating human clones. (Budnick, 2013)

The construction of cloning cures as inevitable, tangible and imminent had important implications in the UK political field. The following extract shows how the 'rhetoric of hope' bridges the personal, political and scientific spheres. Specifically, patient suffering (i.e. the *personal*) was used as the basis for *political* decision-making regarding the regulation of the *scientific* field:

> The government is aware of the concerns that people with genetic disorders such as Alzheimer's or Huntington's disease and their families have, namely that the [current law] constrains research into these conditions. It has therefore asked the Chief Medical Officer's group to report to ministers early next year. (Dalyell, 1999)

Scientific Progress

The elite UK press and science advocacy publications, such as the *New Scientist,* were rather pessimistic about therapeutic cloning's legislative prospects in the months before the British Parliament approved it. The following extract protests that Anglo-American politicians were being too slow to endorse therapeutic cloning, thereby placing patients in jeopardy and threatening scientific progress:

> For the first time there is a realistic hope of designing treatments for paralysis, head injuries and stroke, and progressive neurological diseases such as multiple sclerosis and brain cancer. But *just as scientists pick up speed in their quest for new therapies, politicians are applying the brakes*. The British Parliament recently voted down proposals to allow researchers to study stem cells harvested from embryos – cells that may ultimately help paralysed people walk again and treat devastating neurological diseases. And if the Republicans prevail in the contested US presidential elections, they will likely reverse an earlier decision allowing such research to be publicly funded … these moves … *could delay long-awaited advances by years*. (Knight, Motluk and Phillips, 2000; emphasis added)

A complementary frame in many elite UK press articles constructed legislative restrictions on therapeutic cloning as impediments to patients' hopes for cures.

> *Could the cure for all diseases be banned?*
>
> A UN treaty against cloning will not technically trump domestic laws, such as those in Britain … However, most experts feel that it would smother the field in an atmosphere of hostility, spelling a slow death for one of medicine's most promising weapons in the war against sickness. (Ahuja, 2004)

As seen above, state intervention limiting therapeutic cloning research was framed as an immoral barrier to the realisation of patient cures and scientific utopia. The American scientist's commentary in the following elite UK press extract indicates a similar concern about having the therapeutic cloning utopia delayed or denied because of putative American legislation:

> Nobody wants to invest in the work here because it might be outlawed at any time. It is a real tragedy. I have calculated that two people die of heart disease, Parkinson's or diabetes – all curable with stem cells – every minute that we delay research on this. (Rogers, 2002)

Hence, the focus of the outrage in this debate was directed away from the destruction of early embryos during the therapeutic cloning process and towards the immorality of overbearing government regulation of the technology. In the extracts below, the 'outrage' was the decision of the UK government to have an expert panel consider the therapeutic cloning issue:[2]

> *Scientists are outraged by the government's procrastination*. Lord Winston … has said: 'If you could use tissue from human embryos to save hundreds of lives, *there must be a moral imperative to do it*'. (Emphasis added; Leake and Dobson, 2000)
>
> The decision [to refer the issue to an expert panel] has come under fire from scientists and many media commentators, with some arguing that the government is running scared of public opinion. (Coghlan, 1999)

The first extract above is indicative of the intertwining of a utopian narrative with a (successful) political agenda favouring unfettered techno-scientific development (also see Mulkay, 1995a; also see Mulkay, 1997).

The Enlightenment Legacy

While scientific utopianism looks forward to a new and better future, it draws inspiration from the grand narratives of the past. Central to modern utopianism

2 Ironically, this expert panel (the Donaldson committee) went on to fully endorse therapeutic cloning.

is the mythical notion of scientific progress,[3] which is rooted in the historical period of Enlightenment. The following statement of faith in human progress by Condorcet amidst the French Revolution exemplifies the sentiments of many of the *philosophes* of the eighteenth century, similar to the myriad of proponents for scientific progress from nineteenth century to today:

> Nature has set no term to the perfection of human faculties … The perfectibility of man is truly indefinite and … has no other limit than the duration of the globe upon which nature has cast us. This progress will doubtless vary in speed, but it will never be reversed. (de Condorcet, 1955/1795, p. 4)

Even in the midst of a critique of the arts and sciences, Rousseau constructs an image of enlightenment and human progress (Frankel, 1948, p. 76; Wokler, 2001, p. 25):[4]

> It is a noble and beautiful spectacle to see man raising himself … from nothing by his own exertions; dissipating, by the light of reason, all the thick clouds in which he was by nature enveloped. (Rousseau, 1993/1750, p. 4)

There is an obvious utopian thread in such declarations of human progress. In the present sample, the meta-narrative of Progress was most often expressed alongside the view that scientific reason and technological innovation have provided the mechanisms for dominating nature and leading society into a new utopian age (cf. Adorno, 1991). 'Scientists, for example, argue that the acquisition of knowledge is so important for the long-term interests of society that freedom of inquiry must override other considerations' (Nelkin, 1992, p. xviii). Indeed, the rhetoric of scientific progress is part of both the professional common sense and illusio of the scientific field, which is transmitted into the political field via the meta-field of journalism (e.g. Gutteling, et al., 2002, p. 111).

The following extract offers rhetoric comparable to the Enlightenment quotations above, framing embryonic stem cell research as one, important step in the long march of scientific progress:

> One of the most powerful arguments in favour of stem cell research has to do with … evolution. Humans … are interrupting evolution. People no longer

3 This view of Progress through human reason can be seen in thinkers from the very incipient underpinnings of the Enlightenment. For example, John Milton was convinced that there were no pre-fabricated utopias; humans had to work to create their own utopia and discover Truth for themselves.

4 Although Rousseau sometimes criticises elements of Enlightenment thought and the idea of scientific progress in particular (Wokler, 2001, p. 58), he ultimately remains within the Enlightenment tradition as 'an apostle of human progress, of the perfectibility of the natural man' (Frankel, 1948, p. 76).

> die, childless, of serious genetic disorders – modern medicine enables them to live … I can hardly think of anything more exhilarating … Stem cell research is a triumph of human invention and compassion; it would be a great loss to humanity if anyone succeeded in stopping it. (Marrin, 2002)

Thus the myth of Progress gave therapeutic cloning 'a natural and eternal justification' (Barthes, 1973, p. 143). This scientific utopianism is almost religious in its unquestioning belief in ability of humans to triumph over nature using scientific technologies, such as stem cell research. Indeed, science was used as a rhetorical, moral and political device around the world to justify support for therapeutic cloning (e.g. Lysaght and Kerridge, 2012). As social theorist Zygmunt Bauman states: 'With the Enlightenment came the enthronement of the new deity, that of Nature, together with the legitimation of science as its only orthodox cult, and of scientists as its prophets and priests' (1989, p. 68). In the press coverage of therapeutic cloning, patients played the role of congregants in this devotion to scientific utopianism. For example, one such parishioner was the now deceased quadriplegic actor, Christopher Reeve, who sought a cure for his spinal paralysis:

> It remains to be seen just how much progress politicians will allow scientists to make. 'Scientists know a lot, but the obstacle of politics will affect implementation', says Reeve. 'What happens in a Bush presidency, God forbid'. (Knight, Motluk and Phillips, 2000)

Even *The Guardian*, one of the most sceptical elite British newspapers, helped to purvey the utopian hopes that adhered to therapeutic cloning:

> The committee said: 'The science is astonishing and its implications profound'. From it could follow: … The possibility of regenerating heart cells destroyed by a heart attack. (Radford, 1997)

> The first cloned human embryo has been produced … This is another step down a research road that could lead to an enormous breakthrough in degenerative and chronic disease control. Although the embryo clones were produced using a similar technique to the one used to create Dolly the sheep, the purpose was not reproductive, but for therapeutic medical application. It offers new hope to millions of people suffering pain and misery. (Commentary, 2001)

Such pro-cloning hype was intermingled with the legitimising discourse of Progress, which can also be seen in the extract below:

> Professor Hwang said: 'We are *bringing science a step forward* towards the day when some of humankind's most devastating diseases and injuries can be treated through the use of therapeutic stem cells'. (Emphasis added; Henderson, 2005)

This combination of hype about the imminence of a technological solution to humanity's problems and the discourse of Progress is a hallmark of media and policy discourse about genetic research in general (Evans, Kotchetkova and Langer, 2009). Evans et al. (2009) argue that this combined discourse is designed to marginalise opposition perspectives. As can be seen in the discussion that follows, the present research supports Evans et al.'s argument.

Caricaturing the Opposition: Galileo and Religious Irrationality

Even though it varied in volume and quality according to press genre, the framing of scientific discoveries in terms of the grand narrative of Progress[5] was a powerful and pervasive feature to the discourse of hope and positive hype across the entire sample of Anglo-American press coverage on therapeutic cloning.[6] For example, the following commentary in the *News of the World* lays out a case in favour of medical and scientific progress over religiosity:

> The medical profession must press ahead with this important research … If I needed a new organ to save my life I would be extremely grateful to the laboratory doctor who could culture one for me. The Vatican has always been anti-progress. Five hundred years ago it was opposed to Galileo. Today it is opposed to medical science. How can a church that wants us all to be religious Dollys object to medical science using cloning to save life? (Bishop Buckley, 2000)

The Economist makes a similar point by citing the American political context, which was framed in this source quotation as an example of anti-Progress, religious irrationality:

> Senator Tom Harkin rather magnificently told the president to 'take your ranks alongside Pope Paul V, who in 1616 tried to stop Galileo'. (*Economist,* 2001)

The use of Galileo's story above to frame opponents as 'anti-progress' mirrors the pattern identified by Mulkay (1995a, p. 501) in the UK embryo research debate: 'Galileo was an important point of reference for … support[ers] of embryo research. For these speakers, Galileo was a scientific martyr to religious extremism[,] … a warning against relying on religion today to decide questions of scientific truth, yet also the assurance of the eventual triumph of the scientific world-view'. Indeed,

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5 When capitalised in this dissertation, 'Progress' refers to the body of related discourses promoting the idea of human's irresistible triumph over nature through increasing technological sophistication. 'Progress' is used as a particular, proper noun in the same vein as the concept of the 'Enlightenment'.

6 Exceptional examples of countervailing data that opposed the Progress narrative are considered in the 'Deviant Case Analysis' later in this chapter.

the following extract juxtaposes the religious and anti-abortion perspective with the wisdom of supporting medical science:

> Early in the debate, religious groups and the anti-abortion lobby appeared to hold the moral high ground. But now the rights of people to gain access to the best that medicine can offer are wisely being taken much more seriously. The use of stem cells could bring about a real revolution, making it possible to repair worn-out organs and damaged brains. (*New Scientist*, 2000)

The UK Government's Romance with Scientific Progress

Bauman (2000, p. 132) asserts that the concept of progress is comprised of two interrelated beliefs: (1) 'that "time is on our side"' and that (2) 'we are the ones who "make things happen"'. (see corresponding examples from the data below):

> 'Time is On Our Side'

> This year the 20,000-plus neuroscientists … let slip their optimism that repairing damage to the brain and spine is finally within reach. Christopher Reeve summed up the mood. '*There is no reason why this problem and other disorders of the brain and central nervous system can't be overcome*', he told the meeting. Researchers agree. '*We can do it soon. We must do it soon*', said Dennis Choi, outgoing president of the society. (Knight, Motluk and Phillips, 2000; emphasis added)

> 'We Make Things Happen'

> … Such folk, in resisting medical advances, would leave man's sufferings to the tender mercies of the inventor of cancer and earthquakes. But the truth is that *the fate and well-being of mankind is our own responsibility*, and happily … *the world contains enough human intelligence and kindness to offer fragments of hope for the future*. In promising to cure some of the most dreadful afflictions we or those we love might suffer, stem cell research stands high among those hopes. (Grayling, 2001; emphasis added)

Bauman (2000, p. 132) argues further that the 'self-confidence of the present' and trust in Progress rest on the two beliefs in human potential exemplified in the examples above. However, he contends that such self-confidence and trust in the future is severely undermined by the lack of a clear contemporary force or agency capable of moving the world forward. Thus, he asserts that 'the foundation of trust in progress is nowadays prominent most for its cracks, fissures and chronic fissiparousness' (Bauman, 2000, p. 133). Nevertheless, Bauman (2000, p. 134) predicts that the 'modern romance with progress' will continue in the form

of a permanent quest for a state of perfection as a way to give meaning to the individual's task of living and re-establishing trust in the new modernity.

In the debate over therapeutic cloning, this 'romance with progress' was reinforced by the official, pro-science disposition of the British government, as communicated through the media. The Government's public sponsorship of scientific progress constitutes an important component of the larger utopianism of therapeutic cloning. Indeed, at several points in the debate, UK Prime Minister Tony Blair attempted to frame certain grassroots protest movements as 'anti-Progress' in order to de-legitimate their political positions opposing certain areas of scientific research.

> Tony Blair has promised to break down the 'anti-science fashion' in Britain, declaring that *the Government will never give way to misguided protesters who stand in the way of medical and economic advance* … Mr Blair gave warning that research work would be lost … *if animal welfare activists and other protesters were allowed to get away with stopping projects that could save lives* … '*It is time to defend science, to make clear that the Government is not going to allow misguided protests against science* to get in the way of confronting the challenges of making the most of our opportunities'. (Webster and Henderson, 2002; emphasis added)

The Progress discourse served a legitimising role for Blair's position. His adaptation of the grand narrative of Progress gives the largely economically motivated, pro-science position of the British government a politically appealing veneer of utopianism in the mediated public sphere.

> He called for an end to the air of suspicion and mistrust that sometimes surrounded the work of scientists and the misplaced fears and ignorance it often generated. Mr. Blair said *there were huge opportunities in science, for medical progress* … He will say that scientists should be applauded and admired and should not have their work denigrated. (Webster and Henderson, 2002; emphasis added)

As evidenced above, Blair placed his government within a scientistic paradigm through his choice of legitimising strategies. He did not justify his views on this issue with reference to democratic consent. Rather, Blair advocated respect for expert authority as the basis of his utopian vision for a Britain in which techno-scientific development is a prominent feature and many of society's ills are cured through scientific progress. Whether the use of the scientific progress narrative is deliberate and strategic or driven by the expedience of using an established rhetorical frame is difficult to ascertain based on the present research. In the case of government, strategic framing is more likely. In the case of journalism, expediency is the more likely explanation. Either way, the narrative of Progress

came to predominate within coverage of therapeutic cloning, just as it has in previous scientific issues over the decades.

Utopianism in American Press Coverage of Therapeutic Cloning

The American coverage of therapeutic cloning drew upon forms of utopian discourse similar to the elite UK press, although there were also much stronger elements of dystopianism than in the UK coverage. The rest of this chapter elaborates the utopianism evident in American press coverage of this issue. The next chapter will identify ways in which the US and UK coverage differed, and their particular mixes of different kinds of scientific hype.

The US coverage also included examples of the Progress narrative tied to therapeutic cloning, as seen in the following examples:

> Democratic Sen. Dick Durbin … said, 'With this new breakthrough, *the* [US] *Senate will step back and say we can see that we can't stop the march of science*'. (Regalado, McGinley and Carroll, 2001; emphasis added)

> Members of Congress … oppos[ing] embryonic research risk being seen as opponents of *medical progress* – of wanting to *close off an avenue of research* and thereby condemning people who could be cured. 'There are ethical concerns in not *proceeding* with this research', Larry Goldstein of the American Society for Cell Biology told Specter's subcommittee last spring. (Allen, 2000; emphasis added)

The following extract frames scientists as unfairly restricted from achieving progress through therapeutic cloning research.

> A deputy director at the National Science Foundation … warned that 'scientists may be forced into rebellion in order to carry out research prohibited unnecessarily by powerful institutions'. (Pethokoukis, 2004)

Likewise, the following extracts emphasise the inevitability of scientific progress in the wake of Dolly's debut on the world stage (Extract 1) and nine years later during the struggle over releasing California State funding for therapeutic cloning research (Extract 2):

> Even if laws are eventually enacted to ban human cloning research in the US, the work can always move elsewhere. (*New Scientist*, 1997)

> 'They can slow us down', [scientist] Klein said, 'but they can't stop us'. (Lin, 2006)

Even anti-cloning Republicans had to establish their support for scientific progress in order to legitimate their criticisms of therapeutic cloning:

> Senator Frist, who is a heart surgeon, said he understood the concerns of scientists but said that his bill would not interfere with medical research or limit general scientific cloning. It would limit only human cloning. (Alvarez, 1998)

In addition to the Progress narrative, the American press also presented a utopian 'rhetoric of hope' that was effectively equivalent to the hype already shown in the above examples from the elite British newspapers. Human interest stories based on personal suffering were intertwined with political and scientific considerations. The prophetic framing of therapeutic cloning as an inevitable source of cures – if only it is given the resources – is encapsulated in the investment metaphor proffered by this agent of 'life politics' (Giddens, 1991).

> For Chris Chappell, 41, a Denver stockbroker who was paralyzed from the waist down after a mountain bike accident, the potential stakes are personal. He says the debate could affect his chance to walk again. '*The only thing that's holding me and others back is money and time*', … '*This is an investment in the next generation*'. (Stone, 2005; emphasis added)

The following extract also emphasises the inevitability of this putative panacea's fruition, drawing upon the spatial metaphor for forward progress (Hellsten, 2000):

> *The work is advancing*. '*With adequate funding, there's no question we could be in clinical trials in two or three years*',[7] said Robert P. Lanza, medical director of Advanced Cell Technology Inc … Dr. Thomas B. Okarma, president and chief executive of the Geron Corporation …, a leader in embryonic stem cells, said his company hoped to ask the Food and Drug Administration to approve a clinical trial in 2005, using cells derived from embryonic stem cells to treat spinal cord injuries. Such treatment has restored mobility in some paralyzed rats, he said. (Pollack, Dean and Dreifus, 2004; emphasis added)

As in the British press, the narrative of scientific progress was fused with hype signalling for the cures promised by therapeutic cloning research:

> 'We cannot now afford to be slowed down by opponents who do not believe in the promise of this research', said Bob Klein, chairman of the California Institute for Regenerative Medicine's board of directors … For many patients, embryonic stem cell research remains the only hope for recovery. (Garvey, 2005)

7 This specific claim can be easily identified given that, as of October 2007 (more than three years on), there are no clinical trials on the horizon for therapeutic cloning.

However, unlike the British press coverage, the utopianism identified in the extracts above fulfils one half of a pattern evident in US press coverage of therapeutic cloning, which I have labelled ‘balanced hype’. This and other details of the mix of different types of hype will be discussed in the next chapter.

Chapter 10
Scientific Dystopianism, Balanced Hype and Haphazard Hype

Scientific dystopianism – an exaggerated focus on apocalyptic visions of nightmare futures – played a major role in media coverage of therapeutic cloning. This phenomenon will be addressed in this chapter, along with an analysis of the mix of positive and negative hype that emerged in the US and the UK. This chapter begins with the dystopianism of the American press, which permeated the debate across media and politics:

> 'Science has been abused in the past', Mr. Frist warned … 'We can look back at what Hitler did in the name of science'. (Alvarez, 1998)

It then addresses the dimensions of the 'balanced hype' that regularly appeared in US news coverage of this issue. Finally, the UK press pattern of 'haphazard hype' is addressed.

Dystopianism in the American Press

In the US a pattern of 'balanced hype' emerged. This term applies to news stories populated in more or less equal measure by both utopian and dystopian hype. These balancing, positive and negative statements are frequently red herrings based upon faulty science or highly improbable notions about human cloning and its implications. Moreover, the two sides represented in 'balanced hype' are rarely reconciled or addressed critically by US journalists leery of appearing to take sides by asserting their own analyses of their sources' claims.

In addition to the utopian hype identified in the previous chapter, a pattern of dystopianism was also visible in the US press coverage, comprising the second half of the balanced hype sub-theme. The extract below is taken directly from President Bush's 'State of the Union' speech, which places cloning within the conceptual category of 'mad science':

> Tonight I ask you to pass legislation to prohibit the most egregious abuses of medical research: human cloning in all its forms, creating or implanting embryos for experiments, creating human-animal hybrids and buying, selling or patenting human embryos. (President Bush, 2006)

The following extracts flagged dystopian scenarios using symbolic materials from the *Brave New World* and other aspects of the cultural genealogy of human cloning:

> The National Right to Life Committee, an antiabortion group[,] call[s] cloning research a 'nightmare project' that will lead to 'human embryo hatcheries'. (Regalado and Song, 2002)

> 'We will inevitably end up with fetal farms where embryos are clinically and commercially developed into fetuses, grown for parts and potential cures', said *Rep. Paul Loscocco, a Republican*. (Anonymous, 2005; emphasis added)

Likewise dystopian arguments against cloning are put forward in the following commentary co-authored by one of the most prominent neoconservatives[1] in the US, Bill Kristol.[2] This line of argument is fairly typical for strong opponents of therapeutic cloning covered in the US press. First, a hyped and largely fictional vision of reproductive cloning is conjured in sensational detail:

> The idea of mother-daughter twins or genetically-identical 'daddy juniors' stirs horror in us. Our moral sense revolts at the prospect, because so many of our cherished principles would be violated: the principle that children should not be designed in advance; that newborns should be truly new, without the burden of a genetic identity already lived; … and that replacing lost loved ones with 'copies' … denies the uniqueness and sacredness of their existence. (Cohen and Kristol, 2001)

Next, this dystopian vision of reproductive cloning is tied to therapeutic cloning and cloning proponents are chided for their attempt to separate the two concepts:

> Research advocates say that they, too, are against 'reproductive cloning' … Once we begin stockpiling cloned embryos for research, it will be virtually impossible to control how they are used. We would be creating a class of embryos that, by law, must be destroyed. And the only remedy for wrongfully implanting cloned embryos would be forced abortions. (Cohen and Kristol, 2001)

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1 In the United States, the accepted term is 'neoconservative', but in Europe this is known as 'neoliberal'.

2 Kristol is founder and editor of the neoconservative magazine, *The Weekly Standard*, a high-profile pundit on American television's conservative *Fox News Channel* and founder of the Project for a New American Century, which brought together the most powerful neoconservatives in the country beginning in 1997, including Richard Cheney (Vice President), Paul Wolfowitz (President of the World Bank) and Donald Rumsfeld (former Defense Secretary).

Thusly connected, both therapeutic and reproductive cloning is seen to foreshadow a dystopian future. Just as in *Frankenstein*, which is 'the governing myth of modern biology' (Turney, 1998, p. 3), good intentions devolve into dystopia:

> The cloning debate is … the 'opening skirmish' … in deciding whether we wish to 'put human nature itself on the operating table, ready for alteration, enhancement, and wholesale redesign'. Lured by the seductive promise of medical science to 'end' suffering and disease, we risk not seeing the dark side of the eugenic project … And in trying to stamp out disease by any means necessary, we risk beginning the 'compassionate' project of killing off the diseased themselves. (Cohen and Kristol, 2001)

This form of moral argumentation is precisely what Evans (2002b) describes as 'thick' ethical discourse. It focuses upon what is legitimate and desirable for biotechnology to address, rather than simply the most efficient means for achieving pre-determined ends. However, the scientifically unrealistic dystopianism it promotes may have significant negative implications for democratic deliberation over scientific issues in the public sphere, which will be considered later in this book.

Balanced Hype in the American Press

In the US a pattern of 'balanced hype' emerged. This term applies to news stories populated in more or less equal measure by both utopian and dystopian hype. These balancing, positive and negative statements are frequently red herrings based upon faulty science or highly improbable notions about human cloning and its implications. Moreover, the two sides represented in 'balanced hype' are rarely reconciled or addressed critically by US journalists leery of appearing to take sides by asserting their own analyses of their sources' claims.

As shown in the previous chapter, the US press exaggerated the scope and certainty of the utopian potential of therapeutic cloning in a way that was scientifically implausible. These pro-therapeutic cloning exaggerations were frequently accompanied by negative, often dystopian statements within the same article, which were just as scientifically implausible as the utopian exaggerations. The following extracts succinctly exemplify this pattern of 'balanced hype':

> The trade offs are immense: averting a *nightmarish medical mishap* or standing in the way of the next breakthrough in *combating cancer or Alzheimer's disease*. (Shadid, 2001; emphasis added)

> Dr. Wilmut and his colleagues at the Roslin Institute here, seven miles from Edinburgh, have suddenly pried open one of the *most forbidden – and tantalizing* – doors of modern life. (Specter and Kolata, 1997; emphasis added)

Likewise, the extract below shows the tendency of the US press to enforce balance by reporting the two poles of an issue without offering a critical analysis or synthesis. The article begins by establishing dystopian arguments against therapeutic cloning using farming metaphors:[3]

> HURON, S.D. – In this rural state where corn, cattle, and pork provide a livelihood for many people, voters have been warned about another kind of farm, where human embryos would be created for profit. In Iowa, the National Right to Life Committee has blasted the state's Democratic senator, Tom Harkin, suggesting … he 'doesn't … know the difference between animals and human beings'. The antiabortion lobby has pondered … whether Senator Jean Carnahan, a Democrat, will 'decide that it's just not right to make human embryos and harvest them like crops' … US representative Jim Talent, a Republican who favors a total ban on cloning … 'doesn't want to live in a world where he's walking down the street and sees himself walking in the other direction'. (Milligan, 2002)

The dystopian 'embryo farm' and 'clones are copies' metaphors then give way to the rhetoric of hope as the article concludes:

> Senator Tim Johnson, a South Dakota Democrat [said] 'I've had a lot of South Dakota families come to me with tears in their eyes, with children who are diabetic, parents who have Alzheimer's, pleading to allow the research to go forward' … 'Research that's going on right now could hold the key to curing MS and hundreds of other diseases … [;] research Congressman John Thune wants stopped' … Jerry Zucker, a member of Cures Now, which advocates therapeutic cloning … 'To say it's better to destroy these [embryos] than to use them to save lives is insane', said Zucker, whose 14-year-old daughter Katie has diabetes. (Milligan, 2002)

Thus an artificial balance was constructed using both pro- and anti-cloning hype. As discussed above, US journalists sought to project the ideal of objectivity and balance by presenting both extremes of the issue. In the case of therapeutic cloning, those extremes were, on the one hand, comprised with promises of cures for suffering patients and, on the other hand, based on dystopian scenarios inspired by the cultural genealogy of human cloning. This impulse in American journalism to create a 'balanced' account can be contrasted with elite UK journalists' (at least partial) rejection of this norm. One UK interview participant develops a distinction between political and science journalism to justify the imbalanced, pro-therapeutic cloning framing in his and other elite UK news publications:

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3 The fact that this Boston Globe story centres upon how the therapeutic cloning issue is playing out in rural South Dakota (far from Boston) bolsters this publication's categorisation as a national newspaper in this study.

> The key difference is the subject matter you're working with. Science is very different than, say, politics, where there are always two sides to an argument, and there's not necessarily a right or a wrong one – and thus it's very easy to set up debates and controversies and 'he said, she said' arguments. [With] science … it can be very misleading to do that … And that's something I certainly try to avoid doing … Very often there is a … sort of fetishisation of balance … Sometimes you actually have to biased in order to tell the story properly. All opinions in science are not equal … And I think the responsible science journalist does have to be aware of that. ('Richard', 2005)

Richard rejoins his questioning of the goal of journalistic balance later in the interview, showing a key difference between UK and US journalistic attitudes:

> Balance can be a tricky issue because when specialist expertise tends to be exclusively on one side, then actually you don't want to balance things. ('Richard', 2005)

A similar position was expressed by UK science journalist 'Aaron', who used Holocaust denial as an example of why balance was not a legitimate, journalistic goal:

> And 'balance' too is very interesting. I will not go looking for a scientist who will say 'global warming is all crap' … I wouldn't dream of approaching a Holocaust denier and saying 'here we've got these people saying that six million Jews died in Auschwitz. What do you think?' … That would be grotesquely irresponsible …
>
> I don't think … [journalists] should be forced into balance. People have opinions … but it doesn't mean you have to agree with them or that you have to report these people fairly. In the case of science, you have to make judgements according to the day, the amount of space at your disposal, and the actual issue in the story. ('Aaron', 2005)

UK science journalists Richard and Aaron's rejection of the goal for 'balance' in science journalism can be contrasted with the 'balanced hype' found in American press coverage and the 'haphazard' (imbalanced) hype identified below in the British tabloids.

The 'balanced hype' finding articulated above is in line with Nelkin's (1990) observation that the norm of objectivity is still dominant in the US press. This *illusio* is operationalised in American journalism through the 'belief that verity can be established by balanced presentation of different points of view' or 'equal time' for opposing perspectives on the same issue (Nelkin, 1990, p. 46). Moreover, the claim of journalistic balance is an essential defence used in the US to protect against 'flak' from interested parties with the resources to criticise news coverage they do not like (Herman and Chomsky, 1988). The interviews with American

journalists indicated they were much more concerned about (and subjected to greater levels of) flak than their UK counterparts. At least in the case of American press coverage of therapeutic cloning, this performance of journalistic balance resulted in media content that was hyped in both pro- and anti-cloning directions. The apparent logic behind this approach is that by placing excessive weight upon the extremes of both the pro- and anti-cloning positions, the reporter would appear objective and balanced. In the UK tabloids, a pattern I describe as 'haphazard hype' emerged, which raises different but also significant issues for the quality of debate in the mediated public sphere.

Haphazard Hype in British Tabloid Coverage

The present data suggest that the *illusio* of journalistic objectivity does not define the professional common sense of the journalistic sub-field of British tabloids.[4] Tabloid journalists appear to operate unfettered by this journalistic norm, thus allowing a more haphazard, imbalanced and lopsided form of hype to emerge. In both quantitative and qualitative terms, the ubiquitous hype in the UK tabloids surpassed the US press's cloning coverage. The UK tabloids enthusiastically summoned dystopian hype (cf. Kitzinger and Williams, 2005, p. 736), with some articles maintaining an entirely apocalyptic vision. In the following extract, Ian Wilmut must react against the notion of Dr. Frankenstein, which Haynes (1994, p. 92) identifies as an influential 'archetype … [and] the dominant image of the scientist in twentieth-century fiction and film':

> Prof Wilmut denied playing God and said that he was against reproductive 'Frankenstein-style' cloning which could lead to people cloning to grow spare body parts … But the development was slammed last night by religious groups and the Society for the Protection of Unborn Children – who have been opponents of cloning – branding it 'a licence to kill'. (Mackay, 2005)

The tabloid predilection for dystopianism extended to the construction of idiosyncratic news stories that never appeared elsewhere in other press genres. Thus the following extract conjures the risk that therapeutic cloning could lead to reproductive cloning. This indicated that there were both general 'alarm bells' and specific concerns identified by expert source, *Dr*. Patrick Dixon:

> The spectre of human embryos being cloned in Britain then taken abroad to develop into carbon copy babies emerged last night. *Alarm bells sounded* after the scientist who created Dolly the sheep announced he was preparing to branch

4 However, this is only a tentative hypothesis based on documentary evidence since no tabloid journalists participated in the interview component of this study and I have no ethnographic data available.

> out into human embryo cloning … One leading authority on cloning ethics … Dr Patrick Dixon told the Mail: 'I predict that human clones made in Britain will be implanted and born elsewhere … There would be nothing to prevent a woman acquiring a cloned embryo, jumping on a plane and going to a doctor abroad who would implant it in her womb'. (Norris and Roberts, 1999; emphasis added)

Most frequently, the British tabloids published cloning coverage that was a confusing mishmash of pro- and anti-cloning hype. The UK's widest circulating newspaper, *The News of the World*, provides a number of examples of dualistic hype as well as sensationalism, seemingly for its own sake:

> The government's decision to allow the cloning of human organs is certain to cause uproar. *On the one hand it brings hope of life to desperately ill patients who would otherwise die for want of replacement organs. On the other there are those who find interfering with the building blocks of life utterly unacceptable*. Because *cloning involves altering the course of development of human cells*, it raises deep-seated anxieties in us all … For the sake of the *thousands who could be saved by this great leap forward in medical technology*, we lead the debate with an exciting article today. (*News of the World*, 2000; emphasis added)

As it turned out, this editorial was wrong in its prediction of a public uproar over the UK government's approval of therapeutic cloning research. However, the *News of the World* persistently hyped the issue in all directions (utopian, dystopian and mixed). The following extract emphasises utopianism, and the prediction of cures, which have failed to materialise:

> The cloning of human organs in Britain has been given the go-ahead … The first body parts could be used for heart, lung, liver or kidney transplants within the next six years – ending the heart-rending search for suitable donors. (*News of the World*, 2000)

The commentary extract below cites dystopian fears while simultaneously endorsing therapeutic cloning:

> People are frightened to death by cloning. They imagine armies of dictators, strange cults and gay men on Oprah Winfrey's sofa cradling mini-me babies. And fears about what a few loony tunes might do are now driving legislation …
>
> Stem cells are … of immense interest because of their potential to cure currently incurable problems – such as repairing stroke or Alzheimer-damaged brains, heart-attack ki-boshed tickers and accident-induced paralysis.

> … Of course people are right to be squeamish about creating 'spare part' embryos. But … every time I see someone suffer the devastating consequence of stroke, I want to hurry that work, not slow it down or ban it. (Parry, 2000)

The following tabloid extract blends utopianism with the definition of therapeutic cloning as 'controversial'. This could be viewed as an example of 'conflict' framing, which Kitzinger identifies a key element of media coverage on scientific risk (Kitzinger, 1999, p. 63):

> *We will lead world in controversial research*
>
> The controversial cloning of human organs is to be given the go-ahead by the government. British scientists will be the first in the world to be allowed to develop the technology which will enable them to 'grow' organs in other animals.
>
> The first human parts – cloned from a patient's cells – could be used for heart, lung, liver or kidney transplants within the next six years. If successful, artificially created replacement organs could always be available and 'end the heart-rending search for a human donor'. Health Secretary Alan Milburn and Home Secretary Jack Straw are set to … make the medical miracle possible. (Kirby, *News of the World*, 21 May 2000)

As the article continues, the discourse of pro-research utopianism is developed with the promise of cures for Parkinson's, cancer and the obviation of organ donation.

> Mr Donaldson pointed out the technology will end the heart-breaking ordeal many people face when suffering a serious illness – the knowledge they will die unless a donor organ is found …
>
> But replacement organs could be just the tip of the iceberg … Experts say they will soon be able to develop cloned brain cells for patients suffering from Parkinson's Disease … White blood cells could also be developed to aid leukaemia sufferers. (Kirby, 2000; emphasis added;)

In addition to pushing its utopianism further, the tabloids' tendency to frame cloning as controversial represents a significant divergence from the UK broadsheets' dominant construction of therapeutic cloning as unproblematic.

Ultimately, a highly schizophrenic pattern emerged in the British tabloid coverage, wherein the distribution of utopianism and dystopianism within and across news stories seemed to be largely haphazard during the last decade of human cloning coverage. Positive tabloid stories about cloning would also allude to dystopian concerns. Conversely, negative stories based on doom scenarios also reinforced positive hype about the certainty of cures, sometimes in the

same sentence! Overall, the most consistent pattern was the *absence* of realistic or moderate coverage, or 'thick' critical analyses, (Evans, 2002b) of the issues implicated by the development of therapeutic cloning technology.

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Chapter 11
The Role of Science Fiction in Scientific Dystopianism

Some examples of dystopian science fiction (e.g. *Frankenstein*) have been mentioned in the above discussion regarding 'balanced' (US) and 'haphazard' (UK tabloid) journalistic hype. However, this section will engage with science fiction-based dystopianism as a phenomenon in its own right. Specifically, science fiction has emerged as a key vehicle for communicating symbolic meaning and fuelling the dystopian dimension of therapeutic cloning hype. Both the US press and the UK tabloid coverage of therapeutic cloning were rife with doomsday scenarios conjuring 'dreaded risk' (Slovic, 1987; Slovic, 2001), many of which were rooted in the cultural genealogy of human cloning. This dystopianism was implicitly underpinned in part by eliding the distinction between cloning for live birth and cloning for embryonic stem cell research (also see Haran, 2007), which had the potential of associating the (real and imagined) hazards of human cloning for live birth with cloning for embryonic stem cell research.

