Between Magic and Reason

Science in 19th-Century Popular Fiction

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ABSTRACT

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The scientist in fiction is much maligned. The mad, bad scientist has framed much of the debate about literary representations of science and with good reason since he is a towering icon of popular culture. Yet, I will propose that an equally preeminent figure provides an alternative model of science in fiction. This is the detective.

Links between developing scientific disciplines and the emerging genre of detective fiction have been well described to date. Yet the history of the detective as scientific icon has not been told, particularly not as it engages with the history of the mad scientist. These two paragons of modern culture developed from a groundswell of gothic narrative and imagery that emerged in the late 18th century and continued to entertain and challenge audiences throughout the 19th century, as they still do to this day.

My aim is to recover some of the complexity of past public images of science, and the understandings that such icons relate to, as they develop and meander through a variety of 19th century fictions. In a series of time slices I relate these figures, their iconography and narratives, to contemporary debates about science and follow through the elements that each generation retains, remoulds and claims for their own time. Ultimately, I hope to show that an analysis of the mad scientist alongside other fictional scientific figures provides a far more nuanced picture of potential meanings, than the negative and fearful response that he is often assumed to represent. This is significant because both these icons are current in popular culture today and as such are part and parcel of the present pool of cultural resources that provides tools for thinking about science and society in the 21st century.

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INTRODUCTION

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This study aims to develop a more in depth understanding of iconic fictional figures of science. It is an attempt to understand the historical roots of some of the current cultural resources that feed into public understandings of science. Not understandings of science fact, rather understandings of the nature of science and its meanings. To do this I have proposed that such tools consist of more than the stereotypical representations of the mad scientist and that there is an alternative scientific icon in the form of the detective. This work explores a history of the fictional detective as it intersects with and grows out of visions of science in fiction, mad and otherwise. The detective-scientist, which will be the main focus of this thesis, and the mad scientist have not been drawn together in comparative history before although they emerge from the same groundswell of gothic literature at the end of the 18th century and are deeply entwined throughout the 19th century in gothic, mystery, sensation and detective genres.

I will argue that the function of such iconic images is to provide a socially shared pool of resources for thinking about science and society. The significance of these two figures in particular is that although they both arose in the 19th century, in a recognisably modern form, they still exist today as a means for thinking and debating the meaning of 21st century science.

In order to explore the history of literary images in a way that is relevant to scholars working at the interface of science and public, I have taken an interdisciplinary approach binding together theoretic threads from sociological and literary heritages. The literary influences have given me the tools to analyse the relevant elements of the fiction, while the

sociological ones give me a means to draw them together, providing a lens through which to examine potential social meanings.

My belief is that popular fictions engage with debates about science in public, not about science fact, but about what science means to people and the society in which they (we) live. Each chapter takes a different fiction, or set of related fictions, and examines the play of science, within the narratives, which I then relate to contemporary public debates about science in order to interrogate this public-science-fiction boundary. In doing so, I have tried to garner some understanding of the influences that lead to the development, by the end of the 19th century, of the quintessential English detective and scientist, Sherlock Holmes, a figure who is as popular today, it seems, as ever he was then.

Each chapter can be seen as a time slice and can be read in isolation from the others, although there is a developmental line that runs through the thesis as a detective figure emerges. In the conclusion I will draw together the analyses of all chapters and examine them as a whole in order to draw out the major themes that arise from a discussion of the mad scientist *and* the detective. This turns out to switch debate rather dramatically from the assumptions that elide mad science with bad science and public negativity or misunderstanding to something rather more informative about the way we view reason and its social role as a simultaneous force of enchantment, innovation, disenchantment and discipline.

Chapter one explains the thinking behind my proposal that the detective figure is an important representation of science. I will explore reasons for the towering status of the mad scientist and ask what the function of such icons might be. Chapter two builds the analytical architecture with which I will approach the fictions at hand and explains how I have made my particular selection of texts. In the third chapter, I will begin the study proper.

Chapter three explores the late 18th-century gothic ground from which, I argue, both modern detectives and mad scientists arise. Here science is either a purifying force, which can elevate its devotees toward the Mind of God, or it is a powerfully instrumental force ruled by Satan. The fourth chapter takes an early example of mass-market fiction, a 'mysteries' novel, and finds a model of the scientific professional that is a prototype, perhaps, for the later detectives. In this work, darkly gothic body snatchers merge with scientific super-healers and are set against a landscape peopled with hypocritical self-serving institutions. The picture is surprisingly nuanced for such a formulaic fiction, yet it is ultimately the scientist who is championed, darkly gothic or not. These mysteries separate magic from science, whilst at the same time giving their scientists an iconic magical veneer.

Chapters five and six can be taken together, as analyses of the first detective novels of the thesis. Both of them present a detective-scientist pair who collaborate to unravel the disturbing mysteries that beset the communities within which they work. Here, science is undoubtedly championed, but the professional is not. In the first of these novels, magic is wholeheartedly taken on board as part and parcel of the scientific method. In the second, the scientist appears to be an extraordinary, exotic and supernatural creature, but in fact, demonstrates in some detail a scientific process that runs through hypothesis, experimental design, to experiment and interpretation. These two novels uphold the view that science is a socially beneficent force, in a way that professionalism perhaps is not. There is twist on the construction of the iconic detective here, who in his own time, was intentionally designed to sparkle with a veneer of science, but to fail at the first post. This was a comment on real contemporary professional detectives. Yet, the image then influenced Conan Doyle, who turned similar iconographic detail to effect in creating one of the most enduring legends of detection ever.

Last, I will follow the detective into a full-blown supernatural landscape and explore the fin-de-siècle experiment to push the scientific narrative into new worlds. The fictions I have chosen here sit at the head of that experiment

and are skilfully wrought short stories that point out the limits not only of the professional expertise but also of science itself. As the experiment developed it produced a number of 'occult detectives' who were supposedly scientific, but who could not investigate their supernatural quarry and at the same time stick to what was reckoned to be a plausible 'objective' scientific process. These kinds of stories have tended not to last. Yet rather as Conan Doyle turned an also-ran into an apotheosis, so Bram Stoker achieves the same transformation and the vampire hunter drifted into 20th and 21st century cultures as an indelible part of the fabric of popular culture. I will explore how he managed to merge magic and science and have reason investigate the supernatural in a way that is still plausible enough for a modern audience, where others failed.

In my concluding round up, I will map the themes that have coalesced around science across the whole set of fictions that I have placed under review and I will draw out the recurring motifs that work through it and have acted as cultural resources for popular thinking about science and society in the past. I will briefly point out the legacy of some such thinking devices in current 21st-century popular stories about detectives and scientists. The discussion draws together motifs of science, enchantment, transgression, innovation and professionalism. Such themes clearly continue to provide meaning for audiences today judging by the abiding presence of these two towering icons – mad scientist and detective, still poised between magic and reason.

CHAPTER ONE

MODERN MYTHS: MAD SCIENCE AND DETECTION

The scientist in fiction is much maligned. Studies of the representation of science have tended to emphasize a surfeit of mad, bad and dangerous types, while a slow but steady stream of writing flows from the science community bemoaning a perceived dearth of decent scientists in fact and in fiction.[1] Each seam of writing supports the other in an exclusive focus on the mad, bad scientist, both being in agreement that Mary Shelley's (1818) *Frankenstein* is a, if not *the*, classic example of such a negative image. No doubt, Frankenstein and the mad scientist more generally, have become icons of popular culture as familiar today as a cup of tea or a can of soda; common enough, in fact, to get an entry in the *Oxford English Dictionary*.[2] Yet, this is a very narrow vision of what science is. In the West at least, almost no part of our lives is left untouched by science and technology, from essentials like food and shelter, through to leisure, health and communications. In light of this, it is stranger still that the sum total of public imaginative response to science is concentrated within such a fearfully negative image.

The cliché of the irresponsible, often dangerous, crazed scientist has been a common motif in fiction from 16th-century Faustian legends to modern representations of genetic experimenters like those of *Jurassic Park*[3]. What precisely defines the mad scientist is a matter for debate, but those authors who take his pedigree back to *Frankenstein*, usually agree on a few characteristic features, especially that he is driven by personal ambition, is a

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[1] For studies of representation which focus on, or emphasize mad, bad science see Baldick (1987); Basalla (1976) "Pop Science: The Depiction of Science in Popular Culture" in Holton and Blandpied (eds) (1976); Cohen (1981); Frayling (2005 and 2006b), Haste (1997); Haynes (1994; 2003; 2006), Jackson (2008); Jones (2001); Jörg (2003); Millhauser (1973); Rose (2003); Schummer (2006); Skal (1998); Toumey (1992); Tudor (1989); Turney (1998); Weart (1988); Weingart (2006); Weingart et al (2003); Weingart and Pansegrau (2003) for scientists bemoaning bad press see Emsley (2001); Sir David King in Frayling (2006b); Gilbey (2008); McDonald (1989); Pollack (1998); Rohn (2006)

[2] "mad scientist *n.* a scientist who is mad eccentric, esp. so as to be dangerous or evil: a stock figure of melodramatic horror stories; freq. *attrib.*" *Oxford English Dictionary*

[3] A novel by Michael Crichton (1990) and a popular feature film directed by Stephen Spielberg (1993) and produced by Universal Pictures

male, neglectful of the social consequences of his actions and works with bubbling vials or arcane electrical equipment. Jon Turney (1998) follows Shelley's monster into every nook and cranny of culture, and finds various versions of him in theatre, periodicals, literature, and as social and scientific metaphor[4]. Roslyn Haynes (1994), whose extensive study of fictional science covers some four centuries, devotes a whole chapter to *Frankenstein* because, "the extraordinary influence it has had on subsequent presentations of the scientist. Frankenstein has become an archetype in his own right, universally referred to and providing the dominant image of the scientist in the twentieth century fiction and film."[5]

In view of these assertions, Shelley's ever-abiding vision seems to be a sensible starting point for an exploration of what defines the mad scientist and why this image of science seemingly dominates the dual cultures of scholastic and popular endeavour. Issues that arise from discussions of mad, usually bad, scientists raise assumptions about public fears of science. This is not to say that the public do not have fears about some types of science, of course they (we) do. But some studies of science representation have overemphasized the point and worse they equate negative images with public fear and lack of public understanding.[6] Such a point takes me inevitably to issues that arise from specialisation and the fragmentation of disciplines and the two cultures controversy of CP Snow's instigation. Here I will suggest that the mad scientist is a boundary object in the sense that his image sits between scientists and non-scientists, on the boundary, perhaps, of two cultures. Last, and more importantly, I argue that there is an alternative, equally potent scientist, with a similarly powerful presence today and this is the detective, who is perhaps not studied as a scientist because s/he is narrowly stereotyped as a crime fighter. My aim in this chapter is to persuade the reader that the study of a fictional detective *as* a scientific icon is a worthwhile and important exercise, which has the potential to add to scholarship on the representations of science in a

[4] Turney (1998) pp26-42
[5] Haynes (1994) pp93
[6] For example: see Asimov (1983); Frayling (2005) p224; Gilbey (2008); Haynes (2006) p13

meaningful way.

Last, I want to lay down two important caveats. The first is the obvious fact that the persistence of the mad scientist is probably the primary reason for academic interest in it and quite rightly so, but my own academic footnote to such work suggests that, towering icon though he is, the mad scientist should not be allowed to obliterate all other versions of science and the scientist that exist in the popular realm.[7] Second, the work of this thesis is interpretative at every level and designed to intersect with other interpretative work on science representation or the mad scientist.

MAD SCIENCE IN FICTION

The Focus on Frankenstein

In his classic study of *Frankenstein*, Chris Baldick (1987) advocates a broader interpretation of the story that goes beyond representations of science to encompass the politics of the French revolution and the newly industrialised society. He makes a strong argument against a purely technological reading on the basis that *Frankenstein* is a powerfully evocative work, which revolves around the relationship between the monster and his creator and raises associations with the parent-child relationship, the ruler and ruled, master and servant, God and man and so on. The sheer reach of interpretative potential of *Frankenstein* is perhaps

[7] There are studies that do not prioritise this vision so strongly. Some find and have argued for the recognition of greater complexity of representations of science in fiction: see especially Locke (2005) and Orthia (2010). Others find heroism: see Rosenberg (1963) for a study of scientist Sinclair Lewis' (1925) scientist hero, Martin Arrowsmith; Long and Steinke (1996) find images of science to be more constructive than detrimental in children's educational science television programming; one study follows the scientist as comic virtuoso in fiction after the founding of the Royal Society in 1660: see Duncan (1916); Terzian and Grunzke (2007) describe parodic scientists in 1960's films as ambivalent representations; several studies find genuine ambivalence toward the sciences in fiction: see Ball (2006); Crichton (1999); Hirsch (1958); Jensen (2008); Jones (2001); LaFollette (1990) finds 4 stereotypes in media images 1919-1950: the wizard, expert, creator/destroyer, and hero; Lambourne et al (1990) find pure esoteric research is more dangerous than a problem-solving domesticated science in 1950's movies: see pp96-106; Mulkay (1995;1996) who also finds Frankenstein type images used as a rhetorical strategy by proponents of embryo research; Russell (2007) follows science professionalization in British 19th-century literary fiction; and Schnabel (2003) describes flip-flop, God to Devil, images of science in the press

partly what has given it such lofty status in all literary fields including in studies of fictional scientists.

When Baldick does focus on science, he claims that "after Frankenstein, the figure of the scientist in fiction has, almost as a rule, to be that of an aspiring young medical student who dabbles in galvanism, and whose long hours in the seclusion of the laboratory engender or reinforce a misanthropic, or at best insensitive, disregard for his social bonds and duties."[8] Baldick's archetype is useful shorthand for the mad scientific stereotype, which extends to other flawed scientists such as Stevenson's Dr Jekyll and Mr Hyde (1886) and Wells' vivisectionist, Dr Moreau (1896). The medico-biological hallmark of these scientists is something that Turney (1998) takes up in his study of biology in public, in which he argues convincingly that *Frankenstein* is "the governing myth of modern biology."[9] The biomedical component of Shelley's story, the fact that it is about generating life, is what Turney believes makes it so relevant to 20th-century debates about biotechnology. There is no doubt that the story is a fitting, if frightening metaphor for much technoscience of our own time.[10]

That said, when the medico-biological detail is put aside, what Baldick's scientists amount to are scientific over-reachers whose work almost always ends in self-destruction, and usually in the destruction of others as well. The script is simple enough, a scientist creates something, drug, dinosaur, bomb or other, which runs out of control, turns on its creator and his kind, and precipitates destruction and disarray. This is a classic case of the hubristic philosopher – a tale that was told and retold long before and after Mary Shelley wrote about Victor Frankenstein.[11] Many of these stories, including *Frankenstein*, are versions on a Faustian theme, in which the

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[8] Baldick(1987) p142
[9] Turney (1998) pp3
[10] See also Liakopoulos (2002) p26-27 for images in press of biotechnologists as mad scientists
[11] Joachim Schummer's (2006) extensive history of fictional representations of the chemist, finds the hubristic over-reacher to be the most powerful and longest lasting of all. He calls this the 'mad scientist.' Schummer argues that it develops from the mad alchemist who sought the philosopher's stone and then was transformed into a chemist who was either morally perverted or in league with Satan.

'soul' is swapped for the achievement of some productive process or other.[12] In the original Faustian legend(s) the productive process is supernatural, often diabolical magic. It seems to have been Shelley, who first swapped magic for science and secularised the myth. This then, is the script that Frankenstein in all his incarnations of mad science, medical and otherwise, so often plays out.

The script that has become associated with mad science is a less than pleasing picture of what science can do and is perceived as problematic by many scientists, which in itself is a powerful drive for academic focus on it.[13] Indeed, Jon Turney's (1998) study testifies to the symbolic power of the story in our own time. Frankenstein has become cultural shorthand, so familiar that it is only necessary to borrow a prefix in order to conjure the monster in novel forms like *Franken-foods* and *Franken-cat*[14]. Turney sees these kind of references as "perpetuating a mutual distrust between scientists and lay opinion, with researchers accusing the public of taking Frankensteinian fears literally, and laypeople feeling that scientists refuse to respond to their genuine concerns, however knowledgeable and sophisticated they may be."[15] This statement, of course, raises a thorny question of a chicken and an egg. What comes first, the mutual mistrust, or the images of Frankenstein?

Certainly, there are scientists who believe that the image has a negative effect on public perceptions of real science. In a recent letter to the *Times Higher Education Supplement*, scientist John Gilbey bemoans the prevalence of mad scientists in popular culture. For him the problem is that "the popular image of the scientist is based so closely on fictional representations of science and – in particular – on science fiction that the public view of science itself is becoming just a mirror of these fantasy

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[12] Baldick (1987) p64
[13] See especially Baldick (1987) p142; Cohen (1981); Frayling (2005), Haste (1997); Haynes (1994) pp1-8; Schummer (2006); Skal (1998); Turney (1998); and for scientists uniting script and image see Gilbey (2008); Pollack (1998)
[14] Cited in Liakopoulos (2002) p22 also in Jörg (2003) p297
[15] Turney (1998) p221

creations."[16] The fantasy creation, which he places at the root of all others is, of course, *Frankenstein* and he seems to imagine that this is what real people think that real science is. Gilbey is not alone in this view. The former Chief Scientific Adviser to the UK Government, Sir David King, also sees the image as a major PR problem for science.[17] In fact, judging by the consistency with which this view is aired in popular and academic press, the idea that non-scientists conflate fact and fiction in this regard is taken as read.[18]

In this instance, and others, Turney's (1998) assertion, that scientists believe the public(s) take 'frankensteinian' fears literally, certainly seems to hold water. Be that as it may, Turney is more nuanced than many in that he sees the issue as one of framing and not as the passive absorption of a fantasy on the part of the masses. The Frankenstein frame he argues hinders detailed discussion of the technology and leads to 'yes' or 'no' responses that conceal the real issues at hand. That said, a particular cause for concern within scientific circles in the UK is a measurable decrease in the number of students enrolling on science courses, which understandably fuels worries over PR[19]. Still, there is no real reason to suppose that popular culture has any influence on this trend, indeed what people actually think of science seems to be a more complex affair than the apparent trends in science education suggest.

The reasons for the perceived cultural dominance of the mad scientist over other visions of science seem to revolve around the abiding ubiquity and

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[16] Gilbey (2008)

[17] See Frayling (2006b)

[18] Basalla (1975) "Pop Science: The Depiction of Science in Popular Culture" in Holton and Blandpied (eds) (1975); Frayling (2005 and 2006b); Haynes (1994; 2003; 2006); Hirsch (1958); Jackson (2008); Jones (2001); Rose (2003); Turney (1998); Gilbey (2008); McDonald (1989); Pollack (1998). Michael and Carter (2001) report that in interview scientists were inclined to see fictional science as a potential tool for enthusing the 'public', but showed concern over the potential for misinformation, in other words scientists believe public(s) believe fiction as reality. Kirby (2003) p262-63 briefly reviews those who argue that fictional television images are harmful to the public understanding of science in the USA and Nelkin (1995) pp64-72 summarises the complexities of the science-public interface

[19] See Braund and Reiss (2006) who argue that this effect is partly due to an outmoded and restrictive style of science education in secondary school education and that there is no lack of interest in science outside of the school laboratory.

power of the image; its prescience as a metaphor for biotechnology in our contemporary scientific culture; its heritage in *Frankenstein*, a novel of much broader interpretive depth than the role of science in society; its ability to raise pertinent questions about whether we can control the technologies we make; and last, the assumption that it directly represents fear and negativity on the part of public(s) toward science or at least impedes a healthy relation between scientists and non-scientists. There are two questions at issue in this last statement. Do public(s) really see science in such a negative light? If so, can this negativity possibly result from the influence of familiar fictional icons?

The Function of Fiction

On the issue of actual public perceptions, opinion polls and public attitude surveys give patchy results, to say the least. Haynes (1994) and Frayling (2005), both of whom emphasise negative portrayals of science, cite 1950's American surveys of high school children who, to some extent, see real scientists as mad scientists.[20] In calling attention to such studies within their own work that focuses on fictional mad scientists, these authors support a latent assumption that fiction has direct effects on public opinion in some way that they then do not explain.[21] In other words, they fall into the same trap as many scientists who assume that non-scientists take fiction, or metaphor, as reality. In any case, it seems that the overall public negativity about science is a debatable phenomenon. Jon Turney (1998) cites more recent public surveys, also American, which indicate much more positive attitudes toward science.[22] Indeed, in his study, Turney finds a mixture of fascination and optimism about the medical benefits of biology in press mixed with a growing unease about potentialities for playing God or Frankenstein.

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[20] More recent surveys of public attitudes tend to reveal ambivalence, some stereotypical images mingle with realistic ones, and fear with respect and hope. See Gaskell et al (1997;2000;2006); Ipsos MORI (2008;2011); The Wellcome Trust (2000)
[21] Haynes (1994) pp1-2 Frayling (2005) pp12-18
[22] Turney (1998) p4

More recently in the UK, the latest UK Research Councils (2008) study on public attitudes finds a remarkably high proportion of positive perspectives on science and engineering among its respondents. The latest MORI poll (2008) too gives positive feedback. It places scientists at number six in a league table of professions, which has doctors at the top, teachers, second and professors, third and so, in fact, the top three categories all contain scientists of one kind or another as well. Having said that, what emerges on the whole from survey data tends towards genuine ambivalence on the part of the public.[23] Fears about the unintended consequences of technological innovation and lack of control over changes to long cherished lifestyles commingle with optimistic visions of combating disease, ameliorating hunger and generally improving the human condition. There appears to be no decline in support for science perceptible from survey data of Western publics.[24] A re-read of Margaret Mead's seminal 1957 survey reveals that even she finds ambivalence amongst high-school students and not just negativity. In any case there can be no simple answer to the question of whether public(s) are disillusioned with science or not, the answer being dependent on which public, which science and at what time.

Public(s) sometimes respond in negative or fearful terms to some kinds of science or technology in one context, but respond positively to similar technosciences in different contexts and vice versa.[25] Given the enormous variety of sciences this is not surprising, and raises the question of how far any generalised fictional image can impinge on public attitudes. Martin Bauer's (2002) extensive study of quality British press and public attitudes to biotechnology was able to demonstrate a measure of influence of mass media on perceptions, but in a way that is specific to particular issues and stories. A content analysis of newspapers over three years showed that,

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[23] Gaskell et al (1997; 2000; 2006); Ipsos MORI (2008; 2011); The Wellcome Trust (2000)
[24] See, for example, See Gaskell et al (1997) (2000) (2006); Ipsos MORI (2008; 2011); Nelkin (1995) p68
[25] See Gaskell et al (1997) (2000) (2006). In the latest report there is widespread support for medical (red) and industrial (white) biotechnologies, but general opposition to agricultural (green) biotechnologies in all but a few countries – this pattern has remained the same since 1997, but optimism for biotechnology overall has increased since 1999, having been in decline between 1991 and 1999

following controversies over cloning, GM-food and crops, agri-food applications were cast in a negative light in the press, while biomedical applications were treated benignly. Eurobarometer survey data over the same period showed that by the end of the study period readers followed the slant of the newspaper coverage and made greater distinctions between agri-food applications and biomedical ones.

Bauer's approach reveals useful detail about how press reporting may impact public opinion. The combination of qualitative and quantitative approaches in Bauer's work is a powerful means of revealing fine grains of press influence and media effects. The same methods would be hard pushed to pick up the effects of symbolic stereotypes like Frankenstein, which are beset with confounding variables, such as the multilayered meanings of symbolic forms, the familiarity of the symbol itself and the content of the story using the symbol etc. This makes it difficult to gauge the effects of popular metaphors using direct methods such as these. So we are left with the question of what, if any, function do fictional images serve?

There is a long and sophisticated discourse on the topic of popular culture and its effect on the populace, which extends from the work of the literary critic, FR Leavis in the 1930's, through Marxisms, structuralisms and post-structuralisms, to recent post-modern theories. Underlying much of the work on science representation is the assumption of a passive, unresponsive audience.[26] In some ways this thinking mirrors Leavis' views on literary culture. He perceived a culture under direct threat from standardisation and dumbing down in the popular market and to counter this process advocated that "the citizen...must be trained to discriminate and to resist" such deadening trends.[27] Similarly, some of those who write about mad scientists, from whatever perspective, have a tendency to emphasize it as the standard image and to bemoan the fact that this dulls lay understanding,

[26] See Storey (2006) for an excellent history of discourse on popular culture; Bates (2005) pp49-50 too summarises notions of a passive audience in relation to genetics in public

[27] Leavis and Thompson (1977) *Culture and Environment* Westport Connecticut Greenwood Press quoted in Storey (2006) p21

stopping genuine debate, or learning, dead in the water.[28]

Yet, it seems unlikely that popular representations have no impact on people and cultures, but effects are likely to stem from a more nuanced understanding of stories and how they function. Literary critic Tzvetan Todorov (1975) warns that the idea of representation itself needs to be re-examined with respect to literary texts, which are not representative in the sense of referring to 'a thing' in the world outside the text, in the same way that a 'factual' statement refers to 'something' exterior to the statement itself. The events and characters of literature are only internal to the text, they both exist and they do not exist. Todorov has usefully elaborated on this difficulty, and is of the view that because fiction describes events and characters that have parallels in the real world, to deny it any representative role at all would amount to defining an object only with the object itself. There must be at least an oblique relationship between real world and literary representations.

Yet there are important nuances to be taken into account that he helpfully identifies. First, there is what he calls the 'polysemy of image,' which suggests that icons like scientific villains may have different meaning in different narrative contexts. Second, the temptation to seek a direct equation between an icon and a meaning "must be rejected, because each image always signifies others, in an infinite network of relations." And third, unlike a word, the image itself is not a signifier, "because it signifies itself...it possesses a certain density" and if we negate such density, then every image turns into allegory, which overstates its referential role and treats it as if it were transparent.[29]

This last point is an important reminder that the mad scientist is quite simply an entertaining figure. A study by Andrew Tudor (1989a) of nearly

[28] See Frayling (2005 and 2006b); Haynes (1994; 2003), Kirby (2003) pp262-63 for review of arguments that fictional images can hamper public understanding of science; Millhauser (1973); Toumey (1992); Turney (1998); Weart (1988); for scientists making the same assumption see Emsley (2001); Gilbey (2008)
[29] Todorov et al (1975) pp143-144

one thousand feature films found that "[a]long with supernature and psychiatric disorder, mad science is one of the three most common sources of horror-movie monsters."[30] Yet, this is not because Hollywood scriptwriters and their audiences really believe that science is a terrifying and disastrous enterprise, it is because science is one of the few activities that is plausibly powerful enough to make monsters.[31] Oddly enough, mad scientists begin to lose ground in 1960 and decline in favour of a different kind of psychotic horror.

