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## **SYNTHESIZING SUPER SOLDIERS: MILITARY MEDICINE IN FICTION AND REALITY**

**Abstract:** In the year 2013, during the 50<sup>th</sup> Anniversary of *Doctor Who*, the title character finally faced the demons of his past that the series had been teasing for almost a decade. In a retrospective reveal the Doctor was depicted as rejecting his eight incarnation in favour of a crueller militaristic version to allow him to battle in the Time War. Previously the heroic benevolent explorer, the character's tenure as the combative 'War Doctor' demanded an identity change that had psychological ramifications for nearly 1300 years across the Doctor's 'final' three regenerations. While fictional, the Doctor's transformation and subsequent trauma are a recurrent aspect of early 20<sup>th</sup> century military indoctrination and readjustment. As a result of the First World War, civilian combatants were forced to sacrifice their agency and personal morality to become soldiers. The medicalisation of the body for military purposes was a hallmark of the twentieth century. This article investigates this similarity between fiction and reality in relation to military medicine, and the physical and psychological impacts of such, by comparing popular science fictions such as *Doctor Who*, Marvel's *Captain America*, and Joss Whedon's *Firefly* to the reality of military service, training, and experimentation in the twentieth century.

**Key words:** military medicine, masculinity, *Doctor Who*, *Firefly*, *Captain America*

### **Introduction**

Medical historian Rodger Cooter is famous for posing the question, "is war good for medicine?"<sup>2</sup> In 1990 Cooter asserted that the relationship between war and medical improvement should not be considered an epiphenomenon but central to social and medical

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<sup>2</sup> Roger Cooter, "Medicine and the Goodness of War," *Canadian Bulletin of Medical History*, vol.7 (1990): 147-159.

history.<sup>3</sup> This assertion has formed the basis of some of the most controversial academic debates in history. Not so much as a cat amongst pigeons, Cooter unleashed a tiger within an aviary. However, while academia has explored this question at length, science fiction has been debating the moral centre of this issue for even longer, asking whether not merely something *could* be done, but whether something *should* be done. Do the ends justify the means? Is it ok to commit an evil for the sake of the “greater good”? Within fiction, an obscured reflection of the ethical question allows for a comparison between how individuals have been repurposed for war and combat in both reality and fantasy.

The choice to examine the British military is deliberate as the impact on the British civilian soldier is particularly apt set against the thematic elements to be discussed. Firstly, agency, identity, and trauma will be investigated through a comparison of British soldiers in the First World War and the protagonist of the longest running science fiction television show in history, *Doctor Who*. As a regenerating alien, the fictional Doctor provides a canvas for analysis of the personality and identity shifts that many men endured as part of enlistment, as well as displaying exaggerated aspects of psychological disorders which in reality were diagnosed in the First World War as shellshock. Secondly, the focus will shift to the construction and physicality of the twentieth-century British soldier through consideration of Marvel’s eponymous hero Captain America. In both fiction and reality, masculinity, physicality, and medical examinations conspired to permit and deny men to enlist into the armed forces during times of crisis. The Captain’s early attempts to gain entry and his experiences in training mirror many of the experiences of real men whose physicality struggled to meet the requirements of the military. Finally, this article concludes by relating the abuse and experimentation carried out on River Tam in Joss Whedon’s *Firefly* to the real exploitation of soldiers’ bodies over the course of the twentieth century for the sake of victory and innovation.

Utilising these three primary examples, and the ancillary fictional references that support them, this article illustrates how science fiction has often distorted science fact, yet the narrative usually has a basis in reality to enable the willing suspension of disbelief. A commonality shared by all three examples is the notion of sacrifice for improvement; a negative event resulting in a worthy goal. At the very core of Cooter’s question lies the hypothesis of the ends justifying the means; this article will, therefore, illustrate that this assertion is prevalent in both fiction and reality, though with significantly more evidence within fiction.

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<sup>3</sup> Ibid, 148.

## **Doctor Who: Doctor No More**

For fifty-six years the television series *Doctor Who* (1963-current) has focused on the adventures of a Timelord from the planet Gallifrey with the ability to cheat death by regeneration as he travels through time and space in his Tardis. A Samaritan, not a warrior, the twelfth incarnation of the Doctor in a moment of epiphany reclarified the character's primary characteristic by reassuring himself (and the audience) that “I am the Doctor, and I save people.”<sup>4</sup> However, between the eighth and ninth regeneration, the Doctor took on an uncharacteristic militaristic persona.<sup>5</sup> Dying on the Planet Kahn in the ruins of a crashed spaceship, the eighth Doctor is given a choice over his next regeneration. In an unprecedented moment in the character's history, the Doctor is granted the agency to decide who and what he will become, subverting the apparently normal randomised process. As he lay dying the Doctor is employed by a member of the Sisterhood of Khan to choose his next persona, “The universe stands on the brink. Will you let it fall? Fast or strong, wise or angry. What do you need now?”<sup>6</sup> In this moment, a moment of crisis for the character for many centuries and regenerations to come, he decides to reject his usual personality to allow him to take part in the Time War. “I don't suppose there's a need for a doctor anymore. Make me a warrior now.”<sup>7</sup> After being handed a “draft” elixir to synthesize his change into a soldier, the Doctor undergoes significant physical and psychological change as his identity is sacrificed for the great good. The typically funny, quirky and friendly character transforms into the aggressive, cold and battle-weary War Doctor. This Doctor rejects his usual quirky dress sense in favour of a duller militaristic type uniform complete with bandoleer. The tenure of the War Doctor would remain a suppressed memory for several later incarnations. The Eleventh Doctor suppressed from his memory the personality and the events, as well as the title of “Doctor.”

The War Doctor: What I did, I did without choice.

The Doctor: I know.

The War Doctor: In the name of peace and sanity.

The Doctor: But not in the name of the Doctor!<sup>8</sup>

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<sup>4</sup> “The Girl Who Died,” *Doctor Who*, written by Jamie Mathieson and Steven Moffat (UK: BBC, 2015).

<sup>5</sup> Chronologically, this event takes place sometime after the 1996 *Doctor Who* television film and before the 2004 “Nu Who” return of the series’ first episode *Rose*. However, it was released in 2013, as a retrospective addition to the canon.