Science fiction films and books featuring human cloning were an integral part of the public debate. Sometimes, these fictional accounts were merely alluded to, as seen in this front page headline from the *Wall Street Journal*: 'Brave New World: Stem-Cell Researchers Make Cloned Embryos Of a Living Human' (Regalado, McGinley and Carroll, 2001) or in the extract from *Newsweek*: '"This is essentially the method of Brave New World". Ronald M. Green, an ethicist at Dartmouth College, on the technique used by Oregon researchers to clone a monkey, which involved splitting an embryo and replanting its remains' (*Newsweek*, 2000). Science fiction references provided packets of pre-fabricated meaning, obviating the need for the journalist to sketch out the full contours of a potential dystopia:

> Genetic engineering is moving quickly, promising to eliminate disorders such as Down syndrome and cystic fibrosis. Soon we'll be able to do more than cure disease. Questions of social equality then begin to blur with questions of genetic equality – should a child be 'punished' for having parents whose genes predispose him to obesity or shallow intellect? Shortness? Baldness? Once we've eliminated these 'defects', why not be more proactive – try to build another Einstein or Shakespeare? Little wonder Huxley's *Brave New World* and Shelley's *Frankenstein* have replaced Orwell's *1984* as the popular literature of political debate. (US News and World Report, 2001)

As exemplified in the extract above, allusions to science fiction were particularly favoured when the authors were seeking to communicate the possible dystopia awaiting us at the base of a scientific 'slippery slope'. Indeed, science journalists and their sources in the elite US newspapers reported such scenarios as plausible concerns worthy of inclusion in the public debate over human cloning:

> For the ethicist Dr. Arthur Caplan of the University of Pennsylvania, the possibilities include the Dorian Gray scenario, named after Oscar Wilde's story, 'The Picture of Dorian Gray', whose eponymous hero stays young while the picture of him ages. A child who is a clone would have to look at a parent who is his or her aging identical twin.
>
> Another possibility is what Dr. Caplan calls the Woody Allen scenario, referring to Mr. Allen's affair with Mia Farrow's adopted daughter, Soon-Yi Farrow Previn. If a man's wife clones herself, Dr. Caplan asked, 'How is he going to fight off the emotions or feelings' when he sees her clone at the nubile age of 22? Especially, he adds, since he knows that the clone is not, strictly speaking, her daughter but a twin sister.
>
> Time magazine columnist Charles Krauthammer envisions a world in which headless people are cloned and stocked for spare body parts. That, he argues, to the puzzlement of scientists who say his scenario is just plain wacky, is why cloning must be banned. (Kolata, 1998)

If such dystopian allusions are found in the science coverage of the vaunted *New York Times*, it should be no surprise that fiction and reality are even more thoroughly conflated in British tabloids. *The Daily Mail's* coverage, for example, was fiercely anti-cloning. This was reflected in their presentation of an essay drafted for the newspaper by founder of the Conservative Philosophy Group, Dr. Roger Scruton. Scruton is described not as a conservative but instead as a neutral figure, 'one of Britain's most respected philosophers' and a 'Visiting Professor of Philosophy at Birkbeck College'. The commentary begins with science fiction allusions:

> With a presumption bordering on the reckless, human beings are trying to accelerate the process of evolution to … satisfy their own short-term desires … Each such development is greeted by a mixed chorus of joy and alarm, some … foreseeing a trail of Frankenstein-like experiments, leading to the kind of spiritual chaos foretold by Aldous Huxley in Brave New World …
>
> We have been warned that we are standing on the brink of Huxley's world. Now I believe we have entered it … The cloning of Dolly the sheep from a single cell has been followed by massive pressure to extend the technique to humans: to women who cannot conceive, to homosexual couples seeking a new route to

> reproduction, to someone grieving for a dead child and hoping one day to hold a perfect living replica. It offers a kind of hope. But at what cost? (Scruton, 2001)

In the final paragraph of the above extract, this commentary draws upon an 'infectious disease' policy metaphor (Schön, 1993),[1] in which one area of immorality is tied to the perceived, social ills across society. In this case, the moral ill of 'homosexual couples' as parents was tied to human cloning. Below, Professor Scruton summons the dystopia of a second Holocaust[2] in which women will purge men from the globe on the path to lesbian hegemony:

> The cost of cloning is far greater than the current warnings imply. For it … threatens the reproductive strategy that has so far served mankind … Scientists … have begun work on … a technique for producing girls (the result would of necessity be a girl) from girls without the need for sperm.
>
> This *final solution* to the '*man problem*' has been put forward in all seriousness, as a way of *helping lesbian women* to … give *lesbian couples* the means … to make their own contribution to the *all-female society* to which radical feminists aspire. (Scruton, 2001; emphasis added)

This UK tabloid newspaper essay finishes with an unusual melding of utopian and dystopian imagery. Although the author's conclusions are negative, his 'vision' off a 'triumph over our mortality' is unrealistically utopian:

> I have the terrifying vision of a future in which there are no young people any more, except those manufactured by the bionic geriatrics who control things, and who use all the gifts of the Earth, including those that belong by rights to future generations, to outstay their welcome on a planet whose resources they devote entirely to themselves. Physical ageing has been overcome … Senility and disease have been driven over the horizon out of sight, and – since the planet is now choc-a-bloc with permanent residents – normal forms of reproduction have been outlawed, as in Huxley's Brave New World.
>
> Scientists may welcome this final triumph over our mortality; but to me it is the Devil's work – and sure proof that the Devil works most effectively when people don't believe in him. (Scruton, 2001)

The extract above referenced the classic cloning dystopias from *Brave New World* and *Frankenstein*, longstanding favourites for opponents of particular domains

1 The analogical reasoning here is subtly distinct from the typical slippery slope metaphor.

2 Describing the feminine takeover as a 'final solution' to the 'man problem' is clearly meant to allude to Hitler's 'final solution' to the problem of the Jews: the Holocaust.

of scientific development (Back, 1995; Mulkay, 1996). For example, in the UK embryo research debate 'Frankenstein's prominence suggested strongly to readers that … these scientists were dangerous and must be held on a tight rein' (Mulkay, 1996, p. 161). However, the present sample also revealed allusions to more recent dystopian scenarios presented in Hollywood films. The following extract from the *Mirror* advances the recent science fiction film *Godsend* as a plausible representation of the future (also see Kitzinger and Williams, 2005):

> With the wonderful world of science advancing at an alarming rate, it's not hard to imagine a time when rather than grieve for the death of a loved one, you simply send in the clones.
>
> But ought there to be clones? Not if the nightmare scenario depicted in British director Nick Hamm's deeply frightening film is anything to go by. When devoted parents Paul … and Jesse Duncan's … beloved eight-year-old son Adam is killed in a terrible car crash, their anguish is profound. But after they lay their little boy to rest the distraught couple are approached by a man with a plan. 'You can have him back', promises Dr Richard Wells, an expert in stem cell technology who practices his illegal medical skills at the sinister Godsend Institute. Dr Wells has the ability to recreate a baby who will grow into a perfect replica. But the big question is – what happens after this modern miracle passes the point when his predecessor died? … A latter-day Damien, Adam develops into a spine-chilling kid … Dr Wells, whose life-creating surgical brilliance makes him a disturbing cross between the good Lord and Lucifer. (O'Sullivan, 2004)

As explanatory devices (Mulkay, 1996, p. 164), allusions to cloning films could be used to connect the news events of the day to readers' pre-existing cultural knowledge (Nerlich, Clarke and Dingwall, 2000; Nerlich, Clarke and Dingwall, 2001; Peterson, Anderson and Allan, 2005; Tudor, 1989a; Wellcome, 1998):

> *Déjà vu–Again*
>
> Woody Allen mocked cloning in his futuristic film Sleeper, in which the klutzy hero finds himself in charge of stealing a nose to keep followers from cloning their Big Brother-like leader. Ira Levin's *The Boys From Brazil* has little-boy Adolf Hitler clones running around. Fast-forward 25 years or so, and suddenly cloning has jumped from book pages and the big screen to Capitol Hill. Citing potential abuses (little Adolfs and Big Brothers?), President Bush last week called on Congress to ban all types of human cloning. (Stein, 2002)

Most journalistic uses of science fiction films involved conjuring elaborate dystopias and emphasising the imminence of reproductive cloning. The following

extended extract dilates upon the cloning film *The 6th Day*. The headline for this article is, 'And man created man':[3]

> Some of what you will see in the future as depicted in *The 6th Day* will not arrive for many days, if not years – or centuries. The rest may already be here.
>
> The Arnold Schwarzenegger science-fiction thriller, opening Friday, posits a world full of wacky wonders – … the cloning of pets and humans (that's somewhere between fact and fiction). In the film, animal owners whose dogs and cats die merely have to take them to a company called RePet, and a cloned Fluffy is back in their arms that night. The same technology is used to … clone people – including Ah-nold. It could happen. (Seiler and Friend, 2000)

The journalists' sources described the film as purely fictional:

> The husband-wife team who wrote the movie, say they knew nothing of cloning at the time … Though Marianne Wibberley has a scientific background, she did not tap it for *The 6th Day*. 'Honestly, it was just us making stuff up', she says.

Undeterred by this information, the journalists' intermingling of fact and reality is sustained (cf. Haran, 2007).

> Roger Spottiswoode, the film's director, says the production began before the announcement that Ian Wilmut and colleagues in Scotland had cloned Dolly the sheep in 1997 … *The 6th Day* had to speed up its schedule to keep up with newspaper headlines.
>
> 'When we started the film, a lot of this cloning technology wasn't there', Spottiswoode says. 'We felt like we were playing catch-up for what was supposed to be a science-fiction movie'. It was a classic case of art imitating science. (Seiler and Friend, 2000)

Alluding to *Frankenstein*, the authors go on to explain what would need to happen in order to clone Schwarzenegger in real life:

> We can invoke Dr. Frankenstein, who learned that lightning is a handy tool when playing God. For our egg, an electric jolt from a battery will do the trick …
>
> We'll probably have miscarriages, some deformities and things like that. Any scientist worth her lab coat knows that the mistakes would pose a public relations problem. But once we have our blastocyst, all we have to do is implant

3 This is an allusion to the Biblical quotation, 'and God created man'.

> it into someone's womb … and nine months later, voila, baby Arnold. (Seiler and Friend, 2000)

The science fiction narrative is presented in detail. However, there is also some critical commentary (cf. McManus, 1994) about the plausibility of this scenario, which differentiates this article from the typical hype in the British tabloids. These snippets of journalistic analysis, emphasised below, may reflect the norm of objectivity:

> *The 6th Day drastically departs from the above scenario* with cloning techniques that are remarkably efficient *but implausible*.

> In the movie, a full-grown clone can be manufactured in two hours, thanks to the use of 'blanks' – adult – and child-size generic bodies – that await your DNA imprint. The Wibberleys have scientists back up the brains of the people they clone, much as you would back up files on a computer disk, then implant the cloned person's memories …

> *The sad reality is our baby Arnold won't have the original's Austrian accent if he grows up in the USA, nor will he have Schwarzenegger's memories. Two decades will pass before the baby grows up* and takes over from the original. (Emphasis added; Seiler and Friend, 2000)

As the article continues, it follows the typical pattern for dystopianism in the American press: Even if the dystopian narrative is acknowledged to be implausible, the journalist takes it as the foundation for further 'slippery slope' speculation.

> But even though *The 6th Day*'s cloning technology doesn't exist yet, if it ever will, the movie raises some timely ethical issues.

> In the film, right-to-life-type religious people fight cloning, feeling that man is taking God's work into his own hands. 'That I understand', Schwarzenegger says, 'because if you claim God created man, obviously, if man can create himself, it gets a little bit confusing. After all, if God has created us, he has created us in a way that has allowed us to become smart enough to re-create ourselves, not just creating babies but making a carbon copy of ourselves'. (Seiler and Friend, 2000)

Although the extract above is hype-based, it is nevertheless more 'thick' than the coverage in the elite UK press (see Evans, 2002b; Jensen, 2008b) in the sense that the ends that are normally taken for granted are sometimes brought into question in this news coverage. Indeed, the following extract from the article above is indicative of the potential value of science fiction allusions as a method of communicating critical messages about science. Namely, these doom scenarios

access 'counter-myths' of science (Fiske, 1990) that seem to facilitate journalistic questioning of official and scientific accounts. This opens the debate to a greater plurality of perspectives than, for example, were evident in the elite UK press sample:

> *Crossing the line*
>
> … Schwarzenegger's nemesis in the film, a rich biotech entrepreneur named Drucker (Tony Goldwyn), is not only cloning fish to feed the world's hungry, but cloning people, too. There's a chilling scene with a congressman who is morally opposed to human cloning. His son is dying of a brain tumour … The only way to save the son is to clone him whole. But that's illegal. He asks the congressman why his son should die … The congressman sees the light and promises to work on his pals on Capitol Hill.
>
> 'Bosh!' you may be saying to yourself. This could never happen. *Who would ever believe that scientists would advance a controversial technology in the lab without telling the public?* Who would believe elected officials would act in a selfish way? And, here's a good one, *who would believe that scientists and politicians would let greed win over ethics?* Only in Hollywood. Right? (Emphasis added; Seiler and Friend, 2000)

The questioning of the motives of scientists in the above extract can be viewed as an important dimension of pluralistic public discourse on this issue (Bauman, 1999; Fraser, 1992), which would normally be excluded. It has the potential to promote both the critical, or 'Fourth Estate', function of the press and the overall 'thickness' of the public debate (also see Jensen, 2012b and Toumey, 1992).

Attacking Dystopian Science Fiction in the Elite UK Press

However, the grounding of critical messages about science in the cultural domain of dystopian science fiction may limit their efficacy in debates over science policy (Jensen, 2008a). This is because dystopianism so easily lends itself to being used by proponents of therapeutic cloning (especially in the elite British press) to propel a 'deficit' model of public opposition to science (also see Mulkay, 1996). That is, dystopianism can be used to frame the opposition to cloning as uninformed and simplistically guided by nothing more than a murky cocktail of fictional films and scientific ignorance (see Kitzinger and Williams, 2005; Mulkay, 1996). This was the primary way in which science fiction was used in the elite UK press, according to Kitzinger and Williams (2005, p. 736): 'Explicit references to science fiction are not used by opponent of embryo research, but appear instead only when attributed to them by proponents of the research'.

This use of science fiction to construct an archetypal 'straw man' opponent of therapeutic cloning – whose views are based purely on Hollywood films and dystopian literature – has been seen before in the embryo research debate of the late 1980s in the UK (Mulkay, 1997, p. 127). As it did then, this rhetorical tactic now has served to thin bioethical debate by discounting the validity of opposition perspectives by avoiding authentic engagement or debate. The downstream effects of this kind of de-legitimising tactic can be seen in the following extract:

> Public fears that the technology might be used to create human clones are another sticking point. The research might spark 'cloning hysteria' that opponents of stem-cell research could capitalize on, says Bernard Siegel, executive director of the Genetics Policy Institute in Palm Beach, Florida. (Cyranoski, 2013)

An additional facet to the elite UK press's limited use of science fiction was the rhetorical performance of first conjuring and then debunking perceived public misconceptions about therapeutic cloning. The following example from the UK's *Daily Telegraph* frames the opposition to cloning as deriving from faulty information and dystopian scenarios propagated by science fiction films. It is subtitled, 'Copycat humans are flourishing – *but only on film*' (emphasis added):

> Over the years, Hollywood has invested millions in cloning fantasies. In Woody Allen's 1973 film *Sleeper*, the cloning of a dictator was attempted from his only surviving body part: his nose. Two years later, carbon copy wives appeared in *The Stepford Wives*. Copies of Adolf Hitler starred in the 1978 film of the Ira Levin novel *The Boys From Brazil*.
>
> In 2000, Arnold Schwarzenegger has a spot of bother with his clone in *The Sixth Day*. And in the forthcoming film *The Island*, Lincoln Six-Echo (Ewan McGregor) has been bred by a scientist (Sean Bean) for spare parts. Although scientists will find the spare-part premise of *The Island* disgusting and daft, Prof Wilmut is now working with Prof Hwang to create cloned human embryos … to understand disease, test treatments and even use stem cells for repair. In short, despite Hollywood's efforts to make it look easy, even a totalitarian dictator would find it tough to indulge a narcissistic cloning fantasy. (Highfield, 2005)

Below, a public scientist is cited defending the achievement of the British scientists responsible for cloning Dolly from the perceived misconceptions that are seen to be responsible for public apprehension about it:

> Sir Giles said the achievement of the Roslin scientists was extraordinary. 'I think there was no doubt that the media furore which provoked the suggestion that human cloning was round the corner and the master race was a week or two ahead, helped really to diminish it [the Dolly cloning]. That must be redressed', said Sir Giles. (Radford, 1997)

Instead of authentic engagement with the realistic concerns on each side of the debate, pro-cloning advocates use this archetype of the ignorant opponent as an easy target to pre-emptively curtail the debate (Haran, 2007; Kitzinger and Williams, 2005). This helped to organise the discussion in the elite UK newspapers around the task of correcting misconceptions and debunking scientific myths in order to improve therapeutic cloning's standing with the public (see Radford, 2006), a task well within the domain of a 'deficit' model of science and society.

Backstage:[4] Journalist Interview Results[5]

The pro-science bias of the elite British press coverage was explained by interview participants as a symbiotic, mutually beneficial arrangement between scientists and science journalists:

> Science writers get in league with scientists to hype the story because that's how you get into the paper. ('Charles', 2005)

The tendency to hype the likelihood and imminence of cures from therapeutic cloning has been presented as a necessary adaptation to the professional context of journalistic practice by several UK science correspondents. The following example comes from the science editor at an elite UK newspaper.

> If someone produces yet another paper saying they've notched up another advance on the understanding of molecular biology through experiments in mice, we do not report it. Because if we did, we'd be in competition with yet another story from the football world, following a stream of prostitutes and a trail of white powder. Which one are people most going to read? ('Aaron', 2005)

In the supporting example below, a science correspondent from an elite British newspaper elaborated upon this theme:

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4 The use of the term *backstage* here alludes to Goffman's dramaturgical theory of human behaviour. The interview data offers a glimpse of the news production process, which occurs behind the curtains and out of sight of readers. Obviously, the interviews for this study took place within the context of impression management and constituted another kind of front stage performance for the journalist participants. However, the interviews took place literally behind-the-scenes in various newsrooms. Moreover, anonymity was granted to participants. As such, I believe it is reasonable to view the interview data as 'backstage', especially relative to the brightly lit front stage of published news content.

5 As discussed in the methodological appendix section at the end of the book, this study is limited by the fact that no British tabloid journalists responded to interview requests.

> The stories I write are not competing against other science stories for a set slot that is in the paper. They're competing against the Michael Jackson trial, Blair and Bush on the Iraq war, and so on. If a science story on a given day isn't interesting enough, it won't be replaced by another science story. ('Richard', 2005)

Journalistic Scepticism

It is striking that despite the extant pattern of utopian hype in the elite British press content, the majority of British science journalists in the interview sample were at least rhetorically sympathetic to the need for more critical science journalism:

> We [science journalists] are here to be as critical of science as objectively – as critical of science as sports journalists are of sport and political journalists are of politicians. It's like – [as] science writers, we are not here as PR, you know. Science writing where people are just trying to explain ends up as a glorified PR job because science journalism is a different thing … The definition of news is bringing up something that someone somewhere doesn't want to be printed … And there should be far more emphasis on that objective criticism. ('Danny', 2005)

In the interview extract below, British journalist discusses the problematic nature of both utopianism and dystopianism. First, he indicates that journalists should not appear as primarily pro-science (i.e. utopian):

> Science journalism … What it isn't about: Is it's not about cheerleading for science. ('Richard', 2005)

Next, Richard points to the problem of being overly negative (i.e. dystopian) as a science correspondent:

> There are a lot of bad scare stories that do get reported based on very flimsy evidence, and I think one either has to report those with caveats, or sometimes not at all. It's a difficult judgment. I think most of the time we get it right. Obviously sometimes everybody gets it wrong. ('Richard', 2005)

A similarly sceptical account is offered below by 'Zeynep', who attributes utopianism in part to scientists' tendency to hype their own research:

> A lot of the sensationalist coverage – … part of the problem is that scientists have a tendency to over talk … You have to be by nature optimistic to go into science: You have to believe that what you are doing is exciting and you'll make a difference to go on … And so scientists tend to be a little overly – I don't want

> to use the word hype – … but they do have a tendency to look on the bright side of their technology and that it's going to deliver much more than it can. ('Zeynep', 2005)

Likewise, backstage comments from American journalists also indicated a more sceptical orientation towards scientific knowledge and the promissory science of therapeutic cloning than was evident in front stage press content:

> The politics isn't the reality of what's going on in the field [of therapeutic cloning]. The reality is that there's a good chance that none of this shit is going to yield very many cures for anything. They ain't going to grow new brains out of those things … This whole issue is a joke that it has such high prominence. ('Carl', 2005)

At base, this scepticism communicated by US science journalists reflected a commitment to the *illusio* of Fourth Estate, 'watchdog' journalism. The following extract delineates this professional commitment to acting as a public watchdog by questioning powerful institutions:

> [Science] journalism has a lot of different roles … The role that interests me the most and I think a lot of reporters the most, which is a more sort of 'watchdoggy' role … There's a range of stories that can be done about science institutions: How well are they managing their funds? … Are scientists disclosing where they're getting their money from? Is there any risk to the public?
>
> … You can't get to the truth with a capital T but you can at least do your homework so you're not just being a stenographer and writing down what people say in regards of accepting it on blind faith. ('Becky', 2005)

These backstage expressions of scepticism would initially seem to suggest that Anglo-American science journalism has the potential to enact a Fourth Estate role in debates over scientific issues, such as therapeutic cloning. However, the paradoxical fact that hype, not scepticism, dominated front stage press content raises the question: Why did these backstage expressions of journalistic scepticism fail to translate into front stage scepticism, and hype-free press content? The answer to this question is rooted in the structure of professional news production in the US, UK and elsewhere.

Interdicting Journalistic Scepticism: Five Limiting Factors

Champagne (2005, p. 50) points out that journalism is defined by an 'impossible autonomy' or, at least, an 'autonomy that must always be re-won because it is always threatened. Journalistic production is always strongly dictated by the social, especially political and economic, conditions in which it is organized'. Below,

I identify some of the social and institutional conditions that limit journalistic autonomy with an examination of five factors believed to influence therapeutic cloning coverage towards hype rather than the Fourth Estate *illusio* articulated by participants. These factors include:

1. The inter-media agenda-setting effect (McCombs, 2005)
2. Organisational constraints on science journalists' independent judgments of newsworthiness (Bourdieu, 1998a; Champagne, 2005; Herman and Chomsky, 1988).
3. Personal pro-science biases.
4. The agonistic pursuit of prominent (especially front page) placement in the newspaper.
5. Dependence upon technocratic and scientific sources undermining the feasibility of presenting a critical perspective (Peterson, Anderson and Allan, 2005).

These factors limit the autonomy of the journalistic field, reflecting the fact that 'journalists are caught up in structural processes which exert constraints on them such that their choices are totally preconstrained' (Bourdieu, 2005, p. 45). The following extract exemplifies the systematic process of journalistic compromise that occurs within news organisations:

> There are many stories that you don't write … [because you think] 'I don't rate this study. It's not properly done. The results are implausible; therefore I'm not going to write it'. And a lot of the time you can do that, *but there are occasions when you can't*. If it's on the [news] agency wires [e.g. Reuters] and the news desk have seen it, and they think it's interesting, then they will press you to write it and you then have to make the best of it and try.
>
> A classic example of this recently was where … a [journal article] show[ed] that mobile phones were more dangerous if you in the country than if you were in the town … *I had to write it because everybody* [at the other broadsheets] *was going to write it*. And I did point out [the flaws in the study] but of course the published version [of the article] didn't contain this final few para's that pointed out the study was untrustworthy. But, you know, it's not a perfect world. (Emphasis added; 'Charles', 2005)

As seen in the above extract, the first reason that commitments to Fourth Estate journalism may have failed to translate into correspondingly sceptical front stage press content is 'inter-media agenda setting', which refers to the influence of one news organisation upon the news production process of another. Concern about being 'scooped' on a story by another news organisation can constitute sufficient newsworthiness to motivate coverage. 'Important news is thus news that is considered important by the whole of the media and picked up as such'

(Champagne, 2005, p. 61). *New York Times'* science editor, Nicholas Wade, noted that sometimes science journalists 'are asked to get a story at very short notice, such as late at night when the editors see the *Washington Post* has some story, and ask you to match it' (Gitschier, 2005, p. 280). This inter-media influence can even occur when a newspaper merely *believes* that other newspapers are likely to publish an article on a particular scientific development.

> There is an undoubted sheep mentality among newspapers whereby … Sometimes stories are covered because you think other newspapers will cover them … Another paper covering something gives it creditability so you end up going along … Someone publishes a story and everyone else follows it the next day religiously without 'umming' and 'arring' and being critical of it. ('Danny', 2005)

As Bourdieu (2005, p. 44) notes, as a result of the 'competitive struggle' between newspapers, 'They steal each other's front page stories, editorials, and subjects'. However, Champagne (2005, p. 61) notes that 'prestigious' media outlets, such as the 'serious' or elite press, have greater 'consecrating power' in this context: 'Because they are read more, their stories are picked up more often by other outlets'. Kitzinger also identified this pattern in her meta-analysis:

> Media interest feeds off itself … Once a critical mass of media interest builds up this is likely to spiral through different media outlets. (Kitzinger, 1999, p. 64)

Secondly, funding and personnel limitations restricted science journalists' ability to question the scientific utopianism surrounding therapeutic cloning. A British journalist summarised the centrality of such business concerns in the news process: 'Particularly on a UK newspaper, all journalists have the same job, which is to provide stories that interest our readers. Newspapers are a business. Our business is selling newspapers. We can't file stuff simply because it's worthy' ('Richard', 2005). Indeed, 'news production finds itself caught in a production logic characterized principally by intense competition and speed' (Champagne, 2005, p. 53). A key example of the role such organisational limitations have on individual journalists' news judgments was cited by American science journalist 'Becky', who had planned to conduct an investigative report on therapeutic cloning:

> Diseases like Parkinson's and Alzheimer's, they talk about using stem cells to treat them, but how would we actually do it? And [my editor and I] thought about looking at what had actually been done in the laboratory to get … stem cells to form new pancreatic tissue that could be used for transfusion. And what we would have reported is not a whole lot of hell has been done. I mean [cures] are the big goal, but if you actually look at what they've actually been able to do, it's almost nothing. And so we thought that would be a really useful 'process of science' story to give people a reality check. I mean, there are all these claims

> being thrown about, but let's go look at the Petri dish, as it were, to see what the goods are. ('Becky', 2005)

However, cutbacks at her news organisation prevented Becky from undertaking this putative story:

> But we never ended up doing [the story], just because … the science news at [my news periodical] got cut back. But I think that that was the kind of story we didn't do enough of … I thought it would be a great story. ('Becky', 2005)

This aborted journalistic venture is of particular note given that this interview took place in June 2005, before the Hwang scandal broke. If more of this kind of investigative reporting had actually taken place, it is possible that Hwang's fraud would have been uncovered sooner.

Third, many of the journalists interviewed for this study evince a pro-science bias, which may have made them reluctant to pursue critical or investigative reporting on the issue of therapeutic cloning, even if they broadly endorsed the *illusio* of the press as Fourth Estate. For example, the following extracts are suggestive of underlying scientism on the part of Anglo-American science and medical journalists. The first quote below is from a British science journalist and the second from an American science journalist:

> I tend to take the scientific point of view, probably to a greater extent than some readers would like me to. But I see myself as a kind of rationalist in a fairly irrational world. I'm not there to promote irrational ideas because there are tons of other people doing that job. So I tend to cling to science as a piece of driftwood in a wreckage to keep me afloat. ('Charles', 2005)

> I am not a mystic. I'm accused of being a materialist in a lot of my interviews with right wing people. And that's an insulting way to say you believe in reality. 'Guilty': I believe in reality. I don't believe in boogie-men and ghosts. And if you want me to try and tell my readers that there are boogie-men and ghosts, fuck you. That's not my job. ('Carl', 2005)

Utopian press discourse on therapeutic cloning reflected significant strains of just this kind of scientism. However, 'Charles' (first extract above) specifically connected his long-term commitment to scientific progress with his decision to redact his personal sense of journalistic scepticism about utopian claims from any front stage press content:

> *Yes … you have to take a kind of slightly sceptical view of the benefits* [of therapeutic cloning]. But if you believe as I do that understanding more about something does generally lead to improvements in clinical practice then you accept the general thesis that in the long run stem cells may be of value in the

> clinic. *They may not be here in ten years or even twenty years, and they may not be as great as everybody says they are*. But in the past, learning more about how the body functions has led to better treatments and there is no reason to suppose that won't happen in the future too. So I suppose that is my credo and therefore *although I might have doubts about some of the more outrageous claims I wouldn't necessarily write a story saying that they are exaggerated*. ('Charles', 2005; emphasis added)

This journalist is satisfied that the hype over therapeutic cloning will fund basic research, which he believes will provide at least some limited long-term medical benefit. On this basis, he is self-censoring and quarantining any personal scepticism backstage, thus limiting his readers' to deduce 'informed' consent on this issue.

Finally,[6] journalistic hype was also driven by the agonistic pursuit of the professional milestone of front-page story placement within the newspaper. This factor is rooted in the competitive individualism evident in most newsrooms. Bourdieu identifies this competitiveness as a defining feature of the journalistic field:

> Within the field of journalism, there is permanent competition to … appropriate what is thought to secure readership, in other words, the earliest access to news, the 'scoop' … and so on … [This] has the effect, in fields of cultural production under commercial control, of producing uniformity, censorship and even conservatism. (Bourdieu, 2005, p. 44)

However, some participants justified the competitive quest for front-page placement as altruistically motivated. Thus, it is suggested having science prominently displayed in the newspaper is an inherent, social good, regardless of the quality or veracity of the story's content. In the following extract, a British journalist explains that his science news department ran with the 'lesser' story of a British therapeutic cloning 'breakthrough' rather than the more significant Hwang breakthrough because it was more likely to get front page coverage:

> It was the angle that was most likely … to ensure that the story got onto the front page … If it had just been the Korean thing, … it wouldn't have been as highly placed in newspapers, on news bulletins, and so on. And sometimes placement is just as important to what's actually written for a story's impact, if you see what I mean? ('Richard', 2005)

Speaking more candidly, recently retired *Guardian* science editor, Tim Radford, indicated in an academic conference speech that therapeutic cloning hype was a natural outgrowth of the norms of the journalistic field:

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6 The fifth factor, the role of technical and scientific sources, is addressed in detail in the discussion of scientists as sources, later in the book (Chapter 14).

> People accuse us of grabbing headlines. What a ridiculous charge. Of course we were grabbing headlines [with the therapeutic cloning story]. That's our job [as science journalists]! … The idea that I could turn a piece of science that no one had ever heard of or discussed before into something that would sit on the front page of *The Guardian* … was an enticement never to be turned down. If there is a headline around, I would like to grab it, thank you very much. (Radford, 2006)

Radford went on to point out that the utopian hype that he and other elite UK journalists employed was essential to the journalistic professional telos of achieving prominent story placement within the newspaper:

> You don't grab headlines by describing embryo stem cell research as 'an expensive laboratory process based on technology guaranteed to lead to many years of frustration and very small flashes of enlightenment'. *That will not sit on the front page of anything*. If it offers hope to Christopher Reeve, that's what you go with; *because it's a clear, simple image and it's going to get published*. (Radford, 2006; emphasis added)

'Charles' made a similar admission: 'Perhaps we do tend to overemphasise or hype things a bit. Sometimes [*we*] *are just trying get things in the paper*' ('Charles', 2005; emphasis added). In addition to the fulfilment of their professional mission as journalists (Radford, 2006), 'grabbing headlines' in this manner certainly has an element of self-promotion. There are symbolic and financial capital increases for journalists featured on the front page of the newspaper and this was no doubt a contributing (albeit unacknowledged) factor in journalists' quotidian decision to promote hype and 'grab headlines' in the press coverage of therapeutic cloning.

Returning to the original question of why backstage scepticism failed to constitute commensurate front stage press content, the situation is succinctly summarised by Champagne (2005, p. 51):

> The major contradiction within the operation of the journalistic field lies in the fact that the journalistic practices that best conform to journalists' ethical codes are very simply not profitable. The journalist ideally wants to be a stalwart servant of the truth at any price, but he belongs to a paper that bears a price and is situated within the economic enterprise with its own exigencies.

In this vein, Leighley (2004) notes that 'one of the consequences of the melding of marketing and newsgathering is that journalists' personal influence on news content is reduced'. Thus, even journalists committed to journalistic professional norms, such as 'objectivity' and a Fourth Estate or watchdog conception of the press, find their autonomy constrained by numerous factors that stem from the commercialisation of news production (Bourdieu, 2005; Bourdieu, 1998a; Hallin, 2000; McManus, 1994; McManus, 1995).

Investigating Divergent Examples

This section examines data extracts that are apparently incommensurate with the main themes and sub-themes identified in the chapter. Since the main findings in this chapter centre on the pervasive role of hype, the cases analysed here evince sceptical or 'anti-hype' micro-patterns that run counter to the main current in the coverage. Below, I consider clusters of scepticism in the *New York Times*, *The Guardian*, *The Daily Mail* and *The Independent*.

Scepticism in Anglo-American Press Content

Despite frequently indulging in hype similar to that found in other news publications, the *New York Times* and *The Guardian* produced a greater level of sceptical coverage than the other publications in the sample.

New York Times Coverage

The following news meta-analysis extract by *New York Times* science writer, Gina Kolata, identifies the tendency of American press to use dystopian hype in stories about human cloning:

> The shocking notion that, some day, it might be possible to clone human beings seems to propel ethicists, press pundits and the like into flights of science fantasy. All offer their most provocative scenarios. (Kolata, 1998)

Indeed, during an interview I conducted with Kolata,[7] she revealed her commitment to combating hype with her news stories as well as her scepticism about scientists' and the biotechnology industry's motives.

> I'm really a total sceptic when it comes to any type of medicine and I feel that people are often being given exaggerated promises … my whole theme as a reporter is that people are always getting realistic expectations for lots of reasons: whether it's in people's research interests to keep this thing going, it's in the drug companies interests to keep these things going, it's in the investors interests and I think it doesn't do people a service to tell them something is better than it is. That's why I think we have so much unnecessary medicine. People running around thinking this is going to cure them because some doctor says it does, well, you know, we end up with a lot of extra expense and extra time and

7 This interview took place on 7 June by telephone from Cambridge to New York City. I am using Kolata's name because she emphasised that she did not need or desire anonymity and because these account of her actions seems unlikely to result in any kind of personal or professional harm for her.

> extra suffering because people are not always honest about what their data really shows. (Kolata, 2005)

Interestingly, however, Kolata goes onto justify this scepticism on the grounds that restricting hype is in the long-term interests of science (as opposed to claiming the mantel of the Fourth estate for legitimation):

> [Researchers hyping their data] can come back and haunt them later when things don't work out. Certainly that's true with gene therapy research, that was promised as the world's greatest thing. (Kolata, 2005)

Kolata primarily provided an analytical perspective and did not bear the responsibilities of the more mundane reporting tasks assigned to the *New York Times* science correspondent, Nicholas Wade. This left her freer to pursue a critical perspective on scientific issues that were in the news. She stated that by her editors at the *New York Times* typically supported this pursuit: 'The editors, I went up to them and said 'I have an idea' and they said 'fine' … They don't argue with me' (Kolata, 2005).

With a Master's degree in molecular biology and editors Kolata describes as 'very sophisticated', she feels confident enough in her assessment to be able to act as 'the science police and saying what is ridiculous and what is not', when she deems it necessary (Kolata, 2005). In line with Kolata's comments, the importance of an (un)supportive editor in determining a journalist's level of autonomy has also been identified as a key factor in news production. Based on her meta-analysis of risk reporting in the media, Kitzinger (1999, p. 64) concluded that 'the most important audience of all' for journalists is 'their editor. Editorial influence will often be more important than any one journalist's opinion about a risk story (Dunwood and Peters, 1992)'. The present data suggests that this editorial influence may represent the multiple needs and pressures of a news organisation embodied in the journalist's superiors as well as the social and professional pressures within the newsroom.

The ability of Gina Kolata, in particular, and the *New York Times* in general, to offer a more autonomous, critical perspective than its competitors is likely tied to its unchallenged status as the most prestigious newspaper in the United States. Bourdieu acknowledges that the degree of professional autonomy wielded by particular journalists can vary:

> Depends on the position occupied by his [*sic*] newspaper within the larger space of newspapers, that is, its specific location between the 'intellectual' and the 'market' poles. Then, the journalist's own position within that newspaper … determines statutory guarantees. Finally, the journalist's own capacity for autonomous production of news must be taken into account. (Certain writers, such as popularizers of science … are in a state of particular dependence). (Bourdieu, 1998a, p. 69)

Kolata's unusual position within the *New York Times* science news department was discussed above. In terms of the newspaper's location *vis-à-vis* other newspapers, Lule (2002, p. 287) contends that following the September 11th attacks, the *New York Times* 'took on the role of chief priest and state scribe'. Champagne (2005, p. 61) notes that 'certain [news] outlets hav[e] more "consecrating" power within the [journalistic] field than others'. Like *Le Monde* in France, the *New York Times* is clearly the most influential, 'consecrating' media institution in the US and thus is able to partially resist the heteronomous pole and its economic imperatives (cf. Bourdieu, 2005; Champagne, 2005). In Marchetti's (2005, p. 71) terms, a high level of 'journalistic capital' – 'the functional influence within the field of the various press outlets' – gives these newspapers the power to report in a manner that is less dominated by the logic of the market.

Perhaps the major lesson to be inferred from the deviant case of the *New York Times* is that the newspaper's greater symbolic and financial resources – and thus its ability to attract and pay a larger science news section than other newspapers – are at least partially responsible for the more sceptical and analytical coverage that appeared in its news pages. Indeed, journalists and commentators writing for the *New York Times* asserted a critical perspective on both sides of the therapeutic cloning debate more so than any other newspaper, even though it is still highly limited in terms of the absolute quantity of critical articles. Nevertheless, *New York Times* coverage, at times, showed clear evidence of the 'thick' (Evans, 2002b), Fourth Estate journalism valorised by Milton (1644), Mill (1859), Habermas (1989) and others.