What defines the mad scientist for many is generally this kind of disaster narrative as much as the representation of the scientist him or herself. Though there are some recurring characteristics that appear to accompany the narrative, Baldick, for example, gives his medical student galvanic apparatus, presumably to connect him to the laboratory and to mildly grisly work of Luigi Galvani. In 1803, Galvani's nephew, Giovanni Aldini, showed that the cadaver of a decapitated criminal would open an eye, twitch its legs and raise an arm upon the application of electric current, giving it a semblance of life.[32] Most mad scientists are men, they have equipment, not always galvanic, but often bubbling vials or other arcane instruments and they are commonly unkempt or shambolic.[33] Some scholars see the images themselves as an unbending critique of science. Christopher P Toumey (1992) believes the scientific paraphernalia associated with the mad scientist to be an illogical bundle of magical iconography, a hangover from alchemy that constitutes an antirational critique. Those scholars focussing on the disaster narrative itself are also inclined to take it as a straightforward reflection of fear on the part of public(s).[34]

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[30] Tudor (1989a) p589

[31] Weart (1988) makes the same point that there are few sources of power plausible enough to create monsters – science, supernatural and human deviance

[32] See Knellwolf and Goodall (2008) p7

[33] Such images are well documented from so-called 'draw-a-scientist' studies, for example Wade-Chambers (1983); Rahm and Charbonneau (1997) and in Mead and Métraux (1957) survey. That said, the disaster narrative is by no means fused to this image and some scientists make positive use of the image see, For example, see Professor Martin Poliakoff, presenter of short chemistry videos: http://www.periodicvideos.com/about.htm accessed 26.06.11; or the education group http://www.madscience.org/ accessed 26.06.11

[34] For this assumption see Basalla (1975) "Pop Science: The Depiction of Science in Popular Culture" in Holton and Blandpied (eds) (1975); Cohen (1981); Frayling (2005;

In defending the popular movie against scientists who decry their flawed, unrealistic on-screen image, novelist and filmmaker Michael Crichton (1999) makes exactly this point "All professions look bad in the movies. And there's a good reason for this. Movies don't portray career paths, they conscript interesting life-styles to serve a plot." For one thing, narratives of darkness and destruction play to the modern human propensity for enjoying being frightened by something that is not actually dangerous. For another, this script contains a genuine and abiding concern. Crichton quotes Paul Valéry on this point: "Can the human mind master what the human mind has made?" and he adds himself, "That's the question that troubled Oppenheimer...It troubles many scientists now. And it should." Crichton was pro-science and himself a one-time medic. He appeals to scientists to take the critique as evidence of the power and success of science; to take the attention as a compliment "[a]nd get over it" because "[w]hat really matters is not the image, but the reality."[35]

True, to an extent, but image does matter. One of the social functions of iconic fictions has come out of focus group work. For example, a study by Bates (2005) designed to penetrate understandings of genetics found that participants used multiple cultural referents, from fiction, faction and factual sources, to support their own claims. They approached "genetics in the news, and in documentaries and stories about genetics in fiction as ways of interpreting the impact of genetic technology on social collectives," and they drew upon all these materials to provide multiple frames for discussing the impact of genetic technology.[36] In short, they did not passively absorb a single icon of mad science as a frightening metaphor for a monolithic science and allow it to frame their entire debate, in spite of the fact that Turney has identified this icon as especially pertinent to genetics. What these focus group participants seemed naturally to work through was Todorov's 'infinite network of relations' that lead the group through one

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2006b); Haste (1997); Haynes (1994; 2003; 2006); Millhauser (1973); Rose (2003); Gilbey (2008); Pollack (1998)

[35] Crichton (1999)

[36] Bates (2005) p59

image after another, each signifying others, real and imaginary.

The role of fictional images is the topic of two papers by Michael Mulkay (1995 and 1996), which examine debates over embryo research in the UK. He found that images of 'mad science' were used particularly by advocates of human embryo research, as part of a rhetorical strategy to suggest that opponents to the research were simply confusing fact and fantasy. Mulkay suggests that although opponents rarely invoked such fictions themselves, their objections drew on caveats that hinted at mad science out of control. For example they cited the power of science, its unknown consequences, its resistance to societal control, its ability to manipulate natural processes, the potential for some unethical uses of the technology etc. Indeed if everything on this list were to go sour, it would result in a horror movie disaster. Hence, the accusation of confusing real science with mad. Yet to take opponents' fears as fiction, in fact, draws on the same taken-for-granted idea that mad science stories translate directly into publics' fears about real science. This is not a dissimilar move to scientists who believe "the popular view of science itself is becoming just a mirror of these fantasy creations."[37]

Does this mean that part of the stereotype of fictional mad science is the assumption that it equates to public fears or negativity? Lindy Orthia (2010) believes so. She has pointed out that the assumption that the scientific villain is both symptom of and influence on negativity or fear on the part of public(s) toward science does not hold water. In her study of the UK television drama *Dr Who* she investigates the role of a number of mad scientists who threaten to disrupt the universe with their will to power. Yet, the fact that the impending disorder is always restored to order by Dr Who's own techno-scientific abilities results in "a powerfully pro-science statement."[38] This is an example of Todorov's 'polysemy of image' in which the meaning of the image changes according to its narrative context.

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[37] Gilbey (2008)
[38] Orthia (2010) p15

Despite the fact that survey data repeatedly turn up public(s) who harbour a whole host of hopes *and* fears about science(s) and perceived public disillusion is not as entrenched as it is believed to be, there is a lingering assumption in some scholarship that mad science stories equate to a fearful public. Yet this positions the public as deficient in understanding the art and function of fiction such that they naïvely absorb fiction as real, and allow a single image to dominate and guide their debates. Focus groups reveal the opposite. Participants used fiction in just the sophisticated sense that Tzvetan Todorov describes they might. Pro-embryo research groups turned mad science stories to rhetorical advantage, and popular television series turn scientific villains into positively pro-science messages. Images can be utilised in extraordinarily complex, multilayered ways, which suggests that they simply form a pool of resources for thinking and debating about science in society.[39]

MAD SCIENCE BETWEEN TWO CULTURES

Christopher Frayling (2005) finds that the 20th-century narrative of cinematic science reveals a slow decline from awe, to suspicion to, "not outright disdain, but deep-seated concerns..."[40] and he goes on to link this trend directly to a gap between scientific knowledge and the public understanding of it. On this latter point he quotes the scientist, Carl Sagan: "We've arranged a global civilisation in which the most crucial elements...profoundly depend on science and technology. We have also arranged things so that no one understands science and technology. This is a prescription for a disaster."[41] Frayling goes on to say, "The gap between specialised knowledge and a general need for understanding was and is the gap the story-tellers fill."[42] The link between understanding science and watching feature films is never made more explicit than this. Crichton (1999), responding to similar claims, protests "Scientists often complain to

[39] One of the conclusions reached by Simon Locke (2005) p42
[40] Frayling (2005) p224
[41] From Carl Sagan (1995) *The Demon-Haunted World: Science as a Candle in the Dark* New York quoted in Frayling (2005) p224
[42] Frayling (2005) p224

me that the media misunderstands their work. But, in fact, the reality is just the opposite: It is science that misunderstands the media."

It is notable that debates over how science is represented drift into the territory of what the public, or rather what non-scientists, understand or do not understand about science.[43] The question that appears to be at the root of this phenomenon is whether or how people assess the status of knowledge. How do people draw boundaries between different types of knowledge? It has been my contention that publics are perfectly able to understand that fiction is just that - it is make-believe. So how does this square up with the fact that fictional images are regularly drawn into debate about research policy and other serious matters? This is an issue taken up by Michael and Carter (2001) who have used focus groups to explore how people categorise different types of knowledge and sort the trustworthy from the untrustworthy. They compared three groups, students, teachers and scientists.

Scientists and teachers, both, were enthusiastic about the potential 'springboard' effects that fiction may have in encouraging readers to find out more, yet at the same time worried that it may present science information inaccurately. In this regard, both groups "tacitly deploy the 'deficit model'", since fiction is constructed in their terms as if it were in the service of science (or not) by enthusing its audience and providing information.[44] In this scenario, students or other non-scientist readers are doubly deficient, in understanding the function of fiction (as are teachers and scientists apparently) and in understanding science. Students, on the other hand, showed a much more sophisticated ability to assess different

[43] See Dornan (1990) for review of a 'dominant concern' within conceptualisations of 'science and the media' that sought to create an informed populace which was assumed would make for greater or better democratic process, owing to the objective superiority and neutrality of science. The 'dominant concern' still underlies much public understanding claims, such as Frayling's.

[44] Michael and Carter (2001) p15 The deficit model of public understanding of science, positions the public as a single, passive entity deficient in an understanding of both scientific fact and process: see Thomas and Durant (1987) and Durant et al (1989); House of Lords Select Committee (2000); for review and history see Bauer (2009) esp pp222-225; for critique Dickson (2000); Lévy-Leblond (1992); Wynne (1992)

sources of knowledge for different purposes, and to critically engage with all of them. Their accounts of the purposes of representations in fiction, faction and fact, "straddle pedagogy, entertainment, emotion and ethics."[45] Yet teachers and scientists saw these media largely in the much more limited terms of the deficit model.

Students had a much more flexible, creative and sophisticated understanding of cultural products, presumably because they were unhampered by the strictures of expertise. They did not see themselves as specialists, whereas teachers and scientists positioned themselves as experts with students and public as 'other.' Not to see that fiction is fun, or that it raises questions of an emotional and ethical nature about science is a blatant demonstration of blinkered expertise, although in their defence these groups were presumably approached *as* experts. Nevertheless they were blinkered and this is in large part what fuels fears over the fragmentation of knowledge, an anxiety that has echoed down the centuries and taken shape in regular spats over the 'correct' understanding.

As early as 1834, historian and philosopher William Whewell bemoans the hostilities that have riven realms of knowledge: "...the students of books and of things are estranged from each other in habit and feeling...If a moralist, like Hobbes, venture into the domain of mathematics, or a poet, like Goethe, wander into the fields of experimental science, he is received with contradiction and contempt..."[46] What is understood and by whom it is understood are important sites of contestation in the long running dispute between representatives of the sciences and the arts, more recently epitomised in CP Snow's Rede lecture (1959), *The Two Cultures*. Such pronouncements as those of Frayling, Sagan and Crichton echo Whewell and they do not simply reiterate the conflict between two cultures, they are

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[45] Michael and Carter 2001 p26
I use the term 'faction' to refer to a hazy ground that exists between fact and fiction in which factual accounts are part fiction and fictional accounts contain real world elements. It is a term that is often used in studies of policing in the media and is the subtitle for Leishman and Mason's (2003) study of the police in the press

[46] William Whewell (1834) "On the Connexion of the Physical Sciences by Mrs Somerville" *Quarterly Review* in Kramer et al (eds) (2003) p360

part and parcel of it.

In 1959, pro-science writer and novelist, Snow, like Whewell before him, invoked the idea that the arts and sciences were disparate endeavours, but by now they are separated both ways by a "gulf of mutual incomprehension."[47] His work caused a storm of response, favourable and unfavourable. Most famously, the literary critic, FR Leavis responded in the 1962 Richmond lecture with a performance that has gone down as one of the finest examples of academic vitriol in history. Passions ran high on both sides.

Snow had accused literary scholars of intellectual Luddism that spread an "unscientific flavour", which is "often, much more than we admit, on the point of turning anti-scientific" (the same feeling that the mad scientist is said to represent today).[48] Snow then takes a tone of assumed authority likely to get under the skin of any self-respecting literary scholar. He proclaims scientific debate as "much more rigorous, and almost always at a higher conceptual level, than literary persons' arguments..."[49] Leavis leaps on the air of authority: "a tone of which one can say that, while only genius could justify it, one cannot readily think of a genius adopting it."[50] Far from genius, Leavis condemns Snow as "intellectually as undistinguished as it is possible to be" and his work as "an embarrassing vulgarity..." full of "panoptic pseudo-cogencies..."[51]

The fervour of these exchanges testifies to their importance. What is at stake is cultural authority. Snow is a positivist; his belief is that science will improve the human condition. For Leavis, the reduction of the human experience to something quantifiable, classifiable and manageable is an anathema, as ludicrous as the character of Mr Gradgrind in Charles Dickens' anti-utilitarian novel *Hard Times* (1854).[52] Snow takes Leavis'

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[47] Snow and Collini (1959/1998) p4
[48] Ibid pp11
[49] Ibid pp12
[50] FR Leavis (1962) quoted in Snow and Collini (1959/1998) pxxxiii
[51] Ibid pp pxxxiii
[52] Mr Gradgrind, a parody of a utilitarian teacher, drills his students and his own children in facts and statistics, to the exclusion of all imaginative or emotional activity – and all to a

reservations as anti-science feeling, in a similar vein to the interpretation put on fictional science by present-day scientists and some scholars of representation. Snow dismisses 19th-century authors, who raised the spectre of the human costs of the industrial revolution, as Luddites who, lacking understanding of science, spread an anti-scientific flavour. Today the debate has shifted onto popular representations, which come under attack as emblematic of poor understanding of, and disillusion with, science. Countering this, of course, are shouts from the arts bench that scientists misunderstand the literature. And so on.

Similar interchanges have been intermittently winging to and fro between science and arts camps for the last two hundred years or more. It seems extraordinary that details of whether people can and cannot relay facts about thermodynamics or Shakespeare plays are taken as the terms for serious debate. Yet, the debate goes on in precisely these terms. It is so current, in fact that the UK *Observer* newspaper recently put a panel of three writers, three scientists and two broadcasters through a science test, which included the fateful thermodynamics question first posed by Snow.[53] Interestingly enough, the scientists on the panel did not seem to fare a lot better than the writers and broadcasters did, a factor that probably points to the extent of their specialisation.[54]

In his introduction to *The Two Cultures*, Stefan Collini (1959/1998) suggests that the controversy can be read as a re-hash of that well-worn dispute of English cultural history - the Romantic versus the Utilitarian, Coleridge vs Bentham, Arnold vs Huxley, and many more. He points out that each new mêlée in a cultural war that has a long history carries the

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bad end. Gradgrind and CP Snow do broadly share a belief in the value of the application of science to the human condition and Leavis' derision of such reductionism is enacted in Dickens narrative. Gradgrind's children go off the rails as a result of the strictures he places upon them. Utilitarianism is discussed further in Chapter four, see pp 106-17

[53] In the 1959 Rede Lecture Snow asserts: "A good many times I have been present at gatherings of people who, by the standards of the traditional culture, are thought highly educated and who have with considerable gusto been expressing their incredulity at the illiteracy of scientists. Once or twice I have been provoked and have asked the company how many of them could describe the Second Law of Thermodynamics. The response was cold: it was also negative." Snow and Collini (1959/1998) p15

[54] See Adams (2007)

weight of the past attacks, defeats and outrages, so that there is more at stake than the apparent cause of the current dispute. The war has always been, and continues to be, over cultural authority, which might be defined as the probability that some knowledge or other become generally accepted as true and valid.[55] Hitching a ride with cultural authority are the added benefits of credibility, status, power and material resources.

The fundamental problem addressed by Thomas Gieryn (1995) in his classic paper on the boundaries of science, is to understand exactly this process. How does science obtain the cultural authority that it has? The temptation is to attribute exceptional qualities to science's methods, social norms or paradigmatic perspectives of similar kind that defined it for Popper, Merton and Kuhn, but studies of day-to-day science do not find these practices much in evidence.[56] In that case focus is best shifted away from the practice of science and on to the representation of it, which by the act of representing, gives some perspective on the question of what science is. In order to represent, boundaries must be drawn which demarcate attributes that characterise science from those that do not.[57] The unceasing squabbles between arts and sciences disciplines are symptomatic of ongoing boundary work of the first order. In a sense, Gieryn envisages science as consisting more of boundary than of content. Science, he says, is "[n]othing but a *space*, one that acquires its authority precisely from and through episodic negotiations of its flexible and contextually contingent borders and territories."[58] The on-going two cultures debate, Coleridge and Bentham, Huxley and Arnold, Snow and Leavis, precisely exemplify Gieryn's process.

Gieryn's idea of 'cartographic contests', which erupt periodically to reset or

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[55] This definition follows Paul Starr (1982) *The Social Transformation of American Medicine* New York Basic Books p13, cited in Gieryn (1995) p405

[56] For example see Collins and Pinch (1998); Latour and Woolgar (1986), which both in different ways show that science in practice does not conform to these ideal methods

[57] The importance of image, boundary and representation of institutions is deepened by a look at the work of Everett C Hughes (1971) in the following chapter pp61-66. For the purpose of this argument a focus on Gieryn's rendering of boundaries is sufficient

[58] Gieryn (1995) p405 (his emphasis)

confirm new boundaries, would not be lost on TH Huxley. The consummate science professionaliser and propagandist, writing in *Nature* in 1894 speaks of a Baconian "division of the world of thought into two – an old and a new." In the old, "scientific method was anathemised [sic]", while in the new it was embraced, creating "two states, in which mutually unintelligible languages were spoken."[59] Following the division, "it was becoming plainer and plainer that a vast tract, hitherto claimed for the old, was being steadily invaded and annexed by the citizens of the new world."[60] Huxley could not be clearer on the territorial advance of science as it "invaded and annexed" and bounded, the cultural space previously occupied by the other.

The details of the debate have changed since Huxley, Snow or Whewell raised their flags for science. The images of mass culture have become a powerful focus for boundary issues. So, when Gilbey (2008) suggests that art scholars take directions to the science buildings on their campus to enable them to distinguish between real and mad scientists, the response from the arts department rings forth, "I don't need directions to the science building on my campus, John Gilbey. They're the ones full of real scientists who think I'm too stupid to know the difference between stereotype and reality."[61] Though today's participants still tussle over cultural space, their focus, their boundary setting, has moved into the arena of mass representation as the touchstone of authority and power. This is not surprising since universities are increasingly forced to operate a business model, in which brand, image and mass-appeal are seen as an important measure of market resilience.

The mad scientist may not seem to be the perfect face for a serious academic enterprise, although many a brand manager might disagree, since it is an undeniably striking and recognisable image. Yet, it may irritate

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[59] Huxley (1894) p1
[60] Ibid p2
[61] Nia Edwards-Behi reply to Gilbey (2008)
http://www.timeshighereducation.co.uk/story.asp?storycode=402421 Accessed 09.08.2011
See Gilbey (2008)

scientists, and indeed does seem to, on the basis that it never contains a demonstration of any science in process of whatever kind.[62] What exists of the mad scientist's method usually consists of masses of wonderfully evocative glass equipment, perhaps some electrical input, an obsessive attitude and the odd shout of eureka. In other words, the average mad scientist's method is a mystery. For a brand manager this is meat and drink, because mysteries are alluring, they draw forth our curiosity to discover the hidden knowledge. They also hint at one of the ways in which cultural authority might be constructed, which is to show off potently transformative knowledge of a kind that no-one else can find out.

Michael and Carter (2001) have described how fiction might 'interject' in the public understanding of science, by which they mean it provides a thinking resource and practice that serves to create understandings of different kinds. I would suggest that the 'mad scientist' has 'interjected' into boundary disputes between the sciences and the arts over cultural authority. Furthermore, the characteristics of mad science to which scientists most often object, are in fact exactly those points which reflect the ways in which they are maintaining cultural authority themselves.

In the present climate of deepened public accountability, when scientists and funders must work with market forces, tensions around popular images are bound to be heightened. The mad scientist is a boundary object in this respect. He draws attention from scientists whose boundary process consists of arguing that at best the image is not lifelike and at worst he fosters public(s) disapproval and suspicion.[63] Humanities scholars tend to overplay the extent of distrust in science and present the dominance of the

[62] Even those attempts to showcase science as a real day-to-day process sometimes cannot avoid the edge of the exotic. See, for example, the Nottingham University periodic table series of videos starring Professor Martin Poliakoff, whose image is every bit the 'mad scientist,' and accompanied by demonstrations of reacting chemical elements. The whole impression is of a process and a type of knowledge that is out of the ordinary, special and unconventional: see http://www.periodicvideos.com/ accessed 02.08.2011

[63] Frayling (2005; 2006b); Gilbey (2008); Pollack (1998); Crichton (1999) answers the boundary work

mad scientist as a reflection of this fear.[64] For example, Kramer (2003) in an introduction to an excellent anthology of literature and science, thought it uncontroversial to say that "Today 'science' can be used as a term of opprobrium and its high-priests, the 'scientists', are seen by some to be puppets of entrenched commercial and political interests."[65] To suggest that science is a term of abuse is a strong claim indeed, for which no evidence is forthcoming. Commercial and political interests do intermittently rouse suspicions, of course, and rightly so, but this does not turn scientists into hated and feared high priests – for most that is the stuff of fantasy.

The cultural alternatives to the mad scientist, which do exist, get less attention perhaps because of the compelling urgency that is encompassed in such boundary contests.[66] Yet public opinion surveys reveal a whole range of fears and hopes, positives and negatives when it comes to science. In the following section I will propose an alternative vision to the mad scientist, equally iconic and popular, that is seldom included in studies on science representation.

THE MAD SCIENTIST GAINS AN ALTER EGO

In the 20th century, *Frankenstein* gained a partner in *Dracula*. Bram

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[64] Many studies of the mad scientist make an assumption, sometimes tacit, about inherent public 'fears' of science: see, for example, Cohen (1981); Frayling (2005 and 2006b); Haste (1997); Haynes (1994; 2003; 2006); Turney (1998)

[65] Kramer (2002) pxxxii in Kramer et al (2003)

[66] That said, there are a few studies that find alternatives: see, for example, Duncan (1916); Hirsch (1958); LaFollette (1990); Locke (2005); Long and Steinke (1996); Rosenberg (1963); Russell (2007); Terzian and Grunzke (2007). Debates on type of scientist and genre seem to be more common in studies of science fiction, which tend to consider a greater variety of science and scientists than the stereotype of the mad, bad man. For example, Cranny-Francis (1998) describes a broad canvas: "Science takes a number of different identities within individual science fiction texts." But science fiction, "by fetishising science and technology...makes the point that the nature of a society – its values, beliefs, attitudes – is a function of its industry, the way it organises labour and the people who perform it." See Cranny-Francis "The 'science' of science fiction" in Martin and Veel (eds) (1998) p75 and p77 respectively. Lambourne et al (1990) find reassuring and alarming science in 1950's sci-fi movies. In a discussion of science fiction films Vieth (2001) noting the overlap between science fiction, horror and fantasy, writes: "In some films, the scientist is portrayed as evil...in other cases, the tragedy of the search is the death of the scientist who causes harm to no one but himself." p24

Stoker's (1897) novel was adapted for the big screen by Universal Studios in 1931 and was an immediate box office success. *Frankenstein* followed only a few months later. After this the two great horror icons drifted into popular culture and over the next forty or more years, they appeared as a matching set, in double horror bills, in compendium story books, in comics, television shows and all manner of cultural products.[67] David Skal (1993) notes that the dual horrors of Frankenstein's monster and Count Dracula "...present a dynamic, if demonic mythology for modern times. Each figure conjures the other by contrast ..."[68] The same can be said of their respective scientific protagonists. Although *Dracula* is not reckoned to be a story about science, in an obvious way as *Frankenstein* perhaps is, the novel does have a powerful scientific protagonist. Where Victor Frankenstein makes a monster, Stoker's Professor Van Helsing destroys one.

Bram Stoker's (1897) *Dracula* tells of a vampire hunt in which Professor Van Helsing, "a philosopher, and a metaphysician, and one of the most advanced scientists of his day" saves humanity from the curse of the "undead" by injecting a shot of calm empiricism into the vampire hunt.[69] Few on-screen scientists can have rivalled Victor Frankenstein for air-time more than Van Helsing has in the 20th century. Jon Turney finds over 40 film adaptations of Frankenstein up to 1982 and in Stephen Jones' movie guide compiled a decade later, he counts 400 films loosely based on the same story.[70] A quick count of movies, listed by the same author, reveals that there are 664 vampire films made before 1990 that include a character based on Van Helsing.[71]

Despite this Van Helsing tends to have been over-looked in studies of fictional scientists. Roslyn Haynes (1994) identifies him as a "scientist saviour", but devotes only two paragraphs to him and then dismisses him as a reflection of "Stoker's own predilections rather than any contemporary

[67] Skal (1993): see especially pp81-139
[68] Ibid p81
[69] Stoker (1897/1998) p147
[70] Turney (1998) p27-8
[71] Jones (1993)

scientific attitudes." Haynes believes Van Helsing is singular in his refusal to "reject the talismans of religion (as Victorian readers might have expected)... Such an alliance of science and religious tradition is atypical..."[72] This is an anachronism. The assumed dividing line between natural and supernatural or between science and religion as might be expected today does not hold in this period. On the contrary, Victorian readers would have been well used to stories, Sheridan Le Fanu's *In a Glass Darkly* is a famous example, and press reports, that merged natural and supernatural, and believed the spirit world to be a proper and exciting object of scientific enquiry.[73] Debates on this issue were particularly prominent at the fin-de-siècle, when *Dracula* was published, owing to a flurry of boundary setting activity on the part of scientists and spiritualists involved in variously denying, supporting, or just investigating the British fashion for talking to spirits.

Aside from Haynes' odd footnote to him, Van Helsing rarely gets a mention in work on the representation of scientists. Yet, he is a particularly interesting figure. Although cast in the character of scientist, and apparently a practised medical doctor as well, he is critical of too narrow-minded a scientific focus, not unlike some of his counterparts, equally eminent in the real world, William Crooke FRS, Alfred Russell Wallace and Lord Rayleigh, to name a few.[74] Van Helsing's scientific status does not prevent him from employing the talismans of religion when he needs them. His particular toolbox includes a typewriter, syringes, telegrams and a phonograph alongside a crucifix, some wild garlic flowers and a vial of consecrated water. When he explains to his fellow vampire hunters the real horrors of what they face, he says "We have on our side the power of combination – a power denied the vampire kind; we have the power of science...[and] tradition and superstition...Does not the belief of vampires rest on them? A year ago which of us would have received such a possibility, in the midst of our scientific, matter-of-fact nineteenth

[72] Haynes (1994) p169-70
[73] See Chapter 7 of this work, pp205-237 for a discussion of Le Fanu's (1872) *In a Glass Darkly* and more on the natural and the supernatural
[74] Noakes (1999)

century?"[75] Here, Stoker is joining the boundary setters; the inference of the novel is that to be of use, science needs draw supernatural folklore under its umbrella of expertise.

Van Helsing is open minded enough to take superstition seriously, but he also knows how to use science where it is needed. In contrast Victor Frankenstein's lack of superstition is what enables him "to spend days and nights in vaults and charnel houses." Examining "every object, the most insupportable to the delicacy of human feelings...how the worm inherited the wonders of the eye and brain..."[76] In the same paragraph the lack of superstition is transformed into a lack of 'human feelings', part and parcel of the 'misanthropic bent' described by Chris Baldick (1987). Frankenstein's complete split from the realm of feeling is his tragedy, whereas Van Helsing's character harks back (or forward), almost sentimentally, to a time when all knowledge was one thing and men were wise.

In many ways, the figure reiterates the themes so lamented by William Whewell and subsequently taken up in all the various engagements, or disengagements, over cultures, knowledges and understandings. In a study of the history of the mad scientist, Joachim Schummer (2006) sees him as arising out of anxieties over the splitting of knowledge. Indeed, Professor Van Helsing replaces the "metaphysical system to provide an overall framework and orientation..." that Schummer believes to have been lost in the fragmentation of the sciences from arts, humanities, philosophy and perhaps religion too.[77] Indeed the project of science and technology studies, along with many related topics of focus, hopes to benefit from re-connecting disciplines that have to some extent lost touch. Van Helsing appears to be another kind of response to increasing drive of specialisation.

[75] Stoker (1897/1998) p277
[76] Shelley et al (1818/1994) p80
[77] Schummer (2006) p125

The Detectives

Although *Dracula* is clearly an important story in the 20th century, academic responses to it tend to be limited to a few dominant interpretations, which are psychosexual, political and postmodernist.[78] In the literary critical tradition of Matthew Arnold and FR Leavis, the novel was relegated to the bin of mass culture and, as Skal (1993) notes, it is still considered naïve entertainment, engaging emotion, rather than intellect.[79] Indeed, Baldick (1987) dismisses it as rather inconsequential on the basis that it "proceeds...to drown out all its teeming symbolic suggestions...to enact a single-minded rite of exorcism."[80] That said, the novel has since drawn more academic attention, particularly from literature scholars interested in how Stoker negotiates ideas of degeneration, evolution, and ideas of 'normal science'.[81] When it comes to the scientist in fiction though, Van Helsing is not reckoned to have anything of much importance to add to debates about the representation of science. Oddly, in this, as in so many other respects, the novel mirrors its Hollywood twin.

Stoker's novel is narrated in epistolary form, in which letters, diaries, and newspaper clippings together tell a story that gives the reader a sense of evidential material and positions her/him as judge and jury. As the story passes from one witness to another, a mystery unfolds that impels detection. The lead detective is Professor Van Helsing, assisted by his sidekick, the alienist, Dr Seward. Bram Stoker originally conceived the professor, not as one, but as three individuals, a detective inspector and two historians.[82] In the event Van Helsing is not a detective by profession, although his mission entails tracking a known deviant by logical, empirical means. As such, the character belongs to a lineage of fictional scientists who are the scientific detectives. These scientists inhabit a 'restorative' script that reverses the order of the over-reacher and are portrayed as restoring moral order to a

[78] See: Skal (1998) p84-87; Baldick (1987) p147-148
[79] See Skal (1993) p83
[80] Baldick (1987) p148
[81] See Glover (1994); Greenway (1986); Jann (1989)
[82] Frayling (1991) p305

temporarily disordered society.

One of the most famous and popular scientists ever to have existed in fiction is Mr Sherlock Holmes[83]. The lines that introduce Holmes place him as "a fellow who is working in a chemical laboratory up at the hospital..."[84] A few sentences later, "He is a little queer in his ideas – an enthusiast in some branches of science."[85] And "he is well up in anatomy, and he is a first class chemist...His studies are very desultory and eccentric, but he has amassed a lot of out-of-the-way knowledge which would astonish his professors."[86] There is no doubt that Holmes is a scientist. Ultimately he represents rational order set against the murky disorder of the criminal underworld, just as Van Helsing lights up the dark realm of the supernatural.