<sup>6</sup> “The Night of the Doctor,” *Doctor Who*, written by Steven Moffat (UK: BBC, 2013).

<sup>7</sup> *Ibid.*

<sup>8</sup> “The Day of the Doctor,” *Doctor Who*, written by Steven Moffat (UK: BBC, 2013).

For his actions within the Time War, the War Doctor was ostracised from the other regenerations. Here fiction reflects reality as the all-encompassing Great Time War echoes many of the same aspects of Total War associated with the First World War 1914-1918.<sup>9</sup> Marwick defines Total War as the all-encompassing aspect of conflict impacting on all facets of societal existence. The First World War remains unique, particular in British society, as not only was it the first conflict in centuries to be experienced by civilians at home, but also as the aftermath of the war forever changed Britain socially, politically, economically, and culturally. While the character of Doctor Who would not be created for another five centuries, and the storyline of the War Doctor not for another five on top of that, the parallels between the First World War and the British Soldier, and the Time War and the War Doctor are compelling.

The Doctor's reluctant but voluntary act to change his identity to warrior is starkly reminiscent of the indoctrination and transformation of civilians into soldiers in Britain in the First World War. Between 1914 and 1918, many civilian men took up the mantle of the soldier as they were physically and mentally reconstructed for conflict. Graham Dawson argues that throughout the Victorian era Britain was increasingly militarised as men, women, and children deliberately and subconsciously joined pseudo paramilitary and military organisations such as the Scouts and the Suffragists and Suffragettes, as well as took part in marches, or endured military-style fitness training in schools and universities.<sup>10</sup> However, during the First World War, enlistees were given a choice like none other in the recent history of Total War: they were allowed to choose to serve. During the Second World War military recruitment in Britain was achieved primarily by conscription. In the nineteenth century, during conflicts like the Last South African War, British military enlistment was often limited to patriotic pockets in industrial cities as opposed to the mass expression of patriotism that followed during the opening stages of the First World War. Between 1914 and 1916, before the introduction of conscription, many British men had the option to reject their civilian lives, jobs, existence, and identities, to become fighters and head out to war, but the extent of individual agency regarding enlistment is questionable in the face of additional factors, including public and peer pressure, targeted propaganda, and homogenised societal militarism.

British volunteer Private Millner in 1915 wrote in his diary how his civilian identity was stripped away as he was psychologically and physically prepared for war. He wrote: “The cumulative effect of these conditions and training was to tighten, coarsen and harden us. We

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<sup>9</sup> Arthur Marwick, “Introduction,” in *Total War and Social Change*, ed. A. Marwick (Springer, 1988), xi.

<sup>10</sup> Graham Dawson, *Soldier Heroes: British Adventure, Empire and the Imagining of Masculinities* (London: Routledge, 1994).

were being transferred from Civilians into Fighting men, and in the infantry this new toughness was, we were to learn, necessary for survival.”<sup>11</sup> Civilian men changed their clothes, changed their physical appearance and assumed a new persona as soldiers. Rachel Woodward argues that transformation of the body within the military in this period was related to physicality and masculinity, as the transition into the “proper soldier” required an apparent shift in identity and physical appearance.<sup>12</sup> Drilling, rifle practice and bayonet training was accompanied with requirements for discipline, presentation and to learn new vocabulary. Like the Eighth Doctor’s choosing of his new body and dress, the dressing in military uniform was an important and actualising experience for many men as they transformed their identity from civilian to soldier. Jane Tynan argues that often, men only felt like soldiers once in uniform.<sup>13</sup> This is particularly apparent in the case of Second Lieutenant Carter of the Kitchener Army, 7<sup>th</sup> Hull battalion, who stated in his diary that he only felt the part in 1914 once his kit had been issued: “... we were equipped with uniform and greatcoats. We were real soldiers and all class distinctions were gone forever.”<sup>14</sup> Echoing reality, the War Doctor solemnly exclaimed that he was a “Doctor no more” as he too dressed in the military type clothing taken from a dead woman he failed to save.<sup>15</sup>

The creation of the soldier from the civilian against the backdrop of an all-encompassing conflict is as prevalent in the storyline of the War Doctor in *Doctor Who* as it was within the reality of the First World War. Physical, psychological, and ethical changes allowed these men, in both fiction and reality, to experience and do things that would have previously been incomparable. Again, as fiction mirrors reality, the subsequent trauma of this transformation was incalculably destructive for both the Doctor and many returning soldiers after 1918. Many men who survived the First World War returned with physical, neurological or psychological trauma that was little understood and poorly treated. Shellshock, first identified within the most intensive and destructive years of the Great War, became a common diagnosis between 1914-18. Unsure of how to treat or heal shell-shocked men, doctors and the British military were confronted by soldiers developing internal and external

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<sup>11</sup> Imperial War Museum (Hereafter IWM), 20761, Private Papers of H. Milner, 3-4.

<sup>12</sup> Rachel Woodward, “Locating Military Masculinities: Space, Place and the Formation of Gender Identity in the British Army,” in *Military Masculinities: Identity and the State*, ed. P. Higate (USA: Praeger, 2003), 51.

<sup>13</sup> Jane Tynan, *British Army Uniform and the First World War: Men in Khaki* (UK: Palgrave Macmillan, 2013).

<sup>14</sup> IWM, 7988, Private Papers of 2nd Lieutenant C. Carter, *Army Life as It Really Was 1914-1919*, Unpublished Memoirs, 2. Judith Butler’s work on gender and identity performativity theory adds strength to this, as Butler argues in *Gender Trouble*, that “...gender proves to be performative - that is, constituting the identity it is purported to be. In this sense, gender is always a doing, though not a doing by a subject who might be said to pre-exist the deed.” J. Butler, *Gender Troubles: Feminism and Subversion of Identity* (New York: Routledge, 1990), 25. According to Butler, gender is a performative norm that is developed both internally and externally complete with a set of behavioural rules. To this end, the Doctor’s rejection of his past personality is reminiscent of the actualising process of gender performativity.