Guardian Coverage

Beyond a broadsheet of quality versus 'tabloid' classification, it is more difficult to identify the precise hierarchy within UK print journalism. Nevertheless, press scepticism was given some limited space in *The Guardian*, while other elite UK newspapers produced largely undiluted utopian hype. However, these sceptical extracts are the exception, even in *The Guardian*:

> With the sheep-cloning announcement, we are treated to the familiar mantra – recited every time some grotesque new biotech 'advance' is put before the public – that it will lead to cures for cancer, cystic fibrosis, Alzheimer's, ageing and the rest of humanity's ills.
>
> These researchers are in the Promise business. When will such cures materialise? (Tyler, 1997)

This scepticism towards scientific utopianism continues:

> People are concerned about science's capacity to manufacture 'too perfect' hatched humanity. They should be more concerned with science's proven lack

> of competence and predictive powers – and, therefore, its capacity for grave errors. (Tyler, 1997)

Mulkay (1995a, p. 524) found in the UK embryo research debate that 'support for embryo research was based on the implicit assumption that leading scientists and the scientific authorities could know precisely what the future had in store'. This assumption endured into the therapeutic cloning debate, although it was questioned in a *Guardian* commentary by UK sociologist, Hilary Rose:

> Here we go again. Reading the excited claims for the medical benefits likely to accrue from [Hwang's] success in growing cloned human pre-embryos, one is entitled to feeling a certain deja vu. Heading the list were those old favourites, treatments for Parkinson's and Alzheimer's disease. There really needs to be a phrase to describe this researchers' equivalent of the old charge against doctors of shroud waving.
>
> … The truth is that no one knows if stem cells – the intended end product of therapeutic cloning – will have such curative powers, still less the solution to the spinal injuries Christopher Reeve was hoping for in Friday's *Guardian*.
>
> … The rush to experiment with human embryos is, to say the least, premature, driven more by the lust for scientific glory than a clear sense of the medical imperatives. (Rose, 2004)

Finally, on a day when the other elite British newspapers were flush with utopian hype, *The Guardian* coverage was slightly more circumspect in its depiction of the implications of the twin 'breakthroughs' by Newcastle researchers, Murdoch and Stojkovic and South Korean researcher, Hwang:

> Advocates of embryonic stem cells believe they will have a big impact on medicine in two ways. Stem cells created from people with genetic diseases will allow scientists to study the biological mechanisms of disease in far more detail than ever before. *More ambitiously*, embryonic stem cells that are genetically matched to patients *might one day* be used to regenerate failing tissues and organs without fear of them being rejected by the body's immune system. (Sample, 2005; emphasis added)

Unusually, in the extract above, the benefits for basic science are discussed first, rather than the hopes for imminent cures. Moreover, some caution words (italicised) signal a level of uncertainty about the outcome of cures. Nevertheless, the headline written for this story by a *Guardian* editor was decidedly sensationalistic: 'The cloning revolution: A giant step forward for science, but quest for new medical treatments goes on' (Sample, 2005).

The relatively higher levels of critical journalistic coverage of therapeutic cloning in the The Guardian (and the linked Sunday newspaper The Observer) aligns with a political economy-based explanation of journalistic credulity. The economic structure of The Guardian is different from the rest of the elite UK press. It is described as follows on the newspaper's website:

> The paper's fierce independence stems from its ownership by the Scott Trust, which reinvests profits into the Guardian and exists to protect its editorial freedom. Guardian writers are free to present the truth as they see it, without interference by shareholders, a proprietor or a political party. The result is a reputation for serious, trusted, independent journalism. (The Guardian, 2013)

This distinctively protected economic structure is further explained in the following extract:

> Rather than benefiting shareholders or a proprietor, GMG's [Guardian Media Group] profits are reinvested to sustain journalism that is free from commercial or political interference […]. (Guardian Media Group, 2013)

To fully investigate how this economic structure translates into more critical journalism would require a more sustained ethnographic study of The Guardian and its journalistic operations. However, the correlation between this ownership structure and more critical journalistic coverage found in the present research does point support a market-based model of news.

Criticising Science: The Case of the Daily Mail

Tabloids may have come closest in the present sample to fulfilling the journalistic ideal of the Fourth Estate. Of particular interest is their willingness to challenge and even pillory officials and experts. The following extract from a *Daily Mail* columnist challenges perhaps the most prominent symbol of British technocratic judgment on the ethics of embryo research, Baroness Mary Warnock:

> The architect of Britain's fertility laws, Baroness Warnock … places her faith in government controls to prevent any mad dictator producing a *Brave New World* where human characteristics would be manipulated to exclude undesirable traits … Cloning is utterly inimical to human flourishing. Yet it isn't surprising that Lady Warnock has warmed to the idea … Thanks to her, we have turned procreation into manufacture with barely a qualm. (Phillips, 2002)

The following *Daily Mail* extract also assails scientists and their motives:

> This [danger] is greeted by the scientists involved with serene indifference. Their experiments, they tell us, might bring children to the childless; and they

> might lead to a cure for the diseases of old age, such as Alzheimer's. The idea there is something inherently wrong in what they are doing is inexpressible in any vocabulary that they recognise. [To scientists], embryos are merely spare parts, to be used as they please. (Scruton, 2001)

This kind of (relative) irreverence towards science and societal elites seems to be a defining feature of tabloid coverage, which can be seen, for example, in the ironic use of the Progress frame below:

> But the man charged with pushing back the frontiers of medical know-how struggled to cope with even the most basic new technology as he faced the world's press. While an international team of journalists waited with pens poised he seemed to have trouble finding the 'on' key for his laptop computer. Even his high-powered team of researchers couldn't help him locate the right button. Finally the embarrassed expert – from Edinburgh's Roslin Institute – admitted he was stumped. He sighed: 'Unfortunately this sort of technology is much more difficult'. (Mackay, 2005)

While the characteristic irreverent and sensational coverage of UK tabloids has been much maligned, in this case it places them closer to the journalistic ideal of the Fourth Estate than their counterparts in the elite press.

Retrospective Introspection Post-Hwang Scandal

After the Hwang scandal broke, there was some introspective angst expressed by a few of the journalists that had been taken in by Hwang's claims. This was a fleeting and contingent development, so just one illustrative example is offered below in detail. The following extract first summons the utopianism underlying therapeutic cloning with a newfound circumspection:

> The disgrace of Professor Hwang Woo-suk … extends far beyond Korea. Professor Hwang's [therapeutic cloning] specialty is currently lionised as one of the most promising fields of medical research, if not the most promising of all. It draws … billions of dollars in funding; and *it is sustained by a lavish investment of popular hope. If wishful thinking alone were the driving force of medical science, stem cells would ... be curing all manner of dread conditions already*. (Dejevsky, 2005; emphasis added)

The economic underpinnings of the pro-research hype are even identified:

> Cut-throat competition for funding encourages research departments to advertise their prospects more optimistically. Investors, not unreasonably, want the promise of high returns … The hype needs to be banished from stem-cell research. (Dejevsky, 2005)

A fundamental reassessment of the field is then suggested:

> It is high time that a long second look was taken at this whole area of science. Researchers have talked up the potential benefits of stem cells to the point where swaths of lay opinion now regard them as a panacea … And how can we not? When relatives and friends are afflicted with conditions that could, we are told, be cured so simply in future, what qualifications do we non-scientists have for doubt? (Dejevsky, 2005)

Yet, even this commentator cannot help but relinquish some ground to utopianism:

> Stem-cell research has been … all about curing diseases that are at present incurable … Who would begrudge treatment to children with defective immune systems … or to those with diseases such as multiple sclerosis or Parkinson's? There need be no real debate here. (Dejevsky, 2005)

Thus, this extract shows a slide back towards the themes identified in the main sections of this chapter. Overall, however, the 'deviant cases' analysed above show the heterogeneity of press content (cf. Adorno, 1991). Despite the consistent patterns outlined in this chapter, there is variation within the sample and it is important to acknowledge articles that would be excluded as mere 'outliers' by a quantitative data analysis based upon inferential statistics.

Mediating Scientific Dystopianism and the Public

'Widely disseminated images and narratives have real effects, regardless of their relationship to the technical details of the scientific work. They shape the way people think about new technologies, assess their impacts, and develop ways to control them' (Nelkin and Lindee, 2001, p. 91). Thus, the impact of science fiction-inspired dystopianism in the human cloning debate should not be underestimated. The Wellcome Trust (1998) commissioned focus group research to gather public perspectives on cloning and found that respondents frequently referenced science fiction films and books, which have been heavily cited in the press. These science fiction products were used both as the explicit basis of their views and as a means of communicating their concerns about cloning to others. Merely mentioning such works of science fiction sufficed to immediately communicate an entire narrative about human cloning (Wellcome, 1998). In other words, 'popular culture motifs filled in the gaps in meaning' (Gerlach and Hamilton, 2005, p. 90; Peterson, Anderson and Allan, 2005). Indeed, Holliman (2004, p. 126) concluded that in the Dolly story, 'consistent references to science fiction … were a feature of the [press] template, resulting in a blurring of what had actually been announced with the perceived future prospects for cloning experiments'.

Mulkay (1996) identified the use of science fiction allusions in the UK embryo research debate, arguing that research opponents were disadvantaged by their association with such narratives. For example, he shows that pro-research MPs framed science fiction fantasies, such as *Frankenstein,* as the irrational basis of opponents' views (Mulkay, 1996). In a similar vein, Haran et al.'s (2007, pp. 156–7) audience research found that members of the public were loath to attribute their own views to such science fiction fantasies, even while expressing concern that the 'general public' was receiving its scientific information from precisely this questionable source. In the parlance of empirical media theory, this finding could be viewed as a 'third-person effect'. This concept refers to the pattern of individuals judging media content (e.g. television violence or pornography) to be more influential in moulding the thoughts of the 'general public' than it is on them or people they know (e.g. Price, Huang and Tewksbury, 1997).[8]

The third-person effect has been well established by media researchers (Davison, 1983; Price, Huang and Tewksbury, 1997). However, the Wellcome Trust (1998) audience research and other studies (e.g. Holliman, 2004; Steinke, 2005) strongly suggest that science fiction imagery strikes a chord with the lay publics, even if they are sometimes loathe to admit it (Haran, 2007). Science fiction narratives give concrete form to deep misgivings about human cloning that might otherwise be difficult to articulate without reference to the shared cultural genealogy of science fiction films and literature (Nerlich, Clarke and Dingwall, 1999; Nerlich, Clarke and Dingwall, 2000; Nerlich, Clarke and Dingwall, 2001; Weasel and Jensen, 2005). Mulkay (1996) contends that such fiction is an inevitable feature of debates over scientific issues:

> When speculating about the development of new, science-based technologies, participants cannot rely entirely on what they take to be the established facts. While they think and argue about the shape of things to come, they have no alternative but to create some kind of story that goes beyond these facts … In the course of public appraisal of science and technology, the conventional boundary between fact and fiction … become blurred. (Mulkay, 1996, p. 158)

Tudor (1989b, p. 589) argues that cultural texts, such as dystopian science fiction, channel the 'changing popular images of what is threatening about science and scientists' (also see Gerbner, 1973). While the mythical and unrealistic nature of such cultural texts severely limits their utility within substantive public debate, they can be used to communicate a more generalised sense of uncertainty or apprehension about the entire project of techno-scientific development.

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8 This influence is believed to radiate outward from the individual with increasing potency. That is, the effect is believed to be stronger the further from the individual, or the 'third person', is. This phenomenon is no doubt related to other well-established, social psychological patterns, such as the fundamental attribution error.

> Stories of mad scientists … constitute an extremely effective antirationalist critique of science … under the premise that scientists are dangerous. Untrue, perhaps; preposterous, perhaps; low-brow, perhaps. But nevertheless effective. (Toumey, 1992, p. 434)

Likewise, Bloomfield and Vurdubakis (2003, p. 1) contend that 'figures of occidental folklore such as *Frankenstein* … or *Brave New World* … [are] a convenient shorthand for articulating unease with the direction and pace of technological development, or even voicing loss of confidence in the modernist technological project of instrumental control' (also see Jensen *in press-b*). Such critical messages are difficult to communicate in a world dominated by elite media institutions (Herman and Chomsky, 1988), suggesting that scientific dystopianism should not be prematurely dismissed as 'mere hyperbole' (see Haran, 2007; Peterson, Anderson and Allan, 2005).

Barthes (1973) identifies the importance of myths deriving from fictional media and social convention in constructing seemingly natural and apolitical conceptualisations of concepts, such as 'science', in such a way that they support the interests of the dominant class. Lule (2002) identifies the integral position of such myths within news content. Marshall McLuhan (1960, p. 295, 298) argued that 'we can regard all media as myths and as the prolific source of many subordinate myths', citing the newspaper as the modern 'Babel of myths'. Indeed, both utopian and dystopian framing devices identified in the present sample could be understood as 'myth', in line with Fiske's explication of the dominant myth and counter-myth of science in Western culture:

> The dominant myth of science presents it as humankind's ability to adapt nature to our needs, to improve … our standard of living, to celebrate our achievement. Science is seen as objective, true, and good. But the counter-myth is also very strong. This sees science as evil … [and] scientists [as] selfish and short-sighted, in pursuit of our own material ends … In popular culture both myths are represented. The factual side of television, news, current affairs, … tends to show more of the dominant than the counter-myth; fictional television and cinema, on the other hand, reverse the proportions. (Fiske, 1990, pp. 90–91)

Ultimately then, the stock characters from science fiction, dualistic utopian/dystopian frames and underlying mythologies interwoven in the Anglo-American press coverage make deeply ambivalent contributions towards, and deductions from, the ideal of a critical (Adorno, 1991), reasoned (Beck, 1998b, p. 29; Habermas, 1989, p. 129; Habermas, 1996; Toumey, 1996) and 'thick' (Evans, 2002b) public debate on this topic. In the elite UK press especially, myths promoting excessive optimism and hype about the imminence and scope of cloning therapies were so prevalent and unqualified that disappointment and failure were the inevitable outcomes. Meanwhile, popular films and science fiction literature were routinely used as rhetorical devices to symbolise the risks of human

cloning and conjure dystopias that were often misleading and far removed from any scientifically plausible scenario. Yet, as in the UK embryo research debate, science fiction served dual purposes in the present sample. 'Within the context of anti-research discourse', it 'reminded recipients forcefully of the dangers of scientific development' (Mulkay, 1996, p. 169). In this vein, journalists' use of 'literary devices and techniques, including the employment of evocative stereotypes, symbols, terminology or metaphors … [can] connect readers with complex matters, assisting them to understand the unfamiliar and to imagine the possibilities that lay ahead' (Peterson, Anderson and Allan, 2005, p. 343). On the other hand, 'within the context of pro-research discourse, [science fiction] was made to speak, not of the dangers of science, but of the credulity, ignorance, and dogmatism of those who were unwilling to endorse the advance of scientific knowledge' (Mulkay, 1996, p. 169).

In part because of this fundamental ambivalence, the hyped and confusing media messages identified in this chapter may be viewed as degrading the potential for open dialogue and debate within a common public realm (Habermas, 1989). The excessive deference to science in the elite UK press excludes alternative voices from the debate (see Haran, 2007, p. 161). Moreover, the pervasive use of 'human interest' framing to construct a utopian vision of therapeutic cloning may 'depoliticize and reduce what goes on in the world to the level of anecdote' (Bourdieu, 1998a, p. 51). At the same time, 'discursive overbidding' in terms of promises of cures (see Hargreaves and Ferguson, 2000) and the muddled quality of therapeutic cloning discourse in the US and UK tabloid press may undercut the possibility of different segments of society (e.g. religious, scientific and patient advocacy groups) finding common ground for constructive dialogue on this and other issues (Weasel and Jensen, 2005).[9]

9 Compare with the arguments of proponents of a pluralistic public sphere, such as Nancy Fraser, Seyla Benhabib and Zygmunt Bauman, who argue that a cacophony of voices is always desirable from a democratic and emancipatory perspective, even if such debate is unpleasant to behold.

Chapter 12
Scientific Nationalism

Therapeutic cloning research was not given equal treatment across national media. Clearly national pride played a key role in how developments were framed:

> *Britain became the first Western nation* to embrace the cloning age yesterday, by awarding scientists the right to clone human embryos for medical research. The groundbreaking decision to allow a team at the University of Newcastle upon Tyne to experiment with human cloning *places Britain in the vanguard* of a technology with the potential to cure conditions such as Parkinson's, diabetes and paralysis. (Henderson, 2004; emphasis added)

> News that a South Korean researcher faked results in cloning experiments … *has given California scientists new hope that they might take the lead*. 'It was a terrible thing to happen, but it still means someone needs to figure it out, and *it could be us, which would be great for California*'. (Lin, 2006; emphasis added)

Indeed, nationalism emerged as a salient aspect of therapeutic cloning coverage across the entire sample frame. Metaphors of competition, or a 'race to the cure', have been seen in the framing of previous scientific developments, most notably the human genome project (e.g. Nerlich, Dingwall and Clarke, 2002). However, the present data demonstrates a systematic pattern of nationalism extending well beyond the standard journalistic frames of 'competition' and 'conflict' (although these are important epiphenomena within this theme). Rather, it is revealed in this research as an ubiquitous, banal nationalism (Billig, 1995), infusing both the backstage news judgments of journalists and editors (e.g. Fishman, 1980) and front stage press content. This form of scientific nationalism is not limited to UK and US press coverage; for example, it has also been identified in South Korean news coverage of therapeutic cloning (Chekar and Kitzinger, 2007). In this chapter, I briefly identify the key therapeutic cloning news events around which nationalist discourses clustered in the present data. Across these news events, different permutations of scientific nationalism emerged, including the construction of Anglo-American competitive nationalism, the conceptual metaphor of the nation-as-landlord and the frame of 'global risk' that privileged the 'Western Alliance' of established nations over Southeast Asian techno-science.

A Brief History of Scientific Nationalism and Therapeutic Cloning

This chapter explores the routine flagging of American and British nationalism. The press coverage constructs the concept of the 'nation' along the mythological lines described by Barthes (1973). The nation then becomes a frame through which developments in therapeutic cloning techno-science are filtered. At the same time, key events in the therapeutic cloning timeline elicited heightened levels of scientific nationalism: The announcement of Dolly's birth in Scotland prompted pro-cloning nationalism in the UK press samples, whereas the US-based therapeutic cloning breakthrough by Advanced Cell Technology in 2000 engendered unusually favourable coverage in the American press. Moreover, the Hwang publications in *Science* provoked salient episodes of scientific nationalism, especially in the UK press where Hwang's ascendance was viewed as a threat to Britain's national scientific dominance in the field of therapeutic cloning.

Dolly: The British Breakthrough

Nationalism was evident in the British press from the day Dolly's birth was announced. In contrast to the almost unanimous consternation of Dolly's unveiling in other nations' news media around the globe, the first cloned adult mammal was framed with a substantial degree of national pride in UK broadsheets (Einsiedel, et al., 2002).

> Research that led to the cloning of a lamb was yesterday hailed by MPs as an astonishing achievement that unfortunately had been overshadowed by the uproar over its potential application to humans (Radford, 1997).[1]

The following extract appeared under the headline, 'Baaad baaan':

> The public reaction in Dolly's homeland has been more muted than elsewhere in Europe, let alone in North America. Few UK politicians have spoken out on the issue, and yesterday the Commons Science Committee started an admirably low-key inquiry into cloning. The MPs made no inflammatory comments about the dangers of human clones. (*Financial Times*, 1997)

1 A disproportionate number of extracts in this chapter come from *The Guardian*. This selection bias was instituted deliberately following Michael Billig's (1995) point that *The Guardian* is the newspaper of left-wing academics in the UK, and therefore perceived as the least likely to engage in nationalist discourse. Hence, it is important to show that nationalism is so pervasive that it is not limited to tabloid or American or right-wing news publications; it is a regular feature of left-leaning news publications as well.

Compared to splitting the atom and other monumental scientific accomplishments, Dolly's birth was said to represent a return to worldwide prominence for British science.

> Dolly the lamb is 'the most important development in United Kingdom science since the splitting of the atom'. (Radford, 1997)

> British scientists will be the first in the world … to develop the technology. (Kirby, 2000).

Once again Great Britain was viewed as 'number one' in a high-profile field of science after many years of American dominance in science and technology.

> The realisation is sinking in that the US – unaccustomed to being number two in anything of consequence – seems to have yielded primacy to the UK in a key area of cutting-edge science'. (Klotzko, 2001)

An American Success and the British Riposte

This glorification of British dominance in this field turned temporarily into lamentations over the success of other nations, starting later in 2001 when the American biotechnology company, Advanced Cell Technology (ACT), announced the first successful therapeutic cloning experiments.[2] Following this watershed event, the elite British press intermittently bemoaned the UK's foundering status in the field of therapeutic cloning (see Radford, 2006),[3] while at the same time hyping and over-selling the achievements of 'home' researchers whenever possible.

Subsequent to ACT's early success in therapeutic cloning, the UK's political and economic commitment to developing the technology was heightened. At the same time, possible legal barriers were summarily dismantled through an extension of the Human Fertilisation and Embryology Act, as discussed earlier in this book. Thus, for a period from 2002 to 2003 the British press was again flush with national pride and optimism over UK dominance of the field of therapeutic cloning research:

> … at least four universities gear up to consolidate Britain's reputation as the world capital of stem cell and cloning research. (Meek, 2002)

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2 That is, ACT scientists created an early (6-cell) embryo with genetic material from a donor using somatic cell nuclear transfer.

3 Seeing their nation upstaged by the US, then by China and South Korea, the elite British press's close identification with UK-based therapeutic cloning scientists (Radford, 2006) seems to have fuelled their tendency to employ competitive, nationalist framing.

> This promises to be the century of biology, with Britain at the leading edge … Britain is poised to lead the world in the medically transforming field of stem cell research. The decades-old brain drain shows signs of reversing and, in Prime Minister Tony Blair, this country has a passionate advocate for science. (Klotzko, 2002)

The Ascendance of Asian Competitor Nations

Running alongside these events in the UK, reports of breakthroughs in Southeast Asia began to appear sporadically. Chinese embryo research drew particular attention within the increasingly concerned British press:

> Scientists have inserted a boy's DNA into rabbit eggs and grown hybrid embryos. The research is under way by a team of the Sun Yat-Sen University of Medical Sciences in Guangzhou, China, to overcome a practical limitation facing scientists who want to make transplant tissues by therapeutic cloning. (Highfield, 2001)

> Researchers in China claimed yesterday that they have cloned dozens of human embryos … The Chinese research is far more advanced than Western scientists had suspected … Professor Lu Guangxiu, of Changsa, central China, said scientists have been producing clones for two years. 'We're not far behind any more', she added. (Lines, 2002)

Other Southeast Asian nations, such as Singapore, were also highlighted as nascent threats to British dominance over the field of therapeutic cloning:

> In a setback to hopes of Britain becoming a world hub for stem cell medical research, one of the scientists most closely associated with attempts to commercialise the technology is leaving Britain for Singapore. Alan Colman, one of the scientists involved in cloning the sheep Dolly in 1996, is to leave … for the Singapore company ES Cell International. (Meek, 2002)

Increasingly, reported therapeutic cloning 'breakthroughs' in Southeast Asia began to eclipse Anglo-American research within the global scientific and media fields. In 2004, the results of South Korean scientist Hwang's research appeared in the high-prestige, US-based journal, *Science*: His team claimed to have derived usable stem cells through therapeutic cloning. This was followed by a similar Hwang publication in May 2005. These developments were immediately framed in terms of their national implications for the US and Britain. In the American press extract below, the reporting on Hwang soon shifts to the concern that the US is being left behind:

> The South Koreans have done it again. Last year Seoul National University's Woo Suk Hwang announced that his team had derived stem-cell lines from cloned human embryos for the first time. Last week Hwang made another announcement: the scientists had now created 'patient-specific' embryonic-stem-cell lines, and they'd done it far more efficiently than a year ago-a giant leap forward in the controversial science. '*The Korean study underlines the urgency for us to get moving if we're going to be part of the game*', says Zach Hall. (Kalb, 2005; emphasis added)

The consternation about losing ground to competitor nations was heightened in the US, where President Bush had limited federal funding for embryonic stem cell research. The first extract below comes from a *USA Today* editorial advocating the removal of barriers to therapeutic cloning research in the wake of the reported Hwang breakthrough of 20 May 2005:

> The breakthrough was a reminder of the research's potential to regenerate damaged organs and treat diseases such as Alzheimer's and Parkinson's – *and of how the United States is falling behind the rest of the world* because of restrictions President Bush imposed in August 2001. (*USA Today*, 2005; emphasis added)

> Now the brilliant scientific breakthrough in South Korea is further ripening the debate … Will the United States be part of the most exciting medical research of our time? *With global competitors poised to eat our lunch*, a few private and state-funded efforts won't be enough. (Alter, 2005; emphasis added)

In particular, 2004 and 2005 found the Anglo-American press showed a rise in frantic concerns about Western science falling behind the South Koreans. However, the elite British press continued to hype the success of UK-based researchers, while giving ample attention to reports of ethical lapses in the South Korean research group.[4] For example, on 20 May 2005 when Hwang's second *Science* article was released, every UK broadsheet subordinated this story to an unpublished report of a similar, though much less significant, UK-based breakthrough.[5] This blatant

4 Despite ample coverage of potential South Korean and Chinese ethical lapses, I found only one news article in the *New York Times* (out of the entire US and UK samples) that discussed the potential, ethical issues in Western researchers' approach to therapeutic cloning research. And, after the Hwang scandal broke, there was minimal outrage directed towards the severe lapses in professional ethics committed by Hwang's opportunistic American collaborator, Professor Schatten, who appears to have suffered no long-term, professional damage for his transgressions. For example, he is still director of a research centre at the University of Pittsburgh: http://www.pdc.magee.edu/faculty/schatten.html

5 Alison Murdoch and Stojkovic were claiming they had cloned an embryo and developed it to the 8-cell stage, a fact that had been achieved previously by Advanced Cell Technology in 2001. Hwang's publication in *Science*, on the other hand, reported developing cloned embryos from potential patients *and* deriving usable stem cells from

display of nationalistic news judgment may have also been related to the fact that the Hwang articles were published in American flagship journal, *Science,* rather than the venerable British flagship journal, *Nature*.

This 20 May 2005 coverage comprised one of the starkest examples of consistently nationalistic news judgement in the present sample, reflecting the tendency to downplay the significance of Asian scientific developments in the British press. *The Sun* extract below places the British breakthrough first in the story,[6] thus signalling to the reader that the British success is more important than the Korean one:

> A human embryo has been cloned for the first time in Britain, scientists said last night. The stem cell research was carried out at Newcastle University. Experts hope the breakthrough will lead to treatments for diseases such as Parkinson's and Alzheimer's or for spinal injuries. It comes as South Korean researchers reveal they have created the first customised embryonic stem cells. (Morton, 2005)

The same pattern can also be seen in *The Daily Mirror*:

> A human embryo has been successfully cloned for the first time in Britain, it was revealed by scientists yesterday. Experts created three clones, one of which survived in a laboratory for five days …
>
> Scientists hope the work will lead to successful treatments for diseases such as Parkinson's and Alzheimer's and for paralysed victims of spinal injuries …
>
> The Newcastle University team's breakthrough came as South Korean researchers announced they had created the first 'customised' embryonic stem cells, genetically tailored to match patients. (Allen, 2005)

The following extract offers another example of nationalistic ordering of the respective British and Korean cloning announcements:

> Scientists in Newcastle have successfully cloned a human embryo, a breakthrough that places Britain at the forefront of the cutting edge … field of embryonic stem cell technology. The clone was created as part of the Newcastle group's research into new treatments for diabetes. The team, led by Miodrag Stojkovic

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the 100-cell blastocysts they created. These reported experiments far outpaced all other research in this field.

6 The pattern revealed in the UK press on 20 May 2005 was not in evidence in the American press. The US newspapers chose to lead with the South Korean breakthrough (which was published in the American scientific journal *Science*) and to largely ignore the less significant and unpublished findings of the Newcastle researchers.

> at Newcastle University and Alison Murdoch at the Newcastle NHS Fertility Centre, was the first in Europe to be given the go-ahead to clone embryos for research last year.
>
> Only one other group in the world, led by scientists in South Korea, has perfected the technique to clone human embryos. That team, led by Woo Suk Hwang at Seoul University, today announced going one step further than the Newcastle researchers by creating stem cells tailored to patients with specific medical conditions. (Sample, 2005)

Although all of the UK press accounts – both tabloid and elite – placed the British science at the top of the article, there were small variations in the level of credit granted to the South Koreans' work. In the following story from *The Daily Telegraph*, the superiority of the South Koreans' reported breakthrough is emphasised:

> The first cloned human embryos to be created in Britain – and the first to be grown in the West – were unveiled by scientists yesterday. The news that a team at the Centre for Life, in Newcastle upon Tyne, had created three human clones, the most advanced being a female five-day-old embryo the size of the full stop at the end of this sentence, was announced as *a South Korean team disclosed a much more significant milestone*.
>
> To the dismay of opponents of such research, the Koreans have succeeded in the efficient creation of more than 30 cloned human embryos – regardless of the age, sex and infirmity of the person being cloned. They then dismantled the embryos to grow the first lines of patient-specific embryonic cells …
>
> *The advance, announced in the journal Science today, puts the Koreans about two years ahead of Prof Alison Murdoch, Dr Miodrag Stojkovic and Dr Majlinda Lako in Newcastle*. It underlines the urgency of efforts by the biotech entrepreneur Sir Chris Evans to set up a British foundation to raise hundreds of millions of pounds for research. (Highfield, 2005; emphasis added)

While the above extract acknowledges the superiority of the South Koreans' breakthrough claim, this information is used to support the notion of an international competition, suggesting that more money is needed in order for the UK to defeat South Korea in this field of scientific research. Thus the pattern of scientific nationalism is maintained even in this instance.

The Backstage of the Newcastle/South Korea Story

In the published front region of the UK press, the events reported on 20 May 2005 were framed as a straightforward victory for British science. However, a very different scene was illuminated through backstage journalistic discourse. UK interview participants deliberately manipulated the story to appeal to the perceived nationalist appetite of their audience.[7] In the following extract, the news writing process underlying the Newcastle/South Korea therapeutic cloning story is explained:

> On this story, it was fairly obvious quite early in the day that this was the best story of the day. The question for us was how to write it and which element of it to put on top. ('Richard', 2005)

'Richard' then lays out his audience-based justification for the decision to lead with the Newcastle story:

> We all thought obviously that the Korean work was actually more important. However, for a UK general reader who probably didn't have a background in this – didn't actually really have a deep understanding of what's involved in therapeutic cloning – the fact that a UK team had achieved it was the angle that was most likely to be picked up and read by a general UK audience. It also offered a nice way to ensure that the story got onto the front page, which it might possibly not have done had it purely been about the Korean research. ('Richard', 2005)

Thus, the underlying market-based motivation in scientific nationalism was to appeal to the newspaper's imagined audience.

A similar description of the decision to emphasise the Newcastle over the Hwang story was offered by 'Danny':

7 The Hwang story underwent major developments while the present study was in progress, affording some unique and unrepeatable opportunities for data collection. Serendipitously, the journalist interviews for this study were conducted after Hwang's second *Science* publication (which was at the peak of his apparent success and *before* there was any significant suspicion of scientific fraud). Hwang's scientifically symbolic capital and media meta-capital were at their zenith at this time. I questioned each journalist participant who had written about Hwang regarding their uncritical acceptance of the hype surrounding his and others research. This timing offered access to journalists' accounts unbiased by post-scandal adjustments for face-saving and social desirability, which inevitably accompany retrospective accounts.

> The way those two stories were managed – and this goes for the other newspapers and *Newsnight* as well interestingly – was that they all went with [the Newcastle story]. It seemed like the argument was 'we're British media; we will go with the British story on top'. ('Danny', 2005)

Like Richard, Danny recognised that the Newcastle report was 'undoubtedly worse work than the South Koreans', yet this autonomous, journalistic judgement was subordinated to the heteronomous principle (also see Bourdieu, 1998a; cf. Schudson, 2005) and scientific nationalism:

> The *British* news story – and we're a British newspaper – was that these [Newcastle] scientists had claimed to the first cloned human embryo [in the UK] and that somehow trumped the South Korean work which was … far more important … I have to say on the [science] desk we were of the sense to have run with the South Korean work on the front page. But being a British newspaper, the bigger British story was the results through the Newcastle work. But it was pretty lame compared to the South Korean stuff.
>
> … The fact that [the Newcastle researchers] are British then just managed to trump the actual scientific advance the South Koreans had done … Of course that [nationalist] judgement is going on for every story that gets in the paper … All those factors have to be weighed up for every story that goes into the paper and they're always weighted up by the news desk. ('Danny', 2005)

The judgment described above represents a 'policy of demagogic simplification' (Bourdieu, 1998a, p. 3), reinforcing the imagined supremacy of 'their' nation by promoting the homeland's success. Both journalists and politicians routinely employ this populist tactic wherein 'the mirror of narcissus [i]s held up to the evoked national audience … "The British people are a great people", [Blair] declared' (Billig, 1995, p. 105). In the present sample, journalists assured their readers that Britain was the 'greatest scientific nation', and simply massaged the scientific developments into front stage press content reflecting this narcissism.

Some UK science journalists faced backstage derision from their colleagues for the decision to lead with the Newcastle story. 'Richard' continues:

> Funny enough, I had an argument the other night with a Reuters [wire service] correspondent about this who was very critical of the UK press for all leading on the Newcastle research rather than the Koreans'. ('Richard', 2005)

UK science correspondents defended themselves from such criticism using a variety of rationalisations, including the argument that they were simply giving the public what it wanted:

> The whole way that I tried to write that story, was obviously make it clear, you know, Britain at the top, but we all knew that what the UK team did was very insignificant compared to what the Koreans had announced that same day. So it was a lead in, a hook to get people reading a story that they might not otherwise have read. ('Richard', 2005)

Indeed, a medical correspondent for a British news periodical indicated that her organisation privileged American therapeutic cloning research because their many American readers were presumed to prefer 'home' science or medical news.

> [We] overwhelmingly [cover] American [science]. We are very much influenced by the science from the United States. The [participant's periodical] has half its readers in America and we tend to look at the United States. ('Zeynep', 2005)

This view that nationalistic framing works to gain reader attention is not supported by research evidence: It is simply an assumption that is part of the professional common sense of the journalistic field.

The second justification for nationalist framing was that it helped the overall cause of science by getting the story onto the front page with the nationalist framing:

> If it had just been the Korean thing, sure the Korean stuff would have been on the top of the story, but it wouldn't have been as highly placed in newspapers, on news bulletins, and so on. And sometimes placement is just as important to what's actually written for a story's impact. ('Richard', 2005)

This is again based on the news organisation's implicit (and possibly unfounded) premise that readers are genuinely interested in 'home stories' and not in stories that take place in foreign places.

Reflecting on his different geographical location, one of the few American journalists who had even heard of the Newcastle 'breakthrough' expressed a very different evaluation of its newsworthiness:

> I actually knew about [the Newcastle story] when I was doing the South Korean story [on 20 May 2005] and [the Newcastle story] was totally baseless [laughs]. I mean, it shouldn't have even been reported by anyone. I mean … [the Newcastle researchers] hadn't done anything! … They hadn't done anything that would merit a news story and it was nothing comparable to what the South Koreans had done. And even if the South Korean news hadn't been happening that day, I would not have reported what they'd done in the UK because it was not a substantial step forward. ('Nick', 2005)

Hwang's therapeutic cloning research would later prove to have been a complete fraud from start to finish. In Goffman's (1963) terms, Hwang was

merely 'discreditable' before December 2005. This allowed him to project a normal, unblemished image to others. However, in December 2005, facing the overwhelming evidence of his deceit, Hwang finally acknowledged that he had behaved 'unethically' and apologised to the nation of South Korea. Before this time, however, Hwang's claims appeared highly credible due to their publication in the top American journal, *Science*.

Scientific Nationalism

> These [therapeutic cloning] stories are going to get covered because, for good or ill – I am not arguing the merits – but these stories have become major national and international stories. ('Jim', 2005)

Benedict Anderson (1991) theorises that nations and nationalism arose out of the emergence of a popular press aimed at ordinary citizens in the late fifteenth and sixteenth centuries. Through the shared and concurrent experience of print capitalism, he contends that the reading public gradually formed a virtual community, eventually becoming a 'nation'.[8] Thus Anderson defines the nation as 'an imagined political community':

> It is *imagined* because the members of even the smallest nation will never know most of their fellow-members …, yet in the minds of each lives the image of their communion … It is … a *community*, because … the nation is always conceived as a deep, horizontal comradeship. (Anderson, 1991, pp. 6–7)

Hence, in Anderson's theory, the press gave birth to the imagined community of the nation.

The mediation of nationalism is addressed further by Billig (1995, p. 6), who unveils the subtle, repeated flagging of nationalism 'endemic' to life in 'established nations', such as the US and Britain. 'Banal nationalism' is defined as the 'ideological habits' contributing to the prosaic, taken-for-granted nature of nationalism in daily experience (Billig, 1995, p. 6). In particular, Billig

8 Anderson, no doubt, exaggerates newspapers' role in the original formation of modern nation-states. Indeed, Thompson (1995, p. 62) highlights the temporal disjuncture between 'the emergence of a plurality of reading publics in sixteenth century Europe, on the one hand, and the emergence of various forms of national identity and nationalism in the nineteenth and twentieth centuries, on the other … If the early reading public was the embryo of the nationally imagined community, why did it take nearly three centuries for this embryo to mature?' However, it is clear that the press and other mass media have played a vital role in constructing, maintaining and directing extant national identity (e.g. Billig, 1995).

(1995, p. 94) describes the routine identification of nationalism by the news media, which would 'daily bring the flags home to the citizenry'.

According to Billig (1995, p. 8), nationalism is reproduced through 'continual "flagging", or reminding, of nationhood'. This constitutes a 'continual background' that reminds citizens of their national status in a manner 'so familiar, so continual, that it is not consciously registered as reminding'. One of the key mechanisms for this continual reminding is called 'deixis'. Deixis refers to a 'form of rhetorical pointing' that uses 'little words' such as ' "I", "you", "we", "here", "now"' to orient the reader, listener, speaker or writer of a text within a larger universe (Billig, 1995, p. 106). As Billig (1995, p. 175) states, 'the newspaper addresses "us", its readers, as if "we" are all nationals of the same state: it tells "us" of "home" news'. It is these seemingly mundane elements of journalistic discourse that are so important (1995, p. 93) 'because of, not despite, their rhetorical dullness'. Deictic communication can subtly locate the 'in' group and 'out' group within a larger body of people. Through the use of deictic devices, like 'here' and 'we', the press frame 'the national homeland as the home of the readers' (Billig, 1995, p. 11). Moreover, by suggesting who is a part of 'our' country, deictic language defines the boundaries of the nation in an exclusionary, yet largely unnoticed, manner. Such rhetorical flagging helps to foster what Billig (1995, p. 4) describes as an 'aura of nationhood', which makes the nation seem magical or transcendent, while simultaneously constituting a natural and unremarkable aspect of the social world (also see Barthes, 1973).