Holmes is both laboratory scientist manufacturing forensic tests and thoughtful deductive logician. Yet, Haynes (1994) pays scant attention to him, despite acceding to the fact that he is an important model for a socially beneficent science. She asserts that Holmes and other detectives, like Austin Freeman's Dr Thorndyke, are cast in similar mould and their "connection with laboratory scientists usually resides in their recourse to deductive logic (which is tacitly assumed to be identical with scientific method) and their use of some strategic chemical tests, but overall there is little to distinguish these forensic scientists from routine crime-solvers such as Agatha Christie's Hercule Poirot."[87]

It seems that for Haynes a scientist has to work in a laboratory and science *is* laboratory science. In excluding 'deductive logic', by which she seems to be referring to all the kinds of thinking and puzzle-solving that detectives and scientists do, Haynes has effectively excluded the detective as having anything to do with science. Even those ones who do forensic science in laboratories do not fall into her remit. It is difficult to know what her

[83] Arthur Conan Doyle's *A Study in Scarlet* was the first Sherlock Holmes story, published in 1887
[84] Conan Doyle (1887/1981) p11
[85] Ibid p11
[86] Ibid p11
[87] Haynes (1994) p179

criteria are for identifying a scientist, and to be fair a precise definition is no easy matter in a fictional universe. Yet to exclude anyone who does not spend all their time in a laboratory means that many physicists, social scientists, field scientists of different sorts, climate modellers, theoreticians in all science disciplines, and many more, are not scientists. Detectives clearly have their own powerful professional image as crime fighters, but their process, at least in fiction, is represented as scientific, even when it patently is not. Indeed, many detective fictions are not tacit in asserting that the detective's logic is identical with scientific method, in the way that Haynes remarks, rather they are explicit on that very point.[88]

The second chapter of Conan Doyle's (1887) *A Study in Scarlet* is entitled "The Science of Deduction." In it Watson reads an article on the topic of deductive logic written by Holmes himself, in which, "[t]he writer claimed by a momentary expression, a twitch of a muscle or a glance of an eye, to fathom a man's inmost thoughts. Deceit...was an impossibility in the case of one trained to observation and analysis. His conclusions were as infallible as so many propositions of Euclid."[89] Observation, analysis, deduction, and logic are all skills that are claimed, probably as often by non-scientists as scientists, to be attributes of science. Indeed, at a recent meeting entitled 'The Two Cultures', physicist Alan Sokal spoke of a 'scientific world-view' intrinsic to the detective story and Cambridge mathematician, Marcus du Sautoy reviewing a recent detective novel for the UK *Guardian* writes of "the many similarities between cracking a crime and trying to prove a mathematical theorem."[90]

Science as a process of detection is not an uncommon metaphor in the

[88] Some modern detective fictions seem specifically to create an image that is 'scientific': see UK television dramas: *Silent Witness*, *Waking the Dead* and American imports, *Quincy*, *CSI*, *CSI NY*, *CSI Miami*, and *Criminal Minds*. Likewise the 'forensic novels' of Kathy Reichs, Patricia Cornwell and Jefferson Bass

[89] Conan Doyle (1887/1981) p22

[90] Sokal spoke at the Two Cultures meeting organised by the London Consortium in January 2009; du Sautoy is quoted in Reisz (2008)

scientific press either, particularly in medical contexts.[91] RE and E Peschel (1989), who write of the art of diagnosis as demanding 'detective skill,' describe the process of building a complete picture from a "complicated jigsaw puzzle with the hitch that you cannot have all the pieces."[92] Similarly, Claudio Rapezzi and co-authors (2005) find that detectives and medics share skill sets in the fundamentals of observation, reasoning and knowledge with an added talent for probing the social and psychological and for spotting inconsistency.

A further piece by R Jane Macnaughton (1998), in similar vein, aims to get a better understanding of the role of evidence in medical practice, by looking "beyond medicine to the way in which scientists and detectives view evidence..."[93] Here, the author makes an interesting point. Although "[t]he 'detective model' of evidence is similar to the scientific model in important respects – the collection of data, the observations and the chance discoveries, followed by the formulation of hypotheses which transform some of this information into evidence... it is unlike the scientific model in one important respect. It is not logically possible to generalize. The evidence is relevant to one and only one situation..."[94] In this account the detective process is identical with the scientific process, except that it is bounded, safely bounded and in this respect less frightening than the work of mad scientists who very often attempt to understand nature at a more basic level. Frankenstein is able, for example, to generalise from the process of decay he observes in the charnel house, to the animating principle that he uses to vivify dead flesh.

THE DECTECTIVE *AS* SCIENTIST

Why is the bounded, safe scientist not the subject of focus *as* a representation of science in public? It is surprising that given the scientific

[91] See Rapezzi et al (2005) for discussion of medics as detectives; Markel (2005) for Conan Doyle's 'diagnosis' of Koch's lymph in Tb cures and Peschel and Peschel (1989) for medical detective stories.
[92] Peschel and Peschel (1989) p33
[93] Macnaughton (1998) p89
[94] Macnaughton (1998) p90

bent of the detective, and his or her iconic status, that the figure has not been brought out of the shadows as an alternative to the mad scientist. Perhaps, as is clearly the case for Roslyn Haynes, the reason is that the detective is not associated with a laboratory, and is simply not seen as relevant, although more and more of the modern crime fighters have donned the obligatory white coat.[95]

The element of the detective, which draws much critical attention, is oddly highlighted by Schummer's description of how 19th century writers worried about science as it evolved into an ever more esoteric, powerful and independent discipline. He describes a responsibility that writers felt "to warn the public of misleading hopes and promises resulting from preliminary successes in the sciences."[96] It seems as though the detective may have been a fictional manifestation of such a moral mouthpiece, instead of warning about science, it applies science to the policing of society as a whole. Indeed, it is social order, its provenance and its maintenance that has occupied many a recent scholar of detective fiction. The view arising from many current studies is that social discipline of a Foucauldian nature is reflected and even cultivated by the detective genre, and as such this view has become *de rigueur* for much of the discussion surrounding detectives and crime fiction today.[97]

Indeed no study of crime fiction seems complete without reference to the work of Michel Foucault, especially to *Discipline and Punish* (1977). Crime narratives are an obvious place to seek out evidence of the proposed shift in power structures from the sovereign to the disciplinary across the 18th/19th-century boundary. Stephen Knight (2004) draws attention to *The*

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[95] Cranny-Francis (1998) in Martin and Veel (1998) p64 remarks that taking a broad definition of science fiction as a "story that must seem scientifically plausible" might also include detective fiction

[96] Schummer (2006) p125

[97] Exceptions include a famous essay by WH Auden (1975) "The Guilty Vicarage" in which the detective story is a kind of psychological catharsis achieved by "the miraculous intervention of a genius from outside who removes guilt by giving knowledge of guilt" p158; see Scaggs (2005) pp31-54 for summary of history of criticism including psychoanalytic (famously Lacan's analysis of Edgar Allen Poe's (1845) "The Purloined Letter") and structuralist approaches to detective fictions; also see Podlas (2006) and DiFonzo and Stern (2007) for media effects approaches

Newgate Calendars, which were stories of prisoners, originally written by the Ordinary of Newgate (the chaplain). They sold as anthologies or as cheap pamphlets and broadsides throughout the 18th century and up to the mid 19th. The stories follow a formula that relates the facts of the crime, the final confession and the public execution; there is little or no effort at detection. Knight (2004) describes how each story marks "[t]he body of the criminal...with retribution for...an offence against the king's peace."[98] This is an example of sovereign power at work in which the criminal is seen as personally resisting the power of the sovereign. 19th-century criminal broadsides described crime, confession and punishment in text but were very often imprinted with a standard image of gallows and hanging prisoner and as such they too took part in marking the bodies of criminals.

The shift to disciplinary power is evident in the emergence of the literary detective mid-century. Ronald R Thomas (1999) begins his study of fictional detectives with an epigraph taken from *Discipline and Punish,* which describes the shift almost as it evolves through crime narratives - "we have moved from the exposition of the facts or the confession to the slow process of discovery; from the execution to the investigation; from the physical confrontation to the intellectual struggle between criminal and investigator."[99] Thomas goes on to look at how the disciplinary powers of the detective are extended by such forensic devices as the fingerprint, the mug shot and the lie detector. By disciplinary powers, Foucault refers to rational enquiry, to the application of reason and scientific method to ordering almost every facet of society. The detective embodies this force by studying evidence, finding out what it means, to whom it points, and finally delivering the criminal, thereby restoring moral order. The detective makes detection public and hides punishment.

The eye of the detective becomes the public eye of surveillance. The

[98] Knight (2004) p14. Criminal bodies are retributively 'marked' in the Newgate Calendars (and in history) by execution and sometimes torture. For example, a servant who murdered his mistress for money had his right hand cut off and nailed to the gallows on which he hung, presumably to mark his desire to grab his employer's money.
[99] Michel Foucault from *Discipline and Punish* quoted in Thomas (1999) p1

detective co-opts members of the wider social group into the investigation by calling upon them to provide the evidence for the investigation. DA Miller (1980) has shown this process at work in Wilkie Collins' (1868) novel, *The Moonstone.*[100] Here, as in many stories of the detective genre, a social group is contained in a closed environment equivalent to a social panopticon in which each person and all their movements are knowable by reason.[101] The detective, Sergent Cuff, cannot perform the function of surveillance alone, all the members within the group supply information about each other. So, the function of the detective is diffused throughout the social group, in a microcosm of society in which the citizens have learned to police each other – a mirror of Foucault's surveillance society. The power to penalise has drifted away from the King at the tip of the pyramid and spread through all the subjects below and at the same time the tools of control change from corporeal punishment to rational monitoring.

There is nothing in my approach that is incompatible with the idea that detective fiction encodes or encourages disciplinary power and in many ways it forms an important background to my work, because what distinguishes mad scientist from detective is the social restraint of discipline. The former tending to evade it while the latter upholds it. Nevertheless, I have different aims than to flesh out Foucauldian power shifts with more supporting texts and it would restrict the kinds of questions that I wish to address.

My interest is in describing, and attempting to understand something about public understandings of science. I do not refer to facts about science. Fiction, I believe, engages with debates about science in public, not in terms of factual science, but in terms of what science means to society. My aim in this work is to recount a history of two fictional icons of science. I will position the detective figure as scientist first and crime fighter second, and

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[100] Miller (1980) in Pykett (1998)

[101] Bounded environments limit the scope of possibilities in some of Conan-Doyle's work, for example *The Hound of the Baskervilles.* The so-called 'locked room' was a feature particularly well developed by 20th century authors, like Agatha Christie, Margory Allingham and Anthony Berkley.

keep the mad scientist always in relief. In fact, I have very little to say about crime fighting as an activity in itself. In each chapter I will simply ask, how do the narratives of science in the fiction relate to narratives of science in public? In this way I hope to gain an insight into how fiction relates to, works through and reiterates contemporary cultural concerns about science. Within the time span encompassed by my selection of texts there is also the opportunity to examine how a new public icon is constructed, as the then quintessential detective emerges from the intersections of popular journalism, police 'image work' (more broadly public relations) and popular fiction. Finally in my conclusion I will ask what meaning, if any, has the study of the detective brought to the study of science in fiction and not least, to the society in which we live now.

In my view, Haynes and others have ignored one of the most abiding representations of fictional science to have existed in popular culture[102]. Conan Doyle's creation has been as popular in the 20th century as *Dracula* or *Frankenstein* have, giving rise to no less than 260-plus film adaptations and countless hours of radio and television.[103] In recent years, there have been many more made in his mould. UK television dramas such as *Silent Witness*, *Waking the Dead* and *Cracker*, featuring pathologists and forensic psychologists, along with endless forensic whodunits imported from America, among them, *Quincy*, *CSI*, *CSI NY*, *CSI Miami*, and *Criminal Minds*. Novels like those by Kathy Reichs or Patricia Cornwell are a regular feature of the bestseller lists, both authors regaling their readers with stories of gruesome crimes, which are solved by dedicated forensic scientists, doubling as full-blown detectives.[104] And these are only the most laboratory-oriented of all the detectives. There are countless 'deductive logicians' whose laboratory is the mean streets, the urban landscape, or society as a whole. In fact, the detective-scientist has a hold over the popular market that mad scientists are unlikely ever to be able to touch and

[102] 'Others' might include: Basalla (1975) in Holton and Blandpied (eds) (1975); Gilbey (2008); Frayling (2005 and 2006b); Haste (1997); Jackson (2008); Pollack (1998); Turney (1998); Weingart (2003a and 2003); Rose (2003)
[103] The Sherlock Holmes Society of London
[104] See Clee (2008) for crime fiction bestsellers

this has been the case for more than a century.

A comparison of Frankenstein with the scientific detectives not only adds depth to an understanding of the mad scientist, but it also provides a more complex picture of scientific representation in popular culture. When Frankenstein is placed against Van Helsing, his 20th-century twin, he appears as only one side of the picture. So while he reflects anxiety about Faustian technoscientists, who are misanthropic and work in secret, we also understand from Van Helsing that science is an empirical exercise that reveals hidden truths, which could save our lives.

If scientists read anti-science feeling into popular Frankensteinian stereotyping, then perhaps they might find succour in the scientific detective. Those of us who study representations of scientists, on the other hand, would do well to probe the history of this figure as s/he develops alongside the mad scientist. This involves studying examples of the forerunners of detective fictions in the genres of gothic, mystery and sensation fiction. In the past those fictions and the scientific characters who populate their pages have been of less interest to scholars of science representation, either because such scientists do not work in laboratories, or because they work in both supernatural and natural realms. In the 19th century science was limited on neither score. Including the detective-scientist, within the arena of science representations promises to create a more nuanced discussion of how dual, over-lapping territories of science are represented, mapped and valued or not, in the popular realm. In the next chapter I will go on to outline the ways in which I intend to approach such a hotbed of science, crime, and supernatural.

CHAPTER TWO

ICONOGRAPHY, NARRATIVE AND SIGNIFICANCE

In the last chapter I proposed that the perpetual twinning of *Dracula* with *Frankenstein* in 20th and 21st-century cultures suggests that Bram Stoker's (1897) scientist Professor Van Helsing might provide a model of science as important as Victor Frankenstein is today. My initial observation was that the so-called mad scientist by which I simply mean the whole string of characters who share heritage with Mary Shelley's (1818) scientist, excludes Van Helsing as an oddity and that such notions of mad scientists have framed much of the discourse on fictional science and its relations to public(s). In response to this, I have argued that Van Helsing far from being a one-off peculiarity of vampire fiction, belongs to the much wider tradition of fictional detectives and these figures constitute an alternative model of science to the one that is given by the mad scientist.

To suggest that the detective be viewed as a scientist challenges the assumption that the definition of a scientist must be tied to the laboratory bench. Such a narrow definition seems to be what prompts Nicholas Russell (2007) to remark, following Haynes (1994) that literary scientists are surprisingly scarce in 19th-century fiction given the enormous influence that science had upon culture at the time. Yet, it would also be true to say that for most of the 19th century professional scientists were just as scarce. Indeed Ruth Barton (2003) convincingly argues that even in the second half of the century science was the domain of a variety of 'scientific' professions, along with a few academic scientists and some amateurs. She finds that the label 'men of science' was the preferred term to 'scientist,' as a phrase that better reflected the multiplicity of routes by which people involved themselves in doing science.[105] In this case, stepping beyond the

[105] See Barton (2003) for an excellent survey of the complexities and inconsistencies in the 19th century professionalization of the sciences. See especially p104 for the way the term 'men of science' was used to present science as a united endeavour that, in fact, referred to

emblematic laboratory and identifying characters as scientists based upon their process – an investigative process based on reason - gives a more genuine snapshot of how the contemporary culture viewed its scientists in fact and fiction.

What this amounts to is going beyond a stereotype and given my aim is to place the detective and the mad scientist in the same frame, and to explore the history of the former in relation to the latter, I am essentially comparing the popular image of two institutions, both encompassed by the 19th-century label 'men of science.' Just as the mad scientist conjures an image of men with white coats and crazy hair, so the detective is a criminal investigator who might peer at a footprint through a magnifying glass, have hawk-like powers of observation, a rarefied ability for reasoning from effect to cause, and often a lonely or conflicted personal life. Since my study is effectively a comparison of two stereotypes, I will begin this discussion by exploring how the term stereotype may be usefully re-framed as Alfred Schutz's notion of typification, a move that gives the concept more flexibility, greater theoretical depth and a more neutral role as social currency.

Having relocated the mad scientist and detective stereotypes in the more fluid category of typification, I go on to describe a second level of analysis that will enable me to get a basic grip on the narrative orientations of the scientific characters that populate the pages of the fiction. I then have a system of separating narrative from iconography, which will prove to be productive in examining the construction of the detective. That said, there is a tricky theoretical twist to be made in linking narrative elements to contemporary cultural concerns. In order to do this, I have borrowed ideas from several scholars and propose a means of following the historical construction of a modern myth – a myth that persists today.

I then move on to explore the significance that such modern myths have for the institutions that feature in them. I have suggested that the mad scientist

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the whole gambit of men (mainly) and professions who were involved in science at some level

is a boundary object and provides the ammunition of endless jibes that pass backwards and forwards from arts to science buildings, in a 'two cultures' styled dispute. I now deepen this discussion with reference to the work of sociologist Everett C Hughes, which highlights the importance of public perception to the institutional structures of society.

This brings me to what is probably one of the oldest, if not the oldest, of boundary disputes that scientists, or natural philosophers have negotiated between science and magic, initially between science and alchemy. It is this boundary, over all others that the fictions of this thesis draw, or discard, in various ways. It inevitably raises the question posed by Max Weber's 1918 dictum that science is a source of disenchantment for the people of Western societies, which I will raise briefly here, in preparation to return to it in the final conclusion.[106] Disenchantment and its opposite is such a strong theme of the fictions under analysis here that it is worth highlighting from the start. Finally, I will move on to describe in more prosaic terms why I have chosen the particular selection of texts that I have.

IMAGE – TYPIFICATION OR STEREOTYPE?

Available survey data indicate that certain motifs are emblematic of science and that these have apparently remained remarkably consistent across the entire 20th century.[107] Such images appear to be built up from a shared pot of popular symbols, which have taken on meaning as signifiers of science. Through time the pot has taken on new icons and scientific developments as they have arisen. Roland Barthes (1972) comments on how, following his death, Einstein's brain came to signify the totality of the man.[108] Interestingly enough, it is the anonymised brain that subsequently turns up in popular consciousness as an iconic symbol of the scientist alongside mushroom clouds and 19th-century fictions like Frankenstein's monster and

[106] Weber initially raised the notion of the disenchanting effects of intellectualisation of society in a speech entitled 'Science as a Vocation' which he gave at Munich University in 1918. See Weber, Gerth and Mills (1991)
[107] Mead and Métraux (1957); Rahm and Charbonneau (1997); Wade Chambers (1983)
[108] See Barthes (1972) "The Brain of Einstein" pp68-70 in *Mythologies*

Dr Jekyll's chemical concoctions. If these processes have been observed across the whole 20th century, then there is good reason to believe that something similar was happening in the 19th century.[109]

Alfred Schutz's (1932) notion of typification, in which he analyses the thought processes of everyday social reality, usefully describes shared, socially embedded constructs, such as these visions of science are.[110] For Schutz individuals understand the world by interpreting it in terms of a stock of previous experience, which encompasses their own experiences combined with that communicated by parents, relatives, friends and cohorts. This stock knowledge forms a schema through which all new experience is measured, so that each new object and event is perceived at the outset in a typical character – a typification. In this way, the world can take on meaning, without the necessity to process each new experience from afresh. Typifications are essentially learned common-sense constructs applied to new sensory experiences of places, people, events and things. Schutz argues that it is through this process of typification that individuals are able to take meaning from situations of which they have no personal experience. He explains "[p]utting a letter in the mailbox, I expect that unknown people, called postmen, will act in a typical way, not quite intelligible to me, with the result that my letter will reach the addressee within typically reasonable time."[111]

Schutz' explication of type begins with Edmund Husserl's phenomenological notion of 'natural attitude', which describes a subjective common-sense stance where all experience, physical, psychological, social and cultural is perceived as unquestionably real.[112] It is a place where the world is assumed to be constant and activities repeatable.[113] In the

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[109] See Mead and Métraux (1957); Wade Chambers (1983) and Rahm and Charbonneau (1997) for 20th-century surveys of iconography of science
[110] Schutz (1932/1967); Schutz and Natanson (1973)
[111] Schutz and Natanson (1973) p17
[112] For review of Husserl see Hutson "Edmund Husserl" pp146-62 in Simons (ed) (2002)
[113] For the differences between natural attitude and phenomenological attitude see: Hutson "Edmund Husserl" pp155-56 in Simons (ed) (2002); Schutz and Natanson (1973) pp11-12 and pp121-22

common-sense stance we take for granted that the world is shared with other individuals whose perception of objects does not match our own. The fact that natural attitude is a fundamentally subjective stance and individuals do not share the same viewpoint adds up to create solipsism. To bridge the social-subjective gap, Schutz proposes the "general thesis of reciprocal perspectives", which involves two taken-for-granted thinking constructs.[114] Firstly, if I change places with you, I will see the world as you do and vice versa; secondly, I/we discount the differences in our perspectives originating from our personal histories and assume that you/we experience the same object in "empirically identical" ways.[115]

In a sense, what Schutz is saying, is that for this system of reciprocity to work - for me to be able to assume that the world that I take for granted is the same as the world that you take for granted – we must both use the same taken-for-granted thinking structures. In fact, everyone within a social group must have access to the same stock of knowledge; it must be socially agreed. If this were not the case then we are thrown back into the realms of solipsism. In order to engage in the same reciprocal arrangement with regard to science, we must assume common sense constructs that are able to encompass an enormously diverse group of activities and people. The function of a simple emblematic toolkit is clear in this light. Schutz' thesis of reciprocity states that we both share the same toolkit, which enables us to signify science with ease and meaning.

Type constructs are variously detailed, precise, familiar and vague and they are always open to change. In effect they are a kind of cultural-social shorthand. They obviously fall short of a complete, or even what could be called a realistic, understanding of the object in question and yet Schutz asserts that "in spite of all these inadequacies, common-sense knowledge of everyday life is sufficient for coming to terms with fellow-men, cultural objects, social institutions – in brief, with social reality."[116] These meaning

[114] Schutz and Natanson (1973) p12
[115] Ibid p11-12
[116] Schutz (1932) quoted in Heritage (1984) p49

constructs are the "sedimented" products of past activities of comparing and contrasting sensory inputs with previous types to form new, slightly altered constructs, which are in themselves elastic, changing through time to reflect new conditions. The process is reflected in the way that Einstein's brain joins bubbling vials, and galvanic apparatus as another symbolic icon of science. The upshot of this process of typification is that new experiences occur within what Schutz has dubbed "a horizon of familiarity and pre-acquaintanceship..."[117]

The cartoon-like visions called forth by some surveys of public perception that so frustrate scientists are, I would suggest another product of this process. These are the surveys that tend by their mode of question, to prompt a symbolic typification in response. So Mead and Métraux (1957) asked school children to complete the statement "When I think about a scientist, I think of..." and Wade-Chambers (1983) simply instructs school children to 'draw a scientist'.[118] My contention with such open-ended questions is that the only option is to revert to the symbolic details of typificatory structures in response, because actually there is nothing about scientists, which makes them look notably different from any other human being, apart from the fact that they do science. The question oddly assumes that there is and that whatever it is can be described within the confines of a brief note or even more difficult, in a drawing.

Rahm and Charbonneau (1997) repeat the Wade-Chambers draw-a-scientist test using undergraduates with some interesting results that demonstrate this issue. First of all, the authors express disappointment and surprise to find that the majority of undergraduates, who were in continuing education (and so ought to know better), drew images not dissimilar to those found in the Wade-Chambers' data, using all the usual symbols of mad hair, white coat, vials etc. Rahm and Charbonneau make particular note of the fact that 8% of their sample of 49 students produced "explicitly non-stereotypical images" that were usually accompanied by captions, some lengthy,

[117] Ibid p51
[118] Mead and Métraux (1957) p385 Wade-Chambers (1983)

explaining that a scientist looked like an ordinary person. The authors interpret these drawings as confirmation that the stereotypical image is alive and well "while trying to be as egalitarian and nonstereotypical as possible, [the artist] is nonetheless acutely aware that the image produced is highly 'unscientist-like' to the point of requiring detailed justification."[119] Yet the captions are required because the subjects who drew them have purposefully avoided drawing a typification. The length of the caption that they feel is required is a sign of the lengths to which individuals would be forced to go in order to communicate with one another meaningfully.

Further, Rahm and Charbonneau stipulate that if one were to adopt a single icon to characterise 'contemporary' scientific practise, then most scientists would apparently agree on the computer. Yet, computers were sparse in drawings, presumably because a computer cannot signify science sufficiently well. A picture of a person with a computer might be a novelist, a scholar, a software programmer, a hacker or any number of other professionals. A computer is too general to be an effective typification. Having said that the authors write: "In terms of the 'tools' of science, our results would suggest that our subjects remained frozen at the level of their last high school chemistry class (how about that for a scary thought)."[120] Again the essence is missed. The subjects have been asked to draw the elemental symbols of science and bubbling vials are a long time staple of the typificatory structure of the scientist.

In an odd way these kinds of rather unhelpful surveys, which attempt to gauge public perceptions of scientists serve only to consolidate the proposition that the mad scientist is a typification and has purpose as such.[121] In Schutz's terms what they draw forth is a distinction between personal types, which include individualising details of the people we know,

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[119] Rahm and Charbonneau (1997) p776

[120] Ibid p776

[121] Boylan et al (1992) criticise the 'draw a scientist' tests on the same basis and have shown in interviews with children that "there was a qualitative change in the level of understanding about science and scientists which increased from Grade 3 to Grade 8 and a clear separation in the students' mind of what they see as the current public stereotype and their personal constructs of science and scientists p475

from "course-of-action types," which are essentially procedural recipes. He points to the fact that at the anonymous end of the social scale, personal type is superseded by course-of-action type, so 'a scientist' or 'a doctor' becomes one with their professional role, their image losing all shades of grey and taking identity with symbolic features of their work. This tendency to take features of professional function and identify the function with the worker is common enough. Even nursery school children become familiar with the process when they learn to identify Mr Bun, the Baker, Mr Parcel, the Postman and so on from the popular card game Happy Families[122]. In effect, these children are mastering the rudiments of typificatory structures that they will build upon for the rest of their lives.

Draw-a-scientist type surveys seem also to assume, that by some odd quirk it is scientists alone who are singled out for this kind of caricature. Yet, the instruction, 'draw a lawyer' is likely to draw forth an image of a man in a wig and voluminous gown (in the UK, anyway). Clearly, lawyers are ordinary people who do not wear wigs and gowns at all times, but the question has called forth Schutz course-of-action type. If asked to draw a doctor, men with stethoscopes and perhaps scalpels would materialise; 'draw a detective', conjures a man with a magnifying glass. Yet obviously it is understood if a friend who is a detective came to dinner he would not arrive with magnifying glass in hand (one hopes), likewise the doctor would not bring his scalpel. Still Rahm and Charbonneau persist in the belief that their survey reveals "a largely unrecognized shortcoming of the science education process..."[123]

John Durant (1993) has described a more sophisticated picture of how adults might undergo the same process in relation to science, but he does not see the process as a social necessity and like Rahm and Charbonneau, sees it instead as a failing, presumably on the part of non-scientists. "The most serious weakness in the standard view of the processes of scientific inquiry

[122] At the time of writing this game is widely available in the UK, for example: a search on http://www.amazon.co.uk brings up all manner of Happy Families games. Accessed 09.08.2011

[123] Rahm and Charonneau (1997) p777

is its tendency to project the qualities of scientific knowledge upon the individual scientists who produce it. Scientific knowledge is (generally speaking) objective, so it is presumed that individual scientists approach their work in a spirit of objectivity; scientific knowledge is continually being revised and improved, so it is thought that individual scientists approach their work in a spirit of open-mindedness and humility..."[124] Even though Durant considers it lacking, this image is very positive. Realistic or not, it constitutes a somewhat sophisticated course-of-action type in comparison to the white coated, unkempt survey responses.