<sup>15</sup> “The Night of the Doctor,” *Doctor Who*, written by Steven Moffat (UK: BBC, 2013).

evidence of psychosis including catatonia, insensibility, panic, and tremors.<sup>16</sup> Physicality returns as an influence within the considerations and treatment of shellshock. Throughout the First World War, many commanders and military medical officials considered these psychological and physical immobilisations arising “...because they had not been sufficiently hardened.”<sup>17</sup> In the aftermath of the war, many men returned with psychological ramifications of their experiences. Attempts to understand and treat these cases led to the founding of *The War Office Committee of Enquiry into ‘Shell-Shock’* in 1922 to investigate the cause and impact of shellshock on soldiers. The Committee published within *The Journal of Neurology Brain* in the same year that it had found that civilians were not ‘natural warriors’ and were, therefore, more susceptible to trauma following combat.<sup>18</sup> Within their examination of the rise of research and insufficient psychiatric care post-1918, Shephard and Jones argue that psychotherapy and recognition of psychiatric disorders were significantly limited. Civilian soldiers failed to enjoy the wartime promises of enhanced welfare, housing and medical support due to the political and financial tribulations of the early 1920s. Many physically and psychologically debilitated soldiers turned to charity for assistance with those exhibiting signs of shellshock receiving a particularly unsympathetic response. The transition back into civilian life was also difficult as is evident in the diary of Private Furness who feared how he could “...pick up the threads of civilian life” after experiencing the horrors of war.<sup>19</sup> Crouq and Crouq’s assessment of shellshock and Post-Traumatic Stress Disorder define the conditions as including “...the recurrent and distressing re-experiencing of the event in dreams, thoughts, or flashbacks; [and] emotional numbing and avoidance of stimuli reminiscent of the trauma.”<sup>20</sup> Again, as the fiction of *Doctor Who* mirrors the reality of men’s reintegration into post-war society, the subsequent regenerations of the Doctor bare the subconscious scars of the War Doctor’s experience.

The Ninth incarnation of the Doctor, who is introduced seemingly not long after his recent regeneration and is battling the anger and guilt of the deaths he caused during the Time War is frequently erratic and displays manically aggressive behaviour. His extremely fearful and violently manic reaction to meeting a Dalek for the first time is both harrowing and telling of his trauma. The veneer of the cheeky overly excited hero is suddenly stripped away to be replaced with the furious, terrified, and vitriolic soldier as he taunts the captured Dalek claiming: “Your race is dead! You all burnt, all of you! Ten Million ships on fire! The

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<sup>16</sup> Ben Shephard, *A War of Nerves. Soldiers and Psychiatrists 1914-1994* (London: Pimlico, 2002).

<sup>17</sup> Edgar Jones, “The Psychology of Killing – The Combat Experience of British Soldiers During the First World War,” *Journal of Contemporary History*, Vol 4, No 2, (2006),230.

<sup>18</sup> Ibid.

<sup>19</sup> IWM Documents, 14923, Private Furness, 40-41.

<sup>20</sup> M. A. Crocq, L. Crocq, “From Shell Shock and War Neurosis to Post-traumatic Stress Disorder: a History of Psychotraumatology,” *Dialogues in Clinical Neuroscience* (2000): 47-55.

entire Dalek race wiped out in one second...I watched it happen! I *MADE* it happen!”<sup>21</sup> This lightning-fast transition from one personality to another was very typical of shellshock patients in the aftermath of the First World War. NCO Harry Forrester recalled finding himself convalescing on a shellshock ward in 1916, where the mere unexpected touch on a patient’s shoulder led to an extraordinarily violent and chaotic event. He recounted in an oral history that “now a shellshock person, he can be very quiet and he can be very violent; he can do all sorts of things.”<sup>22</sup> In *Doctor Who*, the Doctor’s Tenth regeneration is more regretful and guilt-stricken for his actions and lost home-world. He is also however, capable of extreme violence and anger, which he fights to control. This is made particularly clear by the trusting of former companion Rose to care for and supervise the “Metacrisis Doctor.” The Tenth Doctor pleads with Rose to look after his new other self, whose propensity for violence and anger is less well controlled. He explains that the “Metacrisis Doctor” was “born in battle, full of blood and anger and revenge.” He is a distorted mirror image of the Doctor that could have been without the love and emotional support given by Rose. Attempting to convince her to help him, the Tenth Doctor tells Rose, “remind you of someone? That’s me when we first met, and you made me better. Now you can do the same for him.”<sup>23</sup> In reality, partners and paramours would often be left with the responsibility of caring for those with battle trauma. However, the result was not usually as positive. NCO Driver Thomas Oliver explained that both his wife and daughter were left to pick up the strain of his psychological disorder after the First World War:

I used to have little breakdowns now and then, and my wife used to be very frightened. It more or less used to happen at night, when I was in bed. I used to spring up off the bed, you know; it used to frighten her. My daughter, incidentally, is terribly nervous, she's terribly nervous. My wife says it's all my fault. Well, I had shellshock, you see. I got blown up, you see, and it affected my whole system. I got a pension for about oh, what was it, about 9 shillings a week.<sup>24</sup>

The Eleventh incarnation, ever the childish demigod, deals with the trauma of the Time War through dark humour and suppression of his past. Eleven combines much of the rage of Nine and the remorse of Ten but claims to have ‘moved on’, dealing with his past deeds by making dark jokes such as “Fear me, I’ve killed all of them” in response to an

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<sup>21</sup> “Dalek,” *Doctor Who*, written by Robert Shearman (UK: BBC, 2005). *Italics added for emphasis.*

<sup>22</sup> IWM SA, 10061, Harry Forrester, Reel 3.

<sup>23</sup> “Journeys End,” *Doctor Who*, written by Russel T. Davies (UK: BBC, 2008).

<sup>24</sup> IWM SA, 9177, Thomas Olive, Reel 5.

enemy's threat that they had killed many timelords.<sup>25</sup> However, Eleven eventually makes peace with his past War incarnation after a “timey whimey” event that reinterprets the War Doctor's final genocidal act. This reconciliation continues during the Twelve Doctor's tenure, as the power to determine who he will become resurfaces. Longhran argues that the returning of agency was an important moment in the treatment of shellshock.<sup>26</sup> The Twelve Doctor's story arc revolves around him, discovering who he is and his purpose. His self-actualisation culminates in a passionate speech during the Zygon insurrection (“The Zygon Inversion,” 2017) to prevent a catastrophic war. The Doctor orchestrates an all or nothing stalemate between representatives of the Zygons and Humanity demanding that they decide between negotiation and genocide. His speech encourages peace but also illustrates the psychological torment the character has suffered for over a thousand years.