The following extract exemplifies banal nationalism within the present sample, implying that one should only care about an issue if it impinges on one's home country (Billig, 1995):

> Why does this matter to *us*? Aren't these American concerns for American scientists? '*We* must care', says Robert Winston, professor of fertility studies at Hammersmith hospital in London. 'The US is one of the leading technological societies, with the most advanced science base. It's influential. *Their* science informs *our* science'. (Sample, 2004; emphasis added)

Deictic language infuses the above extract with banal nationalism. 'Us', 'we', 'their' and 'our' are emphasised above as examples of this subtle, but powerful form of nationalism. Such framing hails, or 'interpellates', its readers, 'recruiting' them as 'always-already' national subjects (Althusser, 1971, pp. 163–4). While news producers do not set out with the explicit goal of reproducing nationalism, they do contribute to this outcome due to their presumption that nationalistic framing of news makes it more attractive to readers. This pursuit of market success through nationalism ends up perpetuating nationalism, even though evidence of success at the primary goal of selling more news products remains elusive.

Anglo-American Nationalist Competition

> If you could put a Union Jack on [the science story], it has a slightly better chance of getting in. If it is … British science it has got a slightly better chance. I try not to play that card, but … yes, … a British study has a slightly better chance. ('Charles', 2005)

The US and Britain were frequently imagined as rivals in an international competition in the news coverage of therapeutic cloning. The prize of therapeutic cloning cures and concomitant bonanzas of symbolic and economic capital was framed as 'winner-takes-all', and Britain had staked the first claim:

> *Dolly the sheep led the way*
>
> The incredible technology set to help humans is similar to that used to create … Dolly the Sheep … The team was led by Professor Ian Wilmut**.** He said: '*We* were the people who had the lucky breakthrough. It would be a great shame if we miss the opportunity to go on to develop new therapies'. There will also be a massive profit from any cloning project. Analysts estimate that the first company to produce cloned human tissue will establish a market which will be worth Pounds 3.8 billion within a decade. (*News of the World*, 2000; emphasis added)

The deictic 'we' in the above extract is noted with italics, while the extract below exhibits similarly nationalistic framing emanating from the US press. Advanced Cell Technology's (ACT) scientists are placed in a race against the scientists of other nations, during which is ACT facing the spectre of future regulation by its own nation's elected representatives:

> By rushing into print preliminary experiments in creating early-stage embryos through cloning, *the scientists at Advanced Cell can get bragging rights in the world of science – and, possibly, a leg up* in the effort to turn the technology into a viable business. [Co-author] Anne Keissling … said Dr. West and Dr. Cibelli deemed publication of the experiment a matter of urgency *because of competition from other groups* – including one in Israel. (Regalado, McGinley and Carroll, 2001; emphasis added)

Not only does the above extract conjure the notion of a worldwide scientific race, but it also takes for granted that cures and fortune lie at the end of this race. This reinforces the sense of inevitability discussed previously. Competitive framing in Anglo-American press coverage was explained by American science journalist, 'Carl' (2005), who acknowledged that 'We [US science journalists] are *way* under-covering what's going on in the UK; everybody is in the US'. American science writer, 'Jim', acknowledged a similar point when asked if there was a tendency to

privilege US scientific developments over those of other nations. In the following extract, he recalls a study he might have covered had it occurred closer to 'home':

> Yeah I would say there is … I mean there was this paper from the University of Sheffield … and I'm sure the UK papers gave it more attention than the US did. I mean I knew about it [participant trails off]. I like to think that I would make the same journalistic judgment no matter what but I think there is a tendency to be a little jingoistic, yeah. ('Jim', 2005)

Carl mentioned one instance of backstage Anglo-American journalistic nationalism in which he tried to pitch a story about a meeting between Wilmut and Hwang (pre-scandal), but found his editors decidedly unreceptive to the idea:

> My editors were like, 'What do we care what some guy over in oldy Englandy is doing?! You know, they don't buy a lot of [our newspaper] in London'. ('Carl', 2005)

This extract is indicative of the economic, or 'heteronomous', (Bourdieu, 2005; Champagne, 2005) dimension of press nationalism. The news business is based upon 'exploiting and pandering' to the existing 'tastes of the general public' (Bourdieu, 1998, p. 48), including presumed nationalist sentiments and xenophobia, in order to maximise sales. Moreover, Carl went on to suggest that the only time foreign science stories get substantial coverage is when they are simply too sensational to ignore:

> Every once in a while my editors will get alarmed because Reuters [news wire service] will botch a story coming out of the UK. You know, [they will publish an outlandish story such as] 'the Brits have cloned a human baby seven stories tall!' … But that's the only attention we ever pay to the UK. You know, until the Brits clone a baby, they don't exist. We pay more attention to South Korea than England. ('Carl', 2005)

Before mid-2002, the US and UK were framed as the *primary* competitors for glory and profit in this scientific field. Although there were other perceived challenger nations, the British press framed the US as the primary comparison target until the end of Phase 1 of the debate. This putative competition was used to legitimate liberal laws and generous scientific funding for British bioscience:

> Is the United States about to fall behind Britain in a crucial area of medical research? It's certainly possible. Research on human embryonic stem cells is legal in the UK … They are also allowed to do therapeutic cloning … Across the Atlantic, even research using stem cells derived from surplus embryos faces a rather uncertain future. (Klotzko, 2001)

> Researchers say that Britain's liberal rules on human embryo stem cell research are starting to create a 'reverse brain drain effect' which is attracting scientists from the US, where the anti-abortion lobby, especially the Catholic Church, exerts a powerful influence. (Black, 2003)

Later in the debate, the US press registered its concern about the US losing its top status in the biological sciences. This concern was framed in nationalistic and envious terms:

> 'Bravo for the British', said Robert Lanza, vice president for medical and scientific development at Advanced Cell Technology, a company based in Worcester, Mass, that pursues stem cell therapies. 'It's nice to know some countries are keeping religion and science separate'. (Weiss, 2005)

Concern about the loss of American dominance in the field of human embryo research was also expressed within the context of the 2004 US Presidential election:

> The issue of stem-cell research offers Kerry the chance to project himself as the candidate of the future – the one who will … restore America's medical leadership in the world. (Alter, 2004)

A similar sentiment was expressed in the UK press on behalf of its nation:

> He urged the government to … *turn British scientists into world leaders in the field*. (Kirby, 2000; emphasis added)

> Britain's scientific establishment … is determined to lead the world with the technology. (Rogers, 2002)

The UK's attempt to seize the number one position on cloning technology takes place within the broader context of competition between British and American science, in which the UK typically comes in second place. For example, the official website of the UK government Office of Science and Technology features the following comparative statement:

> The UK is second only to the United States in terms of the volume and influence of scientific publications and the number of major international science prizes won.[9]

Now that Britain could change this assessment in a high profile field of science, the opportunity to highlight British scientific supremacy combined with the

9 http://www.ost.gov.uk – Last accessed 8 June 2004.

intrinsically interesting 'cure' aspect of therapeutic cloning research made this a tantalising story with a high perceived news value (Radford, 2006).

Framing Enlightened British Regulation

A key framing device in the elite British press was to construct an undesirable foil to contrast with enlightened British legislation and regulation. The following extract – published one week after Dolly was revealed, offers an early example of the construction of an 'us' (i.e., enlightened Britons) and a vast 'them' (i.e., non-British barbarians at that gate) for this issue:

> No amount of guarding the gates can keep their secret within Britain, or prevent unscrupulous scientists in unregulated countries from trying to clone a human being. (Boseley and Vulliamy, 1997)

According to Bauman (2000), a necessary element in the construction of the 'patriotic/nationalist creed' is a 'desperate attempt to set "us" apart from "them"'. It was in this same vein that an undesirable image of the US was constructed in the UK broadsheets to contrast with the British approach, which was portrayed as reasoned, moral and economically savvy.

> Richard Gardner, chairman of the Royal Society working group on stem cell research, said: 'There is now the very real prospect that the UK can become a world leader in stem cell research. Unlike the United States, the UK has proper regulation of research on embryonic stem cells in both the public and private sectors'. (Hawkes, 2002)

Such nationalistic framing helped to legitimate the technocratic, pre-fabricated consent of the British Parliament and its liberal regulations, reinforcing the moral position of the UK as a 'sanctioning power' and 'norm-giving entity' (Habermas, 1987, p. 38) in regard to other nations. For example, the following extract constructs the American approach to therapeutic cloning as analogous to religious persecution:

> There was never much chance of [therapeutic cloning researcher] Roger Pedersen being burned at the stake … But the fact is that, almost four centuries after the pilgrim fathers fled from England to the then American colonies in search of the freedom to worship as they chose, Pedersen's journey in the opposite direction, from California to Cambridge, has been triggered by religion. It is the struggle of religious belief against a particular line of medical research that has driven the 56-year-old biologist to up sticks and rebuild his laboratory in England. Pedersen is coming to … work on human embryonic stem cells … which scientists hope can be used to culture spare parts for the sick. (Meek, 2001)

In addition, the British press framed the US approach as muddled and unclear. This undesirable state of affairs is set in opposition to the clear-headed governance of the technology through the technocratic institutions of modern Britain. The following example further sharpens the US-UK distinction by drawing upon the stereotype of Americans as litigious:

> As the US sinks further into the morass of scientific and legal uncertainty, the UK can only benefit … The regulations are clear; the environment is predictable. Scientists don't have to stop off at their lawyer's office on the way to the lab. (Klotzko, 2001)

Beyond competitive framing, opponent construction in the UK press served to venerate the hallowed British legal and parliamentary institutions as national traditions worthy of public deference and nationalistic support (cf. Giddens, 1994). The following extract from just after the news of Dolly broke in the press describes the negative situation outside of Britain's borders:

> However, controls in other countries, are more lax. In America there are no laws regulating embryo research, which is controlled by local hospital ethics committees. (Laurance and Hornsby, 1997)

In the elite UK press, the frustrated efforts of the American Congress and US regulatory system were framed as failing in proportion to their dissimilarity from the equivalent British institutions. The extract below came under the headline, 'Americans are looking to Britain to get them out of Bush's stem cell morass':

> Since George Bush announced his decision …, many Americans have been starting their day with … a news story about a previously unknown and arcane subject: how the British regulate their embryo research … The realisation is sinking in that the US – unaccustomed to being number two in anything of consequence – seems to have yielded primacy to the UK in a key area of cutting-edge science … So American scientists and, increasingly, the American public are looking to Britain for science unconstrained by political compromises that masquerade as moral pronouncements. (Klotzko, 2001)

This pattern of British nationalism raises the question of 'whether, in these supposedly post-imperial times, it is possible for Britain to accept the world as a sufficiently benign place for its weakness not to be catastrophic' (Robins, 1999, p. 16), even on issues as peripheral to national power as therapeutic cloning. Indeed, the present sample suggests that the UK press is set on framing Britain as a dominant scientific nation. The *coup de grace* on this topic was the sympathetic narrative of former Superman actor, Christopher Reeve. Reeve offered the elite UK press a narrative of an American seeking to benefit from the enlightened policies of the UK:

> In the meantime, Reeve's best hope lies in Britain, which has passed legislation allowing therapeutic cloning and allocated some pounds 40m of public money to research. 'Most scientists believe the UK is poised to take the lead, as it did with in vitro fertilisation'. (Bedell, 2003)

Thus, while the choice of opponent varied from month to month and year to year, both the US and UK engaged in continuous competitive framing throughout the sample period.

The Global Cloning Risk

As argued above, the US was singled out as the primary opponent in the scientific sub-field of therapeutic cloning by the UK press (and vice versa) during Phase 1 of the coverage discussed earlier in this book. However, the spectre of unregulated human embryo cloning was at the same time being portrayed in the elite UK press as a classically *global* risk as well. The notion of 'globalised risk' I use is a constructivist and media-centric derivation of the concept developed by Beck (1992). Beck argues that modernity has moved from a stage he refers to as 'industrial society' to one of 'risk society'. According to Beck, risk society is defined by the increasing ubiquity of globalised risks, such as pollution, nuclear disaster, genetic engineering and – as this study would suggest – unregulated embryo cloning.[10] These risks are *globalising* because they cannot be controlled at the level of the individual nation-state and because their consequences spread without regard for national borders. In risk society, techno-scientific threats – such as the perceived dangers associated with cloning human embryos without British-style governance – are frequently seen to 'possess an inherent tendency towards globalization' (Beck, 1992, p. 36). The risk of unregulated human cloning is viewed as inherently global due to the globalising structure of modern science and scientific knowledge. Below are two examples from the elite British press:

> Scientific knowledge is no longer contained within a university or a country. Within hours of it being published it is on the Internet, and available worldwide. That makes any amount of guidelines and restrictions in Britain utterly irrelevant. (Boseley and Vulliamy, 1997)

10 If one focuses upon the elements of Beck's theory, which rely upon a constructivist epistemology, a connection between the framing of risk society and John Thompson's (1995) concept of 'mediated visibility' becomes evident. A constructivist understanding of scientific risk dilates upon issues of perception and increased awareness, which have been facilitated by the rise of global electronic media.

> Richard Nicholson, editor of the Bulletin of Medical Ethics, said … 'Cloning humans might not be a risk in this country but if the details of the scientific research are published they could be picked up and used elsewhere'. (Laurance and Hornsby, 1997)

This structural globalisation of techno-scientific development is referenced explicitly in the following extract:

> As has been graphically illustrated by the instant global reaction to the possibility of human cloning, *the issues raised by modern science know no national or political boundaries*. (*Nature*, 1997; emphasis added)

The primary concern expressed in the elite British press regarding this facet of globalisation was that unethical scientific developments in human cloning taking place in nations, such as China, South Korea and Singapore, would quickly diffuse and pollute the global research environment despite regulatory safeguards in Western Europe.

> 'It's like nuclear proliferation – how can you control it?' said Van Blerkom. 'Everybody says they will abide by it. Then India, Pakistan, Israel, Brazil, Chile, Cuba, Oman and United Arab Emirates refuse to sign. You can try boycotting countries that don't play ball, but if China, say, decides to permit cloning is anyone seriously going to stop trading with such an enormous economic power?' (Boseley and Vulliamy, 1997).

Indeed, the press coverage routinely mentioned the lack of adequate regulation in major developing nations. The civilised, Anglo-American legal system was then used to construct technologically-oriented, developing nations as benefiting from ethically primitive research practices.

> China has been investing heavily in biotechnology for years and has a number of other stem cell research labs. There are no laws controlling research on embryos as there are in the UK and the US. The … ease of access to scientific publications on the internet, together with the growing number of skilled biomedical graduates and lack of regulation outside traditional scientific countries, make it entirely likely that future stem cell and cloning breakthroughs will be made in countries such as China, India and Brazil. (Meek, 2002)

The above extract foreshadows a pattern in the data wherein the Western civilised nations controlling embryo research are set against the 'Other' of the globalised threat of unregulated science in the developing world. This promotion of Anglo-American regulatory structures is part of the construction of a 'Western Alliance', which seeks to 'spread "ourselves" – "our" message, "our" way of politics – across the globe' (Billig, 1995, p. 171).

> There is a general consensus throughout the *developed* world that cloning is unethical. (Boseley and Vulliamy, 1997; emphasis added)

> Outlawing unsavoury practices, like eugenics, in the United States or Europe won't help much if biotechnology is being practiced elsewhere without ethical constraints. (Guterl, 2002)

This process of 'Othering' non-Western nations became incorporated in the Anglo-American policy approach to the issue of therapeutic cloning and helped to justify limited regulatory restrictions and increased research funding. Interestingly, a similar pattern of nationalism has been identified in South Korean science policy (Gottweis and Kim, 2009).

The Nation-State as Landlord in a Renter's Market

The coverage of the perceived globalised risk of human cloning research included recurring concerns over the possible, negative consequences for Western nations unfairly disadvantaged by their civilised cloning regulations. Thus, globalisation leaves individual nation-states feeling hamstrung and unable to contain global risks (also see Bauman, 2000). Attempts to draw regulatory 'red lines' are met by concerns that potentially profitable research will simply go elsewhere.

> He finds it frustrating that the cells he extracts for infertility experiments can't be used to develop tissues for transplant. Smith worries that the current limits on government-funded embryo research in Britain and the US push the research into the American private sector, which is not governed by regulations. (Coghlan, 2000)

Furthermore, individual nations are hesitant to take bold action because of the pragmatic concern that such action would be futile in the face of a global, technology-based market. This concern is also reflected in the policy debates in developing nations such as India and China (Salter, 2008).

This global market allows scientists dissatisfied, for example, with American scientific regulations to easily move their work to Britain or another less restrictive nation such as China or Singapore. Indeed, a recent study found that geographical preferences amongst embryonic stem cell scientists are associated with the permissiveness of the relevant science regulations at a statistically significant level (Levine, 2010). Often this concern will be presented in the argument that the inexorable onward march of technology is inevitable and that resistance to it is futile.

> It is next to impossible to slow down or control some areas of science in one country when the world is so interconnected. (Anonymous, 2005)

In the first of the UK press extracts below, an American stem cell scientist who recently arrived in Cambridge, is quoted framing the liberal British regulations as the catalyst for a 'reverse brain drain':

> 'If this opportunity continues to be squandered in the US, I think there are other people such as myself who would see the balance of opportunity shifting towards the UK', he says. 'Academics are pretty fluid in their ability to move around these days, and if the UK provides the opportunity it could benefit quite substantially. (Meek, 2001)

> If the bill passes …, expect the stem cell brain drain to the UK to become a flood. (Klotzko, 2001)

UK politicians sought to entice researchers by limiting restrictions on techno-scientific development:

> Tony Blair has already pledged to make Britain the 'best place in the world' for research on stem cells**.** 'I want to make the UK the best place in the world for this research, so in time our scientists, together with those we are attracting from overseas, can develop new therapies'. (Brown and Johnston, 2002)

However, especially in the UK press, it is implied that the Western scientific establishment takes at least some pride in the civilised national identity demonstrated through minimum scientific regulations. The following extract appeared under the headline 'Dr. Frankenstein':

> Dr Reid vowed that the cloned baby would not be born in Britain. He said: 'It is illegal to clone a child in the UK. We are one of the few countries who have passed legislation to ban this possibility'. (Thurlbeck, 2004)

A rare exception to this emphasis on Western moral superiority comes in an article by sociologist Hilary Rose, decrying the technocratic governance of therapeutic cloning in the UK. In fact, Rose groups Britain with the ethically 'soft' Asian nations normally contrasted with the West by Anglo-American journalists:

> The problem of medical tourism … is trivial compared with the need to control the search by biomedical researchers for *countries with soft standards – whether Britain* or Korea. (Rose, 2004; emphasis added)

This placement of Britons and Koreans in the same negative category was unique in the UK coverage.

Faced with globalised competition and pressure from their techno-scientific industries, nation-states are in some respects reduced to the role of the landlord trying to find and keep good, paying tenants. They feel they cannot erect too high

a regulatory wall for fear of being made irrelevant – this kind of discourse is reinforced by press accounts employing the frame of an 'international competition'.

> Professor Austin Smith, who runs the MRC's Institute of Stem Cell Research in Edinburgh, points out 'We have lost five years', he said. 'We have a new system for licensing research which some admire, but others in America see as a typically British cock-up in that we have surrounded it with a huge bureaucracy'. (Leake and Ungoed-Thomas, 2004)

However, nations operating according to this landlord metaphor find themselves facing a moving target in which no country's laws could be liberal enough to procure economic security within the global market of scientific labour. The UK's legal framework and funding, for example, was said to be luring scientists from the US and elsewhere:

> *World's best minds lured by liberal law*
>
> Dr Stojkovic … became frustrated with [Germany]'s harsh laws on cloning and embryo research … Encouraged by the more permissive regulations introduced in Britain in 2001, Dr Stojkovic moved … to Newcastle University.
>
> Among other experts in the field who have moved to Britain since the new laws came into force is Roger Pedersen, an American stem cell researcher who left … for Cambridge University when the Bush Administration banned the use of federal funds for such work. (Henderson, 2004)

This pattern of scientific migration was identified as newsworthy by Anglo-American science journalists:

> Particularly [on] the piece about the Newcastle team, I thought it was important to address why Miodrag Stojkovic was here in the first place. And that's clearly because he can do work here that he wouldn't be allowed to do in Germany where he was before. ('Richard', 2005)

The following extract was published one week after Dolly was introduced to the world media:

> Even if laws are eventually enacted to ban human cloning research in the US, the work can always move elsewhere. (*New Scienist*, 1997)

This landlord metaphor took hold early in the UK debate and soon became prevalent in the press discourse about UK national regulation of therapeutic cloning.

> Britain may be the winner if the US goes ahead with a ban on cloning. Top American researchers might move across the Atlantic if proposed US legislation banning the creation of cloned human embryos becomes law … 'Science is global, and there are good labs everywhere', says David Greenwood, senior vice-president of stem cell company Geron of California. He would not say directly whether Geron is considering moving. 'All I can say is that we already have a presence in the UK, and the UK politically is increasingly receptive to this type of research. (Cohen and Ainsworth, 2001)

Similar evocations of the landlord metaphor also appeared in the American press:

> Without more federal money, stem-cell scientists worry further that they'll lose some of the brightest young minds to less controversial fields of research-and that their most accomplished colleagues will follow others overseas. (Kalb, Rosenberg and Ulick, 2004)

Even as the British science press noted the 'brain gain' from the US, the UK was seen to suffer the same kind of losses as other nation-landlords offered scientists a more alluring rental contract. Taken to a global level, this kind of brain drain was seen as a concerning feature of globalised science:

> *Permissive regulations in a few regions of the world are dictating where human embryonic stem (hES) cell research is taking place …* The regulation of hES cell research poses particularly difficult questions for legislators around the world *… these responses will play an important role in determining where pioneering work will take place and where, consequently, investment in that research will flow*. (Knowles, 2004; emphasis added)

The hyped success of the Newcastle researchers in 2005 was also used to validate the liberal regulations of the British nation-landlord:

> The Newcastle clone is the biggest success so far for the Government's liberal approach. Parliament voted in 2001 to allow therapeutic cloning … The embryo was created by a team led by Professor Alison Murdoch and Miodrag Stojkovic, a Serb-born scientist who moved to Britain to take advantage of the law. (Henderson, 2005)

Within the British press, setbacks for British science were used as evidence of the need to promote a UK research climate of generous funding and limited legal restrictions. The following example appeared under the headline, '1st clone scientist quits UK':

> A professor who helped create Britain's first cloned human embryo is leaving for a better-paid job in Spain. Professor Miodrag Stojkovic is the top stem-cell

> scientist in the UK. Shocked colleagues at Newcastle University said his decision was a 'great loss' – and they warned other scientists [would] go abroad because of pressure on funding. Serbian-born Prof Stojkovic will become deputy director of regenerative medicine at the £274 million Prince Felipe Research Centre in Valencia. (*Sun*, 2005)

This kind of international migration did not escape the notice of the US press. The following *Newsweek* extract comes from a profile of Singapore, which notes their effective strategy for attracting biotechnology researchers. This suggests that nation-landlords must provide both a hospitable regulatory environment and ample funding in order to win the global auction for top biological scientists:

> Alan Colman, the Brit who cloned Dolly the sheep back in 1996, is now in Singapore, doing stem-cell research on diabetes. He arrived in 2002, just one of the big-name stars and corporations this tiny city-state has recruited in its effort to create a biotech industry from scratch … Many Asian nations have tried the field-of-dreams approach, but only Singapore has made real progress.
>
> Singapore has … lavish[ed] $2 billion on research alone since 2000. Scientists are released from teaching and fund-raising duties, and told 'not to worry about the money', says another recent recruit. (Seno, 2004)

The following examples from the UK press each emphasise the futility of undertaking strict regulation of therapeutic cloning within a different national context (viz., the UK, US and France respectively), thus discursively legitimising the minimisation of regulation as the pragmatic, last resort of otherwise upstanding Western nations:

> Mrs. Ruth Deech, who chairs the [Human Fertilisation and Embryology] authority … warned that people could circumvent UK law by going abroad. 'We effectively are at the mercy of lower standards abroad'. (Cookson, 1997)
>
> Even if laws are eventually enacted to ban human cloning research in the US, the work can always move elsewhere. (*New Scientist*, 1997)
>
> [French President Jacques Chirac] said: 'Nothing will be resolved by banning certain practices in one country if scientists and doctors can simply work on them elsewhere'. (Highfield, 1998)

The US press highlighted similar conclusions about the helplessness of nation-state landlords trying to impose effective restrictions on scientific progress:

> Even if the U.S. bans cloning, the technology is likely to move ahead overseas, a potential blow to the American biotech industry. 'It points out the futility of a

> legislative approach', says Sean Tipton, a spokesman for the American Society for Reproductive Medicine. 'We would be better served putting our energies toward channeling [the technology] in a positive direction'. (McGinley and Regalado, 2002)

Because of the perceived futility of restricting technological advance, nation-states offer government support (or minimised impediment) in exchange for the economic and symbolic capital that accrues from supporting groundbreaking scientific research within their borders. In the US press extract below, billions of dollars in cash are framed as an investment in attracting scientists and capital to California:

> California … would fund $3 billion worth of stem-cell research, *creating a haven for science and a 21st-century gold rush* for biologists and biotech companies. (Kalb, Rosenberg and Ulick, 2004; emphasis added)

Combined with a willingness to lower regulatory 'barriers' to attract researchers, this 'landlord'-based scientific economy can be viewed as precipitating a downward spiral as each country tries to attract researchers by offering the friendliest regulatory, political and economic environment.

> Mr. Blair gave warning that research work would be lost to Britain and Europe and go elsewhere in the world if animal welfare activists and other protesters were allowed to get away with stopping projects … He called for an end to the air of suspicion and mistrust that sometimes surrounded the work of scientists and the misplaced fears and ignorance it often generated. Mr. Blair said there were huge opportunities in science, for medical progress. (Webster and Henderson, 2002)

In the above extract, Blair suggests that any ill-advised attempts to hinder the march of scientific progress in the UK would simply benefit non-European competitor nations. This suggestion was further developed with the implication that India was one such competitor prepared to capitalise on the West's 'anti-science' tendencies:

> [Blair] said: 'I was struck in India by the very close links between enterprise and science and the fact that the Indians were openly saying that they felt that some of the anti-science attitudes in the developed economy were giving them real opportunities they were determined to exploit'. (Webster and Henderson, 2002)

In this extract, supporting scientific development is implicitly legitimated under the rubric of maintaining an advantage for the 'Western Alliance' over Asian competitor nations. This outlook was reflected in Anglo-American press reports on 'breakthroughs' hailing from nations such as South Korea and China. The implied

solution in these passages was to limit regulations to allow 'home' scientists to operate unfettered by 'red tape':

> Red tape could tie up the Prime Minister's vision of making Britain the world leader in embryonic stem cell research, says one of the most eminent scientists in the field. Sir Martin Evans … expressed his fears that 'over-zealous' bureaucracy would make the UK lag behind countries such as China and South Korea. (Highfield, 2005)

A US industry scientist expresses a similar concern regarding this global competition over therapeutic cloning-based cures in the following extract from a story about Hwang's second *Science* article:

> Robert Lanza of Advanced Cell Technology … [said] 'Unfortunately, *you're going to see more and more stem cell breakthroughs like this occurring overseas*', he adds. (Vergano, 2005; emphasis added)

The 2004 American Presidential campaign occasioned a heightening of therapeutic cloning rhetoric with opposition candidate, former US Senator John Kerry, seeking to position himself as being on the side of Progress and American scientific dominance. In the following extract, he argues against limits on therapeutic cloning research based on the implicit idea that there is an international competition going on and that the frontiers of scientific progress are being wrongly blocked:

> It is wrong to tell scientists that they can't cross the frontiers of new knowledge. It is wrong morally and it is wrong economically, and when I am president, we will change this policy and we will lead the world in stem cell research. (Science Reporter, 2004)

The notion that there is a global scientific competition underway (implied above in the phrase 'we will lead the world') is also promoted below by a political commentator during the election campaign:

> The issue of stem-cell research offers Kerry the chance to project himself as the candidate of the future-the one who will take a tough and controversial position if it has the chance to improve the quality of life for millions *and restore America's medical leadership in the world*. (Alter, 2004; emphasis added)

This putative competition was also described in an interview by a US science journalist:

> Here [in the US], there is a long running strain of thought that is fear of foreigners catching up with us. So that was something that was pointed out in the story. ('Carl', 2005)

Indeed, framing the news around artificial competitions is a mainstay of Anglo-American journalism. However, it is important to recognise that such news values, and all of the small examples of implicit, banal and overt nationalist discourse explicated above, ensure that American and British identities are 'renewed continually' within the Anglo-American press coverage of therapeutic cloning (Billig, 1995, p. 127).

Concluding Points about Scientific Nationalism

Group identification has defined human existence from the beginning. However, the specific phenomenon of 'nationalism, far from being an age-old "primordial" condition, has been produced by the age of the modern nation-state' (Billig, 1995, p. 9). Mass media have been implicated in the construction, diffusion and maintenance of this modern phenomenon (e.g. Anderson, 1991; Billig, 1995). Indeed, mediated nationalism plays a major role in the daily process through which 'national identities … are formed and transformed within and in relation to *representation*' (Hall, 1992, p. 292).

Press discourse 'constructs the nation as a natural and homogenous unity, and reinforces a hegemonic perception of national identity' (Gökalp, 2006, p. 3). The centrality and pre-eminence of the nation is both taken-for-granted as a natural and timeless social fact and continuously reinforced in Anglo-American press coverage of therapeutic cloning. Nationalism's role in the therapeutic cloning debate commenced in 1997 with the British press proudly trumpeting the UK's return to scientific dominance. However, the situation shifted with ACT's published 'breakthrough' in 2001 and the ascendance of Asian competitor nations towards the end of Phase 1 of the contemporary human cloning debate. Starting in late 2002 and carrying on until the Hwang scandal's denouement in December 2005, the Anglo-American press identified the potential spread of human cloning without the protection of Western regulatory structures as a 'global risk'. Finally, with Hwang's fall, the Anglo-American press eagerly identified the silver lining for their respective nations; their nation's scientists might yet be the first to achieve a therapeutic cloning cure, along with the related windfall in economic and symbolic capital.

Scientific Nationalism and the Myth of the Nation

The scientific nationalism uncovered in this chapter exhibits a mythological quality (Barthes, 1973; Barthes, 1977). That is, the 'nation' is constituted as a natural, apolitical entity through its 'quantitative abundance' in Anglo-American press coverage of therapeutic cloning (Barthes, 1973, p. 120). Moreover, the nation is given the 'self-evident appearance of eternity', while simultaneously

comprising a 'peremptory because' to legitimate Anglo-American science policy and governance (Barthes, 1973, pp. 154–5).

There is no direct, existential relationship between therapeutic cloning developments within the scientific field and their (re)construction within the Anglo-American press. Rather, larger sociological factors impinge on the news production process at various levels. Most importantly, commercial news organisations always operate within an economic context (Bourdieu, 2005; Bourdieu, 1998a; Champagne, 2005; McManus, 1994; McManus, 1995), which pushes journalists towards the 'common sense' of the nation as a central organising frame for developments in the world. As Billig (1995, p. 49) argues, 'Nationalism … is ingrained into the very rhetoric of common sense'. Challenging the common sense of nationhood is simply not an option for the individual science journalist given the economic *telos* of the news organisation, except in the most extraordinary circumstances (Bourdieu, 1998a, p. 69).

The myth of the nation is also a salient feature in government science policy discourse. For example, competitive nationalism is clearly visible in the White Paper outlining the UK Government's view of twenty-first-century techno-scientific development:

> We are in a global competition … In some areas we risk falling behind the very best; we need to ensure we stay among the front runners. (DTI, 2004, p. 8)

According to Gellner (1983), the state's interests are served by nationalistic discourse. In the extract above, the Government sought policy legitimation by evoking the image of a worldwide competition, just as in the press coverage of therapeutic cloning. This construction of national 'Others' allows government indifference to the interests of global science and industry to be framed as an enlightened defence against the onslaught of unethical competitors. By conjuring the threat that lucrative scientific development could easily flow to less scrupulous nation-landlords if British regulations become too strict, the UK is able to scale back restrictions while escaping accountability for ethical shortcuts and potential scientific hazards.

Previous Research Findings

There were some direct models for the finding of utopian/dystopian hype in Anglo-American press coverage of therapeutic cloning (e.g. Kitzinger and Williams, 2005; Mulkay 1997). However, this chapter's results were a much greater surprise. No previous studies of news coverage of human cloning or embryo research have addressed the role of nationalism in detail. Nevertheless, there are some relevant findings in the literature. For example, Wilkins and Patterson (1987, p. 82) identified nationalist framing in media coverage of the Chernobyl disaster. Most

notably, however, Einsiedel et al.'s (2002) quantitative analysis of the first 11 days of elite British press coverage of Dolly found the following:

> National pride is clearly evident in British coverage, with frequent emphasis on Dolly being a British scientific accomplishment. The usefulness of the cloning procedure was also frequently highlighted in the UK, as were the economic benefits. (Einsiedel, et al., 2002, pp. 338–9)

The much broader data set for the present study supports this finding of 'national pride', showing that it was not limited to coverage of Dolly.

After 'national pride', the closest pattern to nationalism identified in the literature surrounds what Singer and Edreny (1993, p. 68) refer to as the 'local factor' in news production. Within the UK press, Holliman (2004, p. 118) found this factor reflected in divergent framing of the same Dolly story in the English and Scottish editions of *The Sun*, 'with the English/Welsh edition emphasizing concerns' and the Scottish edition 'prais[ing] the Scottish scientists' achievements'. Based on a quantitative study of Anglo-American press coverage of Dolly, Marks et al. (2007, p. 196) also identify 'local framing' of the Dolly story: 'Reporters in the UK (the country that developed the technology) took a more positive stance on Dolly', while 'Dolly clearly sparked a more contentious debate in the United States'. More broadly, Ramsey (1994, p. 80) 'linked [coverage of] local organizations significantly with lengthier articles [and] more prominent folio placement' within American newspaper coverage of science. These findings support Kitzinger's (1999, p. 63) conclusion that 'journalists' judgements about the perceived relevance of a crisis will be influenced by the degree of cultural, political or geographical proximity of the threat to themselves and their perceived audiences (Adams, 1986; Litchenberg and MacLean, 1991; Kitzinger, 1998)'.

Nationalism Today

The course of the twentieth century was defined by nationalism and the ascendance of the nation-state as the dominant power container on the world stage. Giddens (1990) and Beck[11] (1992; 1994) argue that the modern resurgence of nationalism is actually a response to globalisation and concomitant individualisation. They argue that individuals are retreating to the relative safety of national and local identities in the face of the discontinuities and pervasive uncertainties of globalisation and risk society. Giddens in particular contends that the stretching of time and space,

11 Beck (2006) has developed a rather different conception in his recent theory of cosmopolitanism, in which he argues that the nation is a 'zombie category' in sociology that does not capture the inherently global nature of modern existence. This connects to Beck's critique of 'methodological nationalism', or the inappropriate use of the nation as the unit of analysis.

which defines globalisation, has left individuals feeling disconnected from society and from other individuals. Thus, nationalism is seen to offer a safe harbour to escape from the unfriendly seas of a globalised world. Billig (1995, p. 95) points to the inherently 'popular, if not formally democratic aspect of nationalism', which is exercised through 'habits of discourse, enabling "the people" to identify themselves, and thereby reproduce themselves, as "the people"'. The news media constitute the primary means through which this daily process of interpellation is enacted. Anderson's (1991) understanding of the nation as an 'imagined community' connects with Billig's (1995) theory, with both theorists proposing a highly discursive understanding of the emergence and persistence of nationalism in the modern world. It is this discursive nationalism that is evident in the present case.

This study shows that even scientific controversies are filtered through the nationalist media lens. That is, nationalism is so ubiquitous as to pervade coverage of even a scientific issue, such as therapeutic cloning. Billig (1995) reveals the concept of the 'nation' to be a powerful vehicle for exclusionary rhetoric designed to cleave 'us' from 'them' and establish the legitimacy of particular national policies. The banal nationalism of daily news reinforces the tendency to expend one's personal attention and humanitarian concern for the local and national only, ignoring one's status as a global citizen (Beck, 2006). 'The nation's anesthetic flood of nonstop media encourages us to sense that we're somehow above or beyond the human fray: Some lives, including ours of course, matter a great deal; others, while perhaps touching, are decidedly secondary' (Solomon, 2004, p. 53). Robins (1999, p. 16) insists that for Britain the consequences of proliferating nationalism could include 'the threat of a retreat into cultural autism'. Indeed, nationalistic news framing *per se* can be viewed as pathological insofar as it thins public debate, reinforces global technocracy, suppresses pluralism and implicitly ratifies irrational fears concerning the ascendance of Asian techno-science (e.g. Beck, 2006; e.g. Said, 1978). While some forms of national imagining and myth are manifestly benign, excessive nationalism – however deeply buried within the deictic minutiae of daily news – must be recognised as deleterious to the construction of a pluralistic public sphere.

Chapter 13
Sources: The Raw Materials of Science News

Given the crucial role of news media coverage in the therapeutic cloning debate, it is important to consider where journalists obtain the raw materials for such coverage. Press coverage of therapeutic cloning is indelibly marked by the processes of its production within commercial media organisations.[1] Kitzinger (1999, p. 64) points out that 'source activity, and the relationship between journalists and their sources are central to the media production process'. Indeed, sources are the 'fundamental fact' of journalism, according to Fishman (1980, p. 36). Source selection is shaped by the provision of institutionally-sponsored information subsidies (Gandy, 1982) and other factors that propel the inherent technocratic bias this study identifies in much of the news coverage of therapeutic cloning. The reliance on expert sources based in powerful institutions helps 'fix the parameters of discourse and interpretation, and the definition of what is newsworthy' (Herman and Chomsky, 1988, p. 2). Furthermore, Priest (2001a, p. 100) argues that 'The interaction of journalists and their sources creates a particular frame or definition that quickly becomes the lens through which any given story is inevitably filtered'.