The advantage of using Schutz's theoretical approach over the idea of a stereotype is that it can encompass such flexibilities, which lie on scale between 'personal type' and 'course-of-action' type. Yet most studies focussing on science representation use the concept of a stereotype, usually without defining it. In an in-depth discussion of stereotype and its meaning and usage, Richard Dyer (2002) acknowledges a phenomenological basis, and makes a distinction between a 'social type' and a stereotype, the former being a more flexible category than the latter. He argues that the iconography of social types is used in a more open and flexible way than that of stereotypes, which he finds are almost always associated with particular plot lines. By this definition if mad scientists are stereotypes then white coats and shouts of eureka, might always be accompanied by a villainous plotline, whereas, if they are social types, they may take a variety of good, bad and indifferent roles. Indeed, the association of the term 'mad scientist' with villainous plot and by extension negative image is commonly made, and has been noted by Lindy Orthia (2010) who has rendered the whole set of ideas together as the mad science trope.[125]

Are the mad scientists described by Orthia stereotypes or social types? They are villains, but they are thwarted by Dr Who, himself an eccentric outsider who could well be described as a mad scientist himself. In which

[124] Durant (1993) "What is Scientific Literacy" in Durant and Gregory (eds) (1993) p135
[125] Orthia (2010) p15; Rohn (2011) wonders, like Orthia, whether the idea that scientists have poor public image is as much part of a stereotype as the mad hair and white coat

case the mad scientist is a social type in Dyer's terms. Yet, the *Oxford English Dictionary* defines the mad scientist as "a scientist who is mad eccentric, esp. so as to be dangerous or evil: a stock figure of melodramatic horror stories." So here is Dyer's stereotype. Defining what is or what is not part of a stereotype is one of the problems of using such a construct.[126] Indeed, this discussion highlights the need to make clear that when I use the term mad scientist I do not imply a plot of villainy, but when I use the term mad, bad scientist, I do.

For these reasons, I prefer the idea of typification and typified characteristics. Indeed, what emerges from pages of the fictions reviewed in this study, are some images that conform to the dictionary stereotype and some that do not. What is clear, and well described by Schutz' process, is that iconography and plot are elements within a repertoire of typified resources that authors select from in order to build new characters and plots, which are at the same time recognisable and novel. This is also a view supported by the work of Simon Locke (2005) on superhero comics and Lindy Orthia (2010) in her work on *Dr Who.*

Typified literary figures, such as mad scientists and detectives cross the borders of different fictions and genres and migrate outwards to become general sociocultural referents.[127] Typified emblems of the mad scientist, such as eccentricity and emotional coolness, were already in existence when the first novels in this corpus were written, but during the time span, detectives were constructed in both real and fictional worlds. It is with particular reference to detectives that I am able to explore how extra-textual reality influences intra-textual worlds. In terms of constructing the quintessential detective, I find that emblematic details associated with other course-of-action types are carved up from others and put together to concoct a new repertoire. The popular fictions of this corpus imbricate real-world events and ideas, such as reason, transgression or a failed police

[126] Barker (1989) has made more damning criticism of the analytical use of the term 'stereotype' as "dangerous on epistemological and political grounds...which tells us only about the worries of the analyst." p210

[127] For example, see Bates (2005) and Michael and Carter (2001)

investigation, with standard fictional fare of magic, mystery and sometimes menace. The whole is then interwoven in such a way that it is nigh on impossible to extract one element clean from another.

Having said that in the following section I will explore ways of doing precisely that, in order to formalize models of science that incorporate typified iconography along with narrative elements and are present in the fiction. I will first look at the difficulties of using a typology and, following Vladimir Propp (1928), suggest instead a focus on narrative that allows me to get a leverage on the meaning of science and scientist within the text.

NARRATIVE, MYTH AND REALITY

The seminal study on the representation of scientists in fiction, upon which most others draw, is Roslynn Haynes' work entitled *From Faust to Strangelove* (1994) in which she reads a staggering four centuries-worth of fiction and using a typological model categorises her fictional scientists as one of six types, which she actually refers to as stereotypes. Her types are labelled 'the alchemist', obsessed or maniacal; 'the stupid virtuoso', out of touch with social life; the 'Romantic scientist', unfeeling and lacking human bonds; 'the heroic adventurer', superhuman and sometimes a danger; 'the helpless scientist', unable to control his creation; and 'the idealist', the "one unambiguously acceptable scientist."[128] The trouble with such a typology is that much of her data, her fictional characters, fall into several categories at once – a goodness of fit problem not unknown in typologies.[129] Victor Frankenstein, for example, could be the alchemist, the stupid virtuoso, the romantic scientist, the helpless scientist, sometimes the idealist, and arguably he is also the intellectual heroic adventurer. So Frankenstein can be made to fit all categories, though perhaps he is a special case. That said, the generic mad scientist almost always fits the first three categories and is generally a helpless scientist as well.

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[128] Haynes (1994) p3-4

[129] See McKinney (1969) for a distinction between typologies and typifications – the former are constructed, as by sociologists, or literary theorists, the latter, which he calls the existential type, are used by people in social systems

My point is not to split hairs; clearly Haynes has done a careful reading of her fictions and decided on that basis which is the dominant mode of each scientist. The trouble is that each new reader will have their own and potentially different idea on the fit of the scientists - in addition they may question the very nature of the categories themselves. In itself that is not a problem except that Haynes makes inferences from the chronological spread of her types, which she uses to formulate wider conclusions about science and society. "The majority of these stereotypes" writes Haynes "represent scientists in negative terms, as producing long-term liabilities for society."[130] Furthermore "the recurrent mutual suspicion between scientist and other members of society was developed and reinforced in Western literature..."[131] I have reviewed the underlying assumptions and validity of such statements in the previous chapter, so suffice to say here that such assertions have become a taken-for-granted credo, which has framed many a study on science in fiction.[132] One reason for this is probably the sheer reach and volume of her study alongside a perfectly valid analysis of the darker side of the scientist in fiction.

Leane (2007) also takes a typological route in order to describe real physicists who are the protagonists of popular factual texts. Interestingly enough, the hard-boiled detective is one of her types. She finds the defining traits of this character and genre reworked in two popular physics works, James Gleick's (1987) *Chaos: Making a New Science* and M Mitchell Waldrop's (1992) *Complexity: The Emerging Science at the Edge of Order and Chaos*. A noir atmosphere peopled by cynical, self-reliant scientific misfits echoes elements of the hard-boiled genre, as Leane explains: "the main ingredients are present: a lonely scientist/detective in a drab cityscape, taking solace in alcohol, cut off from society around him, cynically embracing bad weather".[133] The notion that popular science texts style their principal scientists on streetwise detectives testifies to the perceived

[130] Haynes (1994) p4
[131] Haynes (1994) p6
[132] See this work pp7-26
[133] Leane (2007) p143-4

crossover between science and detection in the popular realm.

The model of a savvy urban detective appears distinct from any of Haynes' types, but the characteristics of the PI emphasized by Leane and presumably by the physics texts, could place him within three or four of Haynes' categories. In fact, Leane makes this point herself: "the hard boiled detective is only one of a series of stereotypes evident in prominent late twentieth –century popularisations... These stereotypes are not identical to those that Haynes observes in fiction, but there is considerable overlap between the two sets. They include the scientist as "absent-minded professor", the scientist as priest or Zen-master, and the scientist as obsessive. All these stereotypes are united by an emphasis on "outsider-dom": a sense that the scientist is in some way removed from everyday life."[134] What confuses the issue here is that the boundaries between typological groups and between fictional characters are exceptionally fuzzy and notoriously difficult to pin down, a feature perhaps of the particular topic, which renders it difficult to divide up for taxonomic purposes.

Typological fuzziness is a literary issue of long-standing and was one of the triggers for Vladimir Propp's famous 1928 study of the Russian fairy tale. In *The Morphology of the Folktale* (1928/1968) Propp complains at the outset that "Clear cut division into types does not actually exist; very often it is a fiction."[135] His critical eye is focussed on work that categorises folk tales on the basis of content and theme, both elements too variable and complex to give any consistency of classification. Such systems, he believes, fail for reasons which I have discussed in previous paragraphs in relation to typologies used by Haynes (1994) and Leane (2007). Indeed, Propp writes that "every investigator who purports to be classifying according to [this] ...scheme is, in fact, classifying differently."[136] By way of countering the 'sorry state' of folk-tale research as he saw it, Propp attempted a consistent and 'scientific' classification of tales based upon an

[134] Leane (2007) p140
[135] Propp (1928/1968) p11
[136] Propp (1928/1968) p6

analysis of narrative structures. Though my aim is not to formulate a comprehensive taxonomy of fictional scientists, Propp's analytical toolbox offers a means of assessing the basic orientation of their plotlines. The use of structure in this way separates narrative role from typified elements, which gives me a more systematic means of approaching the fiction.[137]

First to Propp. His innovation was to recognise that the recurring constants of fairy tales consist in the actions of the characters, in what they do, rather than in their characteristics or means of action. In an analysis of one hundred fairy tales, Propp finds that divergent stories attribute the same actions to different characters. What matters, he says in terms of defining the fairy tale is what he calls the 'functions', which should be "understood as an act of a character, defined from the point of view of its significance for the course of the action....Functions of characters serve as stable, constant elements in a tale, independent of how and by whom they are fulfilled. They constitute the fundamental components of the tale. The number of functions known to the fairy tale is limited."[138] Narratives can be broken down into the simplest of action statements, from which functions can be defined, for example:

> 1. A tsar gives an eagle to a hero. The eagle carries the hero away to another kingdom.
> 2. An old man gives Súčenko a horse. The horse carries Súčenko away to another kingdom.[139]

The actions or the verbs are identical in these two examples while the characters and means change, the action provides the basis for Propp's 'functions', which occur routinely in all Russian fairy stories.[140] This

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[137] In using the terms such as 'structure' or 'structural' I do not imply European structuralist theory as was developed by Roland Barthes, Lévis-Strauss and others in the 1950's and 60's. Propp's structural analysis is not the same thing. In addition Propp is often thought of as a Russian formalist, but there are grounds for arguing he is not, since he does argue for 'defamiliarisation' of the world through folk tales. See Barker (1989) p120-121

[138] Propp (1928/1968) p21

[139] Propp (1928/1968) p19

[140] I have used inverted commas around 'function' to indicate that I am using the term to denote Propp's specific meaning, I will cease to do this from now on.

particular pair is defined as "provision or receipt of a magical agent"[141] in the first statement and in the second, as "spatial transference between two kingdoms, [or] guidance"[142]. Propp identifies thirty one such functions that appear to define the whole fairy tale genre. More surprisingly he finds that they also always proceed in the same order - even where some functions are left out or repeated, the sequence of the others is not altered.[143] The type and the succession of functions together comprise the structure of the fairy tale and for Propp, it is this that differentiates it from other genres. The variety of tales arises from the who, how and why as he explains: "one may say that the number of functions is extremely small, whereas the number of personages is extremely large. This explains the two-fold quality of a tale: its amazing multiformity, picturesqueness, and colour, and on the other hand, its no less striking uniformity, its repetition."[144]

To apply Propp's method wholesale to the long format of the novel would be inordinately long-winded and unproductive, especially given my focus is not on genre anyway. That said, it is very useful to ask the same sorts of questions as might have been posed by Propp about the function of scientists within the universes of the various novels. In the terms of Propp's study in *Morphology*, the functions that scientists serve are more important than the characteristics they have.[145] Sticking with examples, which I have discussed in the previous chapter, a skeleton of the narratives, each of Victor Frankenstein and Professor Van Helsing, might be written:
a) Victor Frankenstein creates a monster. The monster threatens to destroy him and his family, possibly humanity.
b) A monster threatens to destroy humanity. Professor Van Helsing captures the monster.

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[141] Propp (1928/1968) p43
[142] Propp (1928/1968) p50
[143] Propp may have overstated the uniformity of functions See Barker (1989) p123
[144] Propp (1928/1968) p21
[145] I take Propp's point on this and agree that 'what happens' is a potent indicator of meaning, within the text. Yet iconography is also a vitally important part of the picture and, in fact, Propp does acknowledge this in Propp (1928/1968) "On the Attributes of Dramatis Personae and their Significance" pp87-91

The two examples oppose each other in their narrative direction, so where a) could be called a disordering narrative b) becomes a restorative narrative. Of course, it is perfectly possible for such disordering and restorative remnants to be joined into a single story that switches from one to the other, as for example, in Michael Crichton's (1990) *Jurassic Park*, in which dinosaurs created by scientists pose a serious threat that is finally contained by a palaeontologist. Indeed, a large section of Shelley's original story is devoted to Victor Frankenstein's pursuit of his creature ostensibly so that the scientist re-order what he has disordered, though there is no science evident in the final chase and in the end the creature destroys himself anyway. Such bold statements of plot are deliberately stripped back simple scripts that illustrate the most basic possible functional elements involving science. In other words they represent the boiled down narratives of science extracted from relatively complex works of fiction.

The characters from other novels can subsequently be slotted into identical function statements, with the result that a new landscape emerges, in which novels are categorised according to the narratives that they tell about science. In the disordering category are the following:
a) Dr Jekyll creates a Mr Hyde. Mr Hyde threatens to destroy some or all of the community.
and
The mad scientist creates a novel or deviant form of some kind. The new deviant threatens to destroy some or all of humanity.
In the restorative category are the following:
b) A criminal threatens to destroy a community. Sherlock Holmes captures the criminal.
and
A deviant form of some kind threatens to destroy some or all of humanity. A scientific detective contains the deviant.

Switching characters in this way reveals that *Frankenstein* unsurprisingly falls within a group of stories that are regularly held up as narratives of mad science, as is Robert Louis Stevenson's (1886) *Jekyll and Hyde*. *Dracula*,

however, is usually reckoned to be an example of fantasy or horror fiction, but under this scheme it falls into the same bracket as the detectives, though its epistolary form, similar to Wilkie Collins' novel *The Moonstone* (1868), has long been acknowledged as a detective-styled structure.[146] Nonetheless the point is not to challenge long-standing genre definitions, but instead to classify such stories on the basis of the structure of science narratives. What is striking is that in so doing a large class of narratives immediately becomes apparent that is rarely acknowledged in studies of the scientist in fiction. These narratives offer an alternative model of science to the disordering one in which scientists produce the Haynes-styled 'long-term liabilities for society' so often associated with mad science.[147]

In many ways, genre has little relevance here, except to say that it may reinforce the apparent imperceptibility of those scientists in fiction, who use science, like detectives of all kinds who work *as scientists* but for some reason do not look like scientists, probably because they are typified as crime fighters, vampire hunters, doctors or other professional, course-of-action types. Popular genre fiction is after all defined according to the characteristics of its content and stories about supernatural monsters, criminals, policemen or even doctors and disease are not often recognised as stories primarily about science and they all fall into different genres to boot. Yet, a classification of these stories on the basis of the structure of their science narratives, places Professor Van Helsing's techno-magical toolbox beside Sherlock Holmes' chemical apparatus. The variability of content in these restorative narratives obscures an overall constancy of form and the centrality of science to their structure.

Related to this is the fact that in disordering narratives science provides the impetus to initiate the plot, being always associated with the first function. This has the effect of making these stories very obviously about science since they raise it at first post, so to speak. Restorative narratives, on the

[146] See Greenway (1996) p251-52 for a discussion of the framing of *Dracula* as a legalistic-scientific narrative
[147] Haynes (1994) p4

other hand, begin with problems of diverse kinds and use science within the second function as a means of righting initial perturbations. In many ways such narratives make no issue of science and so it more easily goes unnoticed as a 'non-problem'. In Propp's tales order and meaning are coupled. The meaning of a function within the text is principally governed by its place in the course of action, although the relationship between order and meaning is likely to be more complex in the longer form of a novel than in a fairy tale.

In the examples I have given the meaning of science flips from liability to blessing depending on whether it is associated with the first or second functions. Ultimately, of course, if science is to restore order then it must be responding to some initial event that has disordered the world. Yet, Orthia's *Dr Who* narratives are a case in point where science perturbs the order, or threatens to, and another type of science restores order, making the science narrative more complex. The same situation is true in Michael Crichton's *Jurassic Park* as I have already noted. With that said, Stephen Knight (1980) has remarked on the preservation of structural order in Sherlock Holmes stories, which always follow the sequence of "relation, investigation and resolution", where relation is the equivalent to revelation of the threat or misdemeanour.[148] As in my scheme, Knight's structure has science always associated with the second function, although he uses different labels.

Propp's work on folktales stops at a description of form and in a sense we are left there high and dry. He describes a common sequence of functions and says nothing more about the significance of it. The structuralists, most famously Claude Lévi-Stauss, attacked him harshly for leaving the 'real' interpretative analysis undone.[149] In Propp's *Morphology of a Folktale* (1928) form is meaning, really only because form is his object of study, and

[148] Knight (1980) p77

[149] See Lévi-Stauss "Form and Structure" in Propp et al (1984). Broadly speaking, his criticisms come under four categories: that Propp is a formalist and formalism has no value because it does not engage context and meaning; that, as a formalist, Propp is inconsistent anyway, muddling content and form; that myths would have been more informative than folktales; and that the analysis is left 'under-done' anyway

meaning is limited to, or only arises from, the intra-textual world. Yet it would be extraordinary to imagine that there is no relationship between meaning and the cultural background that the reader brings to a text whatever its form and indeed this is not what Propp had imagined either. Form was simply the limit of his morphological study.[150] Aside from the kind of structuralist interpretations recommended by Lévi-Stauss, there are also whole bodies of theory specifically built upon the interface between reader and text.[151]

That meaning be held entirely within the form of a text, or not, is a problem helpfully discussed by Tzvetan Todorov (1975). He defines a fictional genre that he calls 'the fantastic' which ultimately relies upon the reader's response to events in the text that are judged as either potentially real or imaginary. Such a judgement must interface with the reader's extra-textual reality and leads Todorov to discuss the relationship between a piece of fiction and representation of the external world. Todorov explains that "literature is not representative in the same sense that certain sentences of everyday speech may be representative, for literature does not refer...to anything outside itself... But to deny literature any representative aspect for this reason is to identify the reference with the referent...It is no accident if, in fiction terms commonly employed are: characters, action, atmosphere, etc., all of which also designate a non-textual reality."[152]

In this view, some elements of non-textual reality are drawn into the interior universe of a narrative, and then, these in themselves draw forth different interpretations depending on the extra-textual reality of individual

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[150] He recommends that 'morphological investigations' accompany historical study and that "the tale must be studied in regard to religious notions" in *Morphology*, see: Propp et al (1928/1968) p90. In later works, he explored the historical and ethnographic roots of folklore, which he believed to be closely tied to religious and spiritual belief systems. See, for example: "The Nature of Folklore" and his reply to Lévi-Stauss, "The Structural and Historical Study of the Wondertale" in Propp et al (1984) pp3-15 and 67-81, respectively

[151] Reader response theory emphasises the reader's interpretation of the text, such that the text is co-constructed by author and reader. In a classic essay entitled *Interpreting the 'Variorum'* the critic Stanley Fish (1976) describes 'interpretive communities' to explain how groups of like-minded individuals, who share similar assumptions about how a text should be read, converge on the same interpretation – or meaning. The idea has been empirically tested and seems to hold water, see Dorfman (1996)

[152] Todorov et al (1975) p59

readers.[153] Martin Barker (1989) whose interest is in ideologies contained in comics, advocates a development of Propp's account of form such that it "can enable us to link the internal structures of the stories, with the social possibilities of its use..." He goes on to suggest "a form does not mechanically take its audience through its predetermined sequence of elements. It...lays down invitations on how they should relate to itself - such that the meaning of the text is not simply in the form, its elements and their ordering but is a function of the kind of relationship into which the reader is invited."[154] I would suggest in addition to Barker's idea of an invitation, the extra-textual reality that the reader brings to the text will alter the terms of the invitation. It is after all only possible to perceive an 'invitation' that is coded in a way that is comprehensible to one's own culture.[155] It is from text, its form, elements and ordering *and* the sum of the readers' cultural knowledge that meaning arises.

In a brief aside about the nature of fairy tale characters, which being the mutable elements of Propp's morphological system might constitute an artistic blank canvas, he makes note of their markedly repetitive qualities. For example the witch's hut is usually in the forest and the princess often has golden hair. If theme and structure both are repetitive, this moves Propp to observe that, "the fairy tale in its morphological bases represents a *myth*. We fully realise that...we are expressing a totally heretical idea."[156] Without wishing to enter the thorny ground that lies between Propp and the structuralists, there is an element of the mythological as described by the two examples of Frankenstein and Dracula, which I have used. In fact, it is

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[153] In fact this is common criticism of Todorov's definition of the fantastic because it is dependent on reader response and minimises the importance of textual elements. See Chris Morash "The Time is Out of Joint (O Cursèd Spite!): Towards a Definition of a Supernatural Narrative" in Stewart (ed) (1998) p129

[154] Barker (1989) p133

[155] There are two examples of this in this thesis – the meaning of Wilkie Collins' (1868) portrait of his failed detective Sergeant Cuff changes with the knowledge that the failure of professional detectives was a common gripe in the press in Collins' own time. In his own time his story invited readers to reflect on how image and ability of detective police did not match, but since his time critics tend to 'overlook' that particular invitation and they believe Cuff's framing as the great detective and sideline his failure. A similar situation occurs with Sheridan Le Fanu's (1872) portrait of Dr Hesselius. For full discussion see pp172-204 and pp205-237 of this work respectively

[156] Propp (1928/1968) p90 (his emphasis)

not the connection between tale and myth that most outrages Lévi-Strauss about Propp's work, indeed he accedes that "Propp is right: there is no serious reason to isolate tales from myths..."[157] I also find some support for such a connection in the work of literary critic, Chris Baldick.[158]

In his study of *Frankenstein*, Baldick (1987) claims the novel as an example of a 'modern myth,' an expression that he admits is a contradiction in terms in the sense that a myth is considered to be the product of a pre-literate culture. However, he argues that a modern alternative ought to be recognised, with the added caveat that it does not carry the cultural weight that its pre-literate form does nor that it is of quite the same nature. He sees the lasting significance of such stories as Faust, Don Quixote, Robinson Crusoe, Frankenstein, Jekyll and Dracula in Western culture as evidence of the existence of a modern mythic form. Indeed, "if there remain any problems in according mythic status to these tales, they resolve themselves into problems of distinguishing myths from literary texts."[159] That particular intersection is not one that I intend to take up, suffice to say that Baldick makes a strong case in support of the idea of a modern myth. Most importantly, "[m]ost myths, in literate societies at least, prolong their lives not by being retold at length, but by being alluded to, there finding fresh contexts and applications. This process strips down the longer stories from which they may be derived, reducing them to the simplest memorable patterns."[160] Such simple patterns are what I have tried to draw out with relation to mad scientists and detectives.

I am now able to propose my own method, which aptly mirrors the myth of Frankenstein in being built from the parts of others. From Propp I have taken the idea that form is related to meaning, and from Todorov I take the insight that fiction incorporates extra-textual realities into its own universe. Barker then proposes the idea that the form of a text has a role in positioning the audience in social relation to itself. Barker's thinking is

[157] Lévi-Stauss from "Structure and Form" in Propp et al (1984) p176
[158] See Barker (1989) p123 for discussion of Lévi-Stauss' objections to Propp
[159] Baldick (1987) p2
[160] Baldick (1987) p3

aimed at specifically political ideologies, but I want to shift this into the realms of the fictional scientist. A disordering scientist might, for example, invite certain readers to engage with the potency of science and to consider how it is carried out and regulated, or not. I have argued that this is a response reliant upon the sum of knowledge and cultural background of individual readers as well as the form of the text. Baldick then adds the idea of a modern myth, a modern novel that is widely and abidingly alluded to, is re-written, re-versioned and re-formatted, yet retains a core skeleton of its original narrative that retains meaning for each new audience.

So, I will use the Proppian formula as an initial guide to describe science narratives as either ordering or disordering, and will separate out the typified elements of character from means of action. This will allow me to see how flexibly the typified constructs of science are used. Then, on the basis that the extra-textual realities of the reader impinge on what they understand, I will place the texts within the contexts of their own cultures. Here I am not interested in making connections between specific elements of scientific knowledge and elements of fiction, but rather in making the connections between public debate about science and how fictions relate to these. In concluding, I return to a larger picture to map the recurrent themes that coalesce around modern myths of mad scientists and detectives, which allows me to identify themes common to the developing detective figure in the 19th century and the mad scientist. It is this final process that allows me finally to conclude that the detective was an alternative model of science in the 19th century.

Such a system enables me to gauge how an extra-textual reality is drawn into a fictional universe and to compare the popular, mythic faces of two institutions. In my view it is a compliment for any profession to be depicted in modern myth whatever the narrative, because myth both recognises and hails its potently significant function in fiction and probably in society as well. This may be a simplistic suggestion for those who prefer a more interpretative or analytical line, perhaps even a structuralist one, and would like to see such categories as professions read as ideological symbols or

socio-political referents, but that is not the rationale for this study. I would argue that as much as that approach has value, so it is also important to take the narrative surface seriously. One reason for this is that many readers will do the same. Detectives and scientists regularly take mythically inscribed roles in the most popular fictions in the West and aside from ideological readings, this is important for understanding the interface between fiction, profession and public(s). How real institutions relate to public(s) and image, or fiction, is the topic of the next section.

Having defined the way in which I intend to approach the literary texts, the following sections essentially give a background, not so much to my analytical approach, as to questions raised by the fiction itself. The first section explores the theory of Everett C Hughes on the development of institutions and in it I simply seek to explain why image is important and so often contested as it has been. Hughes' work shows that image is inevitably a boundary object, sitting as it does between institutional insiders and outsiders. Here, there is an opportunity to explore how fictional images are constructed and contested over time. The detective profession and its image are in construction over a time span that largely corresponds to the period covered by this study. The image of the scientist, on the other hand, has an older provenance derived partly from alchemists that is absorbed to an extent into the detective image. Indeed, the boundary between science and magic, which is inevitably invoked by 'alchemy', is the one that the fictions at hand most energetically negotiate, elide or re-erect. This raises inevitable questions about the potential for disenchantment of society by science and rationalism, to which I will briefly turn below.

INSTITUTIONS, IMAGES AND BOUNDARIES

Michael Crichton (1999) believes that "[a]ll professions look bad in the movies." Himself a one-time medic, Crichton appeals to scientists to take the attention as a compliment "And get over it" because "what really

matters is not the image, but the reality."[161] Professions are groups of experts who claim access to some special type of knowledge, or know-how that is different or outstanding in comparison with the kinds that outsiders can muster. One of Hughes' (1971) contributions was to suggest that in order to survive professional institutions must fulfil some perceived need in society. So, although Crichton may well have a point in that all professions do look bad in the movies, all professions are also highly concerned with precisely the problem that they must not look bad in public because this may negate the perceived need for them. Thankfully, for scientists, and other professions many people use fictional images as symbolic structures for thinking about science, law, medicine, policing etc rather than believing them as fact.[162]

Nevertheless, the importance of public image is emphasized in Hughes' vision of society as made up of institutions, which interact as individual species would within an ecological system. In his ecology, the selective pressure that shapes institutions comes from the needs and wants of the society, which the institutions serve since they come to control certain functions in respect of certain wants (their niche). Competition occurs because the needs of the people are not indelibly linked to a single institution and other institutions may compete for the same niche. For example, in the 19th century and beyond medical practitioners calling themselves 'scientific' competed with folk healers to fulfil the needs of the sick who were free to choose the institution that best suited their needs or beliefs.[163] Just as in any ecological system, individuals will either compete for resources, or adapt to new or specialised resources. Institutions adopt both these strategies.

What is most pertinent in Hughes' thought is the link he makes between his ecological model, the processes of competition and adaptation, and the social psychology of meaning. Because institutions mediate between the

[161] Crichton (1999)
[162] See Bates (2005); Michael and Carter (2001)
[163] See Davies (1999)

wants of the people and functions that supply the wants, they must not only detect wants and values in the population, but also keep them alive. So, to survive an institution must find a place in the day-to-day material lives of the people as well as in their value systems – or in their hearts and minds, as one famous military institution has been fond of pressing home in recent years.

My point about the presence of a profession in popular narratives at face value hinges on precisely this need. Detectives, for example, are in the hearts and minds of the people more often than, are say, dentists, because detectives are the heroes of some of the most popular fictions in existence and dentists are not. This does not, of course, mean that as a result real detectives are valued more than dentists, but it does mean that detectives as a profession have a high profile in the cultural lives of the people they serve, whether they are, in reality, valued or not.[164] It may be the case that some professions have greater need for a high cultural profile than others. The dentist, for example, has a function in alleviating pain, a function that comes within the personal experience of many people. The detective does not have such an obviously beneficent function and therefore may need to reach the hearts and the minds by other, less direct, channels.