This is not a war. I fought in a bigger war than you will ever know. I did worse things than you could ever imagine, and when I close my eyes... No one else will ever have to feel this pain. Not on my watch.<sup>27</sup>

Here fiction and reality diverge. Fiction often has the opportunity for a satisfactory if not always a happy ending. The men who fought in the First World War did not have a millennium to work through their trauma. Instead, many of the soldiers who suffered psychiatric trauma during the First World War were subject to stigma, accusations of cowardice and during the war even execution for cowardice due to ignorance and lack of understanding. Ben Sheppard discusses at length the impact of shell shock on the individual, and the ignorant and unsympathetic response of the nation, which welcomed them home after 1918.<sup>28</sup> As the 1922 report of the War Office on shellshock was clear to point out that “no doubt there were men who, from one cause or another, broke down in every campaign...but such breakdowns, when they are recorded, are not very sympathetically treated...”<sup>29</sup> Unlike the Doctor, whose narrative is designed to help him recover, the splintering of men's identities reinforced by traumatic experiences was something that many men struggled to deal with long after the cessation of conflict in 1918. The narrative of modern Doctor Who (2004-current) bears striking similarities to aspects of the real experiences of men during the First World War. Wrapped up in the flashing lights, sound effects, and McGuffin is a story of trauma, pain, damage and reconstruction; essentially a mirror, framed within the backdrop

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<sup>25</sup> Ibid.

<sup>26</sup> Loughran, 16.

<sup>27</sup> “The Zygon Inversion,” *Doctor Who*, written by Steven Moffat (UK: BBC, 2017).

<sup>28</sup> Sheppard, *A War of Nerves*, 173.

<sup>29</sup> Anon, *Report of the War Office Committee of Enquiry into 'Shell Shock'* (London: HM Stationary Office, 1922).

of a science fiction, of the real destruction and reconstruction of British soldiers during the First World War.

### **Captain America: Unfit for Service**

While *Doctor Who* represents the mirroring of reality in fiction of the psychological transition and consequences of becoming a civilian soldier, the story of Captain America reflects the physical aspects of this transition, yet again, the catalyst for change is a synthesized compound transforming the character from ordinary to extraordinary. Since its publication in 1941, the story of Captain America has been retold several times in comics, television shows and films. For this consideration, it is the Captain America of the Marvel Cinematic Universe that will be examined, alongside the context from the original comic run of the character in 1941.

The story of Brooklyn-born American Steve Rogers is one of a man whose patriotism is challenged by his diminutive physique, repeatedly rejected at enlistment during the Second World War until a super serum turns him into Captain America.<sup>30</sup> This narrative plot of dramatically improved physical ability and military suitability is a recurrent theme in the conflicts of the early twentieth century, across Britain and America in the First and Second World War. While millions of men were able to make it through the enlistment examination unscathed, many men were refused for service on medical grounds. In Britain, this issue was already evident by the outbreak of war in 1914. Little over a decade before, during the Boer War, the British Army had rejected so many men that unprecedented social interventions for health care were implemented by the British government, beginning with the 1911 National Insurance Act.<sup>31</sup> Although American and set in a later conflict, it can be suggested that the story of Captain America has many direct parables with the First World War. During the First World War, the classification of men during enlistment was a contentious issue in Britain. Like the fictional Steve Rodgers, the hopes of several patriots were dashed in 1914 and 1915 as their bodies were deemed unworthy of service.

During both World Wars in Britain, the recruitment of soldiers relied upon a mixture of patriotism, propaganda, and latterly, conscription. During the First World War nearly two million British men enlisted.<sup>32</sup> Over half volunteered before conscription was introduced in

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<sup>30</sup> Joe Simon and Jack Kirby, *Captain America: Marvel Comics* (USA: Marvel, 1941).

<sup>31</sup> Joan Lane, *A Social History of Medicine: Health, Healing, and Disease in England, 1750-1950* (Psychology Press, 2001), 77-79.

<sup>32</sup> Hugh Strachan, *The First World War, A New History* (Simon and Schuster, 2001), 21.

1916 after a period of increasingly dwindling recruitment returns caused by alienation of the working class due to the constantly shifting physical requirements.<sup>33</sup> During the Second World War, with hindsight and more time to prepare, conscription played a more significant role with over five million of the six and a half million men who served having been recruited from conscription.<sup>34</sup>

In both conflicts, enlistment demanded a medical inspection. In the First World War, this comprised of an assessment by a military recruitment officer, followed by a medical evaluation to determine fitness for service. For many, this was a humiliating make or break moment, as their future was decided according to a list of statistics on a chart. British Lieutenant George Cotton recalled the dehumanising experience in 1914 of being evaluated for service;

On hearing your name called, you walked, tripped or otherwise preceded out of the cubicle in a perfectly nude condition with as much dignity as could be summoned under the circumstances. Having been weight, measured, thumped, probed, questioned and generally treated like an animated piece of butcher's meat, you were ordered to move along the floor on all fours.<sup>35</sup>

The MCU version of Captain America's origin story, presents a similar experience, as Steve Rodger's is poked, prodded, weighed and measured as part of his desire to serve. Rodgers is below regulation height, has asthma, is below 90 pounds, has weak lungs, and has little to no physical strength. Unsurprisingly he is rejected on five separate occasions, much to his disappointment. It may seem unlikely that someone would be so desperate to gain entry to service to try as many times. During the First World War, Lieutenant Palmer attempted to enlist 27 times. Palmer had a hernia and was therefore not considered suitable; he also shared a similar diminished physical stature to Steve Rodgers.

...each time I had tried to enlist and I stood on the scales prior to going before the doctor for medical examination; the soldier or civilian weighing me, took a look as I stood on the scales and invariably said that I was a fine-looking chap and the army need men of my physique; it was all very set to me but after this had happened several times it got a bit boring because I guessed what the doctor would do with me. I am some six feet in height and then weighed about

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<sup>33</sup> Arthur Marwick, *The Deluge: British Society and the First World War* (Macmillan Education UK, 2006), 41.