This source filtering process is explored in this chapter with reference to the specialist news economy of science journalism. In keeping with previous research (e.g. Conrad, 1999), scientists were found to comprise the most important and extensively cited category of sources in the present sample. Emergent research questions related to scientist sources include: On what basis are scientists selected as sources of information, analysis and expert commentary? What forms of scientific expertise are employed by the selected sources? What discourses are promoted by scientist sources?

Also significant were the agents of life politics and activist NGOs, which were aligned on both sides of this issue as semi-routine journalistic sources. Emergent research questions relevant to these subpolitical sources include: Which activists are given the greatest voice in the coverage? How do patient groups utilise narratives of suffering to garner media meta-capital? How are opposition viewpoints presented or excluded from the coverage, and on what basis?

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1 This chapter examines front and backstage dimensions of this production process. In addition to self-report data from journalists and editors, I contend that it is possible to draw valid inferences about backstage news production through front stage features of press content, such as source selection.

The Anglo-American Field of News Production

This chapter draws on Bourdieu's field theory (1993; 1992) to illuminate the structure of Anglo-American news production, including journalists' selection of sources for information, analysis and commentary. Amongst the spectrum of potential journalistic sources, there is an uneven distribution of a specialised form of symbolic capital, which Patrick Champagne (1990, p. 237, 243) has labelled 'media capital' [*capital médiatique*]. Sources in the scientific and other fields accumulate media capital according to variables, such as the source's field-specific cultural and symbolic capital, and journalistic concerns, such as a source's charisma, responsiveness and availability on short notice. Couldry (2003) extends Bourdieu's theory, using Champagne's concept of media capital to examine the relations between media power and other fields of power in society. Couldry combines Bourdieu's theory of state power with field theory to create a better model for understanding the complexity and influence of the media. Specifically, Couldry (2003) draws upon Bourdieu's concept of 'meta-capital', which refers to the capacity of certain forms of capital to operate across multiple fields. He notes that media are inherently heteronomous and can potentially influence whatever field of practice finds itself within the media spotlight. Thus, media power is a form of meta-capital that transcends its specific field of production and routinely promotes heteronomy in other fields of social life, such as the process of source selection.

The Heteronomous Principle within Journalistic Source Selection

Herman and Chomsky (1988) point out that the press bias favouring large government and corporate bureaucracies is rooted in the routine exigencies of journalistic practice.

> Government and business-news promoters go to great pains to make things easy for news organizations. They provide … facilities[,] … advance copies of speeches and forthcoming reports; they schedule press conferences at hours well-geared to news deadlines; they write press releases in usable [journalistic] language. (Herman and Chomsky, 1988, pp. 21–2)

Aimed at maximising the efficiency of daily news production, media organisations frequently divide their reporting into 'beats',[2] which Fishman (1980, p. 29) defines as coherent domains of activity with 'stable locations, stable actors [or "sources"], and stable actions'. Upon entering their beat, reporters soon become members of its 'network of social relations' (Fishman, 1980, p. 30). The reporter 'makes friends …, passes gossip and shares secrets, conducts business, and 'goofs off',

2 In this study, the most salient beats are 'science', 'health' and 'politics'.

effectively becoming an 'insider' (Fishman, 1980, p. 30). The relationship between journalist and source is characterised by mutual dependency. However, within this 'symbiotic relationship', it is 'the sources [who] do the leading', according to Gans (1979, p. 116).

> The mass media are drawn into a symbiotic relationship with powerful sources of information by economic necessity and reciprocity of interest. The media need a steady, reliable flow of the raw material of news. They have daily news demands and imperative news schedules that they must meet. (Herman and Chomsky, 1988, p. 18)

According to Fishman (1980, p. 33), journalists 'strategically and systematically expose themselves to only a few sources of information within their beat territories'. This pattern is further elaborated in the following extract:

> As you get to know a [scientific] field [i.e. beat] and understand its geography, you soon figure out who the important players are and who knows what's going on. ('Hank', 2005)

Journalists discriminate amongst the wide range of possible sources for a given story based upon criteria, such as perceived credibility. Indeed, credibility and familiarity were identified as important criteria in the following participant response to a question about source selection:

> On a controversy story, it will depend a little bit on who [the political source] is. And whether you think their concerns are genuine or not. Obviously that comes from a delicate process of judging credibility, and how well you know somebody – how well you know where they are coming from. ('Richard', 2005)

Journalists' source preferences and judgments about credibility and accessibility are highly influenced by economic factors, yielding systemic biases in favour of large-scale institutions. As Fishman (1980, p. 51) notes, 'the world is bureaucratically organized for journalists', with the source material for news provided by officials and authorities in 'a structural position to know' about 'particular happenings' in society. Indeed, Miller and Williams (1998, p. 146) found that 'official sources have considerable advantages in their capacity and resources to influence media accounts'. Effectively, 'large bureaucracies of the powerful subsidize the mass media, and gain special access by their contribution' (Herman and Chomsky, 1988, p. 22).

Fishman (1980, p. 85) found that reporters treated bureaucratic accounts as 'factual, requiring no further investigation or substantiation'. Such 'bureaucratic "facts" are the hard data of newswork. Conversely, non-bureaucratic accounts are soft data, unconfirmed reports, or speculation' (Fishman, 1980, p. 85). Hence, large-scale institutions, or 'bureaucratic self-reporting apparatus[es]' (Fishman,

1980, p. 52), provide the '"routine" news sources and have privileged access to the gates. Non-routine sources must struggle for access, and may be ignored by the arbitrary decisions of the gatekeepers' (Herman and Chomsky, 1988, p. 22). The 'gatekeepers' identified in the present study are journalists and editors, whose socialisation into particular national news cultures lead to the patterned censorship of certain non-bureaucratic sources in parts of the present sample. Moreover, scientists were treated to the privilege and 'special access' Fishman and others identified with official bureaucratic sources. The next chapters elaborate the specific ways in which the principles of journalistic source selection described above play out in the case of therapeutic cloning news coverage, beginning with the role of scientists as sources.

Chapter 14
Framing the Science: The Role of Scientists in the Mediated Public Sphere

Scientists were the most frequently accessed source of expertise in both American and British press coverage of therapeutic cloning (also see Kitzinger and Williams, 2005; Nisbet, Brossard and Kroepsch, 2003). This was readily acknowledged backstage:

> In most cases, the scientists are the people quoted. They know more about the subject than other people … Yeah, I certainly tend to quote scientists more than anybody else. Because I'm a science writer, so they're my natural source. ('Charles', 2005)

Reese identifies an elective affinity between journalistic and scientific epistemologies and worldviews, which may incline science journalists to feel positively disposed towards scientist sources:

> Both scientists and journalists are presumed to be dispassionate observers of the world … Both science and journalism are guided by a positive faith in empiricism, the belief that the outside world can be successfully perceived and understood. (Reese, 1990, pp. 392–3)

In addition to shared epistemic values, science journalists display a fundamental deference to science and scientists:

> I think [science] is wonderful, so they've got my vote … I guess that informs the kinds of stories I do because my main interest and enthusiasm is science. I mean I'm tainted by having been a scientist. I tend to think that they do interesting things and do them for the right reasons. ('Jim', 2005)

Given that stem cell scientists tend to share relatively similar views and discourses within their sub-field (Hauskellera and Weherh, 2011), this kind of journalistic identification with scientists led to homogenous depictions of the current and future science of therapeutic cloning.

Taxonomies of Scientific Expertise

Officially sanctioned, institutionally legitimated scientists were the primary sources of expertise in this debate. However, two major sub-categories emerged within this source category, which I label 'public' and 'industry' scientists. 'Public scientists' are university or non-profit affiliated and are not specialists in the therapeutic cloning subfield. 'Industry scientists' are located within purely 'for profit' biotechnology corporations. In selecting from these two groups, a clear bifurcation emerged between the US and British samples. Many British journalists preferred public scientists as sources, while industry scientists were frequently cited by American journalists. Both categories of sources served as journalists' 'gurus' ('Becky', 2005), providing expert analysis and commentary on new research developments.

> 'Gurus' [are] people who know about the science, but are not directly involved in the debate … They usually are people that you know from other stories that you have done. ('Becky', 2005)

Indeed, 'Hank' identified the first step in producing a science news story:

> Try and figure out who the relevant experts might be and get their views. These scientists give the reader some feel for what's going on with the science, like [embryonic] stem cells. ('Hank', 2005)

Thus, journalists develop a limited range of expert sources that they routinely call on.

Data from the press sample demonstrates that these expert sources were not selected primarily based upon scientific credentials. Rather, journalists exercised heteronomous influence on the scientific field by selecting and promoting certain scientists on the basis of entry criteria internal to the *journalistic* field, such as 'willingness to comment' and 'accessibility on short notice'. The following extract describes the inevitable compromise of source quality necessitated by the market-driven constraints of daily news production:

> I was just trying to get a hold of Ian Wilmut that day and tried all day and didn't get hold of him. So you end up trying say five or six [sources], and getting two and using those. But you go with the people who have the track records, the people who have established themselves [as good sources]. ('Danny', 2005)

Within this context, it is useful to consider the taxonomy of expertise and experience developed by Collins and Evans (2002) as part of a putative 'third wave' in science and technology studies (cf. Jasanoff, 2003; Wynne, 2003). They draw a fundamental distinction between 'contributory' and 'interactional' expertise within the context of 'technical decision-making', which is defined as applying to

issues, such as therapeutic cloning, 'where science and technology intersect with the political domain' (Collins and Evans, 2002, p. 236). Contributory expertise refers to the level of expertise required to participate directly in the production of scientific or technical knowledge in a given field. Within the context of the present study, this form of expertise is seen in news reports that quote therapeutic cloning scientists commenting directly upon their own work or the work of others conducting such research. 'Interactional expertise', on the other hand, is the level of expertise needed to 'interact interestingly' within a particular field of science (Collins and Evans, 2002, p. 254). In the present sample, this interactional form of expertise was employed by third party, 'objective', scientific analysts, commentators or 'gurus'.

Those scientific commentators providing interactional expertise in the news media typically employed 'referred expertise'; that is, they applied their contributory expertise from one specific scientific domain to other scientific sub-fields. Collins and Evans (2002, p. 257) identify this application of 'expertise "at one remove"' as fraught with danger for public discussions of techno-scientific development. This is because 'scientists' supposed referred expertise about fields of science distant from their own is nearly always based on mythologies about science, rather than on science itself' (Collins and Evans, 2002, p. 260). Yet, it is precisely this kind of referred expertise that journalists seek out for its versatility and utility within the harried context of news production. Using referred expertise, a single expert source can speak to a wide range of issues, thus limiting the breadth and depth of different sources that a journalist must develop in order to access good, usable quotes on short deadlines.

Public Scientists as Sources

Most non-industry, or 'public', scientist sources in the present data were exercising interactional or referred expertise. Amongst the ranks of such generalist scientific experts, BBC popular science presenter, Lord Robert Winston, was the most frequently cited and prominently positioned within the UK sample (both broadsheet and tabloid). As such, he offers an illustrative case study in the selection and front stage presentation of public scientist-guru's perspectives.

Celebrity Scientist Robert Winston: A British Case Study

A veteran IVF doctor turned senior hospital administrator and politician, Winston is one of the most frequently cited, 'all-purpose' experts in the British news (both print and television) on any topic related to embryos or reproductive medicine. Characteristic of scientists-'gurus', Winston's expertise was sought out for commentary on a wide range of issues, despite only being able to marshal interactional expertise in some of these areas (Collins and Evans, 2002). Amongst expert sources in the present sample, Winston appeared to wield the greatest

stockpile of media meta-capital, which he used to promote the utopianism identified previously (first extract below) as well as his idiosyncratic scientific opinions (second extract below):

> Lord Winston, the Labour peer and fertility expert, … warned peers: 'There's no doubt that on your vote depends whether some people in the near future get a treatment which might save them from distress, or, even worse, death'. (Hall, 2001)

> Critics, *including fertility pioneer Lord Winston*, have claimed the [embryo] thawing process could lead to genetic damage. (Symons and Biggs, 2005)

Winston was featured in the following extract from a 'Question and Answer' informational segment, answering for an imagined community of like-minded 'experts' in the early stages of the cloning controversy:

> Q: What do the experts think?

> A: 'I think you are always going to run the risk of having ageing DNA', says Professor Lord Robert Winston, an IVF pioneer. 'I would hate to think of a child of mine being cloned because I think it would be very likely he would have an accelerated ageing process'. (Arthur and Laurance, 1998)

In the above extracts, Winston is utilising referred expertise from his experience in the field of in vitro fertilisation in order to comment on embryonic stem cell therapies. Collins and Evans (2002, p. 260) identify such referred expertise as a dangerous source of expert advice or commentary because it often relies upon 'self-appointed scientific spokespersons'; such 'generalists' frequently express a worldview 'accompanied with the thrill of zealotry, or … "scientific fundamentalism"'. Such zealotry can be seen in the following extract. Stretching his referred expertise well beyond the strictly scientific dimensions of therapeutic cloning, Winston indicated impatience and 'distress' at the substantive ethical dimension of the therapeutic cloning debate:

> Lord Winston is frustrated that the debate about 'therapeutic cloning' has focused on the need to conduct work on such embryos … since such research is already allowed up to a 14-day limit … 'I find it very distressing that we should be going backwards', he said. 'To be hysterical about the use of embryos for tissue engineering does not make any sense if you are likely to be able to save life'. (Highfield, 2000)

However, journalists' need for expert authority to frame stories is served by having a relatively indiscriminate notion of expertise, which selects established media

personalities over high performing researchers with contributory expertise in the topic under discussion.

> These [scientific] 'authorities' spare journalists the trouble of looking for people who really have something to say, in most cases younger, still-unknown people who are involved in their research and not much for talking to the media. These are the people who should be sought out. But the [scientific] media mavens are always right on hand, set to churn out a paper or give an interview. And, of course, they are the special kind of thinkers who can 'think' in these [harried] conditions where no one can do so. (Bourdieu, 1998a, p. 30)

Therefore, they find such 'generalists' to be useful, and indeed, both tabloid and elite UK journalists readily accepted Winston as a fully legitimate expert contributor to the debate over therapeutic cloning. No journalists in the present sample expressed any qualms about the referred nature of Winston's, or any other 'generalist' scientific specialists, expertise.

For example, in the debate preceding the British Parliament's deliberations on the issue of therapeutic cloning, Winston was cited as the archetypal embodiment of the entire category of 'scientists':

> *Scientists are outraged* by the government's procrastination [regarding approval for therapeutic cloning research]. *Lord Winston*, of the Royal Postgraduate Medical School in London, has said: 'If you could use tissue from human embryos to save hundreds of lives, there must be a moral imperative to do it'. (Leake and Dobson, 2000; emphasis added)

In the following extract, he plays the role of public scientist and general medical expert, making hyped pronouncements about the certainty and imminence of cures from therapeutic cloning:[1]

> Labour's Lord Winston, the fertility professor who chairs the Lords' science and technology committee, told a packed Upper House: 'There is no doubt that on your vote, my Lords, depends whether some people in the near future get the treatment which might save them from disease or, even worse, death'. (Chapman and Deans, 2001)

Winston was also cited as an authority on the importance of research developments in the later coverage of therapeutic cloning:

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1 It is worth noting that after the Hwang scandal, Winston shifted his optimistic position towards a much more sceptical perspective, arguing that the potential of therapeutic cloning was being hyped.

> The fertility expert Lord Winston said the announcement by the Sheffield team 'in reality is pretty trivial' … Lord Winston said: 'Whilst I am certainly not against stem cell technology, … We need to be cautious about how to explain this to the public'. (Highfield, 2005)

In the extract above, Winston seems to take on the mantel of spokesperson with his statement that '*we*' (public scientists) need to be cautious in relating this technology to the public. He continues below with a technical explanation for his recommendation of caution:

> 'The idea of growing someone's own stem cells in the laboratory for their own treatment is probably impractical. And if you try to force their growth, you may force anomalies which might be genetic or chromosomal. That should be a concern'. 'There are a lot of reasons to be very cautious about putting these cells back into people', said Lord Winston. 'If you decide that you need to treat a heart infarct with 10 million cells, how are you going to guarantee that your population is absolutely pure and stable? You only need a few rogue cells to initiate a problem'. (Highfield, 2005)

The above use of scientific jargon corresponds with Winston's preferred public self-presentation as a recognised scientist[2] and expert on whatever topic he is commenting on. This self-presentation suggests that, despite the benefits of media meta-capital, expert sources may be reticent to fully acknowledge their status as media personnel, lest they suffer a decline in prestige within the scientific field for brazenly embracing the heteronomous principle (Bourdieu, 1996). Alternatively, this impression management tactic may be part of the branding of celebrity scientists as all-around technical experts and 'leading minds' within the scientific field as a whole.

Public Scientists in the British Political Field

In this context, it is noteworthy that journalists did not just use scientist sources for technical commentaries on scientific developments close to their core areas of expertise (Collins and Evans, 2002). Rather, public scientists (like Robert Winston above) were frequently treated as general experts on science-related issues writ large. The present data show certain scientist sources entering the political field via the journalistic field. For example, the following extract has a 'medical geneticist' quoted on the preferred Parliamentary voting procedure:

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2 Notwithstanding the ambivalence of his self-presentation in the media, Winston was fully immersed in the media field, including entertainment, opinion and journalistic venues.

> 'It's right to say that a moral issue of this sort is put to a free vote', says Martin Bobrow, a medical geneticist at the University of Cambridge. (Coghlan and Boyce, 2000)

The following extract further illustrates the use of famous scientists as generalist experts on scientific controversies in the UK press. These scientist sources are being consulted for their view on the *morality* of reproductive cloning, a topic outside of their contributory expertise:

> James Watson, the Nobel prize-winning biologist … argued that there was nothing inherently wrong with cloning: 'I'm in favour of anything that will improve the quality of an individual family's way of life' … The scientists agreed that cloning should be used only to assist in the reproductive process, rather than replacing it, and that copying a person would be wrong. (Jha, 2005)

In fact, Watson offers a case example of a scientist who initially earned substantial symbolic capital through his success in a particular field of scientific practice (viz. elucidating the structure of DNA), which also yield media meta-capital. Once his celebrity status was secured from the media coverage of this success and his subsequent efforts at science popularisation (e.g. Watson and Berry, 2003), the maintenance of his scientific credentials became largely irrelevant to the continuation of his media meta-capital. Moreover, the range of topics on which journalists would accept his referred expertise increased in direct proportion to his fame (i.e. fame equals high media meta-capital).

Public Scientists and Symbolic Capital in the American Press

In the US sample, there was a paucity of celebrity scientists and certainly no equivalent to Winston or Watson on this topic. Obviously, there are celebrity scientists in the US. However, the most famous in the US media have been physicists (e.g. Einstein; Stephen Hawking) and astronomers (e.g. Carl Sagan), as well as British evolutionary biologist, Richard Dawkins. Watson is an American, but he was primarily utilised as a source within the UK sample. Moreover, in the contemporary Anglo-American media landscape, Winston is unique in his high level of free-standing media meta-capital (i.e. fame) and continuous role in television. While the standard set of journalistic sources for different UK science journalists tended to be very similar, there was greater diversity amongst US journalistic science sources. This suggests that in the US context, each science journalist developed his own set of scientist sources, thereby exhibiting less inter-media agenda setting on this dimension of news production.

Despite this national difference in the journalist-initiated role of celebrity scientists, a *relatively* high-profile group of self-promoting Nobel Prize-winning scientists made regular appearances in the political domain. The following extract

appeared in August 2001 when Bush was deliberating over whether to allow federal funding for embryonic stem cell research.

> Eighty Nobel laureates … sent a letter urging federal funding for research that could produce 'novel therapies for a range of serious and currently intractable issues'. (Keen, 2001)

Scientists launched a similar effort to exercise political influence in 2002.

> The battle over a government ban on human cloning … is intensifying. Forty Nobel Prize-winning scientists … declare today that cloning research is essential, and that a ban on the cloning of human embryos would 'impede progress against some of the most debilitating diseases known to man', according to a statement … released by the American Society for Cell Biology. (McGinley and Regalado, 2002)

However, these forays into media politics yielded minimal success and only a short window of press coverage for these scientists. After all, the Nobel Prize is awarded for criteria largely internal to the scientific field, thus conferring a form of symbolic capital not directly recognised by journalists. Yet, on the one hand, there does seem to be some fundability between the symbolic capital accrued through winning scientific prizes and recognition and, on the other hand, the press attention comprises of media meta-capital. The combined weight of autonomously derived scientific, symbolic capital wielded by these Nobel Prize winners was enough to attract some media meta-capital, but both they and their message lacked the news value that would grant them a sustained role in the mediated public debate. This could be contrasted with public scientists, such as Lord Robert Winston and James Watson, who are celebrities in their own right. In the press, autonomously derived symbolic capital seems not to be a necessary condition for the regeneration of a celebrity scientist's supply of media meta-capital (given, for example, that Winston has not been a practicing bench scientist for many years). In any case, the imperfect relationship between autonomously derived scientific symbolic capital and the distribution of media meta-capital can lead to heteronomous 'media scientists' gaining undue recognition and prestige in the scientific, political and publishing fields.

> If the fields of science, politics, or literature are threatened by the power of the media, it's because of the presence within them of 'heteronomous' individuals, people from the outside who have little authority from the viewpoint of the values specific to the field. (Bourdieu, 1998, p. 62)

The key is that the journalistic field selects scientists for promotion based upon non-scientific criteria, such as charisma, attractiveness, likeability and ease of access.

Such heteronomous selections from within the scientific field constitute interference in its free and autonomous functioning. Bourdieu points out that there are:

> All kinds of examples of media intrusion – or, rather the intrusion of economic pressures as relayed by the media – even in the 'purest' science. This is why the question of deciding whether or not to appear on television is absolutely central, and why I'd like the scientific community to think about it carefully. (Bourdieu, 1998a, p. 60)

Further discussion of the potential problems surrounding such interference in 'core' scientific deliberations can be found in the '3rd Wave' thesis developed by Collins and Evans (2002; cf. Jasanoff, 2003; Rip, 2003; Wynne, 2003).

(Not) Publicising the Core-Set: UK-based Therapeutic Cloning Scientists as Sources

Collins and Evans (2002, p. 242) define the 'core-set' as 'those scientists deeply involved in experimentation or theorization which is directly relevant to a scientific controversy or debate'. Surprisingly, 'core-set' therapeutic cloning researchers in the UK were rarely sought out for their contributory expertise on scientific developments in their field. When journalists did cite them, it was typically centred on their own work.

> Prof Alison Murdoch and Dr Miodrag Stojkovic, based at the Centre for Life, believe that the cloned embryos [they created], and the cells derived from them, will provide important new insight into diabetes and help test new drugs. (Highfield, 2005)

Thus, therapeutic cloning scientists quoted on their own research participated in the construction of therapeutic cloning hype. The following extract appeared under the headline 'Brits grow human tissue from embryos':

> Dr. Stephen Minger, of King's College Hospital, South London, produced three stem cell populations from 58 embryos … He said: 'We are very excited about this development … This means the possible therapeutic uses are almost endless'. (Hughes, 2003)

Given the potential spoils of government and private industry funding, it was in the interest of these therapeutic cloning scientists to promote their research through the press (Nelkin, 1990). The optimistic framing is evident in the following extract:

> Team member Professor Alison Murdoch said: 'The potential this research offers is immensely exciting and we are keen to take the work we've done to the next level … we are trying to cure people'.
>
> … Stem cell scientists hailed the decision by the HFEA [to approve a licence to conduct therapeutic cloning research]. Dr. Stephen Minger, lecturer in biomedical sciences at King's College, London, said: 'This is a huge advance for British science'. (Utton, 2004)

Certainly, this finding further supports the previously discussed results highlighting hype and a consistent lack of front stage scepticism regarding scientists' claims. Kelves and Hood (1992, p. 327) argue, 'reporters often take as firm conclusions what scientists announce as tentative conclusions, yet scientists are complicit in the process when they hold press conferences to proclaim attention-getting results, … however fragile [the results] may be'. This was precisely the pattern in press coverage of scientists with contributory expertise in therapeutic cloning. This finding directly contradicted Collins and Evans' (2002, p. 257) claim that the core-set of specialist scientists will engage in discourse free from the limitations of 'referred expertise'. Nevertheless, source commentary from such scientists as Murdoch and Minger occupied a surprisingly insignificant position within the UK sample, while the US press focused primarily upon industry scientists. The most likely explanation for the source selection patterns in this case, and other issues, is the political economy of news production. That is, journalists speak to those who are easiest and quickest to reach and who provide the most 'usable' quotations.

American Industry Scientists as Sources

Industry scientists predominated amongst the range of expert sources in American press coverage of therapeutic cloning. The 2001 Presidential embargo on US government funding of human embryo research nudged therapeutic cloning scientists towards the private sector and away from university laboratories,[3] thus contributing to the prevalence of 'industry scientists' in US press coverage.[4] The biotechnology company Advanced Cell Technology (ACT) was the most prominent site for therapeutic cloning research in the United States since just before their first highly publicised breakthrough in 2001. In the following extract, CEO Dr. Michael West provides a report on the company's prospects:

3 Indeed, when individual states started funding therapeutic cloning research towards the end of the sampling frame for the present study, there was a noticeable increase in the number of scientist sources based at universities, rather than companies.

4 Likewise, UK government funding no doubt decreased the ranks of industry-based scientists relative to university-affiliated therapeutic cloning researchers.

> In [ACT's] laboratories …, a scientist is preparing to … produce the world's first-ever cloned human embryo, a microscopic, 100-cell version of an already living person. The scientist, Michael West, is chief executive of Advanced Cell Technology … Dr. West says the company now has eggs in hand and will soon use a technique similar to that which produced Dolly … to create tiny human embryos. (Regalado, 2001)

West's dual role as scientist and business executive was no doubt a factor in his proclivity for partisan rhetoric that favoured the pro-cloning policies against opponents such as President Bush:

> [Opposition to therapeutic cloning] 'is rooted in fear and ignorance', said Dr. Michael West … 'It's absolutely certain that the vast majority of people in the United States, if they understood the broad applications in medicine', would support cloning for research. (Milligan, 2001)

> [President Bush] said [therapeutic cloning's] benefits are 'highly speculative'. Supporters of therapeutic cloning disputed … the comments. Michael West … said the promise of the technique was far greater than Bush acknowledged. 'This technology is only a few years old, and it has already been demonstrated that you can make neurons, blood-forming cells and others' through cloning, said West, whose company was mentioned in Bush's speech … for its claim to have produced the first cloned human embryo. 'There is a very strong scientific case here. To say that this is purely hypothetical is a gross misrepresentation of the facts'. (Zitner, 2002)

ACT mustered multiple high-profile scientists who proved attractive to American journalists in need of expert sources. For example, ACT's 'medical director', Dr. Lanza, also served a dual function as scientist and businessman. Overall, both Lanza and West made public and hyperbolic statements more frequently than would be expected based on Collins and Evans' (2002, p. 242) valorisation of the scientific 'core-set':

> In Massachusetts, Robert Lanza, medical director of Advanced Cell Technology, said the [$3 billion California funding] measure will '*usher in a new era*' *of medical breakthroughs that will benefit not only Californians* '*but all Americans*'. (Connolly, 2004; emphasis added)

> The achievement, says Dr. Robert Lanza … 'could help spur a medical revolution as important as antibiotics and vaccines'. (Kalb, 2004; emphasis added)

Despite ACT scientist's apparent contributory expertise in the scientific sub-field of therapeutic cloning, their rhetoric was much closer to what would be expected from generalist scientists drawing upon referred expertise. This pattern is most

likely a function of the unavoidable positioning of industry scientists directly within the economic field, which impels a promotional orientation towards their scientific research.[5] This promotional orientation contradicts the normal rules and illusio of the scientific field, such as the consecration ritual known as peer review (e.g. Rowland, 1999).

Lanza and West offer highly optimistic assessments of ACT's progress, promising a breakthrough that has yet to materialise. The extract below features Lanza under the headline, 'Live forever':

> *Pioneering work could mean end of illness for old*
>
> The astonishing cloning breakthrough announced yesterday could lead to the elimination of illnesses which afflict the elderly, pioneering scientists claimed … Mr Lanza said: 'These are exciting preliminary results. This work sets the stage for human therapeutic cloning as a potentially limitless source of immune-compatible cells for tissue engineering and transplantation medicine'. (Hartley, 2001)

In the following extract, one of ACT's scientists is quoted providing a promotional report on the company's research.

> 'Our work is looking very promising', says Jose Cibelli of Advanced Cell Technology (ACT), a biotechnology firm in Worcester, Massachusetts … 'If something stops this work, it won't be technical problems, it will be legal or ethical issues', says Cibelli. (Cohen, 1998)

These data certainly support Nelkin's (1990, p. 45) contention that with the 'involvement of more and more scientists in research close to commercial interests', 'profits are at stake. The press becomes a means of promotion, a way for scientists to sell their expertise and accomplishments' (as is the case for other categories of news sources in the context of other kinds of issues).

Such scientific hype from 'industry scientist' sources was not limited to Advanced Cell Technology. The following extract cites the new president of the Geron Corporation:[6]

> Dr. Thomas Okarma, president of the Geron Corporation, calls regenerative medicine a 'new therapeutic paradigm' which will lead to patients' returning from the hospital with new tissues and organs, just as a car returns from the auto shop with new parts in place of the defective ones. (Wade, 2000)

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5 University researchers are usually somewhat partitioned within the scientific field.

6 It is perhaps worth noting that the Geron Corporation was founded by current ACT CEO, Michael West. He left Geron to found ACT.

Such hyped predictions of imminent success were treated with credulity by Anglo-American journalists (as discussed earlier in this book), who made little effort to assess their accuracy or warn the reader about the profit and prestige motives of the source. Below, Lanza's retrospective account of ACT's erstwhile progress was reported with a similar lack of scepticism in order to emphasise the damage done by Hwang's fraud:

> Two years ago, scientists at Advanced Cell Technology, a biotech company in Worcester, Mass., were within months of getting stem cells from a cloned embryo, according to medical director Robert Lanza. When Hwang published his article, funding dried up and 'we went into a financial nose dive', he says. Now, Lanza is preparing to pick up where he left off. (Fields, 2006)

Lanza's name came up in a follow-up e-mail exchange with one of the US science journalist participants. 'Carl' (2006) confided that 'Bob Lanza' was a 'great source' partly because he was 'quick to return calls. That matters when you only have a day to churn out a story'. This quote highlights the practical component of source selection alluded to earlier in this chapter. The crush of mass information flows and the pressure of daily deadlines drive journalists into the arms of sources that make themselves available at short notice and to institutions that are 'media-friendly'. ACT's skill at generating media meta-capital is discussed in the following press extract:

> Advanced Cell … [is] media savvy. It assured itself a splash with its human cloning experiment by simultaneously publishing an account in Scientific American and granting an exclusive to U.S. News and World Report. To be sure no one missed the significance, West and his co-authors on the Scientific American piece called their own work 'the dawn of a new age in medicine' that showed 'therapeutic cloning is within reach'. (Gellene and Mehren, 2001)

Indeed, the above extract suggests hyped and self-serving overstatements are a 'savvy' means of deriving media meta-capital. Public sector therapeutic cloning scientists (of which there were few in the US sample) may have reason to reign in their level of political engagement and rhetoric. For example, they might do it to avoid criticism within the scientific field from other other public sector scientists. At the same time, these scientists are conscious of their advocacy role to some extent (e.g. Pera and Trounson, 2013). Industry scientists face no such constraints. Because they are directly benefiting from media publicity, industry scientists are willing to accommodate their rhetoric and availability to the needs of journalistic practice.

Backstage: Scientists as Sources

In the process of selecting a potential science story to write, Anglo-American science journalists typically take their cue from the major scientific journals.

> The main way we get our information for stories for the week is to go through the embargoed news [i.e. press releases from journals] … The news agenda [is] normally set by journals. That's the genesis, the inspiration for the stories. We get the researcher's name from the journal because [the embargoed articles] come out the preceding week, generally. We read through [the journal article], call the scientist, sit down and have a chat basically. ('Zeynep', 2005)

> We find [stories] through the main journals that we watch. Most of them have now become sophisticated in preparing what they call 'tip sheets', or weekly lists of their most newsworthy articles … Tip sheets are useful but insidious because it is easy to rely on them too much. (Wade, 2005, p. 278)

Whether guided by journal tip sheets or simply the article's listed author, the journal system directed science journalists towards using scientists as sources. In addition, as indicated previously, science journalists typically use an additional 'guru' scientist source to establish the scientific credibility and significance of a particular study. In both instances, practical concerns are paramount in the distribution of media meta-capital and the selection of expert sources:

> You want someone who is broadly familiar with the particular field. You also find that there are some scientists that are much happier than others to speak to the media. And particularly to be prepared to say things … You'll find that some are perfectly prepared to use their general expertise to comment. Others hide behind the fact that it's not precisely their field and won't comment on the issue. You rapidly learn who will play ball and who won't – who will talk without using jargon, and in ways that a lay reader … will understand …

> So one of the reasons one tends to see similar names in the paper … commenting on science stories is that these are the people we [science journalists] know we can go to, and who we can trust to provide us with usable copy. As a result, they also tend to be the people who answer their phone, who get back to us within a deadline of sometimes an hour or less. You can see the sort of things that are involved. Some people are simply better at it than others. ('Richard', 2005)

Institutional and market-based pressures lead journalists to repeatedly draw upon the same individuals and forms of expertise.

> We all of us had our own favourite experts … The reason they are our favourite expert is because they will answer the phone and answer the question. It should

> be no surprise that you come up with same 20 or 30 names each time when you are looking at science reporting. It is in fact 30 or 40 generous people who are prepared to … stick their necks out and incur the odium of their colleagues in the process; only to be dismissed as 'media tarts'. (Radford, 2006)

US industry scientists did not need to fear this kind of negative response to their media role because they operated within a commercial setting in which the purity of scientific capital was not as important.

Moreover, temporal and financial pressures drive journalists into the welcoming arms of organisations willing to offer pre-fabricated framing and expertise in exchange for media meta-capital. For example, organisations, such as the Science Media Centre, EurekAlert and Progress, provide information subsidies to journalists, spoon-feeding them a pro-science perspective on current events. By utilising these subsidies uncritically, journalists gave these organisations both agenda-setting (McCombs and Shaw, 1972) and framing power (e.g. Price, Tewksbury and Powers, 1997) in the news production process. One key source for Anglo-American science journalists seeking story ideas was EurekAlert:

> The single biggest source for deciding what to cover is something called EurekAlert. It is an electronic service that was set up by the AAAS [American Association for the Advancement of Science] in the States and it catalogues all kinds of forthcoming scientific articles … That's one of the main sources of possible science stories. ('Owen', 2005)

Owen also explicitly referenced the UK-based Science Media Centre's service of providing pre-packaged science news for journalists:

> One of the main ways I get my sources is first of all the Science Media Centre. They will actually collect quotes – different experts' perspectives on a particular issue – and post them online for journalists to pull from. So these quotes are just sitting there ready to go. ('Owen', 2005)

These pre-packaged news materials can be irresistible for harried journalists facing daily deadlines and severe economic and temporal restrictions. Given that this practice is inherent in the structure of contemporary news production (Herman and Chomsky, 1988), it would be difficult to avoid this pattern without a major re-structuring and re-funding of journalistic production. Smaller scale alternatives might include the provision of information subsidies for science journalists by more critical or 'public interest' organisations or watchdogs.

Such information subsidies are just one part of the system of news production encouraging dependency on source material from individuals connected to powerful institutions and corporations. In a speech given at an academic conference in Cambridge, recently retired *Guardian* Science Editor, Tim Radford, candidly

described the collaborative relationship between science journalists and scientist sources in the coverage of therapeutic cloning:

> We – by 'we' I mean [Science Editor] Steve Conner on *The Independent*, [Science Editor] Roger Highfield on the *Telegraph*, [Science Correspondent] Mark Henderson on *The Times* – we were all willing co-conspirators … we staged what I now see as the great embryo stem cell technology conjuring trick. We helped a very small group of scientists launch a debate on a completely arcane and seemingly implausible technology and then push it through a series of forums that ended with a final vote in two houses of Parliament …
>
> Why did we do this? … One answer is that the scientists encouraged us to see their point of view. And quite frankly … this was flattery. And flattery is a very powerful weapon. (Radford, 2006)

Even in front stage press content, it is clear that scientist sources used 'flattery' to pursue media meta-capital. In the following extract, Robert Winston is used as a flattering, reflexive lens, which is pointed back at the *Daily Telegraph*'s coverage by its science editor, Roger Highfield:

> Lord Winston is troubled by the superficial public debate [in the media] about [science-related] issues, notably use of early human embryos in research. He believes [the mediated public debate] has to be deeper and wider to maximise benefits and minimise risks. *The serious media, such as The Daily Telegraph, perform an important job and do it reasonably well, he said*. However, too much news comes out without careful analysis and discussion. (Highfield, 2000; emphasis added)

The demure acceptance and transmission of Winston's flattery of Highfield's reporting shows an extraordinary deficit of cynical scepticism for a seasoned journalist.[7] Indeed, it is easy to see how a cosy and mutually dependent relationship develops within and amongst journalists, expert sources and government officials, which can lull journalists into a complacent state in which they risk becoming little more than passive stenographers. The following point applies equally to expert sources and technocratic officials.