Furthermore, where there is competition between groups that perform similar functions, in the way that sciences and arts are units in a larger system of knowledge production, Hughes notes that competing groups then become very focussed on the way they are perceived by others. This, of course, makes sense in light of the fact that the resource niche, which the institution is dependent upon, requires an engagement with the material and psychological lives of others. Put simply, scientists *need* to be wanted, their existence as scientists depends on the fact that people believe science and not art should produce knowledge about nature. It is plain from this

[164] There is some evidence to support the view that the '*CSI* Effect' partly consists of a rise in application rates to university forensic science courses, in USA (*CSI* is a television series about forensic science). In which case, there may be links between amount and quality of airtime and interest in professional training for certain professions. Similarly USA law schools experienced an upsurge in applications that followed airing of the popular television series *LA Law*. See Podlas (2006) pp442-443

scenario, why scientists might find the mad scientist so objectionable; as a result of his knowledge, the mad scientist unleashes monsters upon society, this is not a desirable feature in a group licensed to supply knowledge about nature. Of course, it is largely artists, in the broadest sense, who raise the profile of scientists as monster makers.

Such competitive behaviours appear, according to Hughes, as clusters of people sharing expertise turn professional, then, "The people in the occupation get somewhat self-conscious about many things concerning their work; jealous of their name and badge...; dreadfully afraid that some of their number will not observe company manners and so will hurt the reputation of all..."[165] This self-conscious guarding of reputation is a contextualised version of Thomas Gieryn's (1995) boundary work, in this instance amounting to maintenance.

One of the early efforts in boundary construction in science was the Baconian edict that science or rather natural philosophy, should proceed in public as opposed to private.[166] The effect of such a stipulation was to exclude magicians from the practise of science, for both magician and alchemist had often been forced to operate within a culture of secrecy as a matter of law. Though, there are positives to a concealed method as John Baptista Porta demonstrates when in 1658 he instructs his readers on how to be effective magicians: "if you would have your works appear more wonderful, you must not let the cause be known: for that is a wonder to us, which we see to be done, and yet know not the cause of it: for he that knows the causes of a thing done, doth not so admire the doing of it; and nothing is counted unusual and rare, but only so far forth as the causes thereof are not known."[167]

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[165] Hughes (1971) quoted in De Vries et al (2009) p558

[166] See Shapin (1996) pp85-93 on Bacon's advocacy of a registry of facts about nature and the methods of obtaining it and pp106-09 on the idea of knowledge as public and shared and mistrust of individualistic intellectualism

[167] From John Baptista Porta (1658) *Natural Magick* quoted in Crosbie Smith (1994) "Frankenstein and Natural Magick" in Bann (ed) (1994) pp39-59

A scientist, like a conjurer, benefits from keeping methods relatively hidden, which, if revealed, could have ordinary people creating marvels of mind and matter. The secrecy surrounding method in magic and in science is a strategy that triggers wonder and appreciation in others and is therefore important for the survival of the institution. Seen in this light, the claim of some knowledge producers to have access to 'special' knowledge via 'special' methods is a clever means of reaching the sentiments of the public. This appeal works carrot-on-a-stick style, in that the invocation of special knowledge, which is unobtainable by those who do not know the correct method, is in itself alluring and inclined not only to chime with, but also to bring alive, the desire for this otherwise unreachable knowledge.

Yet, scientists are at the same time keen to define their knowledge against magic, as having a rational, natural basis that assumes a single knowable reality. Magic, on the other hand, relies on esoteric, occult (hidden) powers, that might be negotiable, but are likely not knowable. The mad scientist is an inherently magical figure as has been repeatedly pointed out and, as such, creates a dilemma for scientists, who wish both to emulate the mad magician and to exclude him.[168]

I use the term magic here, very loosely, to suggest any symbolic system that engages, or might engage, the supernatural world. That said, secular magic in the form of theatrical conjuring relies just as much on concealed method for its impact, even though the audience know that its methods conform to natural, rational and theoretically knowable laws. Indeed conjurers have sometimes famously been involved in the debunking of supernatural magic and shown that supposedly supernatural phenomena are achievable by natural means.[169] Although organised religion could fall into my definition

[168] For the media construction of scientists as magicians, see LaFollette (1990) pp98-100; Weart (1988); for a discussion of 17th-century beginnings of boundary work that aimed to exclude magic from the sphere of the new (natural) philosophy see Shapin (1996) pp44-46 and Duncan (1916) pp281-83 on the comic confusion of scientists and magicians in fiction in the 17th century

[169] For example, at the end of the 19th century conjurers, John Nevil Maskelyn and George Alfred Cook copied some supposedly 'spiritualist' feats, such as levitation. Peter Otto goes as far as to say that "the Victorian supernatural develops in dispute (and usually unadmitted

of magic, I am not including it under the same label, although I will sometimes refer to the 'supernatural realm', which may include the powers of God – the relationship between magic and pious religion being an important influence in the early gothic novels, which I explore in the next chapter.[170]

The exclusion of magic and the supernatural from the sphere of science is a process that has sustained boundary patrolling across at least two centuries. Public spats over 19th-century spiritualism, fake or fraud style; the treatment of Jaques Benveniste's experiments concerning the memory of water; early 20th century Scopes trial that challenged the State of Tennessee to allow the teaching of Darwinian evolution in schools; and continuing creationism debates are but a few examples of boundaries specifically aimed at excluding magic and/or the supernatural from the realm of science. The boundaries between science and magic, and between natural and supernatural appear to have had particular allure for 19th-century novelists. These borderlands will inevitably provide a theme for this study.

One of the most famous invocations to arise from tensions at this boundary is Max Weber's (1918) dictum that society is disenchanted by science and rationality.[171] I will return to this question in my concluding section when I will argue, with evidence taken from the fictions, that a drive to unite magic and science in the narratives comes partly out of a commonsense dualist conception of reason. Science, as a special case of reason, is a process, which is both magically, mysteriously intuitive and a boring, mechanical drudge, at the same time.

Although Weber suggests that the notion of a single knowable world negates the need for a belief in mysterious or supernatural powers, he too invokes this dual notion of reason as a process of both magical mystery and mechanics. By drawing on such an enchanted form of reason, I have added

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dialogue) with secular magic and Psychical Science." See Otto (2008) for a short summary of the antagonisms (and some alliances) between secular and supernatural magic

[170] See pp71-102

[171] See Weber (1918) "Science as a Vocation" in Gerth and Mills (1991)

to a proposition made by Michael Saler (2003), which argues that Sherlock Holmes himself has re-enchanted modernity by infusing the mundane – a footprint, a smear of paint – with meaning. This is undoubtedly magical. Yet this thesis will show that science and detection have often been enchanted in 19th-century popular fiction, and can generally be positioned somewhere on a scale between magic and reason. Seen in this light, Saler's re-enchantment is, in my view, a much more expansive phenomenon than he has described.

THE FICTION

In treating the developing figure of the detective *as* a scientist in the 19th century, I am, in a sense, continuing the work of Régis Messac (1929), who debates the extent to which the development of scientific thought drove the development of a detective genre. Like Messac's, my selection of texts takes a trajectory through gothic, to mystery and then detective fiction, although his focus is different and his time period is longer. He seeks components of detective fiction, such as lawful picaresque and investigative procedures or scientific thought in other genres. He argues, for example, that Ann Radcliffe's technique 'the explained supernatural' was a product, not of hers but of her time. Her skill as a suspense writer gave the whole package an edge with market consumers, who, under the influence of Protestant and scientific ideas, responded enthusiastically to the rationalisation of the supernatural.[172] Ultimately, Messac concludes that 'pseudo-science' and literary technique had as much influence on the genesis of a detective genre as did 'real' scientific thinking, which he defines rather narrowly as induction.[173]

Although I have taken up a related topic and texts to Messac, in many ways I have doubled back on him, particularly on the notion of 'pseudo-science,' a problematic term in that it is prone to be anachronistic. Some of what passed as science in the 19th century, such as physiognomy, phrenology,

[172] See Messac (1929) pp161-165
[173] See Messac (1929) pp656-57

spiritualism, appear to a 21st mind to be pseudo-science, yet in their own time they were perceived as sciences, albeit contested ones. For this reason I have used a broad definition of science. I have recognised science in two ways, firstly, as any person or process in the text that is described as scientific, a scientist, or as science. Secondly, I have recognised science very broadly as an investigative process based upon reason. I have discounted no scientists, either, on the basis that they also perform magic, however far fetched it may be.

So where Messac seeks to separate out elements of scientific thought in inherently magical worlds, I have looked at the joins and I have greater focus than him on the overlap or space between magic and science. Although there is evidently a general move toward a cause-and-effect style plot in my corpus, as Messac describes in his, this shift by no means obliterates the magical and supernatural from the popular story telling repertoire.[174] As such I have tried to link two strands of thinking on developing detective fictions, one that has detectives riding the tide of scientific thought, as Messac (1929) describes, and the other, far more recent, which explores the links between the presence and importance of supernatural forces in crime fictions, as does Maurizio Ascari (2007) in his study *A Counter-History of Crime Fiction*. Although his thesis is not particularly concerned with science and reason, it clearly touches on the same ground, and his primary concern is to retrieve some of the magic that has been excluded from histories of crime fiction. He encompasses an enormous range of texts, going right back to the Middle Ages and extending to the 20th century.

My texts are sampled from the literary ground that critical commonplace considers as influential in the development of detective fiction and as such I have mined from the same seam as both Messac and Ascari.[175] Although my individual novels differ from theirs, the genres I cover are the same.

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[174] For other work on the intersection between rationality, detectives and magic see Ascari (2007); Bloom (2007) "All dark inside: zombies and detectives" in Bloom (ed) (2007) pp278-290; Day (1985) pp50-62; Punter (1996) pp201-207; Saler (2003)

[175] For example see Ascari (2007); Day (1985); Knight (2004); Worthington (2005)

From my point of view, as well, I wished to choose fictions that would join *Frankenstein* to *Dracula*. I have set out, as it were, from the 1790's gothic genre, important because it is reckoned to be the originating milieu for both *Frankenstein* and crime fiction. Then moving on to the penny weekly fiction of GWM Reynolds, whose 'mysteries' genre has strong gothic overtones and some powerfully evocative depictions of science. This is of particular interest because it is an early example of mass-market fiction and it sits, in terms of its genre, between the gothic and the sensation genre. The following two novels, both detective novels are examples of sensation fiction, which is reckoned to be the originating genre of the detective novel.[176] Finally, I explore a volume of short stories by Sheridan Le Fanu, which brings the detective into the supernatural world, which of course, is what Bram Stoker does, with far more lasting effect than Le Fanu.

Most importantly, for my purposes, I have chosen fictions that were actually popular, following Knight (1980) who believes that "[t]he fact of [commercial] success in itself is an important, even a compelling reason for choosing certain books to examine."[177] All the texts chosen for study here are or were successful in the marketplace and this seems to suggest "irresistible proof of real social meaning in the stories."[178] 'Proof' is a strong word, and perhaps too strong, yet the stories I have chosen, some still alive and popular today either in their original forms or re-worked, must have some real value as social currency.

I have chosen to examine a set of texts that hold the origins both of detectives and mad scientists, using tools that tease apart iconography from narrative. Then I will relate each story to its own cultural context and find that in these most formulaic of fictions complex contemporary sociological landscapes are artfully drawn into magical universes of popular gothic, mystery and detective fictions such that they add to and embellish the pool of resources 19th-century audiences could use in thinking about science and

[176] Knight 2004 p44
[177] Knight (1980) p2
[178] Knight (1980) p67

society. By examining iconography, much of which has become typified, and narrative as separate levels of representation, what emerges are variable, multiple and sometimes contradictory meanings that explore, work out and build far more complex visions of what science is than any simple *either* good *or* bad, *either* enchanted *or* disenchanted, model suggests they might.[179]

[179] By the term 'iconography', I simply mean images and emblematic details that constitute symbolic representations traditionally associated with certain people or professions

CHAPTER THREE

THE MAGIC OF GOTHIC SCIENCE

Ann Radcliffe (1791) *The Romance of the Forest;* Matthew Lewis (1794) *The Monk;* Charlotte Dacre (1806) *Zofloya;* Mary Shelley (1818) *Frankenstein*

In the introductory chapter, I proposed that the detective may provide an alternative mythic vision of science to the model which is contained within the 'mad scientist'. Here I will examine texts of the gothic genre, which had its heyday in the 1790's and into the early years of the 19th century, for the roots of these two visions of science. The 'mad scientist' is usually considered to herald from the gothic traditions of the late 18th-century and early 19th-century and particularly, of course, from *Frankenstein* (1818), which was published just as the fashion for gothic romances was on the wane.[180] There has been little, if any attention paid to the representation of science within the gothic genre more widely, even though it is perceived as the originating milieu for that most enduring of all scientific fictions.

Fictional detectives too, are reckoned to have links with the gothic genre, though in a more general sense. They originate in a variety of sources, among them the memoirs of the Parisian thief-taker, Vidocq, Voltaire's *Zadig* and Edgar Allen Poe's gothic-styled detective Dupin stories. Although following Poe, a gothic provenance for fictional detectives has become a commonplace observation, few studies have really examined the links between the gothic and the detective genres.[181] I will take a complementary direction to those that have and suggest that an association made between reason and morality, which is especially strongly marked in Ann Radcliffe's gothic, is recapitulated by detective fictions of the 19th century. This is one model of science that emerges from gothic fiction. The

[180] For examples of this view see especially, Baldick (1987) Haynes (1994); Turney (1998)
[181] For development of detective fiction see, particularly, Knight (2004); Rzepka (2005); Symons (1985); Thomas (1999); Worthington (2005) For links between gothic and detective fictions see Ascari (2007); Day (1985) pp50-62; Sussex (2010) pp26-44 finds gothic threads in female detective stories

other, which has stronger links, via Mary Shelley's (1818) *Frankenstein*, to the mad scientist, has its roots, if anything, more firmly planted in traditions of magic than in visions of reason.

The first job of anyone approaching the matter of science representation in the gothic genre, however, is immediately to dispel the myth that has crept into work in this area, which dictates that gothic works can be bundled together under the banner of an anti-enlightenment, anti-science drive, which rebels against the rule of reason.[182] Such an idea probably arose as a result of the gothic genre's association with the supernatural. Whichever way, gothic fiction has long been relegated to the bin of popular, non-literary fiction.[183] And until fairly recently the effect in academic terms was to shelve gothic, and for a long period rely on inherited 'wisdoms' in place of careful reading. According to Sage (1990) such 'wisdoms' have "pigeon-holed Gothick as part of an excessive reaction against the dominance of Augustan rationalism, a fashionable rush into nostalgia for a more vigorous, primitive life by an age that had grown weary of Enlightenment values."[184]

Scholars of science representation too are inclined to take the line that all gothic works are anti-rational. Perhaps the perception of *Frankenstein* as emblematic of the gothic is a misleading factor.[185] For example, Toumey (1996) writes that English gothic literature comprises an 'anti-enlightenment culture' and "if science was the apex of Enlightenment culture, the fear of science was the core of the anti-Enlightenment culture."[186] A similar idea sometimes reverberates around discussions of romanticism. According to Haynes (1994) the Romantics attacked the Enlightenment "entrenched

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[182] For example, see Haynes (1994) pp 75-79; Rzepka (2005) p46; Smith(2007) pp2-3; Toumey (1996) pp128-29, who all see either the Romantics or gothic fiction, or both as anti-enlightenment. See also Scarborough (1917/2001) whose study is an old and much cited classic, undoubtedly one of the 'received wisdoms,' who writes that gothic "voiced a protest against the excess of rationalism and realism..." p6

[183] Botting and Townshend (2004a) pp1-17

[184] Sage (1990) p8

[185] Frankenstein is not always considered to be a *fully* gothic work since a supernatural world is not even suggested and it does not follow the 18th-century gothic formula in which "beleaguered heroine is chased by powerful licentious man." It is sometimes re-cast as modern gothic. See Hogle (1998) *Frankenstein as Neo-Gothic* in Botting and Townshend (2004b) pp289-317

[186] Toumey (1996) p129

position of science" more radically than did their predecessors. More recent scholarship, both literary and historical, questions such positions and paints a more nuanced picture. To begin with, the 18th century is best seen not as an age of reason, but as a period which tested out the scope, limits and meanings of the term. Likewise the gothic and romantic writers evaluated contemporary values, including reason, in complex and subtle ways that threw a dappled light, rather than a black shadow, over science and reason.[187]

The content of gothic fiction does appear to resist the rule of reason, and though much of it has a moral message, both reason and morals are lost on many a critic. This seems to have been the case from its own time until today.[188] Gothic romances have regularly attracted moral opprobrium or are simply dismissed on the basis of supernatural or far-fetched content, regardless of whether or not the narrative actually has a moral lesson to impart. Yet, the point of gothic fiction, as Angela Carter counsels, is that "characters and events are exaggerated beyond reality, to become symbols, ideas, passions..." effectively challenging the reader to go beyond "the perennial human desire to believe the word as fact."[189] The symbolic nature of gothic fiction gives it a mythic quality, which is perhaps why its influence is ever abiding. In a sense, this whole thesis is imbued with the gothic, as I follow the detective and mad scientists through a morass of magical and scientific worlds from this starting point.

To begin I take Radcliffe's *Romance of the Forest* (1791) as a key text from which to explore popular understandings of reason and science, not at any

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[187] For examples on Enlightenment and Gothic Fiction see Botting and Townshend (2004a) pp1-17 for a good summary; Sage (1990) pp8-28; Ellis (2000) pp121-152; Myrone (2006) pp12-20; Punter (1996) pp54-86; Sussex (2010) pp26-44; and on Romantic science see Holmes (2008); Knellwolf and Goodall (2008) and Cunningham and Jardine (1990)

[188] In a review of Matthew Lewis's *The Monk*, published in *The Flapper* (1796) Aurelius writes, "The moral which the Author in question professes to inculcate, is the necessity of resisting the first temptations to sin: but in order to press this with effect upon his reader, he should have represented those temptations, and those only, to which we are all exposed...when we see a wretch exposed to perpetual solicitation by the devil in person, suggesting evil things, and furnishing supernatural means of accomplishing them, the moral is lost in the improbability of the story..." Quoted in Myrone (2006) pp281-82 Aurelius (1796) *The Flapper* No. 55 17 September

[189] Angela Carter (1974) quoted by Frayling in Myrone (2006) P14

factual level, but in terms of what they meant to individuals and society. Her novel engages with the heart of debates that were swinging to and fro over the value of reason verses that of birthright in organising society, which were particularly intensified in response to the 1789 French Revolution. The nub of debate hinged on moral virtue and how it was to be developed, through reason or breeding? Radcliffe's novel positions reason as *the* road to virtue and her vision of science is an exalted form of reason. She recommends an open, domestic, democratising model of science, which has it as an activity that could be taken up by anyone with relatively simple means. This was one public model, which found support in pious, enlightenment communities, Joseph Priestley being one of its major proponents. It is this model of science to which I have linked the ideational elements of detective fiction.

I will then move on to explore a very different image of science in the novels Matthew Lewis' *The Monk* (1796) and Charlotte Dacre's *Zofloya* (1806). Both novels and science portrayed in them contrast sharply with Radcliffe's universe. Where her supernatural was ultimately a hollow façade that dissolved in the face of reason, Lewis and Dacre fully embrace supernatural worlds. And where the supernatural reigns, so magic is as much a method for understanding or doing as is science. These novels celebrate an alchemical concoction of science and magic that is ultimately ruled by Satan. Here science-magic happens behind closed doors, its symbols shifting away from Radcliffe's domestic sphere, to include all manner of evocative arcane ephemera. This science is potently instrumental, its symbols are showy, but its methods are hidden. At the same time certain models of public science were similarly showy and emulated magical wonders, without the dark Satanic overtones, of the kind that arise when methods are hidden. One of the greatest proponents of the magical scientific show was the flamboyant and eminent chemist, Humphrey Davy. Having explored this model, I will turn briefly to Mary Shelley and examine how she transforms this model, cuts out the devil and gives us hell on earth in the ultimate mad, bad scientist.

THE ROMANCE OF THE FOREST

Romance and Reason

In the 1790's Ann Radcliffe, author of *Romance of the Forest* (1791), enjoyed unparalleled success critically and commercially, to such an extent that her biographer Robert Miles (1995) has dubbed her the most successful novelist of the decade.[190] Yet, there is no mass market in her day and Radcliffe writes for her own middle ranking social group. Just as she is influenced by them, so her influence is felt through the engagement that other writers had with her work. Although her market was relatively small, her influence was wide. Radcliffe became something of a metaphorical *grande dame* for other later authors of gothic and mystery tales, well beyond her own period and her fiction remained in print for many decades following her own time. *Romance* was the work that launched Radcliffe's success as a novelist. Although her third book *The Mysteries of Udolpho* (1794) is her best known fiction, I have chosen *Romance* because it is the only one to feature a natural philosopher.[191]

Radcliffe injects her heroines and their saviours with morality that has its roots in reason as opposed to rank whilst her high-class villains, preferring passion to reason, are effectively lacking in moral fibre. Such themes raise this novel above the simple fairytale pulp to which it has so often been relegated, and give it the kudos of a work that was fully *au courant.* Radcliffe is engaging in a cultural debate about the true provenance of morality, which pitted virtue learned via reason against virtue inherited via noble breeding and questioned whether the true route to righteousness was meritocratic or aristocratic. In an essay on the development of the novel, Michael McKeon (1985) argues that form becomes a key vehicle for this particular argument and that the common formula of 'a virtuous middle-ranking girl, pursued by immoral aristocrat,' constitutes a critique of what some novelists deemed to be an outmoded assumption, that the aristocratic were virtuous by breeding. Radcliffe's *Romance* reiterates exactly such a

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[190] Miles (2002) "The 1790s: the effulgence of Gothic" in Hogle (2002) (ed); Miles (1995) I will refer to *Romance of the Forest* as *Romance* from now on

[191] See Miles (1995) and (2005) for a discussion of Radcliffe's career and publication history

critique.

Romance begins as Pierre de la Motte steps into a midnight carriage to flee Paris, his creditors and officials of the law. En route, he is forced to take Adeline into his runaway group from a gang who have been commissioned to murder her, but have recoiled from the task. La Motte is "a gentleman... whose passions often overcame his reason, and, for a time, silenced his conscience..."[192] From the outset Radcliffe sets out her store - the interlocking themes of reason, passion, virtue and social rank are evinced in the first pages. La Motte is a man "naturally violent in his passions", prone to the want of "luxurious indulgences".[193] His indiscretions number amongst them card fraud, unpaid debts, robbery of the Marquis and conspiracy to murder Adeline, but "with strength of mind sufficient to have withstood temptation, he would have been a good man; as it was, he was always a weak, and sometimes a vicious member of society: yet his mind was active, and imagination vivid, which, co-operating with the force of passion, often dazzled his judgment and subdued principle...in a word, his conduct was suggested by feeling, rather than principle; and his virtue, such as it was, could not stand the pressure of occasion."[194] The picture, then, is of a man whose passions lead him into 'dissipated pleasure', and who lacks the powers of reason to resist.

This notion of dangerous passion that could be mitigated by 'strength of mind' or reason was a view held by progressives such as Mary Wollstonecraft and William Godwin, who countered the old-guard belief that virtue was as one with noble blood and courtly mores. The debate intensified around events in revolutionary France, which was often perceived as having taken inspiration from a belief in the value of reason over breeding. In his *Reflections on the Revolution in France* (1790) conservative politician and writer, Edmund Burke laments that "the age of chivalry is gone, - That of Sophisters, oeconomists, and calculators, has

[192] Radcliffe and Chard (1791/1986) p2
[193] Ibid p317 and p218 respectively
[194] Ibid p2

succeeded; and the glory of Europe is extinguished forever. Never, never more, shall we behold that generous loyalty to rank and sex...All the pleasing illusions, which made power gentle, ...and which, by a bland assimilation, incorporated into politics the sentiments which beautify and soften private society, are to be dissolved by this new conquering empire of light and reason."[195] Put simply, Burke argues that the chivalric code is the only way to a decent and virtuous society, and 'light and reason' are set to destroy the dependable, old social order, as they will do in France.

Wollstonecraft makes a vehement response in *Vindication on the Rights of Men* (1790). For her, aristocratic mores have little to do with moral behaviour, quite the opposite in fact. "...[E]very custom that an arbitrary point of honour has established, refines the manners at the expense of morals, by making sentiments and opinions current in conversation that have no root in the heart, or weight in the cooler resolves of the mind...Will Mr Burke be at trouble to inform us, how far we are to go back to discover the rights of men, since the light of reason is such a fallacious guide that none but fools trust to its cold investigation?" Wollstonecraft goes on to suggest that "...conscience, or reason...in my view of things...are synonymous."[196] Apart from being about reform of the old order, or not, the debate places reason firmly centre stage as its proper potential is contested. For Burke 'the conquering empire of light and reason' is set to destroy the aristocratic idyll, in which the nobility inherit virtue along with power. Wollstonecraft has a meritocratic vision in which reason is the seat of virtue, which means that morals can be learned through education and are not restricted to lines of noble inheritance.

That said, Wollstonecraft does trouble to point out that "the cultivation of reason is an arduous task, and men of lively fancy, [find] it easier to follow the impulse of passion..."[197] Here, then, is La Motte's process boldly stated. As he falls under the spell of the villainous Marquis, La Motte confesses to

[195] Burke, Edmund (1790/2008) p113 and p115
[196] Wollstonecraft et al (1790/1997) p39-40
[197] Ibid p63

his weaknesses, admitting to having joined a gang of fraudulent card players, so he could "return to those scenes of dissipated pleasure, to which passion had ... attached me."[198] In response, the Marquis feigns empathy, "[t]hat rigid virtue which shall condemn you, may dignify itself with the appellation of wisdom, but I wish not to possess it; let it still reside, where it generally is to be found, in the cold bosoms of those, who, wanting feeling to be men, dignify themselves with the title of philosophers."[199] With this pep talk, the Marquis aims to soften La Motte in order to incite him to murder Adeline. The Marquis is expressing a Burkean vision in words that in themselves seem to echo Burke, who himself condemns "barbarous philosophy" as "the offspring of cold hearts and muddy understandings...void of solid wisdom, as it is destitute of all taste and elegance."[200] By placing a Burkean ideal into the mouth of a would-be murderer, we are left in little doubt that Radcliffe is engaging in the Burke-Wollstonecraft opposition, on the side on Wollstonecraft and rational virtue.

Furthermore, the Marquis has "an air of dignity, which declared him to be of superior rank...[and]...softened aspect and insinuating manners..." Later he is "polite, affable and attentive", his manners are "easy and elegant" and he has "an acquaintance with the higher circles and with topics of the day."[201] His boudoir is so opulent that it "rather resembled the palace of a fairy than any human conformation."[202] The "pleasing illusions, which made power gentle" and manners that "beautify and soften private society", which are all the marks of chivalric honour and of virtue in Burke's opinion, become worse than unreliable in Radcliffe's narrative, for beneath the courtly guise the Marquis hides unfettered murderous passions.

The revelation that taste and manners were a sham devoid of reason is a fairly typical device of late 18th-century gothic. William Godwin, for example, writes a novel, *Caleb Williams* (1794), in which the gracious,

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[198] Radcliffe and Chard (1791/1986) p220
[199] Ibid pp220-21
[200] Burke, (1790) p115
[201] Radcliffe and Chard (1791/1986) p87 and p99
[202] Ibid p156

aristocratic Mr Falkland, turns murderer in a fit of passion and then blames, bullies and pursues an employee of lower rank to the death of both, all in the name of retaining honour. David Punter (1996) remarks that in three classic gothic novels - Radcliffe's *Mysteries of Udolpho* (1794) and *The Italian* (1797) along with Matthew Lewis' *The Monk* (1796) - many of the villains, or villainous acts arise from a 'revolt of the passions against virtue'. Indeed Punter finds that Lewis refers to the passions as 'despotic' and ready to over-power or dominate the virtuous realms of reason.[203] Just as the Marquis hides his dark motive beneath glitz, so Ambrosio, the monk, hides his murderous soul under a façade of godliness and the drawing power of a mellifluous voice.