<sup>34</sup> Emma Newlands, *Civilians into Soldiers: War, the Body, and British Army Recruits, 1939-45* (Manchester University Press, 2014), 26.

<sup>35</sup> IWM, 14729, Private Papers of Lieutenant George Cotton, 2. This is the original transcript of Cotton's account.

12, ½ stones, and I had a chest expansion of thirty-four inches. I was a fair athlete and had played many games with success and I consequently took a poor view of being rejected each time I tried to enlist; I certainly did not look the part of an unfit man, and so I worked on the principle of if at first, you don't succeed, try, try and try again.<sup>36</sup>

Here fiction mirrors reality as both men refused to accept rejection. Peniston-Bird argues that passing the medical exam affected a man's self-worth.<sup>37</sup> This is just as apparent in the Second World War as one such British hopeful in 1941 wrote in his diary "...I felt out of everything I would be passed Grade 2, perhaps lower. I would be more or less an outcast. I wouldn't be able to look a woman in the eye etc..."<sup>38</sup> In *Captain America: The First Avenger* (2011) Steve is again rejected for service and is so consumed by his disappointment that he abandons his best friend on the eve of his shipping off to war and his "date" for the evening to gaze mournfully at his inadequate reflection in a recruitment mirror. Steve's fictional feelings echo the real emotions of British Private Brady, who was initially rejected for service because of his diminutive stature in 1915. He recalled "...too small: said the MO. 'You'd never be able to carry full marching order lad. 'I was devastated, humiliated. Homecoming was a gloomy, painful experience."<sup>39</sup> Both in fiction and reality, the recruitment assessment remained crucial in the identification of a man's worth to society. Those who were physically capable took on the masculine heroic identity of the soldier, prime specimens within the sphere of war.<sup>40</sup> Those who were not were removed, shamed, and ostracised. Along with the fictional Rogers, many men dreaded being officially classified as unworthy.

Like Palmer, Rodgers eventually enters the military, but it comes with a caveat. On his 28<sup>th</sup> attempt, Palmer gains entry by joining the support service the Royal Army Medical Corps which had lesser entry requirements. The fictional Rodgers is recruited after only six tries to a secret division created to synthesise "supersoldiers." However, passing the enlistment examination was only the first hurdle for the men as they transitioned into

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<sup>36</sup> IWM, 7275, Private Papers of Lieutenant K. Palmer, 10.

<sup>37</sup> Corinna Peniston-Bird, "Classifying the Body in the Second World War: British Men in and Out of Uniform," *Body & Society*, 9, 4 (2003), 33.

<sup>38</sup> Newlands, 44.

<sup>39</sup> IWM, 17024, Private Papers of J. Brady, 40.

<sup>40</sup> This is a common theme within studies of militarised development and actualisation. For more information on the rise of masculinity as a socialised construct within this period see Christina Jarvis on the Second World War in C. S. Jarvis, *The Male Body at War: America Masculinity During World War II* (New York: Northern Illinois University Press, 2004), J. M. MacKenzie on the late Victorian period and the first half of the twentieth century in J. M. MacKenzie, *Propaganda and Empire: The Manipulation of British Public Opinion, 1880-1960* (Manchester: Manchester University Press, 1984), and particularly Meg Albrinck for the First World War in M. Albrinck, "Humanitarians and He-Men: Recruitment Posters and the Masculine Ideal," in *Picture This: World War I Posters and Visual Culture*, ed. Pearl James (Lincoln: University of Nebraska Press, 2009).

soldiers. During the First World War, British recruit Private Barraclough recounted in his memoirs how his arduous physical training redefined his body for combat and service. “What with physical jerks, route marches, bayonet practice, firing, bombing, and drilling. I became much harder both in body and soul, and further, I learned to swear with the worst of them.”<sup>41</sup> The creation of soldiers from civilians in the early twentieth century commonly focused upon physical fitness, endurance, and compliance within indoctrination. Men were conditioned to run for longer, increase their physical strength and practice tasks repeatedly until they became second nature. Steve Rodgers experiences much the same process as he is put through an intensive week of training exercises that prove to be beyond his physical capabilities. Rodgers undergoes drill, marching, combat training and rifle practice consistent with military training yet consistently his body betrays him as he is unable to meet requirements of his training regime. Additionally, Rodgers’s weakened stature opens him up to another common military activity, harassment from other recruits. Throughout the training, Steve is pushed, shoved, taunted, and has barbed wire kicked onto his head yet continues unabashed. Here reality and fiction collide as Meyer explains that during training, trainers often attempted to project the masculine ideal of the soldier on to trainees. Language, physical achievement, and excitement for combat were increasingly internalised to instil the military identity in the recruit.<sup>42</sup> Conversely, those who failed to meet the physical requirements of training were berated as weak and emasculated. During his enlistment in 1914, British Private Mullis was told “[training] will either kill you or make a man out of you.”<sup>43</sup> Here the fictional Private Rogers and soldiers, in reality, share similar experiences as their masculine identities and worth to society were determined by their ability to adapt to military life. For some, this was not always a negative experience but a defining moment of actualisation in their military career. During his training at the beginning of the First World War, Private Wade soon took pride in his ability to adapt to the experience. He wrote home excitedly about his training and his ambition to be the best.

I'm getting along famously now with all the details of my training. At the firing range, I am doing well in the practices and hope tomorrow when we commence the actual course to become either a marksman or a first-class shot.<sup>44</sup>

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<sup>41</sup> IWM, 3453, Private Papers of E. C. Barraclough, 1-2.

<sup>42</sup> Jessica Meyers, *Men of War: Masculinity and First World War in Britain* (Palgrave Macmillan, 2008), 60.

<sup>43</sup> IWM, 8013, Private Papers of F. Mulliss, 1.

<sup>44</sup> IWM, 7976, Private Papers of F. B. Wade, 26.