> A newsworker will recognize an official's claim … not merely as a claim, but as a credible, competent piece of knowledge. This amounts to a … division of labor: officials have and give the facts; reporters merely get them. (Fishman, 1980, p. 145)

7 A journalist must work for several years before becoming an 'editor'.

The profit motive still gives precedence to sensationalism in high profile scientific scandals and controversies, at least in the US press and UK tabloids. However, pro-science ideology underwrites the limited of scepticism or critical capacity[8] visible amongst science journalists in the present sample. This argument mirrors Mulkay's (1995a, p. 524) findings regarding the 1980s embryo research debate: 'Support for embryo research was based … on a trusting acceptance of scientists' authoritative pronouncements and on faith in the ultimate benevolence of science'. This same 'trusting acceptance' is identified in the following interview extract:

> I think science journalism could always be criticised for being too accepting [of scientists' claims]. I think political journalists … you know when a politician says to them, 'this is great'; their first reaction is 'does he really mean this? Is he telling us the whole story?' 'Is he lying?' essentially. And I think where science journalists have a flaw is that [a scientist] could say something to them [and] our first reaction isn't 'did you just make that up?' We tend to think of things as being what [scientists] say they are … It's an issue for all of science because peer review isn't designed to detect fraud or misconduct … I think science journalists are a little bit in the same boat. I mean we don't look at the raw data. We simply say 'okay'. And a lot of times, if we had looked at the raw data we wouldn't have known what it meant. So in that sense we may be forced to be a little more accepting. ('Jim', 2005)

'Becky' (2005) revealed that even her 'language and metaphors shift … to the point of view of the [source] I'm expressing'. Nelkin (1990, p. 45) identified this uncritical adoption of scientists' perspectives as part of science journalists' excessive deference to scientific experts.

> Many science writers regard scientists with wonder and awe. As one journalist told me, 'When I work on a story I get to sit at the feet of the most luminous minds in the US'. Expecting scientists to be a neutral, disinterested source of information, they tend to be uncritical of the material packaged by scientific institutions, especially when it is presented in manageable and efficient form. Thus, reporting on science tends to be positive – even promotional. (Nelkin, 1990, p. 45)

Beyond journalists' failure to critically assess scientists' claims, Couldry (2003) points to the concern that they are interfering in the autonomous operation of other fields, such as science. By selecting favourite sources based on the requirements of the field of news production, journalists introduce media meta-capital into the scientific field. Such selections are only weakly correlated with a potential source's status based on scientific symbolic capital. Thus, through journalistic

8 That is, the lack of journalistic scepticism would be viewed as deficient from the view of a Fourth Estate or 'watchdog' ideal of the press's role in politics and society.

source selection, 'media-friendly' scientists may receive undue influence within the scientific field.[9] For Bourdieu (1998a), this would undoubtedly constitute an unacceptable form of heteronomous influence (cf. Schudson, 2005).[10]

The 'media-friendly' scientist-gurus discussed above represent the most routine source category for science journalists covering therapeutic cloning. Indeed most science stories are completely monopolised by scientist sources (Ryan, 1979). However, the coverage of therapeutic cloning included a number of non-routine sources as well. In particular, the press content showed a significant concentration of journalistic sources amongst agents of subpolitics with a personal stake in the outcome of the debate. The next chapter explores the role of these non-scientist sources.

9 Further complicating this picture is the fact that some public scientists, such as James Watson (DNA) or Robert Edwards (IVF), have become famous in the first instance by virtue of their success in the scientific field, only to have their celebrity status take on a life of its own once their high media meta-capital was firmly established.

10 This potential problem of journalistic promotion of particular media-friendly scientists is tied to the heteronomous influence of the state as well. That is, famous scientists rich in media capital are more likely to attract government sponsorship and related flows of economic capital, which they can in turn exchange for a higher degree of symbolic capital within science by engaging in a wider range of high value and high cost scientific research.

Chapter 15
Science Politics from Below: Patient Advocates and Anti-abortion Activists Enter the Fray

As seen in previous chapters, news source selection and use has underpinned the role of utopianism/dystopianism and nationalism in the journalistic coverage of therapeutic cloning. UK tabloid and American journalists gravitated towards evocative and extreme commentators, while the entire sample utilised personal narratives for their immediacy and emotional impact – also known as 'human interest' (Hughes, 1981). Patient groups were quoted in support of scientific utopianism across the entire sample, providing touching human interest stories about medical suffering and science-based hope. Meanwhile, a grisly discourse describing the destruction of early human embryos interacted with the cultural genealogy of human cloning to construct scientific dystopianism in the British tabloids and American press. The resulting 'patient cures versus abortion opposition' permutation of balanced hype in the US sample (discussed previously) is instantiated in the following extract:

> Controversy over human embryonic stem cells had reached fever pitch, with *scientists advocating for federal funding because of the potential to cure disease and anti-abortion groups opposing it* because the research involves destroying human embryos. (Anand and Regalado, 2002; emphasis added).

As representatives of specific citizen initiatives, NGOs took on an important role in the media debate over therapeutic cloning. They often bypassed the processes of traditional media politics by engaging directly within the mediated public sphere. These organisations are in the mould of what Beck has described as 'subpolitics':

> 'Subpolitics is distinguished from politics in that (a) agents outside the political or corporatist systems are also allowed to appear on the stage of social design … [including] citizens' initiatives … and (b) not only social and collective agents, but individuals as well compete with the latter and each other for the emerging power to shape politics' (Beck, 1997, p. 103).

The following extract further highlights patient and pro-life lobbies as the two primary genres of citizen groups in the therapeutic cloning debate:

> *Pro-life opponents* quickly marshalled their usual arguments and many politicians would have capitulated on the spot. But this particular battle had equally impassioned opponents. Appearing on the scene were the *patients' lobbies representing all manner of chronic conditions – from diabetes to Parkinson's to cancer*. They wanted to be cured. And they knew that in order fully to explore the promise of stem cell research, both federal funding and embryonic stem cells were required. (Klotzko, 2001; emphasis added)

On the 'pro-cloning' side, patient groups were cast in solidarity with the scientific community, forming a mutually reinforcing and legitimising front within press discourse. Scientists exercised their authority as the pre-eminent arbiters of Truth in contemporary society, declaring the certainty – or at the very least the strong potential – for cures through therapeutic cloning. Patients groups drew upon this promissory science, connecting it to sympathetic patient narratives and helping to legitimate embryo research in the press. On the anti-cloning side, pro-life NGOs were assigned the most prominent role in the mediated debate, operating in concert primarily with Catholics in the UK and Christian evangelicals in the US.

Subpolitical groups were constructed in the press on the basis of their capability to bend the form and content of traditional politics to their will (see Beck, 1992). Patient advocacy and anti-abortion groups are part of global movements. For example, they featured in coverage of deliberations at the UN and the European Parliament:

> The European parliament yesterday voted to allow EU money to be spent on controversial stem cell research *in the face of bitter condemnation from some campaign groups*. The move puts pressure on member governments to [fund] … embryo [research] to find treatments for conditions such as Parkinson's disease and Alzheimer's. MEPs yesterday voted … to support new … standards for 'the manipulation of tissues and cells' *after intense lobbying by patients' groups and medical researchers*. (Black, 2003; emphasis added)

Subpolitical groups were sought out for their comment on political and scientific developments at certain points in the therapeutic cloning timeline. This role as a (semi-) routine source for journalists is a significant development for agents of subpolitics. Such elevated levels of media meta-capital legitimate the NGO (and their cause) as a credible participant in public debate to a degree that might not have been expected even 20 years ago. In the past, the commentary role would have been fulfilled by government officials, experts and religious leaders to the near-exclusion, or at least marginalisation, of other 'non-routine' sources (Herman and Chomsky, 1988, p. 22). However, the present study suggests that subpolitics is transforming this press landscape at least as much as the political landscape (cf. Beck, 1992).

Patient Groups and Therapeutic Cloning Advocacy

One of the most significant findings in this study is the high degree to which patient groups were given a dominant role on the 'pro-' side of the issue of therapeutic cloning in the Anglo-American press. This was true across the entire sample. The overall bias in favour of therapeutic cloning may be a function for telling 'sad stories' about those afflicted by diseases that therapeutic cloning promised to cure. Organised around utopian hype about cures, initiative groups formed by patients and their advocates were favoured in news coverage of therapeutic cloning for their authentic narratives of suffering (also see Brown and Michael, 2002). These narratives draw upon longstanding, successful journalistic devices – most notably the human interest story (Hughes, 1981). As one elite UK journalist put it,

> People are very interested in not dying. In fact they are very interested in not suffering. And since most of us are going to suffer, and all of us are going to die, [therapeutic cloning] strikes a warm human chord. ('Aaron', 2005)

This understanding of reader interest in therapeutic cloning is reflected in the widespread use of sympathetic stories about patient's suffering as a way to frame the issue in the press. The following extract centres on the suffering of a 'pretty, dark-haired young woman in a wheelchair', appearing under the headline, 'Could the cure for all diseases be banned?':

> 'A ban would … have been a disaster for anyone with a child suffering from diabetes or who has a parent with Alzheimer's. This research has the greatest hope of providing treatments and cures, of being able to repair damaged organs. How can we allow it not to advance? All I want is for people like Sabrina to be able to walk again'. I turn around – he is pointing over my shoulder towards a pretty, dark-haired young woman in a wheelchair, who is chatting animatedly to a television reporter.
>
> A car accident 14 years ago left 26-year-old Sabrina Cohen a quadriplegic; she now works as public relations director for the Genetics Policy Institute. She is proud of living alone but needs round-the-clock assistance. 'The thing that keeps me going is the hope that I'll be able to get out of this wheelchair one day', Cohen says, … 'A ban on therapeutic cloning would be catastrophic. Now is the time for people to wake up and start fighting, not just for those suffering now but for people who, like me, will become the next statistic'. (Ahuja, 2004)

The story of Cohen above exemplifies life politics (Giddens, 1991) as it was routinely manifested in the present sample: An individual is struck down by a terrible disease or infirmity and reacts to this personal trauma with subpolitical activism aimed at achieving a cure for her or his condition. Nik Brown and Mike Michael (2002, p. 261) point out that such a 'performance of authentic

pain' and 'suffering is the 'ultimate' (in this present cultural context) marker of reality and truth'. Indeed, this 'life politics' news frame was highly successful at marshalling media meta-capital, as evidenced by its pervasiveness across all of the press samples.

Drawing on the life politics frame, patient groups, both literally and symbolically, represented citizens personally invested in the hope of cures for individuals afflicted with Parkinson's, Alzheimer's and many other debilitating diseases and genetic disorders. The 'rhetoric of hope' promoted by these groups helped to construct 'cures' as a central organising journalistic frame for this story:

> Let's face it. [As a journalist], if you'd never heard of a stem cell before …, what are you going to focus on? You are going to focus on … diseases, cancer; those are for journalists the gold standard of the story. 'New cure', or 'hope for new cure' I guess. ('Jim', 2005)

In part, the rhetorical power of the patient narrative can be explained by the metaphorical meaning that suffering and illness hold in Anglo-American society.

Illness as Metaphor and Patient Narratives

> Illness is the night-side of life, a more onerous citizenship. Everyone who is born holds dual citizenship, in the kingdom of the well and in the kingdom of the sick. (Sontag, 1991, p. 3)

Some citizens of the 'kingdom of the sick' come to apply the metaphor of military struggle to their illness (Sontag, 1991). For patients with the range of genetic and degenerative diseases targeted for cure by therapeutic cloning, aggressive political advocacy for embryo research can be viewed as a natural extension of a highly individualised military conflict against their affliction. Journalists draw upon such deeply personal narratives for their efficacy as human interest stories (Hughes, 1981), but also implicitly for the news value of the 'conflict' frame that is an equally favoured device amongst news producers (Shoemaker and Reese, 1996, p. 111).

For patients, a diagnosis of Parkinson's, Huntington's, Alzheimer's and cystic fibrosis can create a 'spoiled identity' (Goffman, 1963). Initially, non-disclosing patients are *discreditable* (they can be revealed as 'diseased', but their symptoms are not immediately visible). Such patients will become increasingly *discredited* as disease symptoms progress. Terminal patients are thus beset with a new, stigmatised identity for the rest of their lives, often continuing to define them as 'diseased' people or 'victims', even after death. Within this context of an ultimately hopeless, individual battle and a self-identity under threat, individuals engage in mediated life politics for personal vindication and hope of ultimate victory over the disease, even if it is too late to save themselves.

> A plea in support of the change [to make therapeutic cloning legal] was made by Anne Begg, Labour MP for Aberdeen South, who is confined to a wheelchair by a rare degenerative disease. She said: '*Almost everyone who suffers from a degenerative disease is desperate for this research to go ahead, including many for whom the results will come too late*'. (Jones, 2000; emphasis added)

This narrative of the personal becoming political fulfilled the 'human interest' criterion for newsworthiness (e.g. Luhmann, 2000). Hence, life politics was a highly attractive frame for journalists seeking to make the scientific controversy interesting and broadly intelligible as to attract the largest possible readership for their story.

In the present context, narratives of patient suffering provided legitimacy and rhetorical leverage for 'pro' therapeutic cloning forces. The following extract connects one patient's plight to pending legislation in the US:

> For many patients, embryonic stem cell research remains the only hope for recovery. Candace Coffee, 26, who has a rare and fatal condition called Devic's disease, urged politicians to act now to take down barriers to research. Coffee … described the sudden onset of her disease: temporary paralysis and blindness in one eye … with severe pain. As she spoke of her problems, the 10 pills a day she must take and the scarcity of treatment, some at the news conference cried. 'This legislation is about me. Please don't limit scientific freedom', Coffee said, her voice cracking with emotion. 'Don't take away my hope'. (Garvey, 2005)

Such personal narratives granted these patient NGOs both media meta-capital and legitimacy based upon 'experience-based expertise' (Collins and Evans, 2002).

Patient groups marshalled media meta-capital using the life politics narratives in high profile campaigns supporting therapeutic cloning. Acting in concert with the medical-scientific establishment, these patient groups lobbied the British and American governments directly for therapeutic cloning research funding, while simultaneously taking their case into the public sphere through direct appeals to the media.

> About 90 patient groups that wanted embryonic stem cell research to go forward joined last spring to create CURE – the Coalition for Urgent Research, which enlisted scientists and high-profile patients like Christopher Reeve and Parkinson's sufferer Michael J. Fox to argue their case. (Allen, 2000)

The following extract shows the breadth of the 'life politics' frame as it was applied to politicians, patients and celebrities. Throughout, there is a complete interweaving of personal narratives of suffering with political positioning:

> At the invitation of Connie Mack, a former Republican senator who represents the biotech association, about 100 people packed into a meeting room … Mack

> detailed the science, politics and ethics surrounding nuclear transplantation. Mack [is] a cancer survivor who led the effort to double the budget of the National Institutes of Health … Perry said … the session ensured 'there will be a strong patient/scientist coalition'.
>
> … Pro-research activists have capitalized on two assets: 'the credibility of science and the power of the patient', said Kevin Wilson, director of public policy at the American Society for Cell Biology. Big-name stars such as Christopher Reeve, Muhammad Ali and Michael J. Fox have helped open doors and draw television cameras to Capitol Hill. A statement by 40 Nobel laureates and an enthusiastic report by the National Academy of Sciences lent intellectual heft. (Connolly, 2002)

Although the second paragraph of the above extract implies parity between the roles of scientists and patients in the political debate, it is clear that the patient narrative is preferred over the technical details as a journalistic frame for the news story. Below, the article shifts into unadulterated *pathos,* wherein readers are encouraged to sympathise with patients' suffering:

> In unvarnished language, children with juvenile diabetes such as Tessa Wick and Katie Zucker have challenged policymakers … Wick, 11, cannot understand how [therapeutic cloning opponents] can choose 'a bunch of cells' over her. 'It's so scary to me that this guy I don't even know could do that', she said. 'It's like he's killing me'.
>
> When Bush [delivered] a lengthy anti-cloning speech, … for families like the Zuckers and Wicks, it was devastating. As Bush spoke of 'science fiction' and the prospect of making a human life a 'commodity', Lucy Fisher cried into the telephone; Janet Zucker, Katie's mother, cried on the other end. (Connolly, 2002)

Drawing on such narratives, UK-based patient groups, scientists and the biotechnology industry gained the support of the New Labour government for therapeutic cloning research, as well as many key allies in Parliament and a large number of legislators in the US Congress. In addition to some participation in direct lobbying, patient groups acted as an instrument of legitimation for previously extant political supporters of therapeutic cloning. Pro-research politicians, for example, routinely justified their positions on the altruistic basis of patient well-being, as opposed to only making their case based on naked economic self-interest. As one of the primary spokespersons for the UK government's favourable stance towards therapeutic cloning, then Undersecretary of State at the Department of Health Yvette Cooper is quoted offering a compelling example of this phenomenon of patient-based legitimation:

> I have not the least compunction about voting for the use of stem cells. *How could I look members of our local Parkinson's Disease Society and other such organisations for disabled people in the eye, if I didn't* do just that? Dalyell, 2000; (emphasis added)

Earlier in this book, it was shown that patient-based legitimation was made more generalisable through the construction of a utopian rhetoric of hope, accessing longstanding notions of scientific and medical progress. In addition, I contend that this utopian discourse gives supporters of therapeutic cloning a unifying narrative, which is attractive to journalists writing 'human interest' stories or leads. To be sure, utopianism was an important discursive foundation for patient activists' role as sources. *De facto* ownership over the life politics frame gives patient groups legitimising power and a high level of moral authority in the debate.

Individualisation and Life Political Advocacy

> Life politics concerns political issues which flow from processes of self-actualisation in post-traditional contexts, where globalising influences intrude deeply into the reflexive project of the self, and conversely where processes of self-realisation influence global strategies. (Giddens, 1991, p. 214)

In addition to group level political engagement drawing on patient narratives, subpolitical advocacy can also be identified at the level of the individual. As increasingly individualised persons construct their biographies, they begin to notice the impact of global forces upon their personal lives and the free exercise of their future (Beck and Beck-Gernsheim, 2002). Seeking to re-establish autonomy and control over their self-identities in the face of seemingly out-of-control systems within risk society, citizens take individual action or join in solidarity with other, like-minded citizens to form initiative groups and protest movements as a way to recapture the power of self-determination over their own biographies (Beck, 1992; Giddens, 1991). Giddens defines this phenomenon as 'life politics', emphasising its emergence in response to the intrusion of the state or globalising forces 'into the reflexive project of the self, and conversely where processes of self-realisation influence global strategies' (Giddens, 1991, p. 214). Activist patients then can be seen drawing upon a sense of personal grievance and suffering, which interfaces with journalists' desire for human interest stories (Hughes, 1981). Indeed, the life politics frame accesses a broadly sympathetic concern for human suffering. Such appeals were said to have had a powerful impact on the highly mediated domains of Parliament and Congress.

> For those who didn't understand the technical stuff, or care about the role of Parliament, she showed a keen understanding of what makes the lesser forms of MPs tick by deploying the weapon of shameless sentimentality. What about

> the boy paralyzed in a rugby accident? The grandmother with Parkinson's now unable to sing nursery rhymes to her grandchildren? Eyes watered, sickbags fluttered. (Brogan, 2000)

The politics of therapeutic cloning were unavoidably personal for many agents within the mediated debate. This debate intertwined the personal and the political, both in terms of the technology's implications and the moral calculus involved in evaluating the bioethical issues involved. The 'pro' side in the debate was particularly well-supported by individual agents of life politics, including celebrities such as film stars Michael J. Fox and Christopher Reeve. By staging such activists in prominent positions in the public discourse, the press constructed for them a large role in the debate over therapeutic cloning. The narratives of celebrity patients played a particularly important role in the construction of 'life politics' as a news frame in the Anglo-American press:

> 'We must make it clear that if you believe in this, you need to stand up for it. You must make your voice heard because you may lose the opportunity of using this potentially life-saving therapy'. People's voices are beginning to be heard. Hollywood has made stem-cell research its cause celebre, with Christopher Reeve and Michael J. Fox, who suffers from Parkinson's disease, its figureheads. Only weeks before her husband's death from Alzheimer's disease, Nancy Reagan used one such glittering occasion to berate George W. Bush for his conservative approach to stem-cell research. (Ahuja, 2004)

Celebrity Life Politics

Based upon their high levels of intrinsic media meta-capital (i.e. fame), celebrity activists received an outsized degree of media attention in the present sample.

> Research advocates harnessed the power of celebrities – including actors Christopher Reeve who is paralyzed by a spinal cord injury, and Michael J. Fox, who has Parkinson's – as well as lobbying by ordinary patients hoping for cures to bring attention to the issue. (Zitner and Chen, 2001)

The views of celebrity patients were presented as encapsulating the general perspective of the larger community of 'patients':

> Michael J Fox, the Hollywood actor who has Parkinson's disease, insists … it is the suffering – 'patients and families of patients' – who support stem cell research.

> The comedian Mary Tyler Moore, who nearly lost her foot to diabetes, has joined the cause. So has Christopher Reeve, the paralysed star of Superman, who believes stem cells represent the best hope of getting his inert body to work.

> Nancy Reagan has told the Bush White House that while it is too late to cure her husband of Alzheimer's she would like others to be offered that chance. (Baxter, 2001)

The following extract indicates the involvement of celebrity patients in the mediated debate over therapeutic cloning.

> Working with patients around the country, therapeutic cloning advocates placed more than 30 opinion pieces in newspapers. And celebrities such as Muhammad Ali and actors Michael J. Fox and Christopher Reeve testified against a total cloning ban. Forty Nobel Prize-winning scientists signed a letter in support of the research, and former President Ford wrote his own letter.
>
> … Democratic challenger Sen. John F. Kerry backs the aggressive pursuit of stem cell research, and Thursday received the endorsement of the widow of 'Superman' actor Christopher Reeve, who said the research could lead to a cure for the spinal cord damage he suffered. The research has also received high-profile support from actor Michael J. Fox, who has Parkinson's disease, and former First Lady Nancy Reagan, who made her support public after President Reagan died of Alzheimer's disease. (Farley, 2004)

Three high-profile patients are profiled below to illustrate this media phenomenon of celebrity life politics, including Christopher Reeve and Michael Fox, as well as Jimmy Johnstone.

> Research advocates harnessed the power of celebrities – including *actors Christopher Reeve who is paralyzed by a spinal cord injury, and Michael J. Fox, who has Parkinson's* – as well as lobbying by ordinary patients hoping for cures to bring attention to the issue. Their appeals helped persuade a large number of abortion opponents in Congress to support the research. (Zitner and Chen, 2001; emphasis added)

Each sample had its favourite celebrity patient activist. Christopher Reeve was widely covered in the elite UK press. Football player, Jimmy Johnstone, captured the attention of the British tabloids. Michael J. Fox moved to centre stage at several points during the 2004 Presidential election and the 2006 Congressional elections as a key figure in the US press. Therapeutic cloning was a high-profile issue in a number of campaigns during these election cycles and Fox came to embody the 'pro' perspective alongside other high-profile proponents of the technology, such as Ron Reagan, Nancy Reagan [the former US President's son and widow respectively) and Christopher Reeve. These data show the journalistic source selection bias favouring celebrities is applicable to the coverage of scientific issues as well as entertainment and politics.

Christopher Reeve: Superman Embodies Life Politics in the Elite UK Press

Christopher Reeve embodied life political concerns in this debate and captured the attention of the elite British press more than any other activist.[1] He exemplified the intertwining of personal and political, which defines the 'life politics' frame:

> In 1995, after the accident which left him paralysed, Christopher Reeve said he wanted to be on his feet by his 50th birthday. That's next week, and although he has made amazing progress, he won't be standing – and for that, he says, George Bush must share the blame. (Burkeman, 2002)

Like many life political activists, Reeve did not seek out his prominent position on this issue in the first instance. Rather, Reeve's activism was in a sense thrust upon him by his injury and the perceived threat of intrusion by state regulations and politics into his personal life.

> Many whose lives have been touched by disease are strong supporters [of therapeutic cloning]. *Actor Christopher Reeves, paralysed when thrown from his horse, is an outspoken proponent*. (Griffith, 2002; emphasis added)

In the quest for self-actualisation within a culture of individualisation, people, such as Reeve, may come to care deeply about issues of global import, such as therapeutic cloning, which are seen to relate directly to the present and future quality of their lives (Beck, 1992; Giddens, 1991). These individualised responses to the perceived excesses of systems of political control are at the same time personal and political. The extract below evinces the mix of personal investment and struggle and activism that defines life politics. The headline for the following extract was 'Reeve: Lift study ban on clones':

> Christopher Reeve appealed yesterday for more research into a cloning process which may help paralysed people. The Superman star, hurt in a 1995 horse-riding fall, was speaking before a spinal injuries conference in Sydney. (*Daily Mirror*, 2003)

Reeve's narrative exemplifies the life politics frame in that his hope for personal transcendence over his affliction is contingent upon both the machinations of political systems (see the first extract below) and the progress of globalised biomedical science (see the second extract below).

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1 The sustained focus on Reeve exceeded the relative volume of coverage in even the American press. This is one of many examples of the selective importation of the American debate over therapeutic cloning into the British press coverage. Even though he is American, Reeve's narrative appealed more to *British* journalists, evidencing the different biases and interests of the British and American press corps.

The Interpenetration of Personal and Political

> 'I'm disappointed. *When I was first injured, I thought hope would be a product of adequate funding, and bringing enough scientific expertise to the problem … What I did not expect was that hope would be influenced by politics*'.
>
> *Now [Reeve's anger] is sharply focused on America's politicians and religious leaders, and the way they have, in his view, impeded research in therapeutic cloning and stem cells – research that might otherwise, by now, have led to human trials of drugs designed to regrow the nervous systems of people like Reeve*.
>
> '*If we'd had full government support, full government funding for aggressive research using embryonic stem cells from the moment they were first isolated … – I don't think it unreasonable to speculate that we might be in human trials by now*'.
>
> Reeve's public persona is well established by now: he is the man who played Superman and then became Superman, a living demonstration of the benefits of hope and positivity in the face of a catastrophe that might have destroyed him mentally – and so there is something startling about the intensity of his rage. (Burkeman, 2002; emphasis added)

Celebrity Life Politics Shapes Global Science

> 'If Christopher Reeve had been daunted by the pessimism pervading spinal injury research in the US, much of the progress now being made might never have come about. *By raising millions he has transformed the whole field and drawn in new, young research scientists. Research grants are given only to those focusing on outcomes and – often to the dismay of scientists – sufferers from the condition have a vital say in who is supported*. Research here should follow a similar path. It is high time that hope triumphed over resignation'. (Guiton, 2004; emphasis added)

The overlapping nature of the political and journalistic fields made it difficult at times to separate press framing from social reality. That is, sources such as Reeve and Fox (discussed below), who were valorised by the news media, were also given actual (newsworthy) roles within the political realm. Reeve, for example, was even called upon to address the UN:

> Earlier this month the top researchers and clinicians in the world – Ian Wilmut, the man who cloned the first mammal (Dolly), and Shin Yong Moon and Woo Suk Hwang, the Korean duo who first cloned a human embryo – and patient

> groups flew to the United Nations headquarters … in a last-ditch attempt to head off such a ban. The former Superman actor Christopher Reeve, paralysed in a horseriding accident, also sent a televised address to … 'the collective moral voice of the world', saying that 'not to encourage the ethical pursuit of (embryonic stem-cell) research may result in needless human suffering'. (Ahuja, 2004)

Similarly, a year later Reeve's widow and Michael J. Fox were invited to testify before Congress. The following extract further exemplifies the extensive degree of heteronomy characterizing the relationship between the political and media fields.

> The issue [of embryonic stem cell research and therapeutic cloning] will get its first formal airings at a Senate subcommittee hearing Tuesday and at a Hill media event on Wednesday at which pro-research celebrities Michael J. Fox and Dana Reeve, widow of 'Superman' star Christopher Reeve, will call for an immediate loosening of Bush's policy. (Connolly and Weiss, 2005)

'Jinky' Johnstone: Celebrity Life Politics in the British Tabloids

In the UK tabloids, the most widely covered celebrity life politics was football player, Jimmy Johnstone. The following extracts featuring Johnstone display the 'rhetoric of hope' endemic to the life politics frame:

> *Jinky backs bid to cure disease*
>
> The Scots scientist who created Dolly the Sheep was yesterday granted a licence to clone human embryos. Prof Ian Wilmut … aims to find a cure for motor neurone disease by taking stem cells from sufferers … He got instant backing from support groups and Celtic legend Jimmy 'Jinky' Johnstone – the Lisbon Lion stricken by the disease. Johnstone, far right, recently voted Celtic's greatest player, was diagnosed in November 2001. The MND campaigner said from his home in Uddingston, Lanarkshire: 'To those opposing this, I say: "If one of your loved ones had it and you knew that using stem cells could lead to a cure, what would you do?" "This news gives me hope – that's a powerful drug for someone with an incurable disease"'. (Sheerin and O'Hare, 2005)

> Prof Wilmut plans to clone embryos directly from patients with MND – whose victims include celebrity scientist Stephen Hawking and Celtic football legend Jimmy Johnstone. Johnstone, 60, said: 'I'm delighted. To those who oppose this research I would just say, "If one of your loved ones had it and you knew that using stem cells could find a cure, what would you do?"' The condition, which kills cells controlling the brain and spine, affects about 5,000 people in the UK. Most die within five years of being diagnosed. (Mackay, 2005)

> Professor Ian Wilmut, of the Roslin Institute in Edinburgh, will clone early stage embryos to study Motor Neurone Disease (MND) in unprecedented detail … Well-known MND sufferers include … football legend Jimmy 'Jinky' Johnstone. Yesterday, the former Celtic star said: 'I am delighted with this news. It will help hundreds of thousands of people worldwide and the people who care for them. 'Now I just hope that they can fasttrack the research because time is the enemy for this illness. To those who oppose this, I would just say this if one of your loved ones had this terrible disease and you knew that using stem cells could lead to a cure, what would you do?' (Culley, 2005)

These remarkably similar stories on the same topic from the same day in the extracts above show the irresistibility of a celebrity life politics frame for tabloid journalists.

Celebrity Life Politics in the American Sample: Michael J. Fox

Fulfilling a similar role as Christopher Reeve in the elite UK newspapers – and Johnstone in the UK tabloids – film and television actor, Michael J. Fox, was a major figure in American press coverage of therapeutic cloning. The following extract introduces Fox's life politics into the 2004 US Presidential campaign. Fox took up the mantle from Christopher Reeve as the leading agent of celebrity life politics on the issue of therapeutic cloning in the American press:

> [During] last week's presidential debate … in the front row, wedged between Teresa Heinz Kerry and Kerry's daughter Vanessa, sat a person who stands for the power of science better than words ever could: Michael J. Fox. Diagnosed with Parkinson's in 1991 and visibly ailing, Fox is a staunch supporter of stem-cell research and has … become [presidential candidate] Sen. John Kerry's ambassador for the cause …
>
> Watching Fox, it was impossible not to think of Christopher Reeve, who died last week at the age of 52. A tireless advocate for stem-cell research – 'Superman in a wheelchair', as one friend called him. Reeve's death refocused attention on an issue that has mobilized celebrities, activists, scientists, politicians and even regular folks who barely remember their high school biology. (Kalb, Rosenberg and Ulick, 2004)

Fox also emerged as a major participant in the 2004 debate over California Proposition 71. This ballot measure ultimately passed, allocating $3 billion over 10 years to embryo research (including therapeutic cloning). The following extract identifies the mélange of pro-therapeutic cloning forces implicated in the successful campaign for research funding in California during the 2004 election cycle. Celebrity patients such as Michael J. Fox provided a sympathetic public face and unofficial media spokesperson for the research:

> A coalition of Hollywood producers and actors, technology billionaires, scientists, patient advocates and business organizations – including Michael J. Fox and Bill Gates – has marshaled emotion, scientific argument and money to underwrite a state ballot proposal that … would authorize the state to issue $3 billion in bonds to pay for a range of stem cell research. (Broder and Pollack, 2004)

The following extract presents a similar description of the role of celebrity life politics:

> The [therapeutic cloning funding] initiative … was a classic California case of direct democracy …, with a Hollywood twist … Both the late actor Christopher Reeve, who was paralyzed as the result of a spinal cord injury, and actor Michael J. Fox, who is afflicted with Parkinson's disease, publicly supported it. (Streisand and Boyce, 2004)

This article then extends the rhetorical power of celebrity backing for therapeutic cloning with an 'ordinary person' patient narrative:

> *Big goals*. Scientists believe that stem cells may make treatment successful for a wide range of diseases that include cancer, heart disease, diabetes, Alzheimer's, multiple sclerosis, and spinal cord injuries. More than 128 million Americans suffer from such diseases. 'We need this now', says Beatrice Berkman …, whose son died recently of a blood disorder. (Streisand and Boyce, 2004)

Despite the prevalence of patient narratives and celebrity viewpoints, the American press reporting on this Proposition was not as one-sided as the elite UK press coverage around Parliamentary deliberations in 2000 and early 2001. The following extract exemplifies the qualitative nature of the more 'balanced' content that prevailed in the US press coverage. Initially, the following extract seems to offer a similar depiction of the range of pro-research individuals and organizations involved in promoting the California Proposition:

> The creators of Proposition 71 have assembled a powerful cast of advocates – from Republican Gov. Arnold Schwarzenegger to Nobel Prize winners, from the head of the Bush administration's stem cell task force to the late actor Christopher Reeve, who appears in a commercial taped shortly before his death. Other supporters include the California Chamber of Commerce, actor Michael J. Fox, who has Parkinson's, and George P. Shultz, secretary of state under President Ronald Reagan. (Connolly, 2004)

However, this article then began to frame the coalition of therapeutic cloning advocates supporting the California research funding initiative in a more cynical and sceptical manner, as can be seen in the extract below. First, the optimistic view of mediated subpolitics is presented:

> 'The fact that this [therapeutic cloning funding initiative] is on the ballot at all is a stunning testimonial to the power of citizen advocacy', said Mary Woolley, president of the nonpartisan Research America, which promotes public investment in science. (Connolly, 2004)

Then the writer flags the gritty, economic reality of politics, along with the danger of hyped promissory science:

> Yet what Woolley and proponents hail as democracy in its purest form, others see as an abuse of the electoral process – a small, well-funded constituency using emotion to sell expensive, unproven science. 'This is taking billions of dollars from desperately needed health care to support this science project', said H. Rex Greene, medical director of the cancer center at Mills-Peninsula Health Services in San Mateo. 'If this ever leads to cures, it will be decades away – if ever'. (Connolly, 2004)

Thus, some level of journalistic scepticism about the life politics narrative made into front stage press content via the 'balancing' ethos that operates in the US press (and that also drove the 'balanced hype' pattern identified earlier in the book).

Life Political Actors and Subpolitical Action

In the above discussion, I have developed a conceptual distinction between individualised life politics and subpolitical activism, which is based on a degree of solidarity and comradeship. In practice, however, these phenomena are intertwined. For example, both Christopher Reeve and Michael J. Fox established charitable foundations, which in turn exercised some degree of subpolitical activity as patient advocacy groups.

> Private groups, meanwhile, have greatly increased their support of stem cell research. The Juvenile Diabetes Research Foundation, the Michael J. Fox Foundation for Parkinson's Research, the Wellcome Trust, the Christopher Reeve Paralysis Foundation and others have given tens of millions of dollars to various laboratories, many in Europe. (Perez-Pena, 2003)

Indeed, like the celebrities themselves, their namesake NGOs stood in for the larger patient advocacy movement:

> [There is the possibility of] an executive order from the Bush administration, temporarily restricting cloning research. But some Washington commentators said there was still too much opposition from medical interest groups, who point to the potential benefits of therapeutic cloning, for opponents to force legislation through the Senate in the near future. For example the Christopher Reeve Paralysis Foundation pledged fierce resistance to any ban, because the research

> 'has so much promise and reduces the one big problem in using stem cells, the rejection factor'. (Cookson and Griffith, 2001)

The extract below is indicative of this pattern of celebrities acting as highly visible spokespersons, standing in for much broader patient-based subpolitics on the issue of therapeutic cloning.

> Patients' groups and high-profile advocates such as former first lady Nancy Reagan and actor Michael J. Fox say the research could help provide cures for Parkinson's, diabetes and other diseases. (Stone, 2005)

Even beyond the intertwining of the media, politic and celebrity, science and economics were also implicated in this heteronomous mélange with an example of the celebrity patient groups funding embryo research and promoting the results of the study in the media:

> The Christopher Reeve Paralysis Foundation, which helped to fund the study with the National Institutes of Health, welcomed the findings. Reeve, the actor paralysed in a horse-riding accident, has told Congress he hoped stem-cell research would cure him. (Hawkes, 2000)

Deviant Case Analysis: Re-appropriating the Suffering Patient Narrative

Seeing the media meta-capital that adhered to patient narratives, pro-life opponents of therapeutic cloning tried to harness patient-based legitimacy in support of their own viewpoint. The following extracts are from a lengthy 'letters to the editor' segment in *The Times* under the heading, 'Should a human embryo be used to save lives?; are you in favour of therapeutic cloning?':

> *I have several severe disabilities* and use a wheelchair full time. *I run a group called No Less Human* for disabled people, their families and carers, all of whom *oppose embryonic stem-cell research*. Anjana Ahuja said in her article that 'People's voices are beginning to be heard' ('Could the cure for all diseases be banned?', T2, June 17), and then *referred only to Christopher Reeve and Michael J. Fox*, who vociferously support embryonic stem-cell research. There was no attempt to hear the voices of disabled people who oppose it. (Davis, 2004; emphasis added)

After pointing to her exclusion from the debate, this reader establishes the *pro-life* basis of her opposition to therapeutic cloning:

> It is a biological fact that each *human life begins at fertilisation. Human embryos are simply human beings* at an early stage of their development. *They are clearly*

> *both human and alive*, or their cells would be of no use [to therapeutic cloning scientists]. (Davis, 2004; emphasis added)

She then sums up by protesting the 'celebrity life politics' flagged above.