Neither were the heroes and heroines of gothic fictions immune to the drag of the passions upon reason, though these characters do their feeling in altogether more subtle and patently more acceptable ways than do villains. Here feelings, as opposed to passions, give rise to sensibility, or sensitivity, and too sensible a disposition leads to an overactive imagination. At its extreme is the spectre of madness. For example, in one late night incident of *Romance*, Adeline's "imagination refused any longer controul [sic] of reason, and, turning her eyes, a figure, whose exact form she could not distinguish, appeared..."[204] The figure is, of course, entirely imagined. Radcliffe's 'explained supernatural', as it is called, demonstrates that overly sensible natures need the harness of reason if they are to survive. Radcliffe presses home the value of keeping one's head in pressing circumstances.

Adeline's midnight vision is not just a frightening delusion; it demonstrates how superstition might be fostered in the weak minded. Superstitious belief and magic were almost universally frowned upon by Protestant religions. As a general rule, the gothic fictions at the turn of the 18th and 19th centuries raise the spectre of superstition in order to repudiate it. Radcliffe discards it as a mere figment of an overactive imagination. This 'explained supernatural' is a particular characteristic of her work, which distinguishes

[203] Punter (1996) p72
[204] Radcliffe and Chard (1791/1986) p134

it from the novels of Lewis and Dacre who fully embrace supernatural forces, but still repudiate them by placing them squarely as Satanic, not Godly, forces.

Any magical belief provides a convenient boundary between Protestant and Catholic faiths, which in England, at least, is a means of 'othering' Catholicism. Lewis's *The Monk* is dotted with incidents of boundary work of this kind. For example, one suggestible character, Dame Jacintha, is "a miserable slave to fear and superstition" and as direct result, delivers the heroine into the arms of the (Catholic) monk, whose own horrific mindset is blamed upon other (Catholic) monks who brought him up and "terrified his young mind, by placing before him all the horrors with which superstition could furnish them."[205] In addition, virtually all nuns, again Catholic, are hopelessly superstitious and as a result fall entirely under the control of the depraved, scheming abbess.

Whether Radcliffe's explained supernatural can be interpreted in the same explicitly religious terms or not, is a moot point that was questioned by Régis Messac (1929) who argues that she may simply have been influenced by a growing cultural appreciation for rationalist thinking and a literary fashion for suspense, which she was particularly adept at creating.[206] Whichever way, for the heroine of *Romance* reason provides the ability to escape; to resist mental collapse; to expose the villain; to reveal the true hero and finally to marry (the true hero). Without reason, she could not survive. Conversely lack of reason creates a consummate villain, The Marquis, whose passions eliminate any moral feeling, which he may have had. In this sense, reason or lack of it, is the defining moral attribute of gothic characters and its ability to dissolve the supernatural world was certainly a feature that would have appealed to Protestant tastes.

So if reason is the means by which we contain our basest and most selfish drives, give substance to our moral worth and resist the temptation to

[205] Lewis et al (1796/2004) p267 and p214
[206] Messac (1929) pp158-177

believe in superstition, then what of science? In 1802, chemist Humphry Davy suggests that not reason in general, but science could fulfil a similar role. He wrote in his *Discourse, Introductory to a Course of Lectures on Chemistry* that natural philosophical pursuits, such as chemistry, "may destroy diseases of the imagination, owing to too deep a sensibility...Even to persons of powerful minds, who are connected with society by literary, political or moral relations... It [natural philosophy] must strengthen their habits of minute discriminations; and, by obliging them to use language representing simple facts, may tend to destroy the influence of terms connected only with feeling."[207] Science takes on the golden glow of reason here as it does for Radcliffe. It functions in two ways for her characters. Natural philosophy enlarges their minds, and so aids reason and by dint of that, encourages virtue; and it puts them closer to the Mind of God.

Romance and Science

In the last third of *Romance*, Adeline is thrown on the kindness of strangers for a second time. Her second saviour opposes La Motte in almost every facet of character. Arnaud La Luc embodies Radcliffe's religious and moral ideals, "his mind was penetrating; his views extensive; and his systems, like his religion, were simple, rational and sublime."[208] In the La Luc household, Radcliffe depicts a haven of serenity and comfort etched against the preceding dark gothic background of the abbey with its claustrophobic atmosphere tinged with anxieties of death and destruction. The charitable, rational and self-disciplined La Luc is a perfect foil for the chaotic, indulgent and undisciplined La Motte. The changing style of narrative from a gothic to a more realist one, at the point when La Luc enters the novel, serves to further highlight this difference and sets the La Luc family as an ideal for emulation in which Radcliffe reiterates the formula of the novel of manners.

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[207] Davy (1802) *Discourse, Introductory to a Course of Lectures* p22 quoted by Sharon Ruston (2009) "Romanticism and Science: William Wordsworth and Humphry Davy" Seminar at the Institute of Science and Society, Nottingham University 19.11.2009
[208] Radcliffe and Chard (1791/1986) p245

Radcliffe scholars appear to agree on the fact that the character of La Luc is modelled on the 'vicaire savoyard' from Rousseau's *Emile* (1762), where the vicaire emphasizes the pre-eminence of a rational religion over a faith based on revelation and ritual.[209] Rousseau advocates natural religion that emphasizes the works of Nature as proof of the existence of God. Indeed, La Luc veritably lives natural religion. In a passage describing the La Luc residence, Radcliffe marks out the hall, which fosters views of surrounding nature, La Luc's small laboratory with its "chymical [sic] apparatus, astronomical instruments, and other implements of science" and, Madame La Luc's herbal pharmacy.[210] Other rooms that would exist in any family home are scarcely mentioned before Radcliffe reverts to a lengthy description of the picturesque setting. The proclivity of the family is reflected by the assortment of rooms given precedence and foregrounds their occupation with the study of Nature.

Here Radcliffe depicts natural philosophy as a distinctly domestic enterprise, in a scene that is reminiscent of Joseph Wright's (1766) painting *The Orrery*, in which the rapt faces of a whole family are lighted in the glow of the natural philosopher's orrery lamp.[211] In Radcliffe's version the family are captivated by a view of the real sky, though the scene is equally intimate: "They found the supper spread, as was usual in the hall...Clara and Adeline loved to pass evenings in this hall...from which they had a wide view of the heavens. La Luc pointed out to them the planets and the fixed stars, explained their laws and from thence taking occasion to mingle moral with scientific instruction, would often ascend toward that great first cause..."[212]

Science practice as a paragon of domesticity is rooted in Radcliffe's enlightenment ideals, which have public and science mingling in the home as is depicted by Wright. In line with this, Gregory and Miller (1998) describe a process in which the manner of interaction between public(s) and

[209] See Chard in Radcliffe and Chard (1791/1986) p386
[210] Radcliffe and Chard (1791/1986) p248
[211] See Appendix p270
[212] Radcliffe and Chard (1791/1986) p275

scientist underwent a gradual change in the late 18th and early 19th centuries. The relationship becomes more distant and less rooted in everyday life. The scientist takes up position in a lecture theatre separated from a detached audience often by a laboratory bench, or demonstration table, laden with special instruments.[213] No two figures represent this shift better than chemists, Joseph Priestley and Humphry Davy.

The former began his career as a Dissenting preacher and later turned experimental natural philosopher, though he maintained an active intellectual interest in a wide variety of topics and wrote on many. He was a true Enlightenment progressive with a deep held belief in the democratising power of science. He presented his work as written instruction, including within it extensive details on apparatus and technique, which he believed should be kept as simple as possible, so that his audience could replicate and interpret his experiments for themselves. Priestley's vision of science united experimental philosophers, amateurs and general audiences in a project to advance knowledge in step with progressive religious and political emancipation – these goals were inseparable for Priestley. Humphry Davy, on the other hand, built his name on the spectacle of science and was deeply reliant on expensive instruments, which he used to dazzle large passive audiences who were expected to accept his interpretations forthwith.[214] Aside from the influence of William Radcliffe, her radical husband, Radcliffe had been exposed to and admired her Uncle, Thomas Bentley, who was one of England's most prominent dissenters, a passionate advocate of William Godwin and part of the same circle of like-minded intelligentsia as was Priestley.[215]

Though created in honour of Rousseau's 'vicaire savoyard', Radcliffe's La Luc is clearly aligned with Priestley's ideals on the function of natural philosophy. La Luc is the epitome of the idealised amateur, for whom science takes place in the home and is a means to "soar beyond the sphere

[213] Gregory and Miller (1998) p21
[214] For a comparison of Priestley and Davy in public, see Golinski (1992)
[215] See Miles (1995) p22 and p29; Golinski (1992) p185

of his existence, penetrate the secret laws of nature, and calculate their progressive effects."[216] He is one of those proponents of science for whom God reveals himself in two books, the book of His words (the Bible), and the book of His works (in nature). For La Luc, no study, "so much enlarges the mind, or impresses it with so sublime an idea of the Deity..." as science.[217] Only the most beneficent characters of Radcliffe's narrative are scientific. Aside from La Luc, only minor, but none-the-less decent characters, like Monsieur Verneuil have a mind "enlightened by science", as does the Marquis's brother, who has "a love of virtue" and a mind "enlarged by science..."[218]

In Radcliffe's vision science is a particular brand of reason, its crowning glory, in fact. What reason can do, science can do better. The sense of science's specialness, though, might be more aptly connected with its religiosity and the view that the study of Nature, of God's works, offered ways both of developing reason and moving closer to the mind of the Deity in one. One of the striking features of Radcliffe's vision of science is that although it enriches the lives of the people who practise it through religion and reason, it is not given effect in the outside world. In fact, the figure of La Luc is frustratingly passive. When his son is condemned to die for a crime that he did not commit, despite professing ardent love for him, the vicar is near pathetic in his impotence, and the task is left to Adeline to extricate the beleaguered prisoner. It seems as though his science and his religion render him too otherworldly to get his hands dirty in this world.

So, though it is bathed in glory, Radcliffe's science apparently has no instrumental value in the external world. Its benefits manifest themselves largely in mind and spirit as natural philosophy and not in the manipulation or control of nature as would instrumental science. Her science is a cerebral and religious 'truth', of a similar kind described by Peter Dear (2006) as 'natural philosophy,' which he finds tends to be accorded high cultural

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[216] Radcliffe and Chard (1791/1986) p275-6
[217] Ibid p275
[218] Ibid p272 and p343 respectively

value while instrumental science is grubby work. Dear finds such dualistic conceptions to be a recurring theme throughout the history of science and he relates them initially to the terms technē and epistēmē as conceived by Aristotle in 4BC, which translated into Latin terms, ars (art) and scientia (science) in the Middle Ages. Certainly, the distinction has long roots; for one 16th-century philosopher alchemy, when stripped of theory, amounted to "a mere mechanical broiling trade."[219] And in the same vein, David Knight (1990), writing on Romantic science, makes note of the fact that "[a]round 1800 'science' was not opposed to 'arts'...The real division was between the realm of science, governed by reason, and that of practice, or rule of thumb; and apostles of science hoped to replace habit by reason in the affairs of life."[220]

In *Romance* the benefits of science clearly come from its foundation in reason and are entirely confined to the personal sphere. In keeping with this outlook, Radcliffe moulds scientists who do not conform to the classic callously detached types as described by The Marquis, or Edmund Burke. They do not have "the cold bosoms of those, who, wanting feeling to be men, dignify themselves with the title of philosophers."[221] Her scientists are able to balance head and heart. For example, La Luc has "the strength of philosophy united with the finest tenderness of humanity – a philosophy which taught him to correct his feelings, not to annihilate them..."[222]. In this model, feeling is, in some unexplained way, corrected by the practice of philosophy. So the feelings that La Luc has given rein to are those which point toward such ability as emotional empathy and sensibility, indeed he is "equally loved for the piety and benevolence of the Christian as respected for the dignity and elevation of the philosopher...The people of his parish looked up to him as a father."[223] In some way, it seems as though the charitable vicar is able to filter out the most selfish of passions.

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[219] Dear (2006) p178
[220] David Knight (1990) "Romanticism and the Sciences" in Cunningham and Jardine (eds) (1990) p14
[221] Radcliffe and Chard (1791/1986) pp220-21
[222] Ibid p277
[223] Ibid p245

With regard to feeling, Radcliffe is adopting a more Humian position here, in which reason alone cannot govern morality because only feeling has the power to drive thought and action.[224] Mary Wollstonecraft too acknowledges the power of emotion which she likens to "the sun of life: and, without his invigorating impregnation, reason would probably lie in helpless inactivity."[225]As does Hume, Wollstonecraft gives feelings the power to animate. William Godwin (1793) grapples in greater detail with the relationship of reason and feeling. For him "Reason... is merely a balancing and comparison of different feelings. Reason...is calculated to regulate our conduct, according to the comparative worth it ascribes to different excitements."[226] In this vision reason reflects on the worth of different emotions and guides action in accordance with mindful reflection. The distancing effect implied by the function of reason with its capacity to ascribe worth to different 'excitements' lends it the quality of Wollstonecraft's 'cooler resolves of mind' compared to the feelings, 'the sun of life'.[227]

Mary Shelley then goes on to create a scientist, in Victor Frankenstein, who undoubtedly has the energy for action, yet whose cool resolves of mind seem ultimately to obliterate his feeling. Shelley asks what happens if reason itself becomes unbalanced and imagines a polarised image of The Marquis, whose passions obliterate his reason. In the early stages of *Frankenstein* she reiterates the belief, described by one correspondent of Joseph Priestley's, who praised experimental philosophy because, "inducing the world to think and reason, [will]...overturn the empire of superstition."[228] Yet, Shelley takes this to extreme, and Victor Frankenstein admits, "I do not ever remember to have trembled at a tale of superstition, or to have feared the apparition of a spirit. Darkness had no effect upon my fancy; and a churchyard was a mere receptacle of bodies deprived of life, which, from being the seat of beauty and strength, had become food for the

[224] Daniel Shaw (1992) who argues that Hume has reason and desire as necessary for action
[225] Wollstonecraft et al (1790/1997) p63
[226] Godwin and Kramnick (1793/1976) p77
[227] Wollstonecraft et al (1790/1997) p63 and p39 respectively
[228] Richard Poe to Priestly (1791) quoted in Golinski (1992) p82

worm."[229] Lack of superstitious feeling allows him to visit graveyards and charnel houses in order to discover the secret of life and death. But, once he has made his creature, his lack of feeling for it or for any of the other people around him who all suffer as a result of his social blindness, turns his story into something as dark as any superstitious fear. This is the nightmare of reason.

With all that said, what is actually present in Radcliffe's gothic is a vision of science that is entirely the reverse of Shelley's hellish vision. This places it about as far from the hackneyed image of a crazed, self-absorbed scientist as one could get. The science of Ann Radcliffe's 1790's gothic is an exalted form of reason. Science is domestic, democratising, pastoral, spiritual and not only is it unthreatening, it is positively uplifting. Its lack of instrumentality means that its only associated function is through its ability to enhance reason and where reason can curb the most dangerous passions, science can balance feeling to virtual perfection – until that is, Mary Shelley gets hold it.

GOTHIC ORIGINS OF THE DETECTIVE

A number of scholars have noted links between gothic and detective fictions. The common point at which to place the intersection of the two forms is with Edgar Allen Poe's (1841) first Auguste Dupin story, *The Murders in the Rue Morgue.*[230] Yet, as William Patrick Day (1985) remarks, it is not so easy to explain how and why the detective should arise out of the gothic formula. There are several interpretations of how this might have happened. Some describe it as a Foucauldian process in which sovereign power is coded in the aristocratic villain and shifts to a disciplinary power that is coded in the detective. Or it represents a stage of thinking on a pathway from miraculous to rational thought. Others simply

[229] Shelley et al (1818/1994) p80
[230] This story was published in 1841 Graham's Magazine in Philadelphia USA. See Sussex (2010) p45

point out crossovers in discourse particularly of transgression, passions and reason for example.[231]

Lucy Sussex (2010) remarks upon the fact that the belief in a rationalism that rescues Radcliffe's gothic worlds and their heroines from complete disintegration has strong similarities with the world-view of Sherlock Holmes.[232] She points to moments of actual detection undertaken by the gothic heroine in Radcliffe's novel, *Mysteries of Udolpho* (1794). There are equivalent moments in *Romance,* for example, when Adeline in investigative spirit, explores the abbey and finds a dagger spotted with rust and a handwritten manuscript in a secret chamber.[233] The manuscript eventually provides her with the evidence she needs to condemn The Marquis. But all such moments are driven by extreme and pressing circumstance, there is no actual narrative drive of investigation in the gothic.

The most incisive of all observations on this is William Day's reflection that "[g]othic fantasy lacks an effective hero, a character who through his own efforts can resolve the mystery and put an end to horror. The figure of the detective develops from the tension created by the lack of true hero. He is, in effect, the hero the Gothic world needs but cannot sustain."[234] The inability of the gothic world to sustain a hero, in Day's terms is owing to the fact that it presents a mystery without any resolving explanation. The mystery is unravelled in the plot, but it is never explained. This is true and there is certainly no active force in gothic fiction that seeks out and disciplines the criminal, not even in momentary bursts. The gothic story consists of the interaction between a transgressor and their victim, or their object. The detective story makes the transgressor into the object, or victim, of the detective.

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[231] See Ascari (2007) for general links of discourse; Knight (2004) on Foucauldian shifts and Poe; Messac (1929) on shift from magical to rational thinking; Thomas (1999) on Foucauldian shifts and Poe
[232] See Sussex (2010) p30
[233] Radcliffe and Chard (1791/1986) p115
[234] Day (1985) p51

Yet I would like to finish Day's sentence as it were, by proposing that what stands in place of a hero in Radcliffe's gothic, in both *Romance* and *Udolpho* is reason. In her universe it is only reason that can 'resolve the mystery and put an end to horror.' This clearly does not occur in any active way, as it would if a hero were part of the narrative, yet is has the same function of restoring moral order. Day suggests that the detective grows out of the dynamics of gothic fantasy of absolute instability and that the figure resolves both the instability of gothic world and narrative, but he does not go so far as to suggest the detective is gothic reason personified. Yet, the reasoning detective is able to apprehend the impassioned criminal in the same way that the gothic heroine uses her reason to resist both the passions of the villain and her fear of the supernatural. The detective figure is reason embodied in a hero. Reason and science have equivalent functions in both detective and gothic scripts. The skeleton of the detective narrative, which remains popular today almost always involves the rational purification of the worst excesses of the passions by the action of detectives in hunting criminals and restoring order.

If the detective is a personification of Radcliffe's gothic reason and reason was already typified as cool, or cold, then one would expect the detective to be an unemotional personality of the kind that Alfred Schutz would term a 'course-of-action' type, in which the person takes on characteristics of a process. This does not always have to be the case, although detectives commonly are unfeeling outsiders in some way.[235] Sherlock Holmes is a prime example. In *A Scandal in Bohemia*, Watson is moved to remark of his detective friend, that "[g]rit in a sensitive instrument, or a crack in one of his own high power lenses, would not be more disturbing than a strong emotion in a nature such as his."[236] Such an image is reminiscent of Mary Shelley's hellish vision of unbalanced reason. Shelley pushes reason to extreme, so that Victor Frankenstein is 'noble' as reason is perceived to be, but he lacks any of the 'tenderness of humanity' that characterises

[235] See Leane (2007) on popular physics texts, in which the authors have modelled themselves on urban 'hard-boiled' type detectives who are all outsiders in some way
[236] Conan Doyle 'Scandal in Bohemia' in Conan Doyle and Hodgson (1994) p32

Radcliffe's La Luc.[237] Holmes is not dissimilar in this regard. Although these two icons of fiction, Frankenstein and Holmes, function in opposite disordering and restorative directions, they both embody reason, and ultimately they both must pit their wits against an impassioned being – be it creature or criminal.

At their core both these stories place reason in relation to feeling, whether that be self-serving passion or empathic emotion. In the late 18th and early 19th-century culture it was not only writers of gothic fictions, but intellectuals and politicians who took part in debates about the merits or otherwise of various admixtures of these human qualities. Indeed, by the 1820's, the notion of reason as a civilising force was so commonplace that those who seemed to be without it were tainted with monstrosity. In 1824, Foreign Secretary George Canning, speaking in the House of Commons on the emancipation of slaves, remarked that "to turn him loose in the manhood of his physical strength, in the maturity of his physical passion, but in the infancy of his uninstructed reason, would be to raise up a creature resembling the splendid fiction of a recent romance."[238] The creature is Frankenstein's monster and the argument stood ground since it was another nine years before West Indian slaves were emancipated.

That such a remark should trip off the tongue so easily, in the number one power-house of the day, shows how far the notion of reason as a socialising force had become taken-for-granted credo. Detective fiction is another example of the assumed improving potential of reason.[239] It takes the idea that human thought can order or quell chaos-inducing passion and shifts it from debates about the morality of individuals to a project that encompasses the moral order of society.

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[237] Walton says of Victor Frankenstein "He must have been a noble creature in his better days, being even now in wreck so attractive and aimiable." Shelley et al (1818/1994) p60

[238] Cited in Baldick (1987) p60

[239] Detectives use intuition and luck to solve cases as well, but however they actually solve their cases we, the readers, are almost always given to believe that their success is a function of their reason

Indeed the early part of the 19th century saw a whole raft of 'improving' activity taken up by those who believed that teaching the world to reason would make it a better place. But that is the topic of the next chapter. The gothic authors laid more emphasis on finding some ideal balance between reason and feeling. Though there is no question that they believed in the efficacy of reason and its loftier relative science as 'enlightening' forces all round. In the following section, I will look at what happens when supernatural forces tarnish science to make it an instrumental force of frightening potential, the kind of force that Mary Shelley secularised. I explore how this vision links to different models of science in public that sought to conceal method and provoke wonder, but at the same time raised anxieties about an 'occult' force of growing independence and power.

THE MONK, ZOFLOYA AND *FRANKENSTEIN*

A vastly different picture of science emerges from, what are known as gothic *horror* novels, as opposed to Radcliffe's *terror* novels. In the worlds of Radcliffe, violence, desire, rape and supernatural are threatened but never happen, but in horror fiction the threats are carried through. Lewis's *The Monk* (1796) and Dacre's *Zofloya* (1806) are squarely gothic horror novels in this regard. Here science is an instrument of horror. Their scientific representations oppose Radcliffe's in just about every respect. Where Radcliffe's science is angelic, theirs is Satanic, where hers is modern, theirs is alchemical, and where hers passively enlightens the mind in a homely way, theirs is powerfully instrumental and demonic. *The Monk* and *Zofloya* are similar stories with essentially the same structure. Mary Shelley's Victor Frankenstein is the personification of extreme reason, undoubtedly, but in the structure of his story, his motives and the way he conducts his science, he shares very much more with scientists of the horror novels. This is also true of many a 'mad scientist' who follows him.

Aside from the horror, these two works differ from Radcliffe in allowing the supernatural to live. Oddly they do this while at the same time punishing superstition as a failure of character, faith and reason. In both stories, the

ideal of reason is held aloft as the only potential path to redemption, though early on it is clear that it is too late for the protagonists, or the anti-heroes who have rushed headlong into their final fates from the outset. Unsurprisingly, these two texts in particular are dubbed as 'anti-Enlightenment' probably because they are about the supernatural. Yet, they are not - they pay lip service to reason and chide superstition; and moral, if there is one, is that Satan sits astride the supernatural path. *The Monk* tells the story of Ambrosio, who, tempted onwards by a satanic femme fatale called Matilda, engages in ever more licentious and brutal acts. In *Zofloya* the genders are reversed though the script is the same, and the young protagonist, Victoria is tempted to illicit sexual relations and ultimately to murder by Satan embodied in the seductive Moor called Zofloya.

Matilda and Zofloya are demonic tempters and the only characters of their respective novels to have access to science. The kind of science they have access to is distinctly alchemical in flavour and could easily be read as magic (and to the modern eye, would be). They contrast Radcliffe's passive science with a vision of instrumental alchemy put to illicit purpose and used as a means of control. This is the power of technique writ large and dark. The language of control is unmistakeable. Matilda's teacher "gave laws to the elements: he could reverse the order of nature: his eye read the mandates of futurity, and the infernal spirits were submissive to his commands..."[240] Zofloya who is able to concoct potions and poisons to suit any intent, declares "In no instance have I ever failed in my calculations of the event. That which I willed came to pass, and came to pass in the *manner* in which I willed it!"[241]

There are two obvious reasons why such a model of instrumental science is painted with so dark a hue. First is its purpose, which in these novels is for selfish, earthly ends, for the fulfilment of personal desire and nothing more. So the Godliness and social value of Radcliffe's model is lost here. Secondly, command of nature can be, and traditionally was, achieved by

[240] Lewis, et al (1796/2004) p236
[241] Dacre and Craciun (1806/1997) p161

magic which, like technology, has the power to transform elements of the external world. The association with magic, of course, condemns it from a Protestant perspective and indeed motifs of magic and science are thoroughly intermingled in both works. Zofloya, for example, explains that "[t]o chemistry...I became particularly attached, without, however resigning my astrological pursuits."[242] Likewise, Matilda's guardian studies "those arts which relate to the world of the spirits" and in the next sentence has an "unwearied application to the study of natural philosophy..."[243] Scientific and magical imagery flip flops fluidly, running one into the other as science-magic, chemistry-astrology or spirit philosophy-natural philosophy fusions.

Such fusions are relatively common in popular fiction extending from this period, or earlier, to today and they are an important theme of this study.[244] Simon Locke (2005), for example, analyses various magic-science constellations as they are represented in superhero comics. He argues for the recognition of the complexity with which scientists are represented in this arena, being "never simply one thing...but multiple, mixed, and moveable."[245] In the same vein, dichotomous notions that posit *either* disenchantment *or* enchantment are too simple to describe the complex magical and scientific universes that Locke finds in superhero comics. There is no question that the novels at issue in the present study would also support this view. Usefully, Locke distinguishes between science that is 'enchanted' and magic that is 'scientized'. Zofloya, certainly, and potentially Matilda too, are supernatural beings whose incorporation of science into a magical repertoire 'scientizes' their magic. Frankenstein's version of science, on the other hand, might be said to constitute a variation on the theme of enchanted science.

Science-magic fusions of the kind found in the gothic horror novels

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[242] Ibid (1806/1997) p160
[243] Lewis et al (1796/2004) p236
[244] Several further examples appear in this study: see particularly, Chapter 5 for Braddon's (1860) *Trail of a Serpent* pp135-171 and Chapter 7 Le Fanu's (1872) *In a Glass Darkly* pp 205-237
[245] Locke (2005) p42

represent power bestowed upon the protagonists by supernatural beings, though whether Matilda is actually supernatural or not, we never know. In structure these narratives are Faustian to their core:

- Faust desires something more. Magic powers are given to Faust by Mephistopheles. Faust gains something more. Satan gains Faust.
- The Monk desires an innocent girl. Science-magic powers are given to the Monk by Matilda. The Monk gains the girl. Satan gains the Monk.
- Victoria desires young men. Science-magic powers are given to Victoria by Zofloya. Victoria gains young men. Satan gains Victoria.

The many versions of Faust differ on the details of the object(s) of his desire, but all agree on the decidedly magical powers that he takes from Mephistopheles in order to satisfy his appetites. The powers which are given to Ambrosio and to Victoria are tinged with the scientific. Magic and science become the interchangeable means with which desires can be fulfilled. The use of special powers to satiate one's own longing, whether natural or supernatural in provenance, is in the end subject to damnation. The contrast with Radcliffe's model of science is so stark it needs no further elaboration.

Two paintings, both by Joseph Wright, are informative in this regard, since they echo the distinction between Radcliffe's and Lewis-Dacre's models of science, which suggests that science was regarded more generally as consisting of these two forms. As already noted above, *The Orrery* (1766) depicts a Radcliffean model of science, but *The Alchymist* (1771) conforms to an image more like the magical visions of Lewis-Dacre.[246] Where the natural philosopher sits engaged with other people in a domestic scene around an orrery, the alchemist works alone in a vaulted, church-like room, his two assistants relegated to a backbench and engaged in their own separate activity. The alchemist's room is littered with all manner of

[246] See Appendix p271

instruments, a furnace, retort and flasks of all shapes and sizes. Alchemy is a secretive business, undertaken alone, in a place of spiritual, magical or religious significance. The alchemist kneels in religious attitude looking heavenward perhaps to conjure some spirit or other, while his retorts and other strange instruments glow all around him. It is a kind of magic chemistry with a mysterious, hidden or occult method.

On the contrary, Wright's natural philosopher, is homely, engaged with family, uses uncomplicated mechanical apparatus and spreads wonder to participants. These are the 'proper' behaviours of the institution of natural philosophy for Radcliffe and for practitioners like Joseph Priestley and colleagues. Yet, as I have already discussed, public science is undergoing change at the turn from 18th to 19th century. The democratised model of science that Priestley adheres to is losing its grip partly because of intellectual and technical developments that require special instruments and the skills to use them; and partly as a result of institutional change, in which the scientist takes on a new persona as an expert distinct from a lay public.