Competition was a critical aspect of the training process. Soldiers who failed to keep up often felt the pressure mounting amongst their fitter and more able peers. Private Niblett struggled with his military training. He complained to his mother by letter that his Sergeant Major had humiliated him for his failure to be a proper soldier during a cavalry exercise. “I heard galloping hooves and coming up behind me on a white charge the Sergeant Major, shouting ‘What are you trying to do, tickle that man to death?’”<sup>45</sup> In *Captain America: The First Avenger* (2011) Rogers has similar issues, as he is frequently humiliated and berated by his commanding officer who vehemently opposes Doctor Erskine’s belief that Rogers is the right candidate for the super soldier program. Representing the status quo of the military, Colonel Chester Phillips reiterates Rodger’s obvious physical unsuitability by incredulously remarking to the Doctor: “you brought a 90 lb asthmatic onto my army base.”<sup>46</sup> Phillip’s frustration at Rodger’s inability to embody the masculine military ideal serves as a platform to illustrate the military intolerance for those they deemed unsuited for service. Rogers often innovates solutions to his ineptitude, most notably by lowering a flag pole he is unable to climb to retrieve the flag and complete the exercise. This dichotomy of courage and physical ineptitude remains at the heart of the story of Captain America as Rogers becomes an element of conflict between science, represented by the Doctor Erskine, and the military, as represented by Colonel Chester Phillips. Ultimately Rogers is given a “super serum” that transforms him physically. He gains strength, speed, and height. However, Rogers is only given his military body after he proves himself during basic training. Eventually, Rogers as Captain America gains the opportunity to join the war and fight. When later asked how he transitioned from weakling to superhuman he replies sardonically “...I joined the Army.”<sup>47</sup>

The comparison between fiction and reality may initially seem thin as, whereas in the First and Second World War soldiers were forged in the ordeal of military training, everything special about Captain America, to quote Tony Stark (Iron Man) “came out of a bottle.”<sup>48</sup> Science fiction aside, the experiences of both the fictional and real soldier were remarkably similar. The most recent retelling of Captain America's origin story on screen reiterates that while the military provided the physical skills to go to war, it was the individual who sacrificed everything for the greater good. The heroic elements of enlisting and fighting within the World Wars is evident in both fiction and reality, with the exception that the fiction is retold with an extraordinary science fiction twist of magic chemicals. However, it is perhaps almost stranger than fiction that throughout this period, compounds

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<sup>45</sup> IWM, 8408, Private Papers of C. A. Niblett, 3.

<sup>46</sup> *Captain America, the First Avenger*, directed by Joe Johnston (USA: Paramount Pictures, 2011).

<sup>47</sup> Ibid.

<sup>48</sup> *Avengers Assemble*, directed by Joss Whedon (USA: Marvel, 2012).

and serums were synthesised to improve the modern soldier. During the early stages of the First World War, ‘energy drinks’ had a more significant kick than their twenty-first-century counterparts. Alcohol frequently featured in the final moments of getting men over the top of a trench, and patent medicines like cocaine were used for stimulation.<sup>49</sup> Retailers such as Harrods and Boots the Chemist advertised small medical kits as being “a useful present for a friend at the front” which contained cocaine and morphine.<sup>50</sup> Scattered reports indicate that cocaine was infrequently used before men entered no man’s land, but it was most often the 40% proof rum ration that encouraged the men over the top. In 1916 amidst a countrywide moral panic on narcotics, the Defence of the Realm Act 40b put a stop to the sale of narcotics to soldiers.<sup>51</sup> ‘Super serums’ these elixirs may not have been, but again the darkened mirror of fiction and reality can be seen to coincide, as in both cases the improvement of the “soldier” and his ability to fight was the purpose of these concoctions.

### **River Tam: The Girl or the Weapon?**

The story of River Tam is the next logical step from the chemical enhancement discussion around Captain America. The two characters are very similar. Both are subjected to military experimentation and see results which make them formidable warriors. River’s story is more akin to the origin of the Captain America comic book series and MCU antagonist Bucky Barnes, aka the Winter Soldier. Both characters are forced to participate in the experimentation and then are used without their will. Unlike the Doctor who wearily accepts his responsibility to fight and Rogers, who is desperate to fight, River and Bucky are stripped of their agency and identity as they are tortured into becoming a weapon.<sup>52</sup> River's forced transformation is a typical science fiction trope which often depicts authoritative institutions as the enemy. These shadowy “Men in Black”, usually belonging to military or government agencies, have been responsible in fiction for creating the Wolverine and Deadpool (2009), extra-terrestrial experiments in *X-Files* (1993) and *E.T.* (1982), and abandoning ethics and morality to abuse, transform, and control human beings as in *Dollhouse* (2009) and various *Black Mirror* (2011- 2019) episodes.<sup>53</sup>

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<sup>49</sup> E. Jones and N. Fear, “Alcohol Use and Misuse Within the Military: A Review,” *International Review of Psychiatry* (2011),167.

<sup>50</sup> Lukaza Kamiński, *Shooting Up: A History of Drugs in Warfare* (London: C Hurst & Co, 2017), 100.

<sup>51</sup> *Ibid.*

<sup>52</sup> *Firefly*, written by Joss Whedon (Twentieth Century Fox, 2002-3).

<sup>53</sup> *X-Men Origins: Wolverine*, directed by Gavin Hood (Twentieth Century Fox, 2009), *E.T. the Extra-Terrestrial*, directed by Stephen Spielberg (Amblin, 1982), *Black Mirror*, written and directed by Charlie Brooker (Channel Four / Netflix, 2011-19).

Like all particularly thrilling fictions, the abuse of River Tam seems particularly relevant as it bears striking resemblances to the atrocities committed by the Nazis within their containment camps, in the mid-twentieth century. The story of Joss Whedon's short-lived series *Firefly* (2002) is of a dystopian future where humans have spread out into the stars but live either under totalitarian control or in lawless satellites. As Captain Reynolds and the crew of the *Serenity* scratch out an existence walking the line between legal and moral, they take on passengers in the form of Simon Tam and his genius sister River, both wanted by the Galactic Alliance. In the movie follow-up to the series, River's origin story is condensed and clarified as her having been recruited to an elite school for the gifted, only to find the school is a cover for an illegal military laboratory where she is repeatedly experimented upon by the Alliance to create the perfect soldier. Repeated violations of her body and brain, complete with subliminal conditioning, turn her into equal parts psychic assassin and mentally unstable teenage girl. River Tam is bizarrely the most plausible of the three examples of military construction presented in this article. While this article will not seek to suggest that teenage women were routinely experimented upon by the British military, River, unlike the Doctor and Captain America, lacked the agency to decide her physical and psychological transformation. Seeking autonomy over conformity, River is pursued without mercy across the galaxy by members of the Alliance who murder and torture to achieve their aims. In the final fight scene between Captain Reynolds and the zealous Alliance Agent, the Agent proclaims that the goal of the Alliance transcends morality. "We are making a better world, all of them better worlds."<sup>54</sup> This dogmatic indoctrination illustrates the loss of the importance of the individual within the collective, another familiar military parable. It is here where the similarities between science fiction and fact return.