> Why is no one listening to us? We are disabled people who would not countenance embryonic stem-cell transplants because we recognise the humanity and dignity of every human life, regardless of how small. *We may not be Hollywood stars* but we do know the difference between ethical and unethical research. (Davis, 2004; emphasis added)

A similar *anti*-therapeutic cloning patient perspective is flagged in the following US press extract:

> Among the patients who wrote in to oppose the [NIH embryo research funding] guidelines was Chris Currie, a 37-year-old diabetic who … could benefit dramatically from stem cell research. But, he said, he would reject any cure or treatment that came from embryos. 'I'm the one who has to think, "What might this embryo have grown up to be? Would it have been someone who laughed and loved, married and had kids – all the things I've done? … How does God see this? What judgment will be laid upon me if I do this?" You can't so easily punt on those questions when you're the one who's directly benefiting'. (Allen, 2000)

Despite these few examples, however, the 'I am disabled, but oppose embryo research' position exemplified in the above extracts never caught on as a significant frame in the press coverage of therapeutic cloning. Anti-therapeutic cloning patients downplayed their own suffering in favour of abstract moral commitments to the hypothetical human embryo, for whom it is difficult to attribute authentic pain and physical suffering. Without the personal narratives of suffering and hope, these individuals did not offer journalists the 'human interest' stories or experiences needed to exchange for media meta-capital. Anti-abortion opposition to therapeutic cloning, in general, was also limited in its ability to sustain media attention by this lack of human-interest narratives.

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Chapter 16
Science Politics from Below: Anti-Abortion Groups Ascend as the Leading Opposition

While favourable therapeutic cloning coverage coalesced around vocal patient groups, pro-life NGOs were cast in the opposition role across the entire period covered by this research,[1] alongside Christian evangelical organisations in the US press and the Catholic Church in the British tabloids.

> This [argument in favour of therapeutic cloning] is not the view taken by the Catholic Church and other 'pro-life' groups opposed to human embryo research. John Smeaton, national director of the Society for the Protection of Unborn Children said: 'This [legislation supporting therapeutic cloning] appears to be a disturbing and deplorable development'. (Conner, 2001)

The key role of anti-abortion groups in similar biopolitical debates has been identified in previous research, and is also evident in the data analysed for this book. Anti-abortion groups are subpolitical in nature, just as patient groups are. As Beck (1997, p. 101) argues, 'subpolitics is not open to only one side. [It] … can always be used by the opposite side or party for the opposite goals'. The following extract illustrates the evocative anti-abortion rhetoric preferred in the American press.

> *The Other Side*: *Anti-abortion groups criticized* Ron Reagan's Tuesday stem-cell speech. Reagan made an impassioned plea to step up embryonic stem-cell research, but in explaining the source of the stem cells he described creating human embryos through cloning … '[conservative Republican] President Reagan surely would have opposed *creating human embryos to harvest their parts*', declared Douglas Johnson of the *National Right to Life Committee*. (Murray, 2004; emphasis added)

As can be seen below, such stark rhetoric was presented by religious figures as well as anti-abortion groups in the US press:

> Of the more than 50,000 people who responded to NIH's call for comment … more than three-quarters [were] opposed[,] call[ing] the NIH scientists baby killers and Nazi doctors. 'The people who want to dissect a human embryo are

1 However, anti-abortion groups encountered far less sympathetic treatment than patients within the elite UK press.

> the same people who want to pull a baby out of the mother's womb feet first and puncture the head and suck the brains out', says Dickey …
>
> Doerflinger, writing on behalf of the bishops conference, asked acidly how it was possible to treat an embryo with respect while killing it, and how could you get informed consent from the people who agreed to have it killed. As for the NIH's end run around [the] Dickey [Amendment], Doerflinger says 'it's like saying you won't pay to have someone kill me, but will experiment on my heart right after watching someone else rip it out of my body. Either way I'm dead'. (Allen, 2000)
>
> Several religious groups warned of the dangers of cloning. Carl Anderson, chief executive of the Knights of Columbus, called therapeutic cloning 'a form of biotech slavery'. Richard Land of the Southern Baptist Convention called it 'high-tech cannibalism in which we consume our young'. (Zitner, 2002)

Likewise, in the British tabloids, pro-life groups served to provide extreme quotes, supporting the production of more sensational stories.

> Professor Jack Scarisbrick, national chairman of the [anti-abortion] charity LIFE, said: 'This is manipulation, exploitation and trivialisation of human life of a frightening kind. 'The real reason for seeking this permission [to conduct therapeutic cloning research] is probably as much about playing God and breaching taboos as curing diseases. The birth of a cloned baby will be next'. Josephine Quintavalle, of the pro-life group Comment On Reproductive Ethics, said: 'No matter how you created it, it is a human embryo, and has as much right to life as anybody else'. (Utton, 2004)

In the wake of the fragmentation of conventional religious authority in the UK (e.g. Mulkay, 1997), NGOs were the most salient source of pro-life, anti-cloning ethical commentary available to journalists. Pro-life groups have proliferated in recent decades (e.g. Maxwell, 2002), forming a global protest movement that transcends traditional religious constituencies (e.g. the historical Catholic/Protestant divide). The issue of therapeutic cloning functioned to promote anti-abortion activists as science critics in the Anglo-American press:

> Is this a battle between science and anti-science? Not entirely. The Royal Society is in favour, as was a [expert] committee put together by Professor Liam Donaldson, the [UK] Chief Medical Officer. *The 'pro-life' groups are against*. (Hurst, 2000; emphasis added)

> Because of *strong opposition from anti-abortion groups* … [therapeutic cloning] researchers [in the US] have kept a low profile on [their] activities. (Chase and Regalado, 2002; emphasis added)

In both the US and UK samples, science journalists covering therapeutic cloning used critical commentary from pro-life groups to balance pro-cloning statements from scientists, patients and government officials. The following two-part example first quotes a government official speaking in favour of therapeutic cloning:

> 'It's very difficult to think of that collection of cells as an identifiable human being; there is no question of it feeling any pain because the beginnings of the central nervous system don't occur until 14 days after fertilisation'. This argument was put forward by Yvette Cooper, the junior health minister, in the House of Commons. (Waterhouse and Rogers, 2000)

Next, the article balances this declaration with opposition commentary by sources representing two major UK anti-abortion organisations (viz. *Life* and the *Linacre Centre*):

> Professor Jack Scarisbrick, chairman of *the anti-abortion group Life*, 'It's a momentous step … The implications are mind-blowing and we should not be doing this casually. We are generating human beings with the deliberate intention of killing them and the end can't justify the means'.
>
> Dr Helen Watt, a medical ethicist and research fellow with *the Linacre Centre for Healthcare Ethics, a Catholic bioethics centre*, said: 'We … oppose … getting stem cells from embryos because you kill the embryo when extracting the cells. If you produce the embryo just to harvest tissue you are using its life as a stage in producing a pharmaceutical product'. (Waterhouse and Rogers, 2000; emphasis added)

Pro-life groups were an easily accessible source of opposition commentary with dependably strong moral viewpoints sufficient to satisfy the 'anti' side of the American press's balanced hype imperative.

> The efficacy of such reified oppositional framing is discussed in the following extract:
>
> About 90 patient groups that wanted embryonic stem cell research to go forward joined last spring to create CURE – the Coalition for Urgent Research, which enlisted scientists and high-profile patients like Christopher Reeve and Parkinson's sufferer Michael J. Fox to argue their case. In response, a smaller collection of clergy and doctors opposed to embryonic stem cell research formed Do No Harm.

> The names – CURE vs. Do No Harm – provide a catchy, but caricatured summation of the conflict. It is surely hype to claim that stem cells will bring cures, because no one can, with certainty, predict the outcome of such basic research. And the effort to block stem cell research at times appears to be a straw man for the abortion debate. But the two names do reflect a more basic cultural difference – between an interventionist, technical approach and an inevitably fatalistic, religious worldview. (Allen, 2000)

While patient groups and anti-abortion NGOs rarely debated directly, they were often *framed* as being engaged in a direct confrontation over the issue of therapeutic cloning:

> Patient power is getting a global voice through a new movement to represent people with a range of hereditary diseases … *Its backers also aim to challenge anti-abortion, animal rights and other lobby groups that oppose some forms of biomedical research*. (Coghlan, 2001; emphasis added)

Ultimately, this dualistic representation of patient and anti-abortion groups dovetails with the preferred, journalistic framing of conflict, just as was seen in the competitive nationalism identified earlier in this book. Although the journalistic news value of 'conflict' underpinned the coverage of anti-abortion groups in the US and British tabloid samples, other news values (e.g. the criterion of 'novelty' in the form of the assessment that anti-abortion views are already well known) curtailed the coverage of anti-abortion perspectives within the elite UK press.

Elite UK Press Marginalisation[2] *of Anti-Abortion Activists*

Christopher Reeve and other patients were recognised throughout the present sample as having a unique form of experiential legitimacy supporting their right to speak out on the issue of therapeutic cloning. On the other hand, elite UK journalists only temporarily accepted anti-abortion activist sources as legitimate participants in the debate. Despite their appearances in the early phases of therapeutic cloning coverage (i.e. when UK legislation was under Parliamentary consideration), anti-abortion activists found their attempts to renew their media meta-capital thwarted by increasingly disinterested elite UK science journalists. This disinterest is expressed in the following interview extract:

---

2 US science advocacy publications, such as the news pages within *Science,* also matched this pattern of marginalising anti-abortion sources. However, I have not expanded on them because of their relatively small role in the overall mediated public debate as well as within my interview sample.

> I don't go out of my way to talk to the same pro-life groups. They'll send me stuff and I will talk to them from time to time, and I know what they think and I will quote them – although their quotes tend to get dropped. They tend to be at the bottom of the story. And when it's cut to fit that space, they're the ones that tend to get dropped. ('Charles', 2005)

In this vein, the following front stage extract shows the anti-abortion opposition being quickly set aside in order to elaborate on patients 'whose lives have been touched by disease':

> Anti-abortion activists fiercely oppose therapeutic cloning, while many whose lives have been touched by disease are strong supporters. Actor Christopher Reeves, paralysed when thrown from his horse, is an outspoken proponent. (Griffith, 2002)

Thus pro-life activists were treated as non-routine, second-class sources in the elite UK press. They were in the category of 'small fry, newcomers, subversives, pains-in-the-neck who struggle desperately to add some small difference to this enormous, homogeneous mishmash' of elite sources (Bourdieu, 1998a, p. 26).

There was some evidence of an ideological dimension behind this pattern of downgrading anti-abortion and other perceived 'anti-science' perspectives within press coverage of therapeutic cloning:

> I tend to take the scientific point of view. Probably to a greater extent than some readers would like me to. But I see myself as a kind of rationalist in a fairly irrational world. I'm not there to promote irrational ideas because there are tons of other people doing that job. I cling to science as a piece of driftwood in a wreckage to keep me afloat … But that's just the way I am. I'm not the only journalist writing about the subject, so the other, more value-laden views I hope get expressed by other [journalists] … [But] *I don't go out of my way to talk to ... pro-life groups*. ('Charles', 2005; emphasis added)

Science journalists' ideological and epistemological commitments were clearly a factor in source selection. However, the rising disinterest in anti-abortion sources evident amongst elite UK journalists as the story progressed was consistently tied to the newsworthiness criteria of unexpectedness, unusualness or 'surprise' (Luhmann, 2000, p. 28; Park, 1999/1940; Shoemaker and Reese, 1996, p. 111).

> There's a level at which [journalistic] debate becomes devalued by the predictability of the [source's] response. You will have noticed that you are not very excited that in Northern Ireland, members of the Democratic Unionist party have condemned Sein Fein. You'd say 'what else would they do', you know and this is where it's got to already on the embryo stem cell life issue …

> I [do] not feel compelled to report what the anti-abortionist group Life says … because it's so predictable. I would cheerfully report, if somebody else said 'and there's another reason [besides the anti-abortion concern], and here is why we shouldn't be doing [therapeutic cloning research]'. I would be interested, especially if I heard something I hadn't [heard before]; something that wasn't a formulaic notion. ('Aaron', 2005)

Aaron elaborated on the importance of novelty in deciding whether to seek out non-scientist sources:

> It's worth quoting a bio-ethicist the first time a question pops up … The [ethical] question was there the first time people [cloned a mammal]. It was still there the second time they did it. But by the time it's been done fifty times it's stopped being an ethical question, unless there is some huge public outcry. And one doesn't see any future public outcry. ('Aaron', 2005)

'Richard' makes a comparable argument about the rapid decline in the newsworthiness of anti-abortion opposition to therapeutic cloning once the original controversy died down:

> There's a bit of 'they would say that wouldn't they?' in some cases. In [cases] like that, it's not a story. Saying 'Pro-life activists object to latest abortion figures' is not a story. However, if it's David Steel, who framed the abortion law, then it is. ('Richard', 2005)

Writing for a science advocacy publication, 'Jim' indicated a similar position regarding the use of subpolitical sources that raise ethical questions about a scientific development. He too believes that such perspectives are not newsworthy beyond the initial introduction of the scientific issue into the public sphere.

> I would tend to focus on their thoughts if it was some new way of thinking. I don't tend to routinely include [anti-abortion sources] in science stories any more. I did more in the beginning because the science was in its infancy. ('Jim', 2005)

Reaching a comparable conclusion, 'Owen' argued against including opposition voices, such as anti-abortion activists, because the reader would already know their position:

> We assume that our readers know the opposition exists on things like therapeutic cloning. And therefore we don't need to waste space – to use up valuable space – that could be used to describe the science. ('Owen', 2005)

Arguing from a different perspective, 'Brady' says the overall newsworthiness of therapeutic cloning was based on the 'unusual' or 'surprising' role of Republican (including pro-life Republican) advocates of therapeutic cloning.

> This is what makes the issue interesting … that there are people all over the place on this, even within the Republican party. I mean Orin Hatch is a strong supporter. Schwarzenegger: strong supporter [of embryo research]. But there are certainly people within the [Republican] party – President Bush, Senator Sam Thorne and so on – who are strong opponents. ('Brady', 2005)

Since it is only surprising when anti-abortion activists are pro-therapeutic cloning, this viewpoint received considerable media attention. The unsurprising anti-therapeutic cloning viewpoint expressed by most anti-abortion activists was not viewed as inherently newsworthy in any sample category. After the initial controversy, this typical view was only of secondary utility for journalists seeking to 'balance' pro-therapeutic cloning patient accounts in the US press and conjure conflict in the UK tabloids to create more sensational stories.

It is clear from such data that the marginalisation of anti-abortion NGOs as journalistic sources is an instantiation of the larger principle of news value identified by Park (1999/1940):

> It is not the intrinsic importance of an event that makes it newsworthy. It is rather the fact that the event is so unusual that if published it will either startle, amuse, or otherwise excite the reader so that it will be remembered and repeated. (Park, 1999/1940, p. 13)

Applying such definitions of newsworthiness is by no means universal however; it is governed by the particular socio-historical context in which the journalist is operating. Due partly to the history of the abortion issue in the UK,[3] elite British journalists viewed it as a settled issue with waning relevance to therapeutic cloning.

> The debate about whether [embryo research] is moral is one that we've had and we've had democratically. There has been substantial democratic agreement in Britain. And so I don't feel compelled to go into that [anti-abortion perspective] every time. ('Aaron', 2005)

As such, elite UK journalists viewed anti-abortion NGOs as fringe groups, which carried through into their news coverage:

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3 The key points in the recent history of UK and anti-abortion sentiment include: (1) the 1967 Abortion Act, which legalised abortion through the Parliamentary process, and (2) the Human Fertilisation and Embryology Act, which represented the defeat of anti-abortion activists within the 1980s debate over embryo research (Mulkay, 1997).

> Fringe groups' voices can be used to balance stories, but they tend to be tacked on at the end as though they were afterthoughts, a practice that contributes to the impression they are to be taken less seriously than other interests. (Priest, 2001a, p. 103)

In the American press, on the other hand, the abortion controversy was recognised as active,[4] meaning that the anti-abortion activists' role in therapeutic cloning coverage was not once questioned by American newspaper journalists interviewed for this book. This is indicative of a key difference in outlook between the US and UK journalists.

4 Unlike most Western nations, the US did not resolve the issue of abortion rights through democratic debate and a vote by elected representatives. Rather, the Roe v. Wade ruling by the US Supreme Court in 1973 established the principle of legalised abortion as a constitutional right, guaranteed throughout the fifty states. Some have argued that this abrupt judicial intervention forestalled a democratic, political resolution to the debate. This may explain the sustained intensity of the abortion controversy in the US (Ferree, et al., 2002), which tends to flare during presidential campaigns and confirmation hearings for new Supreme Court justices.

Chapter 17
The Ethical Experts: Professional Bioethicists in the Therapeutic Cloning Debate

Research within the life sciences has led to a number of high-profile bioethical debates in recent years. This chapter analyses media framing of the bioethics of therapeutic cloning. It examines coverage of therapeutic cloning in the Anglo-American press in terms of the modes of ethical rationalisation employed by journalists and their sources.

Poon (2000, p. 165) notes that cloning was 'one of the first issues tackled by the emerging discipline of bioethics in the late 1960s and early 70s'. Over the years, this debate has been joined by key bioethicists and theologians, including Paul Ramsey, Joseph Fletcher, Ruth Chadwick, Daniel Callahan and Leon Kass. The debate was renewed with the cloning of Dolly the sheep in Scotland in 1996. In the immediate wake of the internationally broadcast news of Dolly's birth, US President Bill Clinton empanelled the National Bioethics Advisory Commission (NBAC) to provide both the President and the nation with expert ethical recommendations on the issue of human cloning. Three months later, the NBAC report was released. It called for a five-year moratorium on reproductive cloning based upon concerns for the safety of any children born using such an untested technology. This instrumental rationale for temporarily blocking human cloning effectively sidestepped the more difficult substantive ethical questions surrounding human cloning (Evans, 2002). Moreover, subsequent arguments by bioethicists such as Glenn McGee and Arthur Caplan (2004, p. 292) supporting biomedical cloning research have tended to invoke similarly 'known and important moral goods' like safety and beneficence towards suffering patients.

Long-time cloning opponent and bioethics professor Leon Kass (2004, p. 170) criticised NBAC and its conclusions as 'waffling on the main ethical question, by refusing to declare the production of human clones unethical (or ethical)'. Kass (2004, p. 169) argues that human cloning, even when used to create early embryos for biomedical research, is 'deeply repugnant and fundamentally transgressive'. With Kass as chair, the Bush Administration's Presidential Bioethics Advisory Commission (PBAC) came to similar conclusions. Their report declared that human cloning is inherently unethical regardless of safety considerations, and that even biomedical cloning would instrumentalise human life (also see Fukuyama, 2002). However, PBAC also used human cloning to delve into a deeper discussion of both ends and means within the domain of biomedical research.

Significantly, while the argumentation of therapeutic cloning opponents such as PBAC and Kass have included a wide range of concerns about ends and means, proponents have tended to draw upon a much more limited bioethical framework. Specifically, NBAC and bioethicists such as McGee and Caplan call upon one or more of a set of principles most famously elaborated by Beauchamp and Childress (1994).

On the basis of an averred secular 'common morality', Beauchamp and Childress (1994) propound their four principles of *autonomy*, *non-maleficence*, *beneficence* and *justice*.[1] This approach to normative ethical deliberation has become known as *principlism*. Critics have identified numerous shortcomings in principlism as an ethical framework (e.g. Adams, 2008; Corrigan, 2003; Jones, 1999; Lloyd, 2004; Meininger, 2005; Weasel and Jensen, 2005). For example, Harris (2003) argues that limiting bioethical argumentation to the four principles would stifle and sterilise debate into a uniform 'checklist'. At the same time, McCarthy (2003) and others have argued for the inclusion of additional frameworks such as 'narrative ethics' to complement the four principles. These responses to principlism from within biomedical ethics are extended in this essay through consideration of a sociological critique. This sociological critique bears some resemblance to Harris's (2003) thesis, but goes significantly further by arguing against *any* predefined limitations on the range of ends or principles at issue within a bioethical debate. Sociologist John Evans (2002) calls for a radical re-structuring of normative bioethics so that professional ethicists no longer prescribe the ends or principles by which a bioethical debate will be decided. Instead, Evans argues that bioethical principles should remain open to public deliberation and determination. Thus, in Evans' model professional bioethicists would enact the much more circumscribed role of identifying the most efficient means for achieving such publicly defined and democratically ratified ethical principles.

In developing this argument, Evans (2002) uses the concept of 'rationalisation', which is drawn from one of the founders of sociology, anthropology and political science, early twentieth-century German social theorist Max Weber. His analysis of public debate points to an inherent bias in professional bioethics favouring 'thin' rationalisation. 'Formal', 'instrumental', 'goal' and 'thin' rationality all refer to the kind of logic wherein a 'pattern of action is … *calculated* to be the most efficacious means for achieving *predetermined* or *assumed* ends' (2002, p. 13). Thin bioethical discourses 'tend to ask, What should a scientist or patient do in this situation, given the universal ends' of principlism (2002, p. 20), rather than considering a broader range of societal and cultural ends (e.g. humility or

1 First, 'beneficence' demands that one should seek to do good with one's actions (e.g. to improve the health of suffering patients). Second, non-maleficence requires that one does not harm others with one's actions. Third, 'justice' means acting fairly when there are conflicting interests at play in a given situation (e.g. not giving one group of people far better treatment than another). Finally, autonomy requires respect for the uncoerced health decisions of competent adults.

inter-generational responsibility). As it has become increasingly dominant and professionalised, Evans (2002) contends that the field of bioethics has become reliant on the thin discourse of principlism to efficiently produce clear normative conclusions about public bioethical issues. Indeed, this connection between thin rationality and efficiency is well developed in Weber's (1968/1925, p. 337) original work. He argues that thin rationality is 'capable of attaining the highest degree of efficiency … It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability'. It thus makes possible a particularly high degree of calculability of results.

Evans argues against such ethical efficiency because of its anti-democratic and anti-pluralistic tendencies. Instead he advocates 'thick', values-based bioethical discourse that is based on the assumption that ends are not universally held. Rather, the thick framework allows for a potentially infinite range of ends to be contested within a sphere of agonistic struggle and debate. Evans contends that a thick bioethical debate is more democratic and more legitimate because it does not close down lines of thinking arbitrarily based on purely technocratic criteria. To the contrary, he suggests that thick debates require public participation and lay definitions of the ends at stake for a given issue. Thus, it may still be possible to identify common ground on a particular bioethical issue, but the process of finding ethical common ground must not be foreclosed by taking the ends as given.

However, a key problem with Evans' argument is that he does not offer a realistic solution to the problem of how publics can supply the ends for bioethical deliberations. He briefly suggests the idea of 'lay-dominated' panels or 'ends commissions' that could decide such matters (2002, p. 202). But it is not clear what institutions, organisations or individuals could be trusted to act as sponsor and organiser of such commissions. This leaves Evans' normative prescriptions open to fundamental practical criticisms, raising the question: Is thick public bioethical debate, an impossible ideal?

In practice, news media are still the main forum for discussion and debate about political, scientific and bioethical issues in most nations (Ferree, Gamson, Gerhards and Rucht, 2002). Therefore if the thick ideal exists in practice it should be visible in the mediated public sphere. This chapter assesses the applicability of Evans' 'thick' versus 'thin' framework to this sample, addressing the research question: Is bioethical debate over therapeutic cloning in the Anglo-American press characterised by thinly and/or thickly rationalised discourse? The analysis in this chapter applies Evans' (2002) model of 'thin' versus 'thick' bioethical debate to Anglo-American press coverage of therapeutic cloning.

The patterns of bioethical argumentation evident in this large sample of Anglo-American press coverage of therapeutic cloning were many and varied. For the present purposes, the press content element of the research is most important for assessing whether Evans' critique of principlism can be usefully applied to this important forum for bioethical debate. In seeking out instances of thinly and thickly rationalised bioethical discourse, the overall trend clearly shows the news content favoured the four principles in both the American and British press. However, this

thin bias is much more pronounced in the UK sample, where government policy and public opinion overwhelmingly supported therapeutic cloning through the debate. This lack of critical reflection on ends may reflect a genuinely higher level of agreement on bioethical principles in the UK. However, journalists did not have any direct means of determining such agreement in advance, so this perception would have had to be based on an imagined set of audience views and interests.

The influence of religious conservatives and the ascendance of the Bush Administration in 2001 yielded a greater degree of contestation over therapeutic cloning. Indeed, the heterogeneity of public opinion on this and related issues is considerable (Priest, 2006). Thus despite majority support for therapeutic cloning in American public opinion polls, there was a significantly higher level of thickly rationalised bioethical discourse in the 2001–2006 part of the US press sample. Beyond this general account of the present data, however, effectively assessing Evans' sociological framework requires considering some specific cases. As such, examples of both thin and thick bioethical discourse are explicated below.

Thin Coverage of the Bioethics of Therapeutic Cloning

Bioethical discourse about therapeutic cloning in the Anglo-American press generally favoured 'thin' forms of bioethical argumentation, limiting the range of ends included in the debate. For example, in the following journalist interview extract, the scope for continued bioethical debate is constructed as extremely limited in the wake of UK government reports and legislation.

> We have had a very lengthy discussion [about the ethics of therapeutic cloning]: The debates in the Lords and the Commons and there have been long consultations and reports by the Chief Medical Officer and at the end of the day we came to the view that therapeutic cloning as a research – not as a clinical, but as a research application – is acceptable subject to the law and I don't think there's much argument about that really … I don't think I have anything else to say on stem cells. ('Charles', 2005)

Such narrow and 'thin' journalistic constructions of the bioethics of therapeutic cloning are reflected in American and British press coverage throughout the sample frame. In the following US extract, a bioethicist employed by a lobbying organisation for the biotechnology industry criticised even forestalling therapeutic cloning research for a two-year period based on the principle of beneficence (i.e. relieving suffering):

> 'A moratorium and a ban are indistinguishable. A two-year moratorium is pretty bad. If you're sick, it's a long time to wait', said Michael Werner, *vice president for bioethics at the Biotechnology Industry Organization*, a trade group based in Washington. (Milligan, 2002; emphasis added)

The following UK extract quotes Julian Savulescu, a high-profile UK bioethicist, who advocates for therapeutic cloning by characterising the issue in terms of both the principle of beneficence (i.e. relieving suffering) and non-maleficence (i.e., not causing harm):

> Ethicists … said it would be immoral not to proceed. Professor Julian Savulescu, of Oxford University, said: 'To fail to develop therapies that would save 100,000 people is morally equivalent to killing 100,000 people'. (Henderson, 2005)

Such examples of 'thin' bioethical discourse were common throughout the sample frame. However, in order to establish the contrast between thin and thick bioethical argumentation, I now turn to examples of thick framings of therapeutic cloning's ethical implications in the UK and US press.

Thick Coverage in the Elite UK Press

In the present sample, news value typically accrued to sources offering simple, universalistic and 'thin' forms of ethical commentary. This was especially true in the UK, where the government-sponsored ethical committees only supported 'thin' ethical debate and pro-therapeutic cloning conclusions. However, there were islands of 'thickness' even amidst the waves of 'thin' rationalisation in the UK press and government statements. The following UK press extract is a commentary authored by a retired religious leader, exemplifying how very seldom the 'thick' form of bioethical discourse utilised:

> One of the tasks of the moralist is to be aware of the gradual changes taking place in the character of our society … and to spell out their implications. The dominant model of our society is that of an efficient machine. Industrialised society gains its wealth from mechanisation, and much of its life is geared to the demands of mechanised processes. Images of nature as a machine have for centuries inspired science, and there are strong pressures on human beings to see ourselves in this way. The latest developments could take us even further in that direction. (Habgood, 1997)

Such thick bioethical discourse is identifiable by its engagement with ends-related ethical concerns, not just straightforward means-related questions. Mulkay (1997) argued that such religiously-inspired bioethical discourse has dwindled alongside the fragmentation of religious authority in UK society and politics. Indeed, *The Guardian* and *Observer* were unusual amongst elite UK newspapers[2] in their willingness to play host to such substantively rational ethical discourse. The following extract is from a 'news analysis' article:

2 *The Independent* also hosted discourse characterised by substantive rationality.

> How did it get to be like this? How did life – once God's business, or at least Nature's – get to be something you could just play with, like Lego? How did horses' piss and pigs' hearts and mouse gonads get in on the act? What are plant scientists doing, taking an anti-freeze gene from the blood of a flounder (flounders live in freezing polar waters, but their blood doesn't freeze) and putting it into tomatoes to make them frost-proof? … Why are the scientists who are doing all this so calm about it, and how are the rest of us supposed to discuss it? The answer is, with difficulty. (Radford, 1998)

'Thick' Coverage in the US Press

Thick bioethical discourse was much easier to find in the US sample, likely reflecting the greater level of religious influence in the American public sphere. One example of thick ethical argumentation came in a *Wall Street Journal* commentary by neo-liberal theorist Francis Fukuyama criticising instrumentally rational arguments in favour of cloning:

> There is today a great deal of fatalism about the march of technology. It is conventional wisdom that innovation cannot, and therefore should not, be stopped. Others argue that … a ban on cloning would be rendered ineffective by the fact that we live in a globalized world in which any attempt to regulate technology by sovereign nation-states can easily be sidestepped by moving to another jurisdiction. None of these arguments holds water. (Fukuyama, 2001)

Fukuyama's criticism finishes with the substantively rational suggestion that the ends are not preset with regard to techno-scientific development.

> There are many dangerous or controversial technologies … which cannot be freely developed or traded internationally. We have successfully regulated experimentation on human subjects for many decades … A broad ban is appropriate in the case of human cloning because it is necessary to establish … the principle that our democratic community has the authority and power to make science the servant of human ends rather than their master. (Fukuyama, 2001)

A similarly 'thick' bioethical discourse was repeatedly initiated by Presidential Bioethics Advisory Commission (PBAC) Chair, Leon Kass. In the following extract, he explicitly lays out an agenda based upon 'thick' discussion of future ends within the context of his leadership over the PBAC.

> Kass elaborated at the [PBAC] meeting his view of the council['s] responsibilities[:] … 'To consider not just the technologies … but also to see how those things which impinge on our humanity, in fact, touch our personal aspirations, our human longings, our duties'. (Vergano, 2005)

Such thick bioethical discourse was fiercely counter-attacked in other press commentaries. However, even as Kass's opponents attacked his ideas they were nevertheless forced to engage at some level with his thick bioethical argumentation, as can be seen in the following Boston Globe extract:

> 'Leon believes humans put themselves at risk when they deviate from natural patterns – it's natural to make families through sex and procreation, not with embryos in dishes', Caplan said. 'He's cool to stem cell research because to him it's unnatural to make life to destroy it, and not allowing embryos to grow to their potential would be morally dubious'. (Leonard, 2001)

Overall, the American coverage of therapeutic cloning showed a far greater affinity for thick rationalisation than the UK sample. However, in the same news publications – and even the same stories – there simultaneously appeared quotations from professional bioethicists following in the 'thin' tradition (Evans, 2002). Ultimately, these divergent forces yielded an agonistic bioethical discourse, contributing to a more dynamic, pluralistic and highly contested mediated debate in the US press sample.

The Thinning of Public Bioethical Debate

Within the context of growing criticism of principlism within normative bioethics (Adams, 2008; Harris, 2003; Jones, 1999; Lloyd, 2004; McCarthy, 2003; Meininger, 2005), this study has drawn upon Evans' (2002) framework for analysing public bioethical debates. This analysis has identified examples of both thin and thick rationalisation in the coverage of therapeutic cloning. While this study has examined the content of this coverage, what is missing from a bioethical debate is often just as important as what is included. Indeed, Anglo-American press coverage of therapeutic cloning neglected major areas of substantively rational bioethical discourse. For example, news media did not address the continuing ramifications of racial, class and gender bias in the diffusion of new biomedical technologies. Even if scientists' best hopes with regard to cloned embryonic stem cells are realized, this will still be an extremely expensive form of therapy only accessible to the wealthy. This could be viewed as raising significant ethical issues in terms of the social opportunity costs of investing in such technologies. Such potential ethical issues were wholly absent from the present data set of over 5,000 news articles.

The limited nature of much of the bioethical discourse about therapeutic cloning in the Anglo-American press raises doubts about whether Evans' (2002) ideal of publicly determined ends for ethical debate can be achieved through existing mechanisms for public debate, the most widely available of which are mainstream news media. Indeed, Evans' ideal of thick bioethical debate may be so unrealistic within the context of contemporary journalism as to be unusable from a practical

perspective, at best providing an interesting analytic device or conceptual ideal type. For example, cultural sociologist Pierre Bourdieu (1998, p. 29) suggests that journalism increasingly produces a form of 'cultural "fast food" – predigested and prethought culture', which would be commensurate with 'thin' rationalisation (also see Horkheimer and Adorno, 2002). Nevertheless, there is still potential for news media to play a role in fostering thick bioethical discourse about therapeutic cloning and other issues (Jensen, 2008b; Jensen and Weasel, 2006).

Given the structural limitations of journalism and their use of professional bioethicists embedded in principlism as a major source for ethical commentary, one might question whether news media offer a better forum for thick bioethical debate than expert panels such as NBAC. Yet the present data suggest that news media do not close down issues and limit the range of ends or principles to be evaluated at an early stage as is frequently required within a professional bioethics panel. The result is a messier, agonistic sphere of bioethical discourse where ethical concerns appear, recede and then reappear at different points in the debate. Certainly, the greater inclusion of religious, in this case 'pro-life' perspectives at least in the American press, comes closer to Evans' ideal of 'thick' bioethical debate. Indeed, even if press coverage of bioethics is frequently thin, it still sometimes requires scientific and medical institutions to justify themselves in terms of their net public benefit (see Kelly, 2006). At minimum, this can help to construct 'progress' as something less than the unquestioned, self-legitimising ideal that it once was (Beck, 1992; Giddens, 1991; Holliman and Jensen, 2009; Lyotard, 1984). Moreover, as this study shows, there are instances of mediated bioethics that contribute to substantively rationalised debate. However, it remains unclear how such 'thickness' could be directly utilised within public policy formation. Furthermore, the distinctive nature of bioethical debate within each national context and for each issue (Weingart, Salzmann and Wörmann, 2008) should be taken into account to develop a comprehensive account of the current state of public bioethics globally.

Chapter 18
Mediating Public Engagement: Promises and Problems

Almost 150 years ago, John Stuart Mill (1859, p. 22) wrote, 'The time, it is to be hoped, is gone by, when any defence would be necessary of the "liberty of the press" as one of the securities against corrupt or tyrannical government'. In this vision, the press is a relentless watchdog for the public interest:

> As for the press, it is an omnivorous, omnipresent, self-righteous busybody that pokes its nose everywhere (Rosenfeld, 1999, p. 122).

Both US and UK science journalists interviewed for this book defined science journalism in similar 'Fourth Estate' terms:

> I think it is the role of science journalism to be the public's representative to scientists and ask them the questions that the public needs answered. ('Nick', 2005)

> We are here to be as objectively critical of science as sports journalists are of sport and political journalists are of politicians. It's like, as science writers, we are not here to do PR [public relations] … There is too much science writing … that ends up as a glorified PR job. The definition of news is 'printing something that someone somewhere doesn't want printed'. There should be far more emphasis on that objective criticism. ('Danny', 2005)

Yet, given the limitations of contemporary commercial journalism seen in the present study, these Fourth Estate notions of the press are difficult to sustain. Thompson (2000a) contends that the mere fact of making leaders and their actions visible serves a similar function in terms of fostering transparency and public accountability. However, mediated visibility is routinely manipulated by economically powerful institutions (Herman and Chomsky, 1988). Indeed, Donahue et al. (1995) argue that the press predominately acts as a 'guard dog', securing the interests of powerful institutions against possible threats. As such,

> News content in the public sphere is not shaped by the classic vision of socially autonomous journalists acting as societal watchdogs. Instead, the influence of journalists appears largely beholden to the preferred meanings of their media

> organization, their news sources, and their geographic community's power structure. (Berkowitz and TerKeurst, 1999, p. 130)

The framing of therapeutic cloning varied according to nation and press genre. Nonetheless, there are enough similarities to identify a number of key limitations inherent to Anglo-American science journalism, which make the journalistic field an irremediably flawed venue for engaging publics and science in pluralistic dialogue and debate. Overall, the quality of therapeutic cloning coverage shows little change from Nelkin's description of science news 13 years ago:

> Too often science in the press is more a subject for consumption than for public scrutiny, more a source of entertainment than of information … Too often the coverage is promotional and uncritical, encouraging apathy, a sense of impotence, and the ubiquitous tendency to defer to expertise. (Nelkin, 1995, p. 162)

The limitations of the media's role as a central forum for adult public engagement with science (Ferree, et al., 2002; Kitzinger, 2006) largely stem from the commercial *telos* of news production. The central concern of the journalistic field is satisfying economic and market-based demands for efficient news production. Attaining this efficiency frequently compels fraught journalistic practices, such as the use of a limited range of sources, information subsidies and the 'beat' system (Fishman, 1980; Gandy, 1982; Herman and Chomsky, 1988; McManus, 1994; McManus, 1995). Moreover, the market-driven 'short life-cycle of issues of front-page news discourages a robust public consideration of the issues' (Gerlach and Hamilton, 2005, p. 90; also see Iyengar, 1994). Essentially, 'the entire practice of the culture industry transfers the profit motive naked onto cultural forms' (Adorno, 1991, p. 99). As such, cultural products, such as newspapers and periodicals, 'are no longer *also* commodities, they are commodities through and through' (Adorno, 1991, p. 100). As can be seen in the pervasive scientific utopianism identified earlier in this book, much of the Anglo-American press promotes 'conformist and contented attitudes' and suppresses information about the 'negative aspects of reality', thereby reinforcing the instrumental rationality pervasive in modern capitalist societies (Adorno, 1994, p. 65) (cf. Thompson, 1990, p. 24). Likewise, the widely disseminated grand meta-narrative of scientific progress can be viewed as 'strengthening the sense of fatality, dependence and obedience[.] It paralyses the will to change objective conditions … [,] reproduc[ing] the *status quo* within the mind of the people' (Adorno, 1994, p. 121).