The shift eventually changes natural philosophy from an inclusive to an exclusive discipline, which is well exemplified by a conflict between Priestley and Antoine Lavoisier over the process of combustion. Lavoisier used highly sensitive, costly balances with which to weigh substances prior to and following combustion. From such detailed measures he suggested that combustion was a chemical process of combination, in opposition to Priestley's view, which had it as a process of separation. English and French models of chemistry clashed, but the debate became rather singly focussed on the role of instruments, rather than on the chemistry itself. Lavoisier emphasized the power of his instruments in revealing his new model of combustion. Priestley disapproved on the basis that expensive instruments were unaffordable to most people and so the French chemists' observations could not be widely replicated. On top of that his convoluted experiments interfered with the proper process of natural philosophy, in which direct

experience was the only 'true' measure of nature.[247]

The terms within which the debate was conducted tended to coalesce around the degree of openness or not, which the experimental method allowed for. The English natural philosopher William Nicholson, speaking of the complexity of Lavoisier's method, complains that "[t]he real degree of accuracy in experiments is thus hidden from our contemplation".[248] What is suggested here is that instruments, measurements and calculations combine to form a smokescreen which effectively shuts down the possibility of independent judgement of experimental results by others who are either untrained in the method or who do not possess the equipment. It was also seen as a restriction on the accessibility of experimental philosophy to the lay population. What this amounts to is that the methods of natural philosophy are becoming increasingly mysterious, hidden – or occult.

Humphry Davy on the other hand, consummate showman and performer, sought to awe his audiences with spectacular shows of galvanic phenomena, in which he would produce sparks of different colours, ignite gun powder, or draw figures on gold leaf. The chemist-conjurer stands alone at his bench producing bangs and flashes from a mysterious array of odd-looking equipment.[249] The separation of public from scientist, the creation of an expert who alone knows how to conduct the experiment and what it means, turns science away from the enlightenment ideals so valued by Priestley and returns it in some measure to the old model of alchemy. I am not suggesting that natural philosophy in any way became secret or magical in practice, but the effect of distancing and the performance of technical expertise to outsiders who are not fully voiced in it themselves, gives science the edge of occult magic. The metaphor of a 'ship-in-a-bottle' has been used by Harry Collins (1985) to describe just this kind of situation.[250] Similar to the perplexing question of how ships get through bottle-necks, the issue of how knowledge is produced by scientists is equally shrouded in mystery and

[247] See Golinski (1992) pp129-152 for a detailed discussion of the Priestley-Lavoisier clash
[248] Quoted in Dear (2006) p81
[249] See Golinski (1992) pp188-235 for an excellent discussion of Davy in public
[250] Quoted and summarised by Locke (2005) p27

magic or at least the aura of it.

In effect, natural philosophy at the turn of the 18th and 19th centuries is starting to look more like its faded relative, alchemy. Interestingly enough the gothic novels, *The Monk* and *Zofloya*, take a Faustian script, a primarily supernatural work and slightly naturalise it. I use the term 'slightly' because their science does not represent straightforward natural philosophy. It is a liminal construction that sits somewhere between magic and science. Mary Shelley's innovation is to take such naturalisation all the way, though whether she actually does away entirely with the need for magic is another matter.

Frankenstein

From the point of view of structure, *Frankenstein* is similar to *The Monk* and *Zofloya*, bar one intriguing factor – in the following statements the second function shifts with interesting consequences:

- The Monk desires an innocent girl. Matilda gives science-magical powers to the Monk. The Monk gains the girl. Satan gains the Monk.
- Frankenstein desires the knowledge and power of creation. Frankenstein studies science. Frankenstein gains the knowledge and power of creation. Frankenstein gains disorder for others and himself or his own hell on earth.

In the fairytales that Propp (1928) discusses, and for that matter, in many of those that are still in circulation today, there is a crucial function fulfilled by a character that he labels the donor.[251] Generally the donor's function is to give the hero a magical agent or helper of some kind, which aids him or her in a time of crisis, perhaps in vanquishing the villain and restoring lost people or goods to their right places. In *The Monk, Zofloya* and indeed in Faust there are such donors. Matilda, Zofloya and Mephistopheles bring

[251] See Propp (1928/1968) pp39-50

supernatural aid of a Satanic turn to the hero to help her/him to realise their desires. Stephen Knight (1980) has commented on a similar function in 20th-century fiction. For example, he describes the donor function in James Bond stories where 007 is granted all kinds of technological gadgetry, which replaces the need for the genie in the bottle, or other such magic and aids the agent in a tight spot.

Shelley, however, has dispensed with the need for a donor, as science, which more easily than magic can be learned, in the same way as reason can, replaces the need for a magical agent. Science is Frankenstein's magic helper. It means that the hero can be his/her own donor. Knight (1980) remarks the same of Sherlock Holmes, who of course needs no other donor than his own head and hands. Knight explains this feature of Holmes stories as "self-help, that great Victorian virtue, [which] is embodied in his power to succeed with no more than his own abilities."[252] Certainly the ability to function alone chimes with the Victorian vogue for self-help, but I would argue that it is actually the instrumental nature of some science, or technoscience, which makes it an ideal, modern substitute for magic.

The key difference between science and magic is that the latter is mostly unfathomable by humans and always requires the kind of supernatural help that is often supplied through the donor function. There are, of course, those rare and special people, sorcerers and the like, who use ritual and incomprehensible methods to conjure powers from the ether and transform nature in that way. Though there is a sense in which magic powers cannot simply be learned by anyone because of the need either for supernatural helpers or for some special quality of 'soul' or feeling, that allows for contact with supernatural forces. Yet science is a much more egalitarian, human activity that was, after all, democratised in the 18th century, at least in representation, if not entirely in practice. In stories, science functions as magic pulled down to earth. It is magic in human form. This is a phenomenon picked up by Andrew Tudor (1989b) in his classic study of

[252] Knight (1980) p77-8

horror films who among other things examines the initial cause for the perturbation that inevitably takes place in the horror genre. Disorder can emerge from supernatural or secular causes, of which secular causes are science, crime or mental illness. Indeed, of nearly a thousand films that he studied, just over a quarter had science as one of the primary sources for the disorder.[253] Shelley appears to have been one of the first people to publish the idea that, just as Satan can make monsters, so can science.

Shelley repeatedly asserts in *Frankenstein* that the nature of Victor's process is more or less self-taught science. On meeting M. Waldman, his teacher at Ingolstadt, Frankenstein embarks upon a vigorous study of "natural philosophy, particularly chemistry, in the most comprehensive sense of the term...", later applying himself to "those branches of natural philosophy which relate to physiology..."[254] Yet, much has been made of the actual indistinctness of the process by which Victor finally builds his creature. Some scholars have noted that Shelley's invocation of the 'spark of life' at the moment of creation may refer to the use of galvanic apparatus.[255] Ellis (2000) notes the same, but he places emphasis on the fact that the creation scene is fundamentally gothic in its imagery. The midnight hour, inclement weather, the isolated garret, add up to magical mood. Sorcerers and witches work alone on such nights, not experimental philosophers. If anything the gothic flavour is amplified by the very indistinctness in process. So although Shelley firmly tells us that Frankenstein's process is natural, she goes on to suggest otherwise by clothing it in supernatural garb.

Not only is the atmospheric imagery magical, but Shelley also has Frankenstein declare his allegiance to alchemy. When he arrives at university, he says "when the masters of science sought immortality and power; such views, though futile, were grand...[now the] ambition of the inquirer seemed to limit itself to the annihilation of those visions on which

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[253] Tudor (1989a)
[254] Shelley et al (1818/1994) p78 and p79
[255] See Ellis (2000) p152

my interest in science was chiefly founded. I was required to exchange chimeras of boundless grandeur for realities of little worth."[256] The goals of magic, the elixir of youth, the philosopher's stone and other tools that will break the bounds of death, are what feed the ambitions of this scientist. As Smith (1994) points out, Victor does not conform to the 'safe' enlightenment model of pious natural philosophy, which held to the values that Radcliffe enshrines. In many ways Victor hovers between science and magic and reflects the shift from an Enlightenment model of science to a Romantic one, from the stable and the knowable to the unstable and the mysterious. Though that may be a too clichéd understanding of Romantic culture, it is faithful to Shelley's vision.

Last, Ellis (2000) argues as does Smith (1994), that Victor's discovery is not in fact scientific in nature at all because it is made in secret. He believes the secrecy of it puts Victor's project closer to alchemical magic than to modern natural philosophy.[257] Secrecy is of course associated with magic at the time and taken together, all the magical inferences add up to make *Frankenstein* as much a story about magic as it is about science. That it was seen in this way at the time is evidenced by the fact that the first publishers to take it up were a firm called Lackingtons who specialised in "magic, the illegitimate supernatural, and horror"; one advert listed: *The Magus or Celestial Intelligencer*; *Lives of the Alchemystical Philosophers; Apparitions, or the Mysteries of Ghosts, Hobgoblins and Haunted Houses...*" etc as stock items.[258]

The threads of magic that run through *Frankenstein* and other mad scientist narratives have been widely noted.[259] Spencer Weart (1988), for example, finds that the influence is long lasting. He describes 20th-century depictions of physicists in popular culture who share much with the sorcerer and concludes that "the public image of the scientist partly evolved out of ideas

[256] Quoted in Smith (1994) "Frankenstein and Natural Magick" in Bann (1994) p48
[257] Crosbie Smith (1994) "Frankenstein and Natural Magic" in Bann (ed) 1994
[258] St Clair (2004) p359
[259] For example Cohen (1981); Haynes (1994) p9-22; LaFollette (1990) pp98-100; Lambourne et al (1990) p37; Locke (2005)

about wizards."[260] Indeed, Weingart and co-authors (2003) find that where a public-private split plays out in modern feature films, those disciplines most often conducted in secrecy are the ones that are the most likely to flout ethical values.[261] Yet, beyond the gothic period, magic is not necessarily immoral. The consummate scientific logician, Sherlock Holmes, compares science to conjuring in ways that mirror the hidden process of the magician. When Watson asks for further explanation, Holmes protests "I'm not going to tell you much more of the case, Doctor. You know a conjurer gets no credit when once he has explained his trick; and if I show you too much of my method of working, you will come to the conclusion that I am a very ordinary individual after all".[262]

It is notable that Shelley's *Frankenstein* appears at about the same time as there is a shift in the nature of public science – a shift from passive, open, pious science to something instrumental, showy and mysterious. As William Nicholson put it in 1796, its methods are becoming 'hidden from our contemplation' while its outcomes are ever more sensational and in large measure, instrumental. It is well known that Shelley spent a lot of time studying Davy, and as Golinski tells us, the chemist was concerned to show the "efficacy of natural forces such as galvanism, and simultaneously to demonstrate...[his own] power to command them through the instruments at his disposal."[263] It is interesting to speculate as to whether Shelley is reflecting a sense of dislocation with the methods of science that the lay public(s) felt more poignantly at the time. What seems certain though, is that by secularising the act of creation whilst at the same time giving it a magical aura, Shelley effectively removes the moral constraints that pious faith places upon magic. To put it another way, she presents a process, which has the transformative power of magic, but has become unhitched from the guide ropes that attached it to all the restraining values that were paraded by Radcliffe and Co. In doing so Shelley warns that we have no need of Satan, since we can use science to create our own hell on earth.

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[260] Weart (1998) p143
[261] Weingart et al (2003) p285
[262] Conan Doyle *A Study in Scarlet* quoted in Smith (1994)
[263] Golinski (1992) p202; for Davy's works that Shelley read, see: Thoman (1998)

Two models of science emerge from the gothic novels of Radcliffe, Lewis and Dacre. Science is beneficent and human or destructive and demonic. Shelley takes elements of each of these perspectives to create a vision of science so prescient that it is now a modern myth. In the following chapter I will explore how GWM Reynolds, journalist and author of the epic *Mysteries of London* (1844-1846), weaves gothic influences into the fabric of an 1840's cultural landscape. In so doing he champions a newly rationalised scientific professional model in his medical men, while he derides the belief that reason alone can improve the moral capacity of the lower orders of society.

CHAPTER FOUR

PROFESSIONAL MYSTERIES

GWM Reynolds (1844-1846) *Mysteries of London*

The Mysteries of London (1844-1845) is a social melodrama that was published in cheap weekly instalments and was immensely popular, sitting at the apex of a newly burgeoning mass market.[264] It relates the story of two brothers who have lost their fortune. One brother is a paragon of virtue, while the other turns to crime. What is interesting for the purposes of this study are Reynolds' scientific characters – a 'daguerrotypist' and a mesmerist and two medics who form the substantive focus of this chapter. Reynolds integrates contemporary cultural developments, some newsworthy and factional, with traditional, melodramatic, conceptions of morality. As such he presents a snapshot of a complex and shifting professional landscape in 1844-5 to which he applies a gothic moral tone that is updated and re-packaged for a mid-Victorian audience. Out of the labyrinthine streets and moonlit graveyards of Reynolds' urban gothic emerges the ideal of a rational, scientific professional who is able to restore moral order at all levels of society.

The dictum that reason is *the* path to human virtue was a key feature of all the gothic novels in the previous chapter.[265] In Ann Radcliffe's (1791) *Romance of the Forest*, reason saves Adeline from crumbling either at the first hint of ghostly superstition or in the face of the advances of the Marquis. Conversely, it is lack of reason that gives reign to the Marquis' basest passions allowing his selfish drives to obliterate his morality. In Radcliffe's universe science is a form of reason elevated to near Godliness, although it is strictly passive only serving to reflect the order of Nature. I have suggested that the ordering functions of reason and science

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[264] The *Bookseller* (1868) stated that Reynolds had written more and sold in greater numbers than Dickens and in a obituary notice in 1879 the same journal dubbed him "the most popular writer of our time": quoted in Dalziel (1957) p36; *Bentley's Miscellany* remarks on "mystery-mania" in 1845: quoted in Maxwell (1992) pix

[265] Mary Shelley (1818) is equivocal on this point. The message of her text is complex, though it is probably safe to conclude that she introduces the idea that reason taken to extreme does not lead to virtue

demonstrated here are turned instrumental in the detective genre. The model of reason in gothic fiction that functions on an individual and introverted level, performs the same function on an extraverted, societal level in detective fiction. In this chapter I will explore how the same model also describes the role of a newly rationalised scientific professional – the medic, who is equally able to restore moral order and, in that sense, is a prototype of the detective figure.

An alternative vision of science emerging from gothic horror fiction has more in common with the modern myth of mad science. It is exemplified by passion-fuelled portraits of gothic villains such as Ambrosio from Matthew Lewis's (1794) *The Monk*, and Victoria from Charlotte Dacre's (1806) *Zofloya*, for whom science is deeply instrumental, a magical means to satiate desire. Both magic and desire are ruled by Satan. Reynolds, like Shelley before him, has his scientists draw a firm boundary that places the supernatural beyond the bounds of science, while colouring them with dark magical iconography. Yet, the effect of Reynolds' vision is to draw hints of dark magic into a view of science that is actually both a potent democratising force in society and is instrumental in restoring order.

Reynolds draws together the seemingly contradictory threads of the two gothic models of science – the darkest instrumental version, steeped as it was in magic, is largely disenchanted and combined with Radcliffe's deeply virtuous, democratising model to produce a benevolent, instrumental science. Yet, in relation to his mesmerist and his photographer, Reynolds' statements are derisory. In this view, science is the domain of fraudulent, self-serving aggrandised individuals, who, though mildly disruptive, are ultimately irrelevant to the social world of the *Mysteries* novel. So science is both a powerful social force for good and the vacuous activity of a few egocentric individuals. He sorts 'good' from 'bad' science in this regard.

From his own day to this, Reynolds' prime place in the mass market has drawn criticism. His republican, Chartist politics, for example, are seen as

negated by his sensational, escapist, sometimes prurient, fiction.[266] Marx famously called him a "rich and able speculator", a man mercilessly working the new mass market for his own gain.[267] The political dilemma is not the precise concern here. Yet what makes Reynolds an important contributor and gives his rebinding of gothic threads lasting effect was largely his talent as an 'able speculator' on the mass markets. His narrative blend of urbanised gothic and melodrama, which twists the secrets of a bewildering array of urbanites into tangles of covert activity, is imitated in Dickens *Bleak House* (1853-53) and assimilated into an arena of domestic mystery in the 1860's by sensation novelists.[268]

I will focus on Reynolds' *Mysteries* Volumes I and II since these two volumes complete the first story cycle; together they comprise 259 chapters in all, which were published weekly between 1844 and 1845 and in bound form in 1846.[269] I will begin by examining the model of science and society employed in the utilitarian improving campaign, which Reynolds whole-heartedly rejects. Moving onward, I argue that Reynolds characterises beneficent science by drawing on some particularly dark visions and in doing so draws a surprisingly astute picture of the innovative process. I then show how he ameliorates his medics from the moral murk, which at first seems to besmirch them. Finally, I will suggest that Reynolds is influential in instituting a rational, scientific, middle class professional as a prototype for the literary detective and a new model of instrumental science.

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[266] Raymond Williams famously argued that radical literature such as *Black Dwarf* and the *Political Register* was arousing and good for the people, whereas such popular works as Reynolds produced were politically deadening: see Humpherys (1983) p83

[267] Karl Marx quoted in Humpherys (1983) p82

[268] See Maxwell (1992) pp160-190 for a full discussion of how Dickens transforms Reynolds take on 'urban gothic'; in 1860, Mary Braddon was requested to combine the "human interest and genial humour of Dickens with the plot-weaving of GWR [sic] Reynolds" in her first novel *Trail of a Serpent* as discussed pp135-71 of this work: see Braddon (1893) in Braddon and Willis (1861/2003) p422

[269] The text I am referring to throughout is the bound version published in 1846 by George Vickers

In broad terms, Reynolds follows Radcliffe in placing high value upon material, rational understandings of the world, although the cultural landscape of Radcliffe's 1790's was significantly altered by Reynolds' heyday in the 1840's, and he places correspondingly different emphases on the worth that science has for society. Radcliffe's romances embraced a set of cultural values that linked reason, science, faith and virtue in a formula for happy living. These values were compressed into a single discourse under the banner of 'improvement' in her own time and beyond, especially in the early 19th century[270]. 'Improving literature', 'the march of intellect' and 'useful knowledge' became bywords for a scaled up version of Radcliffe's vision of reason as a self-disciplining, self-developing force. The term 'improvement' was not one that Radcliffe used, but it encompassed her values with altered emphasis and raised them from an individual to a societal level. Improvement was the utilitarian application of reason, knowledge, science, morality and faith, to society's ills.

The difference between Radcliffe's value set and utility hinged upon the instrumentality of reason. No longer need reason be a purifying force for the individual alone, it could also be a productive force for society. Steven Shapin (1991) highlights this shift in emphasis when he writes of utilitarians who by the 1830's advocate "the professionalization of the scientific role and the state subvention of science – not because it fostered or was compatible with gentility but because it was materially useful to civil society. What was now asked for...was state support, not for underwriting the role of the Christian Philosopher and gentleman scholar, but for that of the scientific expert."[271] Reynolds certainly aligns himself with science as

[270] See Altick (1998) pp73-75 and pp131-132 for discussion of Hannah More and pp269-273 for the trend in the 1830's for supplying useful knowledge in cheap print

[271] Shapin (1991) p313 How far these groups directly sought state finance is a moot point but they did court popular support

both a meritocratic and a secular force, a picture that comes out in his drawing of medical men.[272]

Yet, utilitarianism, was not a single, united belief. It encompassed all kinds of persuasions and creeds with assorted motives clinging to one cluster or another of utilitarian values. As Richard Altick (1998) points out, utilitarianism "spread from its originating group until it was part of the atmosphere every nineteenth century Englishman breathed".[273] Although Reynolds was broadly supportive of the utilitarian commitment to science and its goal of improving the conditions (not necessarily the morality) of the working poor, he had strong views on where the value of science lay.[274] He was opposed to those organisations, which perhaps falling into Shapin's professionalizing category, publicly raised the bar for science, but advocated science, or reason, alone as a method of 'improvement' for the lowest orders.

The Society for the Diffusion of Useful Knowledge (SDUK), brainchild of Lord Brougham, was just such an organisation, a staunchly utilitarian group who aimed at reforming society by disseminating knowledge. At a meeting of founders in 1826, Brougham clearly defines the purpose of the society as having, "...necessity of some plan of co-operation for the moral improvement of the great body of the population and the means by which this object may be most effectually attained." Moral improvement of the 'masses' remained the justification for the society throughout its existence until 1846. The means to achieve it was "the imparting of useful information to all classes of the community..."[275] To this end, the SDUK became foremost among the pioneers of cheap literature in the 1830's.

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[272] Reynolds' fiction is melodrama, which comes close to morality tale in that dishonourable characters are punished and the honourable are rewarded and he sends clear moral messages about the worth of different activities or professions in this way

[273] Altick (1998) p129

[274] In a 'Letter to the Industrious Classes' which appeared in *Reynolds' Miscellany* (1847) he writes "I want to see *you* well educated, and *your* position also improved." *Reynolds' Miscellany* 30 January (1847) 1 (13) p199

[275] Quoted in Smith (1974)

The Penny Magazine (1832-1845) was one of the SDUK's most popular productions, a weekly, rather bland, compendium of factual articles and anecdotes, on topics ranging from geography, to zoology and biography. Although it professed to be entertaining, its style was patronising in the extreme, relating facts to a passive empty-headed reader. In many ways it is a prime example of the early operation of the deficit model of the public understanding of science.[276] Its opening feature directly addressed the reader and defined its editorial tenor as that which will "fix the mind on calmer, and, it may be, purer subjects of thought than the violence of party discussion, or the stimulating details of crime and suffering."[277] Here are the *Penny's* two greatest bêtes noires – political, particularly radical press, and street literatures like the Newgate Calendars, crime broadsides and cheap romances.

In an era marked by political turmoil and fear of revolution, the SDUK sought to flood the market with cheap print that was apolitical and factual, and calmed, rather than aroused, its lower class readers. As a result, the group had been a vociferous campaigner against the high taxes on newspapers. In so doing they were instrumental in opening up the road to cheap print, on the assumption that the press would fall under the control of middle class liberals like themselves who could be trusted to disseminate 'factual' material. Their faith in improving literature was such that they believed that the labouring classes would reject radical political writers like the Cobbetts, the Paines and the Carliles as false prophets in favour of their 'calmer' and 'purer' subjects.[278]

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[276] For summary of deficit model of public understanding of science see Gregory and Miller (1998) p89-90; see Durant (1993) 'What is Scientific Literacy?' in Durant and Gregory (1993) on why knowing facts does not mean understanding science; Thomas and Durant (1987) for a list of the reasons for promoting 'scientific literacy'; compare the latter with Lord Brougham (1833) "Progress of the People-The Periodical Press" in King and Plunkett (eds) (2005) p23 for a summary of reasons to promote 'improving knowledge'. In one paragraph Brougham touches on all bar one of the reasons given by Thomas and Durant in1987. Brougham omits aesthetics - to be expected for a utilitarian.

[277] *Penny Magazine* March 1st 1832 p1

[278] See Altick (1998) 325-330 for discussion of politically radical writers and efforts to suppress them. Radicals included: William Cobbett of *The Political Register*, Tom Paine of *The Age of Reason* and *The Rights of Man* and Richard Carlile, radical bookseller, and editor of *The Republican*.

Their horror can only be imagined, when in the 1840's, the labouring classes appropriated cheap print for their own brand of literature. All the evidence points to the fact that improving magazines, like the *Penny* were cast over in favour of cheap penny fiction, penny bloods, and sundry miscellanies (that were not of the improving type). Evidence from bookseller lists, from Henry Mayhew's *London Labour and London Poor*, and from AB Reach's surveys of labouring culture in the Northern industrial towns all points to a shift in taste away from the literature of improvement and a growing market for fiction, political comment, with the occasional tit bit of useful knowledge thrown in.[279] Reynolds was one of the many who took advantage of this shift in taste, and the publication of *Mysteries* began two years before the demise of the *Penny Magazine*. If there was anything more hateful to the members of the SDUK, it was George Reynolds' particular mix of radical politics and romantic fiction. In 1846, announcing the discontinuance of *Knight's Penny Magazine* (successor to the *Penny Magazine*) publisher, Charles Knight, castigated his competitors as representing "[a]ll the garbage that belongs to the history of crime and misery...raked together, to diffuse a moral miasma through the land, in the shape of the most vulgar and brutal fiction".[280]

One of the failings of improving literature generally, and of the *Penny Magazine*, was likely its refusal to engage in any political debate.[281] Despite the best efforts of the SDUK to appear apolitical, most authors agree that they had a fairly straight forward propagandist agenda to control the culture of working people, in order to repress, replace or at least mitigate any republican, jacobin or revolutionary inclinations.[282] Haywood (2004) argues that such anti-radical, liberal, improving agendas, so well exemplified in the *Penny*, were one of the stimuli for the matrix of politics and escapism that emerged under the leadership of Reynolds and others like him. The

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[279] For evidence of the spread of 'entertaining and political' literature see: Jacobs (1995); Maidment (1984); Mayhew (1861/1968) especially Vol III; Reach and Aspin (1849/2007)
[280] Charles Knight (1846) quoted in Dalziel (1957) p47
[281] See Smith (1974)
[282] See Altick (1998); Jacobs (1995); Haywood (2002; 2004); James (1974); Desmond (1989); Maidment (1984); and Rauch (2001) p45 points out that the *Penny* was particularly popular among the *middle* classes

availability of cheap print pioneered by the utilitarian 'improvers' backfired. The editors, journalists and authors who stole their market were fully cognisant of the fact, and Reynolds, revelling in it, wrote in the first issue of his *Miscellany* (1846): "Cheap literature has become respectable, because the immense class that support it has latterly made a wonderful intellectual progress; and those Periodicals which hope to gain and secure the favour of that class, must provide literary aliment suited to the *improved* taste of the present day."[283]

Mysteries and Improvement

Reynolds' opposition to the SDUK's particular brand of 'improvement' finds its most damning indictment in the passages of documentary detail which he uses to lay bare the deprivation, cruelty and poverty that shape the lives of many of his poor characters. He is at pains to show that crime can be a product of an unjust society and not simply the result of a lack of reason and morality. Haywood (2004) has observed that "each of the fifty-plus plots of the *Mysteries of London* concerns the corrupting and often horrifically violent effects of a social system which exists to serve a profligate aristocracy."[284] In one example, Reynolds describes the overcrowded living conditions in Smithfield, which "destroys all shame in the daughters" leaving their virtue unprotected and open to the crime of incest. "The wealthy classes of society are far too ready to reproach the miserable poor for things which are really misfortunes and not faults..."[285] The SDUK's efforts to press improving literature on to the working poor had done little to improve the conditions which they endured. In the face of such pressing human need the links that utilitarian reformers had made between 'proper' education and moral betterment were risible. To describe poverty as it was in all its grim deprivation was one of Reynolds major political achievements.[286]

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[283] *Reynolds Miscellany* Nov 07 1846 quoted in Haywood 2004 p190 my emphasis
[284] Haywood (2004) p179
[285] Reynolds (1846a) p43 (col b)
[286] For example, see: Reynolds (1846a) pp 43-51 for description of London's poor and pp353-61 for a harrowing description of child miners

Further to hard-hitting documentary scenes, Reynolds disparages 'improvement' in a parodic take on 'useful knowledge'. When the young and beautiful Ellen Monroe is thrown on hard times through no fault of her own, she attempts to improve her lot through paid work. Her initial efforts to earn a few pence through needle-work fall short of their daily need. She is driven to find more lucrative employment and is lured into the 'den' of a 'filthy-souled harridan' who apparently makes a living by providing introductory services to girls who have fallen on hard times along with other essential support services for the prostitution trade.[287] Ellen is resistant, and so, to start with, the old hag finds her work modelling her face for a statuary, but step by step Ellen edges along the 'road to ruin'[288]. Next she models her bust for an artist, and then she is enticed by a "French gentleman of science...who has invented a means of taking likenesses by the aid of the sun...[and] requires a beautiful woman to serve as a pattern for his experiments."[289]

What follows is an early representation of a daguerreotype, itself a sensation aside from the pornographic content. The process had been invented in 1839, the year of Reynolds' plot, by Louis Jaques Daguerre and Henry Fox Talbot who announced their work almost simultaneously.[290] Reynolds raises the pitch by adding a touch of scandal to the scene, since the French scientist "was desirous of taking full length female portraits in a state of nudity."[291] Shocked by the request, but lured by the payment, Ellen agrees. Initially Reynolds keeps favour with the supposed scientific nature of the exercise and "her entire form is preserved, in all attitudes, and on many plates, in the private cabinet of a photographer at one of the metropolitan Galleries of Practical Science."[292] Later he spells out the pornographic

[287] Reynolds (1846a) p258 (col a)
[288] Ibid p171 "Road to Ruin" is the chapter heading
[289] Ibid p175 (col a)
[290] Thomas (1999) p111
[291] Reynolds (1846a) p175 (col b)
[292] Ibid p175 (col b)

intent. Ellen's nudity "feasted the eyes of many a libertine in the private room of the photographic department of a Gallery of Science."[293]

Reynolds invents a scientist-cum-photographer who keeps pornographic photographs of a young woman, "in all attitudes, and on many plates" in his "private cabinet" for gratification of "many a libertine". The scandal of the whole scene is intensified by the real novelty of the daguerreotype itself. From its first inception the technique was on show at the science galleries in London, and was regularly advertised in press, amid articles here and there relating technical details. In the early years of photography, between the date of *Mysteries* plot in 1839, and its publication in 1844, the technique was construed largely as a scientific curiosity and it is this tone that Reynolds makes play of.[294] Edgar Allen Poe captures its spectacle as "the most extraordinary triumph of modern science", an innovation which provided the means to achieve "a perfect identity of aspect with the thing being represented...The variations in shade, and the gradations of both linear and aerial perspective are those of truth itself in the supremeness of perfection."[295] Pornographic daguerreotypes, which show a 'perfect identity' and the 'supremeness of perfection' were as near as one could get to real, living flesh.