Between 1939 and 1945, again for the sake of winning the ongoing war, over 7000 British servicemen took part in various military experimentations at the British research facility Porton Down.<sup>55</sup> These trials stemmed from a tradition of experimentation upon military personnel that is evident throughout the nineteenth and twentieth century. Soldiers were often given experimental and relatively untested inoculations before introduction to the civilian population. The highly contested smallpox inoculation was first widely distributed throughout the British Army before being made compulsory in the 1850s. Towards the end of the nineteenth century many soldiers, mainly Indian, were given the newly developed cholera and typhoid vaccines as part of the process to test their safety and viability for mass distribution. Often these soldiers were unsure of what they were taking or their right not to

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<sup>54</sup> *Serenity*, written and directed by Joss Whedon (Twentieth Century Fox, 2005).

<sup>55</sup> Newlands, 95.

take it.<sup>56</sup> During the First World War full-scale inoculation was introduced in various militaries to combat typhoid, typhus, and cholera. Inoculation served as part of the basis within the British army of an early twentieth-century campaign to prevent disease through medical treatment, education, and sanitation. Disease had formerly been the greatest danger to an army in war until the twentieth century; inoculation helped to overcome this treat.<sup>57</sup> Quickly the United States of America made military inoculation for Typhoid mandatory, however, discouraged by nearly half a century of opposition to compulsory vaccination, the treatment remained theoretically voluntary for British soldiers. Still, 97% of troops received it, usually without question by the end of the war in 1918.<sup>58</sup>

Throughout the twentieth century, the determination and need to create the most effective soldier led members of the armed forces to partake in experimentations for the development of new weapons such as flame throwers, grenades, tanks, aircraft, toxins and gas.<sup>59</sup> Leading Aircraftsman Ronald Maddison died in 1953 during an experiment at the Porton Down experimental facility when liquid sarin was introduced to his skin.<sup>60</sup> Maddison's death was classified as top secret until 2008 when his family received both an official investigation and an apology from the British Government. This was a landmark moment in British Military history as the Government also agreed on settlements for the 359 veterans who had been engaged in legal proceedings due to having been experimented upon with gases, hallucinogens, and neurological toxins in the latter half of the twentieth century while in service.<sup>61</sup> A resounding theme throughout the complaints was a lack of informed consent and a complete absence of duty of care both during and after the experiments which had included fatalities.<sup>62</sup> This controversy over chemical compounds being introduced to soldiers' bodies was particularly prevalent during the Second World War where experiments with stimulants were conducted on members of the armed forces to overcome sleep deprivation through Bensedrine or Methedrine tablets.<sup>63</sup> These trials continued into the field as men in the Middle East were given synthesised compounds to keep them alert beyond 48

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<sup>56</sup> Simon Walker, "The Greater Good: Agency and Inoculation in the British Army 1914-1918," *Canadian Bulletin of Medical History* (2019): 1-31.

<sup>57</sup> Mark Harrison, *The Medical War: British Military Medicine in the First World War* (Oxford: Oxford University Press, 2010), 150-152.

<sup>58</sup> Walker, 2.

<sup>59</sup> Ulf Schmidt, *Secret Science: A Century of Poison Warfare and Human Experiments* (Oxford University Press, 2015).

<sup>60</sup> Jane Barrett, *Ethics in Clinical Research* (UK: Inst of Clinical Research, 2006),10.

<sup>61</sup> Schmidt, 456.

<sup>62</sup> Ibid.

<sup>63</sup> James Pugh, "Not ... Like a Rum-Ration': Amphetamine Sulphate, the Royal Navy, and the Evolution of Policy and Medical Research during the Second World War," *War in History*, 24, no. 4 (2017): 498-519.

hours without sleep.<sup>64</sup> Despite the safeguards of the Nuremberg codes in 1947, brought about in response to the horrors of Nazi experimentation, there are numerous examples of experimentation on soldiers both in war and peacetime continuing into the later twentieth century. During and beyond the Second World War the British military experimented extensively on men to test their endurance against temperature, sleep deprivation and gas attacks.<sup>65</sup> Similarly, over 60,000 American soldiers were subjected to experiments with mustard gas in the same period. The trials of both wars and fear of the subsequent wars to come helped to establish experimentation as par the course. In the First World War, experiments yielded devastating new weapons such as grenades, tanks, and gas, yet it also provided better medical care, changes to diet, and significant progress in preventing a long impacting debilitating disease.<sup>66</sup> During the Second World War, the same science that provided the Atomic and Carpet Bomb, also mass-produced penicillin; revolutionising survival rates from infection almost overnight. Opportunity and necessity led to exceptional levels of creativity, yet the question must be asked of the consent of those whose bravery and sacrifice enabled these discoveries. The majority of these participants were officially encouraged to participate as volunteers, yet, such as in the case of inoculation, refusal was unlikely as benefits such as leave or pay for participating were not uncommon, as was intimidation or loss of privileges if they refused to comply.<sup>67</sup> Many soldiers later stated in interviews and testimonies that they were unaware of the amount of suffering that they would experience from these experiments and that following care was almost non-existent. For the agencies that pursued these experiments, the notion of the greater good was the primary watchword which allowed for them to subject their test subjects to high levels of cruelty.