Mediated Subpolitics – A Window of Hope?

Gerd Baumann (1996) theorises a distinction between 'dominant' and 'demotic' discourse. He points out that minority groups in Western societies are not only subjected to dominant discourses of the 'political and media establishments',

but they are also forced to use these discourse to function and achieve official legitimation within the current system (Baumann, 1996, p. 192). At the same time, Baumann (1996, p. 10) argues that there exists an authentic 'demotic' discourse (literally, 'of the people'), arising to resist the attempted imposition of a bourgeois 'false consciousness' (cf. Althusser, 1971; Gramsci, 1971; Marx, 1977/1844). Amidst the numerous flaws inherent in the mediation of public engagement with science through the Anglo-American press, there remains the possibility that mediated subpolitics may allow such a demotic discourse to infiltrate even commercial mass media (cf. Adorno, 1991). This may also be the best hope for the construction of a pluralistic public sphere for debating scientific issues. Yet, the danger persists that mediated subpolitics will simply become a new mechanism for legitimising the continued dominance of traditional political and technocratic elites within science governance.

Although this study principally addresses the dominant discourse of science presented in national press coverage of therapeutic cloning, mediated subpolitics raises the question: to what extent can demotic discourses penetrate Anglo-American press coverage of science? This study yields ambivalent evidence about whether subpolitical groups maintain their emancipatory potential after being incorporated into the news media machine. The analysis in this book suggests that such groups are merely folded under the canopy of traditional political and institutional interests within coverage of therapeutic cloning. In principle though, the grassroots, 'bottom-up' nature of subpolitical discourse reserves the possibility that fragmentary elements of demotic discourse may find their way into even large-scale news operations. Anti-abortion discourse would fit this description in the present study. The key question is to what degree mediated subpolitics constitutes a *de facto* challenge to the legitimacy of dominant media discourse.

Subpolitical Legitimation

> Legitimacy means a political order's worthiness to be recognized. This definition highlights the fact that legitimacy is a contestable validity claim; the stability of the order of domination also depends on … recognition (Habermas, 1979, p. 178).

Legitimacy is central to the role of mediated patient subpolitics in the present case. With the reputed decline of public trust in expert institutions (Beck, 1992; Giddens, 1990; Wynne, 2003), there could scarcely be a better source of symbolic legitimacy than grassroots patient groups, which offer a compelling 'rhetoric of hope' (Mulkay, 1997) and promote an epic narrative of scientists as heroes struggling against the adversary of otherwise incurable diseases (e.g. also see Sontag, 1991). As the issue of therapeutic cloning worked its way through Parliament and Congress, patient groups were highly visible in the news media. Politicians[1] sought to attach

1 Thus, even some explicitly anti-abortion politicians in the US supported embryo research based on the promise of cures for suffering patients. At the same time, those cited

themselves to the legitimacy offered by patients' stories of authentic suffering (Brown and Michael, 2002) and the grand meta-narrative of scientific progress (for discussion of the modern Progress narrative, cf. Bauman, 1991; Bauman, 2000; Beck, 1992; Lyotard, 1984). Of course, the narrative of Progress is itself supported by advocacy groups[2] (e.g. the Royal Society, the American Association for the Advancement of Science, Progress, etc.) favouring a largely technocratic means of expert decision-making on issues such as this.

Ultimately, most mediated subpolitics in the present case appears to ratify the interests of scientific institutions and political and economic elites. The commercial interests of news organisations encouraged journalists across the entire data set to give greater and more favourable coverage to patient narratives because of their perceived 'human interest' value. Moreover, the clearest counter-example to this pro-patient (and assumed cures) bias – anti-abortion activism – was marginalised in the elite UK press. On the other hand, both religious and anti-abortion criticisms of science were presented at the outset of the therapeutic cloning debate in the elite UK press and throughout the US press and UK tabloid news coverage. Despite the secondary placement and partial marginalisation of these anti-cloning groups, they nevertheless managed to present a substantive, moral criticism of therapeutic cloning (cf. Evans, 2002b). Although mediated subpolitics in the present case failed to fully exemplify the emancipatory potential identified by Beck (1992), it still remains one of the best hopes for authentically democratic discourse infiltrating the instrumentally rationalised domain of commercial mass media (Adorno, 1991).

Legitimising Subpolitical Expertise

> We find ourselves caught on the horns of a dilemma: do we maximise the political legitimacy of our decisions by referring them to the widest democratic processes, and risk technical paralysis, or do we base our decisions on the best expert advice and invite popular opposition? (Collins and Evans, 2002, p. 283)

In the context of patient groups achieving and supporting political legitimation, it is worth considering Collins and Evans' (2002) 3rd Wave thesis. They argue that experience and expertise are the only legitimate bases for participating in 'technical decision-making', by which they mean political deliberations about aspects of techno-scientific development such as therapeutic cloning. Their thesis is that, rather than aiming for radical democratisation of science governance 'by dissolving the

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in the press as opponents of therapeutic cloning were connected to pro-life and religious sources of moral and political legitimacy.

2 These pro-science advocacy groups do not meet Beck's (1992) definition of 'subpolitics'. This is because they are based upon elite institutions and organisations, not grassroots responses to the pervasive impact of risk and individualisation in second modernity.

distinction between expertise and democracy', we should 'recogniz[e] and us[e] new kinds of expertise emerging from non-professional sources' to 'reconstruct knowledge and develop Studies of Expertise and Experience – SEE' (Collins and Evans, 2002, p. 269, 270; cf. Jasanoff, 2003; Rip, 2003; Wynne, 2003). In the case of patient activists, their claim to legitimate participation in the therapeutic cloning debate is grounded in the experience of personal suffering. That is, they are 'experts' in the consequences of the diseases for which a cure has been promised. According to Collins and Evans' (2002) model, this should be sufficient 'experience' and 'expertise' to certify their participation as legitimate, even though they are not technical or scientific experts.

But, what about opposition subpolitical activists, such as pro-life NGOs? On what basis can they claim the 'experience' or 'expertise' to legitimate their participation in political decision-making and public debate about therapeutic cloning? According to Collins and Evans' (2002) framework, these groups would not to have a legitimate role. Likewise, if the issue is defined as one of 'technical decision-making' (cf. Wynne, 2003), then religious groups have a unsubstantiated claim to expertise or experience as well. While religion can claim some form of expertise in 'moral decision-making', technical experience or expertise about embryo research is unlikely. Thus the majority of therapeutic cloning opponents would be marginalised from the debate following Collins and Evans' (2002) exclusionary framework for public deliberations over scientific issues. Their model privileges scientific rationality and expertise as 'the proper, "natural" frame[s] of reference', while excluding non-expert, technically inexperienced lay people from the debate (Wynne, 2003, p. 404). Indeed, Collins and Evans' (2002) uncritical valorisation of technical expertise is highly questionable:

> Expertise is constituted within institutions, and powerful institutions can perpetuate unjust and unfounded ways of looking at the world unless they are continually put before the gaze of laypersons who will declare when the emperor has no clothes. (Jasanoff, 2003, p. 398)

Habermas's (1989; 1992) theory of public deliberation applies to all political issues (including therapeutic cloning), offering a more comprehensive alternative to Collins and Evans (2002). Habermas (1989, p. 51) argues that decisions about the direction of politics and society are best taken within the context of a disinterested public sphere, which is comprised of an informed (but not expert) 'public of private people making use of their reason' in an open and unfettered manner. He conjures an historical ideal-type of a 'society engaged in critical public debate' (Habermas, 1989, p. 52) where Enlightenment rationality was exercised through the 'critical judgment of a public making use of its reason' (Habermas, 1989, p. 24). He writes approvingly of the eighteenth-century French physiocrats' definition of the 'strict meaning of an opinion purified through critical discussion in the public sphere to constitute a true opinion' (Habermas, 1989, p. 95). Of course, in the context of public engagement with science, it is noteworthy that Habermas's model of

the public sphere identifies important roles for both mediated and unmediated deliberative settings. Science engagement has a number of unmediated settings for engagement such as science festivals, museums and school-based learning that could contribute to the overall milieu for science in the public sphere (e.g. Jensen and Buckley, 2013; Wagoner and Jensen, 2010).

Habermas's model harks back to early liberal political theory valorising public opinion as the critical force in society, keeping the government in check and subjecting political decisions to scrutiny. For example, Rousseau wrote, '[public] Opinion, queen of the world, is not subject to the power of kings; they are themselves her first slaves' (Rousseau, 1960/1762, pp. 73–4). John Stuart Mill (1984/1859, p. 268) identified a similarly important role for 'mass' publics as the basis for legitimising state actions: 'The only power … is that of the masses, and of governments [as] organs of the tendencies and instincts of masses'. Bentham (1994/1791, p. 590) viewed press publicity as the prerequisite for 'putting the tribunal of the public in a condition for forming an enlightened judgment' as part of a broader 'system of distrust' maintaining a watchful eye on government.

Within the context of risk society (Beck, 1992), such a 'system of distrust' (if it exists) cannot exclude scientific or technical issues. However, such accounts assume a level of engagement between publics and governments that simply does not translate into the contemporary world (Entman and Herbst, 2001, p. 208), least of all for scientific issues such as therapeutic cloning (cf. Irwin, 2006). According to Habermas (1989), the fundamental problem is the degraded quality of the contemporary public sphere where such engagement is supposed to take place. He attributes the decay of the public realm to the ascendance of large-scale mass media production and the concomitant spread of instrumental rationality throughout society (also see Adorno, 1991). In the contemporary mediated public sphere, only a small sub-groups from within the polity 'are ready and in the position to express themselves responsibly about questions of public relevance and thereby exercise an office of criticism and control over the government in the name of the governed' (Noelle-Neumann, 1984, p. 62). Entman and Herbst (2001, pp. 207–8) describe this sub-group of 'engaged, informed and organized citizens' as the basis for '*activated public opinion*'. Moreover, Herbst (1998, p. 139) found that media content and interest groups acted as 'conduits for public opinion'. This corresponds with the present study's findings that demotic discourse is seldom present in Anglo-American press coverage on therapeutic cloning, except through activist political opinion or mediated subpolitics.

This condensation of activated public opinion and demotic discourse into mediated subpolitics suggests the problematic notion of a 'special interest'-based public sphere that eschews more democratically-oriented notions, such as the 'general will' [*volonté générale*] (Rousseau, 1953/1762) and the 'common good' (Bauman, 1999). The filters limiting entry into the journalistic field distort mediated subpolitics' capacity to even represent the demotic discourses of its own, limited constituencies, let alone the broad spectrum of publics in Anglo-American society. Furthermore, the present research shows that mediated subpolitics can be

(mis)used as a public relations tool to serve the interests of scientific and economic elites. Given these limitations and the biases governing special interest groups' access to media meta-capital, the role of subpolitical organisations operating within the public sphere is far more ambivalent than is widely assumed.[3] Overall, this study supports a downward revision of Beck's arguments regarding the emancipatory power of subpolitics. In order to gain status and power within the mediated public sphere, these groups have to engage in compromises and alliances with powerful institutions to accrue media-meta capital and political power, as was the case with patient groups in the present case. Under these conditions, it is unrealistic to envision subpolitics mustering an enduring, imminent critique of techno-scientific development and the narrative of Progress.

In the coverage of therapeutic cloning, the interests of those with the most financial capital, institutional support and media meta-capital were best serviced, while the demotic discourses of the underprivileged and socially excluded were imperceptibly redacted from the mediated public sphere. Indeed, Felt identifies the increasing stratification of mediated public engagement with science:

> The multiplication of media [has] opened new spaces where science meets the public … Paradoxically, [this] did not lead to closeness between science and the public … On the contrary, … the people who already had a considerable initial intellectual capital became ever so privileged. (Felt, 2000, pp. 265–6)

The rise of the internet as a so-called fifth estate offers the potential of redressing some of the stratification of the mediated public sphere by placing the power to produce and disseminate ideas directly into the hands of publics and civil society organisations. In principle, subpolitical groups could gain prominence and attention through platforms such as Twitter and Facebook without having to make bargains with powerful institutions, which seek to absorb subpolitics into pre-existing metanarratives. In practice however, the vast majority of internet users gather news and information from media institutions such as newspapers and television channels that were already well-established. Moreover, the digital divide between internet access and use patterns amongst the rich and the poor means that this newer medium disproportionately excludes the economically, socially and culturally disenfranchised in society.

Given the stratification of publics in debates over scientific issues, the exclusionary function of criteria for entering the journalistic field is particularly salient. The present study has pointed to a number of key conditions for entry into the mediated public debate over therapeutic cloning. Promoting scientific hype and the grand meta-narrative of Progress were highlighted earlier in this book as conducive to gaining and maintaining media attention. The use of

3 For example, Beck's (1992) unremittingly positive discussion of subpolitics does not acknowledge the problem of achieving authentic, democratic representation for the public within the context of special interest-based politics.

Brave New World, *Frankenstein* and recent Hollywood films provided counter-myths of science recognisable, newsworthy material to be used within the context of American and UK tabloid journalism. Longstanding journalistic frames, such as 'conflict' and 'competition', were identified as constitutive of newsworthiness earlier in this book. Moreover, discourse reinforcing the economically useful myth of the nation (Barthes, 1973) was enlisted to underpin such frames. This book has emphasised the significance of newsworthiness criteria, such as human interest framing (also see Henderson and Kitzinger, 1999), willingness to utilise referred expertise and previously extant media meta-capital or celebrity (also see Jensen, 2010b). Taken together, these entry criteria restrict the range of participants in mediated public debate, limiting discursive pluralism and promoting the dominant ideology of the culture industry (Adorno, 1991).

Pluralism in Mediated Public Engagement with Science

Given the previously discussed limitations on the mass media's capacity to act as a forum for critical-rational debate about scientific issues such as therapeutic cloning, the press cannot be expected to function as a Fourth Estate monitoring science in the public's interest (unless that interest coincides with the media's primary aims of sales and profitability). Nor is there a consistent, broad-based phenomenon of critical public opinion operating within the Anglo-American public sphere to scrutinise and intervene in science policy (e.g. Entman and Herbst, 2001). Indeed, Habermas's (1989) historical ideal-type of a bourgeois public sphere comprised of 'disinterested', rational agents seems to run counter to the empirical evidence uncovered in the present study. First, individuals are more likely to participate in the mediated public sphere if they have a personal stake in the issue, as is the case in the life politics frame. Second, the inherent allure and fungibility of media meta-capital gives even apparently 'disinterested' scientific experts a personal and professional interest in gaining and maintaining media attention. Thus, the present study reveals an inherently 'interested' mediated public sphere wherein entry criteria and status are governed by the rules of the journalistic field.

Fraser (1992), Ryan (1992), Benhabib (2002; 1992), Young (2000) and others emphasise the contribution of interested individuals and groups who have been marginalised or excluded from political decision-making. These theorists advocate a 'pluralistic public sphere' built upon principles of open access and raucous, agonistic discourse in which everyone has a voice. It is averred that such a space for 'contestation amongst a plurality of competing publics' (Fraser, 1993, p. 14) would combat 'the unnatural conformism of a mass society' identified by Arendt (1958, p. 58). Zygmunt Bauman (1999, p. 87) envisions this pluralistic public realm following the *agora* of Ancient Greece, as a 'territory of constant tension', 'tug-of-war' and 'dialogue, co-operation or compromise'. Far from Collins and Evans' (2002) demand for swift closure of the ranks of possible participants in public debate over scientific issues (see Rip, 2003, p. 423), the ideal of a pluralistic public

sphere calls for open participation and inclusion at all stages of decision-making (Holliman and Jensen, 2009; Irwin, 1999; Irwin and Wynne, 1996; Irwin, 2001; Jensen, 2012b; Jensen and Weasel, 2006; Weasel and Jensen, 2005; Wilsdon and Willis, 2004; Wynne, 2003). To avoid the 'peculiar evil of silencing the expression of an opinion' (Mill, 1859, p. 24), the goal of mediated public engagement with science should be a 'more inclusive social debate over [scientific] knowledge and its proper grounds and human purposes' (Wynne, 2003, p. 408). Interestingly, while some nations around the world (e.g. Australia) consulted their national publics about embryonic stem cell research (Ankenya and Doddsh, 2008), the US and UK national debates were reliant upon news media as the forum for a more diffused and non-governmental form of 'engagement'. Wynne (2003, p. 408) calls on media and governments to 'open up spaces, now colonized by existing scientific culture, to collectively negotiate questions of public meaning'. If joined with pluralistic engagement extending beyond the existing constituencies of mediated subpolitics, such a public dialogue might be effective at charting a new course between the 'Scylla of public disillusion and the Charybdis of technical paralysis' (Collins and Evans, 2002, p. 272). As social media platforms continue to expand their global reach, they may increasingly contribute to such a new course. However, the formation of public opinion through face-to-face engagement at the interpersonal level will continue to underpin and delimit the power of such media platforms.

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Chapter 19
Conclusion

This book has identified a complex array of differences and similarities between US and UK news coverage. On some issues the national 'structure of feeling' defined the boundaries of the press coverage. Raymond Williams (1961) described the structure of feeling as the everyday lived experience that is shared amongst those living in a particular, cultural milieu. This cultural outlook is 'as firm and definite as "structure" suggests, yet it operates in the most delicate and least tangible parts of our activity' (Williams, 1961, p. 64). For example, Christian fundamentalists comprised a strong opposition force in US culture and politics. Knowledge about the strength of such perspectives within the American cultural environment has influenced the way US journalists' approach therapeutic cloning. This helped to prevent a monopoly of scientific utopianism in the US press coverage, instead promoting 'balanced' or dualistic reporting. At the same time, the UK press saw minimal public outcry or political opposition on this issue. As such, elite UK journalists felt that dismissing anti-abortion opponents as unimportant or 'old news' was in keeping with the structure of public opinion in this domain in early twenty-first-century British culture.

In many respects, however, journalistic values inherent to Anglo-American news production took precedence over any differences in national outlook. For example, banal nationalism played a very similar role in the US, UK tabloid and elite UK press coverage (also see Billig, 1995). In addition, the uncritical use of scientists and patient advocacy groups as the primary sources in both US and UK therapeutic cloning coverage reflected the fundamental journalistic biases favouring powerful expert institutions and human interest stories, respectively. In this chapter, these and other findings will be further contextualised in terms of the existing research literature, social theory and the implications for the mediation of public engagement with science.

This book has addressed a number of emergent themes relating to the production and content of Anglo-American press coverage on therapeutic cloning. First, the role of dystopian/utopian hype was examined, revealing a pattern of inflated hopes and excessive pessimism across the various categories of media coverage in the present research with potentially negative implications. Second, nationalism emerged as a surprisingly central feature of therapeutic cloning coverage in both the US and UK press. To elucidate this theme, Billig's (1995) theory of banal nationalism was used to identify the latent yet pervasive myth of the nation within the present data (also see Barthes, 1973). Finally, the role of journalistic sources was considered in detail, with particular attention to scientists, subpolitical activists and bioethicists. Bourdieu's field theory and the concept of

media meta-capital (Couldry, 2003) were employed to assess news production and source selection criteria.

Champagne (2005, p. 51) notes that 'competition, urgency, sales considerations, and political constraints always weigh on the production and diffusion of news'. As part of his market-based model of news production, McManus (1994) identifies the rules governing the field of news production.

> 1. Seek images over ideas … 2. Seek emotion over analysis … Corollary A: Avoid complexity … Corollary B: Dramatize where possible … 3. Exaggerate, if needed, to add appeal … 4. Avoid extensive news gathering. (McManus, 1994, pp. 162–3)

These rules are clearly evident in the present data, with dualistic hype, emotion and exaggeration comprising the defining features of Anglo-American press reporting on therapeutic cloning. The patterns of hype identified in this chapter echo some of Mulkay's (1995a; 1995b; 1996; 1997) findings regarding the UK embryo research debate. At the same time, there is clear differentiation in the quality and quantity of utopian /dystopian hype across the present data according to the variables of nation and press genre.

The elite UK press coverage is defined, above all, by support for the grand narrative of scientific progress (Lyotard, 1984). Dystopian imagery was rare in this press genre. This is consistent with Gutteling et al.'s (2002, p. 111) study of elite UK newspaper[1] coverage of biotechnology from 1973–1996.The study found that 51 per cent of their sample employed the frame 'progress/utility',[2] while only 2 per cent used the 'doom scenario'[3] frame. When science fiction did appear, it was used either as an opportunity to debunk perceived misconceptions about therapeutic cloning or to construct opponents as irrational and ill-informed (Burchell, 2007; Kitzinger and Williams, 2005; Mulkay, 1995a). Beyond the fabrication of this progress/anti-progress dichotomy though, the elite UK press joined with Government officials, scientists, biotechnology industry representatives and patient advocacy groups to construct a utopian vision of therapeutic cloning using the personal narratives of suffering patients clinging desperately to hope for a miraculous cure. The use of these patient narratives followed the rules identified by McManus (1994, pp. 162–3), 'seek emotion over analysis' and 'dramatize where possible'. Indeed, this pattern may be part of a larger trend towards 'soft news' media templates, such as the 'human interest' story in medical and science news

1 Their UK sample was limited to *The Times* and *The Independent*. However, the study also examined coverage in other European nations.

2 Gutteling et al. (2002, p. 101) defined this frame as 'the belief that biotechnology will have positive benefits'.

3 'Doom scenario' was defined as a 'pessimistic world-view in which biotechnology is conceived in terms of runaway technology or likened to Pandora's box' (Gutteling, et al., 2002, p. 101)

(Henderson and Kitzinger, 1999). Bourdieu (1998a) summarises the situation: 'Pushed by competition for marketshare, … [there is] greater and greater recourse to the tried and true formulas of tabloid journalism, with emphasis … devoted to human interest stories'.

Meanwhile, the British tabloids haphazardly grasped for hype-based stories to interest their imagined readers, regardless of the story's pro- or anti-cloning valence. Not afraid to 'exaggerate … to add appeal' (McManus, 1994, p. 162), tabloid newspapers employed the most outlandish, irreverent and interest-grabbing frames for their stories. This unchecked sensationalism (and imbalanced) included the heavy use of pro-cloning human interest stories, as well as anti-cloning allusions to dystopian science fiction (also see Jensen, 2012c). The American press evinced a similar mix of pro- and anti-cloning framing in its coverage, with concentrations of stories coalescing around dystopian and utopian frames. However, based upon the interview results, it seems that this blend of 'pros' and 'cons' was more intentionally designed for journalistic 'balance' in the US press coverage, achieving what I have defined as 'balanced hype'. Such framing reduced the complexity of the therapeutic cloning to a simple utopian/dystopian dualism with minimal issue analysis from the journalist (McManus, 1994, p. 162).

Earlier in this book, the way in which the grand meta-narrative of Progress (Lyotard, 1984) and a patient-based 'rhetoric of hope' (Mulkay, 1997, pp. 70–71) were used in concert to construct scientific utopianism is discussed in detail (also see Jensen, 2008a). The idealised therapeutic possibilities of cloning for stem cells dominated the coverage in elite British newspapers and science advocacy magazines. Promised cures were foregrounded in these publications with ethical concerns and technical limitations de-emphasised. Although, as Gerlach and Hamilton (2005, p. 90) found:

> Authorities – governmental, industrial, and scientific – had not successfully normalized the idea of human cloning. As a result popular culture motifs filled in the gaps in meaning.

The confluence of competing utopian and dystopian visions of the future in the public debate over therapeutic cloning constituted a dialectical tension between hope and fear (Jensen, 2008a), which played out on the news pages of the American and UK tabloid press. Indeed, previous research found that the American press and UK tabloids (not broadsheets) tended to employ dystopian imagery in their coverage of human cloning (Nelkin and Lindee, 2001; Nerlich and Clarke, 2003; Nerlich, Clarke and Dingwall, 2000; Priest, 2001b). The present study confirms these earlier findings, demonstrating that US and UK tabloid journalists drew inspiration from fictional accounts of human cloning. Above all, Huxley's *Brave New World* and Shelley's *Frankenstein* cast a long shadow, helping to shape doom scenarios portraying the (mis)use of human cloning technology. I argued earlier in this book that these doom scenarios and scientific utopianism are each

constituted out of the same underlying tendency towards uncritical media hype or sensationalism. As Nelkin argues,

> [Science journalists] tend to magnify events and to overestimate if not sensationalize their significance. Research applications, after all, make better copy than qualifications. 'Revolutionary breakthroughs' are more exciting than 'recent findings'. (Nelkin, 1995, pp. 112–13)

Moreover, the 'balanced hype' of the American press and 'haphazard hype' of the British tabloids are implicated in muddling the debate by presenting an uncritical melange of pro-science utopian propaganda, red herrings and dystopian apocrypha in therapeutic cloning coverage.

In Chapter 12, nationalism was identified as an equally pervasive and potentially pathological dimension of the debate. Nationalism reinforces scientific hype by legitimising the inflation of 'home' successes, as in the case of the 20 May 2005 Newcastle 'breakthrough'. The revelation of nationalism's role in hype, along with the banal interpellation of science news readers as national subjects, constitutes a new finding in the research literature on this topic. These results support Billig's (1995) theory by showing that banal and deictic nationalism permeates even science news coverage. In addition, this nationalist news filter has important implications for limiting the range of participants and perspectives in the mediated debate. Journalists were unwilling to challenge the perceived nationalism of their readers by accurately describing the significance of therapeutic cloning 'breakthroughs' occurring in the 'homeland'. Scientific nationalism also underpinned the conjuring of an international competition, promoting the concept of the nation-as-landlord to legitimate reducing restrictions and distributing public resources to therapeutic cloning research.

Press constructions of the nation played a major role in setting the parameters of therapeutic cloning discourse. In addition to framing Britain and America through deictic language and competitive metaphors, there were similarities and differences in the types of sources employed by each national press. The overall similarity between the two national samples was in the use of scientists and patients as the most prominent journalistic sources. However, the UK press drew primarily upon university-affiliated public scientists, while American journalists utilised primarily industry scientists. There were also differences in the selection of celebrity activists, reflecting the particular media culture of each nation and press genre. In the elite UK press, Christopher Reeve was the preferred source of life political activism. In the tabloid press, the favourite celebrity patient was 'Jinky' Johnstone. The US press mostly used Michael J. Fox, but there were also frequent mentions of former First Lady Nancy Reagan and, to a lesser extent, of Christopher Reeve.

According to Kitzinger (1999, p. 64), 'no account of media production processes is completed without giving equal attention to the activities, resources and motivation of sources and the source-journalist interface'. Within large-scale

cultural production, sources provide the daily fuel that is needed for the engine of the news. As indicated above, the present study focused on the role of scientists and subpolitical sources, such as patient and anti-abortion activists. First, in keeping with previous research findings (e.g. Conrad, 1999), scientists were identified as the most important category of journalistic sources in the Anglo-American press coverage of therapeutic cloning. Like Nelkin (1990, p. 41), I found that 'scientists and their institutions are actively publicising – at times to the point of hype – their research and its potential social benefits'. Scientists and elite institutions greatly influenced the coverage by providing science journalists with information subsidies, hyped pronouncements of success and inflated predictions regarding a utopian future achievable through therapeutic cloning.

Collins and Evans suggest external pressures from media, publics and politicians are responsible for compelling scientists to make such unqualified, reductionist declarations. They point out that 'The consumers … of scientific knowledge have no use for small uncertainties' (Collins and Evans, 2002, p. 246). In a similar vein, Couldry (2003, p. 26) points to external pressures potentially restructuring the scientific field to better service the media:

> When the media intensively cover an area of life for the first time … they alter the internal workings of that sub-field and increase the ambit of the media's meta-capital across the social terrain. (Couldry, 2003, p. 26)

Yet, as Bourdieu (1998a, p. 60) argues, 'For the media to exert power on worlds such as science, the field in question must be complicitous'. Indeed, there is no shortage of potential 'gurus' ('Becky', 2005) within the scientific field willing to compromise their scientific autonomy to gain fame and fortune in the media field. The necessity of such a compromise for entry into the journalistic field makes the mediated public sphere an inherently problematic domain for scientists from the perspective of the ideal of professional field autonomy (Bourdieu, 1998a; Couldry, 2003).

At the same time, scientist sources' privileged position in press coverage of therapeutic cloning raises important concerns for public engagement with science. Collins and Evans (2002, p. 250) argue that 'scientists, as scientists, have nothing special to offer toward technical decision-making in the public domain'. As such, the 'wider scientific community *should* be seen as indistinguishable from the citizenry as a whole' (Collins and Evans, 2002, p. 250). Yet, the scientific community (in the form of scientist-gurus exercising referred expertise) was the single, greatest contributor to mediated public discourse on this issue. Moreover, Peterson (2006) highlights the intertwined nature of scientific research and commercial interests in the contemporary context for global science, as it pertains to human cloning research:

> Amid the voluminous discussion about the Dolly experiment and its significance, there has been relatively little discussion about the context shaping cloning

> research and the commercial interests driving the work that led to Dolly and Polly. Scientists in this and other areas of research are increasingly dependent on private sources of funding as governments retreat from their commitment to basic research. What is clear from published accounts of Dolly and related experiments is the crucial role played by her creator's sponsor, PPL Therapeutics Limited (Peterson, 2006, p. 3)

Not only did scientist sources garner the largest quantity of coverage, but also the quality of the coverage was deferential and sympathetic to the pro-science, pro-capitalism meta-narrative of Progress. This allowed scientific perspectives on this issue to largely set the terms of the global debate (cf. Marks, 2012; Sleeboom-Faulknera, 2011). As a result, opposition perspectives were displaced, invisibly suppressing pluralistic debate on this issue.

In line with the promotion of a discourse of Progress, patients supporting therapeutic cloning were the next, most significant source category in the present research. Kitzinger noted that such non-routine 'sources may have "better" resources in terms of being able to process requests quickly, provide vivid quotes and provide "human interest" stories (Kitzinger, 1998) (Miller, *et al*., 1998)' (Kitzinger, 1999, p. 66). In the present research, patient activists were found to be a semi-routine source using 'vivid quotes' and 'human interest stories' to promote the dominant discourse of scientific utopianism. Anti-abortion groups were the other main category of subpolitical sources. These activists were the main source of critical commentary about therapeutic cloning in both national samples. To be sure, Haran (2007, p. 204) contends that 'the anti-abortion lobby is recognised by journalists as a key contributor [in] media debates about reproduction'. Although the present study broadly supports this argument, the finding of broadsheet marginalisation of anti-abortion sources casts doubt on the elite UK press's willingness to sustain critical coverage of techno-scientific development (also see Evans, 2002b). Finally, the bioethical experts often play their role in supporting the never-ending march of Progress. They do this because of an excessive devotion to Beauchamp and Childress's (1994) bioethical 'principlism', elaborated in Chapter 17. In sum, there is ample reason to question the quality of the mediated public debate that is revealed in the present study. Of course, research on the public debate over this issue in less democratic contexts (in this case Singapore) suggests that the quality of the public sphere could be worse, if the state insinuated its interests more explicitly into media coverage (Lysaght and Capps, 2012).

Final Points

Drawing upon a large, cross-national data set, this study shows how backstage action within the journalistic field translates into front stage press content. The end product does not always correspond with the best intentions of news workers (see Jensen, 2010a). I have proposed a Bourdieuan interpretation of this disjunction

between word and deed amongst journalists who were interviewed for the present study. I argued that notions of the press as a 'public watchdog' or 'Fourth Estate' are part of the *illusio* of the journalistic field. That is, most interview participants defined their role around the idea of ensuring scientific accountability in the public's interest. Yet, journalistic practice prioritises efficiency in producing the news. For example, scientific hype serves the purpose of promoting efficient news production by inflating the significance, and therefore the newsworthiness, of otherwise unremarkable scientific research. Efficient news production also involves practices such as selecting sources on the basis of accessibility and 'quotability' rather than scientific symbolic capital or critical capacity.

The contradiction between *illusio* and practice is ingrained in the common sense assumptions of the journalistic field. Indeed, 'journalistic production is always strongly dictated by the social, political and economic conditions in which it is organized', daily demonstrating the 'impossible autonomy' averred in the 'Fourth Estate' *illusio* (Champagne, 2005, p. 50). In Chapter 11, five socio-economic and organisational factors were identified as interdicting this *illusio* somewhere between backstage discourse and front stage press content:

1. The inter-media agenda-setting effect (McCombs, 2005)
2. Organisational constraints on science journalists' independent judgments of newsworthiness (Bourdieu, 1998a; Champagne, 2005; Herman and Chomsky, 1988).
3. Personal, pro-science biases.
4. The agonistic pursuit of prominent (especially front page) placement in the newspaper.
5. Dependence upon technocratic and scientific sources undermining the feasibility of presenting a critical perspective (Peterson, Anderson and Allan, 2005).

These five, interdicting factors constraining journalistic practice, combined with the imperatives of efficiency and profitability, suggest that journalists may be less powerful players in the media game than is typically assumed. Sources, institutional information subsidies, editors and organisational norms frequently set the terms and exercise agenda-setting influence within the newsroom. Thus, 'journalists are caught up in structural processes which exert constraints on them such that their choices are totally preconstrained' (Bourdieu, 2005, p. 45). These constraints typically reinforce the interests of powerful institutions and technocratic elites. However, as explicated above, mediated subpolitics raises the possibility that certain demotic discourses and agendas may be able to challenge dominant interests through news coverage in the context of risk society (also see Jensen, 2012a).

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Methodological Appendix

The research underpinning this book was designed to address the limitations of previous studies of media coverage of human cloning and embryonic stem cell research. The most common methodological limitations in the existing literature are the small, mono-national and elite-only samples that research uses to only assessing one dimension of the circuit of mass communication (Thompson, 1988, p. 374). This implies that the methods of data analysis are poorly elaborated, unsystematic or unreflective. In contrast, the present study has presented evidence from 5,185 press articles, drawn from comprehensive samples of 19 Anglo-American[1] newspapers' and periodicals' coverage of therapeutic cloning over a nine-year timeframe. Data from non-elite newspapers are included, such as *USA Today* in the American sample and *The Daily Mail* and *The Sun* in the UK sample. In addition, 18 in-depth qualitative interviews with journalists and editors provided direct insight into the backstage news production process. A grounded discourse analysis of these data was employed to develop a longitudinal account of the production and content of Anglo-American press coverage of therapeutic cloning. A systematic data analysis plan was devised and executed for this study, based on necessary, grounded methodology. The investigation began with a *tabula rosa*. Once an interesting theme emerged through open and axial coding, the literature was consulted to identify relevant research and theory from previous material. This literature was then critically applied to the data as a way to develop a sociological, discourse analytic account of the therapeutic cloning news. At the same time, the quality assurance techniques of 'deviant-case analysis, 'thick description' and 'procedural clarity' through CAQDAS were implemented to ensure a high standard of rigour and transparency.

Despite using these techniques to assure the quality of the analysis, there are a number of limitations inherent in the study design. Unfortunately, I was unable to obtain a sample of UK tabloid journalists for this study. This is a major limitation, which has severely restricted my ability to depict the production dimension of UK tabloid coverage of therapeutic cloning. A more fundamental limitation though, is that only print media content is sampled and analysed herein.[2] This leaves television, radio and new or 'liminal' media unaddressed,

1 The use of a cross-national sample moderates Beck's (2006) concerns regarding 'methodological nationalism'.

2 Some of the print journalists interviewed for this study also work in other media, including radio and television news.

potentially compromising the generalisability of this study's findings. Yet, previous studies have not shown any major distinctions between television news and press coverage of human cloning (Haran, 2007) (Holliman, 2004). The situation for new or liminal media is less clear. Nerlich et al. (2000) found similar themes in online news sources as in print news. On the other hand, Haran et al. (2007) identified some unusual patterns in liminal media dealing with human cloning, which suggests the present study's applicability to such media may be restricted. Therefore, while it is unclear how the present findings would generalise to non-print news media coverage of therapeutic cloning, the available evidence suggests the likely generalisability for television and online news coverage but not for liminal media.

The second major limitation of the present study is that it does not close the circuit of mass communication by providing empirical evidence about audience reception. Previous studies examining the reception of media coverage of human cloning have yielded important results, which have been cited in this dissertation. However, the present study cannot be considered fully comprehensive without original data regarding audience appropriation of the content analysed herein (Thompson, 1988, p. 374). Lacking reception data, I have carefully avoided the 'fallacy of internalism', wherein analysts '"read off" the consequences … by reflecting on the messages themselves' (Thompson, 1990, p. 24). I have understood the content sample in the present study to represent part of the larger mediated public sphere. While I have referenced theoretical or empirical perspectives on how similar content has been received by audiences (e.g. Billig, 1995; Haran, 2007; Wellcome, 1998), at no point have I made any claims about reception based on the present data.

Finally, the exclusively qualitative nature of this investigation could be considered a limitation. While some of the research has identified discourses that would have been particularly difficult to assess through traditional content analysis (Krippendorff, 1981) (Neuendorff, 2002) or other quantitative approaches. Nonetheless, there are certain points that may have benefited from quantitative analysis. For example, content analysis could have established the precise number of articles in the sample that referenced a cultural work of dystopian science fiction. This would have revealed the precise, numerical variation amongst the three content samples in their use of science fiction allusions. On the other hand, such an analysis would be challenged by Kitzinger and Williams' (2005, p. 737) finding, 'Science fiction is thus not so much a way of promoting concern about science … Rather it is here used … as a rhetorical weapon to discredit the opposition'. Such qualitative distinctions regarding *how* and *why* particular rhetoric is used in a given article would be lost in a quantitative analysis of these data, which could lead to misleading conclusions. Given this danger, a mixed methods research design aimed at 'complementary assistance' (Morgan, 2013; Morgan, in press) would be the

ideal framework through which to add a quantitative dimension for this study or for similar, future research.[3]

3 Through complementary assistance, a qualitative analysis could feed, explain and expound on quantitative results, which in turn allow for the precise depiction of underlying patterns.

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