Once again, within the skewed reflection of reality within fiction, the unwilling test subject River Tam is hunted to silence her from exposing the machinations of the evil alliance to the public. In reality, soldiers who had been subjected to military experimentation were unlikely to be hunted down and murdered. However, reports of the remarkable lack of duty of care of the test subjects did prompt a growing public backlash against military experimentations and the use of chemicals to augment and improve soldiers. In 2014, US District Judge Claudia Wilken ruled that the United States military would have to alert all veterans of possible health concerns related to military experimentation. This decision followed years of controversy as to who was responsible for the health of the ‘volunteers’ after

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<sup>64</sup> D. P. Cuthbertson and J. A. C. Knox, “The Effects of Analeptics on the Fatigued Subject,” *The Journal of Physiology*, 106, 1 (1947): 42–58.

<sup>65</sup> Newlands, 92-95.

<sup>66</sup> Cooter, 158-9.

<sup>67</sup> Newlands, 92-95, and IWM SA, 679, George Michael Clarkson, Reel 1.

the event and the unforeseen consequences of the experiment afterwards.<sup>68</sup> This landmark decision was brought about in part by the case of American soldier Tim Josephs who claimed that an involuntary experiment had made him seriously ill. Given to understand that he was volunteering for trials on service clothing when he reported to the Edgewood testing facility in 1968, Josephs recounts that he was given unnamed drugs and given non-descript answers when he questioned what they were.<sup>69</sup> Josephs was subsequently hospitalised with severe tremors, which were ultimately diagnosed as Parkinson’s disease. Josephs claimed his condition is a direct result of the chemical introduced into his body. Seeking restitution, his legal complaint against the American Military was clear to level the blame.

This action chronicles a chilling tale of human experimentation, covert military operations, and heretofore unchecked abuses of power by our own government....[these] tortuous acts committed by the government upon our nation’s military personnel quickly led the DEFENDANTS to undertake an expansive, multi-faceted program of secret experimentation on human subjects, diverting our own troops from military assignments for use as test subjects. In virtually all cases, troops served in the same capacity as laboratory rats or guinea pigs.<sup>70</sup>

Wilken’s ruling forced the government to accept responsibility for their actions in atrocities enacted upon participants of experimentation within the military publicly.<sup>71</sup> The story of River Tam ends in much the same way, albeit more cinematically, as the truth is brought to light to the entire galaxy, negating the need to eliminate River. Yet, like many of the real soldiers who suffered long term effects from experimentation, the truth does not heal River as she, like the men considered in this article, are left with deep psychological and physical scars deliberately initiated for the “greater good.”

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<sup>68</sup> Institute of Medicine and Committee on the Survey of the Health Effects of Mustard Gas and Lewisite, *Veterans at Risk: The Health Effects of Mustard Gas and Lewisite* (USA: National Academies Press, 1993), 33-37.

<sup>69</sup> Jean-François Caron, *A Theory of the Super Soldier: The Morality of Capacity-Increasing Technologies in the Military* (Oxford University Press, 2018).

<sup>70</sup> Anon, “Case 4:09-cv-00037-CW, First Amended Complaint for Declaratory and Injunctive Relief Under United States Constitution and Federal Statutes” (USA: United States District Court, 2009).

<sup>71</sup> F. D. Grey, *The Tuskegee Syphilis Study: An Insiders’ Account of the Shocking Medical* (New Southbooks, 2013), 14.

## Conclusion

Fiction distorts reality. In reality, there are no sonic screwdrivers, vibranium shields, or hyperlight engines to carry us off to the lawless edge of space. Throughout this article, the similarities surrounding the creation, indoctrination, exploitation, and subjugation of military personnel in fiction and reality remain apparent. Cooter's overarching question of the end justifying the means for societal gains unites the reality of enlistment and service in the twentieth century with its distorted fictional reflection. Steve Rodgers' desperation for service and physical inadequacies, ultimately overcome through a combination of science and tenacity, mirrors the expectations and inspections of the British military throughout both World Wars as does the use of a serum to make Rogers a better fighter. For Rogers it was a secret elixir, whereas for the soldiers of the twentieth century it was a combination of narcotics, alcohol, and newly synthesised compounds. The same can be said for River Tam. Although not a soldier, River's indoctrination into an institution acts as a cover for experimentation upon her in much the same way that service in the armed forces did for the men who were experimented upon in the name of progress in the twentieth century. River is certainly not the first or last to bear these scars in fiction: *Frankenstein's* monster, Darth Vader, *Buffy the Vampire's* Adam, or *The Umbrella Academy's* Luther Hargreaves are just a small part of the roster with the same honour.<sup>72</sup> Finally, the conflicting incarnations of the Doctor allow a glimpse into the military indoctrination and enlistment process of the early twentieth century, as well as the adverse psychological and physical implications of warfare on the individual soldier. Again, this is not a narrative limited to the Doctor as similar comparisons from fiction can be made with traumatised soldiers such as *Watchman's* Comedian, Lieutenant Ripley from *Alien*, or the unnamed narrator from *The War of The Worlds*.<sup>73</sup> Not to mention the thousands of soldiers in reality who suffered from shellshock and post-traumatic stress following service.

Ultimately science fiction allows for an artistic licence within the exploration of the experiences of its characters. All of the above end their narrative journeys in a better place than when first introduced. For them, the question of justification of the events is more accessible to follow than in reality. For those in the clearer side of the mirror, the conclusions are not as satisfying. Significant advances in medicine, psychological understanding, and technological innovation may have developed from the occurrence of war, but the individual

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<sup>72</sup> Mary Shelley, *Frankenstein* (London: Lackington, Hughes, Harding, Mavor & Jones, 1818), *Star Wars: A New Hope*, written and directed by George Lucas (Twentieth Century Fox, 1977), *Buffy the Vampire Slayer*, created by Joss Whedon (Twentieth Century Fox, 1997-2003), and Gerard Way, *The Umbrella Academy* (USA: Dark Horse, 2008).

<sup>73</sup> Alan Moore, *Watchman* (USA: DC Comics, 1986), *Alien*, directed by Ridley Scott (Twentieth Century Fox, 1979), and H. G. Wells, *The War of the Worlds* (London: Pearson's Magazine, 1897).

cost for many seems inequitable. Fiction may allow, through exaggerations of medicine and science, a moralistic balm to the cost of innovation; unfortunately, at least for some throughout the twentieth century, it seems reality is seldom so benevolent.

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