The combined effect of these scenes is to draw attention to the way in which 'science' apparently legitimises pornography. Indeed we are led to understand that the scientist is "entirely devoted to matters of science...having no soul for love, pleasure, politics, or any kind of

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[293] Ibid p278 (col a)

[294] For example, *The Morning Chronicle* Sept 14 (1839) reports 'The apparatus of M. Daguerre, for the production of photogenic drawings...was exhibited for the first time in this country..."; on Sept 25 (1839) *The Morning Chronicle* ran an advert for the same exhibit now at the 'Royal Gallery of Practical Science, Adelaide Street..', from this date onward for the rest of 1839 (date of Reynolds plot) adverts for one daguerreotype exhibit or another appear almost daily. By 1844 (date of *Mysteries* publication) advertising in *The Morning Chronicle* has dropped off to only 6 that year bearing the word 'daguerreotype'; although occasional technical articles appear in all press, see *Lloyd's Weekly London Newspaper* Sept 1 (1844) 'Electrotype, Calotype, Daguerreotype' in *19th Century British Library Newspapers Collection* on-line database: http//find.galegroup.com/bncn Gale Cengage Learning Accessed 24.07.10

[295] Edgar Allen Poe (1840) quoted in Thomas (1999) p111-2 from 'The Daguerreotype' in *Alexanders Weekly*

excitement save his learned pursuits" - so, he is typically asocial and obsessive. Yet, on first seeing Ellen, he eyes "his fair visitant from head to foot, [and] he expressed himself infinitely obliged to the person who sent her."[296] It seems, then, that he is able to appreciate beauty when he sees it, the insinuation being that his lack of 'soul for love' is just hollow scientific gloss. Lastly, public science galleries were exactly the kind of enterprise that the SDUK keenly promoted. So, while the lower orders trudged around the public galleries improving their knowledge on metallurgy and such like, the higher orders hid in backrooms gratifying themselves with 'porno-scientific' images of beautiful women.[297] This makes a mockery of the SDUK's 'improving' mission. Reynolds' engagement of everyday documentary detail makes his statement all the more potent because it inevitably raises a question as to where reality ends and fiction begins.

Edward Jacobs (1995) has drawn attention to a propensity for lampooning good works of utility in London street cultures, including 'penny gaff' theatricals and the penny fictions of Reynolds and others, all of which were problematic to 'improvers'.[298] This, he believes arises from a conflict between the paternalistic culture propagated by reformers, like the SDUK, and those cultures which they wished to obliterate. He has argued that the growth of industry and consequential work-discipline time structures imposed on the labouring poor were historically coincidental with the drive to improve the minds of the masses.[299] In other words disciplining the mind was part and parcel of a broader industrial rationalisation. Popular education as was famously derided by Charles Dickens (1854) in *Hard Times*, consisted of rote learning, memorisation and rigid time-tabling, all amounting to a factory-style schooling characterised by the mechanical repetition of facts. Jacobs finds that "both the early bloods of Lloyd and Reynolds and the street culture surrounding London gaffs, *conventionally*

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[296] Reynolds (1846a) p175 (col b)
[297] The connection between cutting edge technology and pornography is mirrored by developments in early moving imagery taken by Eadweard Muybridge of nude women. See http://www.eadweardmuybridge.co.uk/ accessed 23.06.11
[298] Penny gaffs were shows staged in impromptu theatres, banned in 1839, but finally dying out in the 1850's when the music hall culture displaced them, see: Jacobs (1995)
[299] See Landes (2003) pp41-123 for summary of time-discipline and industrial growth

equated literacy with industrial-work disciplines, and subjected this 'industrial literacy' to traditional forms of 'festive misrule.'"[300] There is no doubt that Reynolds is engaging in something akin to 'festive misrule' in his drawing of Ellen's efforts to improve herself with the aid of an old hag and a prurient scientist.

In later chapters, Ellen takes on a role as the subject of a mesmerist, who calls himself the Professor of Animal Magnetism. The Professor gives public lectures accompanied by a demonstration of his art, in which Ellen fakes a mesmeric trance and simulates second sight. The show is a fraud in its entirety. The charade comes to a head when in one of her clairvoyant trances, Ellen gets a fit of the giggles. The laughter is infectious and the audience too dissolves into giggles which progress to evermore raucous laughter. The Professor of Animal Magnetism is literally laughed out of town.[301] The SDUK specifically recommended the value of public lectures with accompanying practical demonstrations.[302] Laughing them out of town is unquestionably another example of 'festive misrule'.

Excepting the irony of their association with useful knowledge, there is little else remarkable about these scientists. Their plot function is minimal besides providing a focus for derision and in a small way hastening Ellen's downfall. Yet, the real perpetrator for luring the girl away from her respectable roots is the 'old hag'. It is significant that these two men of science come into the narrative via "the old woman...ill-favoured in countenance, and vile in heart."[303] Plot-entry point is considered in some detail by Propp (1928) who finds that "each category of characters has its own form of appearing."[304] That is not to say that the characters of novels

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[300] Jacobs (1995) p323 (his emphasis)
[301] See Winter (1998) for a history of animal magnetism. The story of Reynolds' mesmerist is a parody of Thomas Wakley's trial (and invalidation) of John Elliotson's mesmeric practise, which culminated in 1838-9, and revolved around Elizabeth O'Key, Elliotson's famous subject, whom Wakley ultimately denounced as a fraud. The controversy was published episodically in Wakley's periodical *The Lancet* from 1838 and resulted in Elliotson's resignation from UCL. See Winter (1998) pp95-100
[302] Smith (1974)
[303] Reynolds (1846a) p171 (col b)
[304] Propp (1928/1968) p84

could be so easily categorised, but what Propp's observation suggests is that mode of entry has the potential to prime the reader for the kind of character they are about to engage with. On top of being one of Reynolds' most deplorable creations, the old hag clearly draws on a tradition of magical and/or supernatural representation. The effect is to link her 'bad' magic with 'bad' science.

On one occasion Ellen finds the old hag, witch-like "watching the steam that rose from a large saucepan upon the hob...the harridan's dinner - tripe and cows heel stewing with onions, and filling the close apartment with a sickly odour."[305] And the oppressive clutter of her apartment is tainted with the whiff of pleasures past turned rancid with age. Yet, in among the garish "walls covered with cheap prints"; a patchwork of "strange and expressive remnants of a vicious and faded luxury"; the empty scent bottles and champagne bottle now filled with gin; the pillow stuffed "with well worn silk stockings, tattered lace collars, faded ribands" etc; she has "more singular than all the other features of her room...a huge Bible, with silver clasps, upon a shelf!"[306] All her possessions speak of something once beautiful turned sour and, among her belongings, the Bible is cast over with similar hue and here signifies hypocrisy.

The image of the Bible in the hands of the old hag is representative of Reynolds' views on the Church in general, which he also exposes to a little festive misrule. For example, his specious, lustful vicar, Mr Tracy, falls far short of Mr Wentworth, the rational medic both in benevolence and power. The contrast is highlighted by a scene in which the vicar performs the last rites to an allegedly dying man, in a ruse to ogle the daughter of the house; but he is made a mockery when the surgeon, who immediately follows him, coolly restores the 'dying' man to health.[307] This small episode demonstrates the way in which Reynolds engages in sorting out dissolute

[305] Reynolds (1846a) p258 (col b)
[306] Ibid p172 (col a)
[307] Dalziel (1957) p160 points out that Reverend Tracy (whose narrative runs from lust, to murder to suicide) was an unusually extreme portrait of clergy, but she finds that "coldness, laziness, snobbery and apathy" were more common failings among Anglican clergy in popular fiction of the early-mid Victorian period

institutions from deserving. In effect, the moral overtones of the melodrama are invested in the ways in which professionals interact with individuals, like Ellen, who inhabit the urban environment. In this regard, bankers, vicars, old hags or freelance-folk practitioners and scientists of the improving kind score poorly in Reynolds' moral registry.

In his own time and beyond, Reynolds has been accused of a lazy re-hashing of the gothic script, which simply pits corrupt old power against new and virtuous meritocracies.[308] Arguing against this notion, Haywood (2004) has demonstrated that Reynolds radicalises his fiction partly by using the 'old corruption' formula, which still carried weight in the 1840's, in the light of disappointment with the 1832 Reform Act and the consequential rise of the Chartist movement, of which Reynolds was a part.[309] No doubt this argument holds water as far as the politicising of fiction goes, but Reynolds does something more subtle than simply hashing out the old 'profligate aristocracy' script. He chronicles the power relations within and between institutions and between institutions and individuals. Neither vicar, mesmerist, nor photographer are aristocratic. All are bourgeois individuals who have been invested with certain powers because they are experts of specialist domains. In other words, Reynolds' canvas is peopled by professions, some emerging, some age-old, and some, like science, incohesive.

As in any melodrama people and professions live or die on their moral worth, so do Reynolds' urban institutions. Stockbrokers and bankers, government officials, and clergy are almost entirely self-serving, while aristocracy and policemen are variable and the criminal poor, as opposed to the respectable poor, are unconscionable to a man and woman. Reynolds smattering of decent characters must find their way amidst the network of powerful, venal hypocritical professions on the one hand and a mercilessly violent criminal underworld on the other. One of the tests of moral worth is how such professionals, or indeed individuals, treat those who have less

[308] See Haywood (2004) p172-3
[309] Ibid pp174-91

power than themselves. Within Reynolds' gothic nightmare one of the few beneficent professions is scientific (reform) medicine.

Mysteries' effective sorting of the decent from the depraved professionals, all of whom are drawn in typified melodramatic outline gives an overall picture of urban institutions in something like Everett C Hughes (1971) ecological landscape. In Hughes terms, the selection pressure on a profession is constituted by the needs and the wants of the people so only those professions that succeed in serving the people in some way survive. Reynolds, of course, adds a moral twist to the tale, but essentially those professions that he paints as hypocritically self-serving, in particular the Rev. Mr Tracy, the pornographic daguerreotypist and the money-grabbing mesmerist literally disappear from the text. There is also an element of competition between professions for available functions, which is especially evident in the scenes that have Mr Tracy ineffectually tending to the dying, followed hot on the heels by Mr Wentworth who calmly secures a cure.

Furthermore, Reynolds inclusion of 'real-world' cases provides a sociological snap shot of how the professions seemed to be serving the people, or not, as the case may be. Given his popularity there are very tentative grounds for assuming that Reynolds struck some chord with his readers in this regard, although that is by no means a necessary condition of his commercial success. That said there is reason to believe that the idea of a rationalised, scientific professional, particularly focussed in the realm of medicine, was gaining popular support if only among middle classes. This is the topic of the following section.

DOCTORING AND ANATOMY

The Trouble with Innovation

The narrative aim of the real world doctor drives towards the restoration of physical and mental health and even where this is not attainable it remains the ideal. Fictional medics more evidently turn in both directions; they either fulfil a restorative function, or they are cruel self-serving types whose

function is to disturb the prevailing order in some way that threatens other characters or communities.[310] The term 'mad doctor' is sometimes used to refer to such villains, who are often driven by the study of anatomy, physiology or vivisection. It is far from clear, though, where the line between mad doctor and mad scientist is drawn, if indeed there is one.

Such narratives occasionally bleed into the world of 'faction' as in cases like the 1888 Whitechapel murders, when the idea that a medic, a mad doctor, could be the elusive Jack the Ripper, drew serious consideration from press and police alike.[311] For some decades prior to and around the period of publication of *Mysteries*, the 'factional' equivalent of the Ripper story was that of the anatomist-surgeon who entered into dubious relations with body snatchers and/or murderers, as Robert Knox had done with Burke and Hare in 1828.[312] The blurring of fact and fiction was Reynolds' particular talent, a feature that adds a note of the forcefulness of news reports to his melodrama. It also draws upon the readers' desire to discern where facts begin and fictions end. Here Reynolds' dark, sometimes disordering, surgeon-anatomist has restorative function, just as Robert Knox presumably aimed for in the real world.

The first image of science to appear in *Mysteries* carries similar gothic reverberations that characterise Victor Frankenstein's association with vaults and charnel houses.

> ...the body-snatchers reached the low wall surmounted with a high railing which encloses Shoreditch churchyard...an individual, enveloped in a long cloak, was walking up and down beneath the shadow of the wall.

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[310] For examples of restorative medical narratives see: Samuel Warren's (1830-37) *Passages from the Diary of a Late Physician* in *Blackwoods*; Elizabeth Gaskell's (1865) Mr Gibson in *Wives and Daughters*; George Eliot's (1871-72) Dr Lydgate in *Middlemarch*. Examples of disordering medical narratives are: Dr Benjulia in Wilkie Collins (1883) *Heart and Science*; Dr Jekyll in RL Stevenson's (1886) *Jekyll and Hyde*; and Dr Moreau in HG Wells' (1896) *Island of Dr Moreau*

[311] See Christopher Frayling "The House that Jack Built" and Andrew Smith "The Whitechapel Murders and the Medical Gaze" in Warwick and Willis (eds) (2007) pp13-29 and pp110-123 respectively

[312] Richardson (2001) pp132-143

> This was the surgeon, whose thirst after science had called into action the energies of the body-snatchers that night.[313]

Such a dark apparition raises expectations of mad, bad or perhaps Satanic science of the kind that was exemplified in the gothic horror novels or in *Frankenstein*. Yet Reynolds goes on to tell quite another story.

The surgeon's narrative could be written as follows:

- The surgeon desires knowledge of anatomy and healing.
- The body snatchers provide a corpse, with which the surgeon studies anatomy and he gains knowledge of anatomy and the power of healing.
- In so doing, the surgeon gains order for others and himself.

Which is a transformation of Frankenstein's narrative:

- Frankenstein desires the knowledge and power of creation.
- Frankenstein studies science in the graveyard and gains the knowledge and power of creation.
- In so doing, Frankenstein gains disorder for others and himself (or his own hell on earth).

A comparison of the science narratives of *Frankenstein* and *Dracula* revealed that disordering science sits in the first function and initiates the action, while science which is restorative sits in the second function and responds to a perturbation in the first. In *Mysteries*, the anatomist initiates the misdemeanour of grave robbing with his desire for the knowledge of healing, and the second function connects moral perturbation and restorative potential, as does Frankenstein's.[314] The transformation occurs in the third function when the anatomist uses his knowledge to respond to illness that occurs in the third. So, while the narratives of Frankenstein and the anatomist begin in the same manner, with a desire for knowledge leading to

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[313] Reynolds (1846a) p125 (col b)

[314] Frankenstein's motives are equivocal in fact. Does the desire to obtain the power of creation have restorative potential or not? He says "I might in the process of time...renew life where death had apparently devoted the body to corruption," which is about as restorative as is possible to imagine. Yet he also reveals a profoundly egotistical motive, "A new species would bless me as its creator and source; many happy and excellent natures would owe their being to me." See Shelley et al (1818/1994) p83 and p82 respectively

some kind of moral perturbation, they end in opposite states. Yet, whatever their ending is, the first two functions of each narrative are innovating functions. The relationship of innovation and perturbation here raises questions about the perceived nature of innovation, questions that are given added force by the 'factional' status of the anatomist's story.

Before moving on to innovation, a word about the novel. There is more than one surgeon-anatomist in *Mysteries*. One is simply referred to as 'the surgeon', or 'the anatomist' and first appears associated with body snatchers. Some thirty-five chapters later Reynolds introduces Mr Wentworth, a surgeon called to the birthing chamber of the shamed young Ellen. Twenty-nine chapters following that, the bodysnatching anatomist-surgeon returns in an episode, which requires his healing power. The only distinguishing feature between the pair is that Wentworth resides in Holloway Village, while his anonymous counterpart resides in Bethnal Green. Such a seemingly trivial detail is easily overlooked and the two surgeons give the impression of being only one, especially since Wentworth is also often referred to as 'the surgeon'. The misapprehension would presumably be all the more easily made for readers of weekly instalments given the lapse of time that intervened between reading about one surgeon and reading about the other. The fact of the matter is that they are two characters, not one, though the impression created is, if not of one person, of one profession, a scientific profession of considerable restorative potential, initial surface impressions notwithstanding.

The association of anatomist and criminal grave robbers draws out the inevitably 'disordering' edge of innovation. My original observation of the science narratives derived from *Frankenstein* and *Dracula* that were my starting point, has the restorative narrative as a conservative force, as indeed are most detective stories, which aim to return the world to some former ordered state (of course the world cannot be returned exactly to its original state, but instead to a different but ordered state). So between my original narrative pair, innovation lies entirely within the disordering narrative. Indeed, the very action of innovating requires a break with the old order.

Yet this pair of narratives cuts out the possibility that such a break in order can ever be beneficent, a possibility now fulfilled by Reynolds' surgeon.

The anatomist's narrative begins with a 'thirst after science', which drives him to the morally dubious act of illicitly exhuming dead bodies and in so doing rejecting institutional or state sanctioned means by which anatomists achieve their goal of learning. He is innovative in two ways, by procuring the body in the first place and then by using it to innovate medical knowledge that ultimately will aid in the restoration of health. The link between innovation and deviance has a logic that has long been an object of sociological comment. Robert K Merton (1938) distinguishes culturally defined goals and interests and socially acceptable means of reaching them. In his scheme, those individuals who maintain a socially sanctioned aspiration, as for example, the surgeon's desire for anatomical knowledge, but reject the institutional norms by which such goals are achieved, are innovators. So too are some criminals, whose access to the institutional means of achieving 'success' is blocked, and so must find other, deviant means to achieve the same goal. Reynolds' surgeon is exactly such an innovator.

Although the Anatomy Act was passed seven years prior to the 1839 action of *Mysteries*, the illegal sale of dead bodies did continue beyond the Act, particularly as Reynolds tells it, to independent anatomists or small, private teaching institutions. Much of the detail in Reynolds' body snatching scenes tallies with aspects of Richardson's (2001) extensive documentary study of the trade. Following the Anatomy Act in 1832 the administration and allocation of corpses for legal dissection was poorly handled and open to corruption. The large hospitals could offer treatment to the parish poor and expect to be given all available corpses in return. With too few bodies to go round, small teaching institutions and independent anatomists lost out and continued to use resurrectionists – the fictional surgeon of *Mysteries* is just such an anatomist. Indeed Reynolds' timeline fits Richardson's data exactly. There was a marked drop in the number of legal bodies available in

London from 1838 onward and so Reynolds' 1839 plot is frighteningly plausible and relevant to contemporary readerships.[315]

Further to the body-snatching episode, Reynolds supplies tantalising details of the anatomist's dissecting rooms. For example, he describes the drainage system that took the "fluid, which poured from the subjects..." and the drain and the pulleys attached to the ceiling by "which a body might be supported in any position most convenient to the anatomist."[316] These details emphasize the gore that the anatomist must deal in, driving home the idea of a deviant innovator who then must detach himself from any (normal) squeamish, moral or superstitious sensibilities raised by the act of cutting up a human body. So the surgeon is a criminal innovator in the graveyard, and medical innovator in the dissecting room. In both realms he must override social norms to achieve a goal, which is itself socially sanctioned. The whole picture is greatly reinforced by the knowledge that such criminal-medical innovators really did dig up bodies and cut them up.

Little personal detail is given of the grave robbing anatomist, though he is "passionately attached to anatomical studies, devoted to purposes of dissection and physiological experiment."[317] Clearly, he is every bit the typified, obsessional, detached scientist. That said, the same kind of emblematic details were used to mark out the pornographic photographer who has "no soul for love, pleasure, politics, or any kind of excitement save his learned pursuits"[318]. Surgeon number two, Mr Wentworth, is more rounded, but does nonetheless carry related insignias of science. He is, for example, "pale, but good-looking, with light hair, and a somewhat melancholy expression of countenance. He was attired in deep black. His manners were soft and pleasing; but his voice mournful; and his utterance slow, precise and solemn."[319] He shares Frankenstein's combination of

[315] Richardson (2001) p246
[316] Reynolds (1846a) p331 (col a)
[317] Ibid p331 (col a)
[318] Ibid p175 (col b)
[319] Ibid p247 (col b)

'melancholy' air and 'conciliating and gentle' manner.[320] The paleness of the scientist, intellectual or magician, is associated with bouts of excessive work or study.

In giving his photographer-scientist the classic obsessive, unfeeling air, Reynolds draws attention to the potential for parading the cool, objectivity of reason as a cover for all kinds of petty self-serving, self-aggrandising behaviour. Yet, in his medical men, the same typified 'objectivity' and lack of feeling turns into a necessary attribute in order that they can do the grim work of investigating how the human body works. What emerges from such a picture is a complexity of iconic representation even as it draws from a pool of seemingly banal, stereotypical details. The reiteration of the same typified details to wholly different effect shows that the function of this typification is simply to label 'the scientist', and at least in 1846, that label can encompass mad, bad, good and probably any other scientists.

On one occasion, Wentworth identifies himself with professional learning in assuring his client, "I possess certificates from eminent medical men under whom I have studied – I am not ignorant of my profession. My lord, I have every inducement to devote all the knowledge I possess to the aim, which you desire. My attentions shall be unwearied and unremitting..."[321] In associating Wentworth so strongly with his profession, Reynolds extends an air of the scientific to the whole profession. Wentworth's paleness supports his claims to learning, and his melancholy is evidence of the lonely, 'unremitting' vigil of care; and to demonstrate his capability for such work, he has a certificate. He is a fully-fledged member of a modern profession - the same profession as the passionately scientific anatomist who enters the plot via criminal resurrection men, is known to cut up dead bodies in his house, while he can (and does) heal the living body when called upon to do so. What Reynolds does with the edge of moral murk that attends the anatomist and by extension his profession, is the topic of the following sections.

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[320] Shelley et al (1818/1994) p58 and p60
[321] Reynolds (1846a) p381 (col a)

Ameliorating the Anatomist

Having initiated the science narrative with a vision of grave robbing and dark innovation, Reynolds then takes pains to reinstitute the moral character of the anatomist. Some few paragraphs following the first glimpse of the bodysnatching surgeon, Reynolds softens the anatomist with feelings of conscience. As he watches the grave robbers at work, he "could not altogether subdue certain feelings of horror at the business which had brought him thither...the methodological precision with which they [the gang] performed their avocations-the coolness they exhibited in undertaking a sacrilegious task...his feelings of aversion were the same as he would have experienced had a loathsome reptile crawled over his naked flesh." A few lines on, "...although a man of naturally strong mind,...the surgeon felt as if he beheld three demons disinterring a doomed one to carry him off to hell!"[322]

The anatomist's horror and repulsion on witnessing the grisly task at hand throw him into more sympathetic light than is promised at first. The very existence of feeling renders him the reluctant hero, burdened with a ghastly task, which he must pursue for the good of science, perhaps even for the good of humanity. Paradoxically he will use the very same 'methodological precision' and 'coolness' that so disgusts him in the body snatchers, when he opens the body later. Richardson (2001) too has collated scattered references that show the distastefulness with which some surgeons approached dissection, including a remark made by William Lawrence, surgeon to and friend of, the Shelleys, that the dissecting room was "a dirty source of knowledge", though not, of course, without medical value.[323] The grimy side of knowledge production in the medical field seems unavoidable and is made especially sensational at a time when the dead human body was imbued with near numinous quality. That said, the ability to feel disgust

[322] Ibid p126 (col b) - p127 (col a)
[323] William Lawrence (1827) in *The Dissector*, quoted in Richardson (2001) p95; for Lawrence and the Shelleys, see: Macdonald and Scherf in Shelley et al (1818/1994) pxvi

distances this anatomist from the absolute emotional blindness of characters like Frankenstein and many another mad scientist.

Reynolds' surgeon joins the resurrectionists at their work in order to direct them to the vault of a freshly buried girl whose corpse he is keen to dissect, having treated the course of her final disease. In reality, this must have been a rare occurrence. As Richardson points out, it was the resurrection men who took all the risk of illegal grave robbing and it is what they were paid for. Regardless, having the surgeon on the scene gives him some credibility, from the perspective that he is prepared at least to partake in his own dirty work. Richardson records a widespread abhorrence of body snatchers, while anatomists, who in many ways were as culpable for the trade in illegal corpses as their lowly partners, remained relatively immune to popular opprobrium, even though dissection was widely feared and still viewed as retributive.[324] Anatomists occasionally did incur public invective, but where resurrectionists raised a level of passion that fuelled violent attack, sometimes resulting in death, anatomists rarely suffered anything worse than attacks on property. Reynolds does not shy away from the darkness, and dishonesty, of the anatomists' dealings with the dead, but he seems keen to promote the same balance of accountability. So for his surgeon-anatomist, grave robbing is simply a necessary evil.

Equally notable is the fact that Reynolds relates documentary details of the grave robbers at work, but does not provide an equivalent level of detail about the anatomist at work. The grave robbing passages of *Mysteries* are filled with precise detail about how the men worked, the tools that they used, and the techniques that they employed to keep from being detected. Similar procedures are described by Richardson, even down to the importance of noiselessness, moonless nights and the use of a 'dark lanthorn', a candle or lamp with a shade to deflect light downwards and avoid attracting attention. In addition to the technical detail, Reynolds does not shy away from a description of how the men handle the body itself. As

[324] Judges were given discretion to sentence murderers to dissection, an alternative to gibbeting in chains in the mid 18th century, see Richardson (2001) p35

the corpse of the young girl is lifted from her coffin, "[t]he polished marble limbs of the deceased were rudely grasped by the sacrilegious hands of the body-snatchers; and having stripped the corpse stark naked, they tied its neck and hands together by means of a strong cord. They then thrust it into a large sack made for the purpose."[325] The girl's body is overtly sexualised and the whole scene sensationalised in these few lines.

In her study of criminal narratives in early 19th-century broadsides, Heather Worthington (2005) finds the same tendency to sensationalise and in so doing, to entertain. She reports that where crimes involved sex and violence, pornographic and gory details were "enlarged, expanded, and illustrated" and packaged in stylised illustration and liltingly jolly verse, or set within the distancing 'authority' of medical discourse. All were ways of masking the voyeuristic content, allowing the reader simultaneously to enjoy it and to judge it. She describes broadsides that relate the gruesome details of violent crimes couched in the 'authoritative' voice of a surgeon, which she suggests is a kind of covert voyeurism "in its scientific intrusion into the hidden places of the physical body."[326] Here, the reader can experience the salacious details as mediated through the surgeon, who unlike the body snatchers, has professional sanction to expose the 'hidden places' of the body. Indeed, Richardson reports that there were rumoured cases of anatomists who took more than a medical interest in some of their dissection subjects.[327]

The issue of how corpses were treated bubbled up fairly frequently in both medical and popular press in this period. Yet Reynolds distances his surgeon from the body and locates the hinted obscenity almost entirely within the 'sphere of action' of the body snatchers.[328] Reynolds engages in a similar process of titillation to that of the broadside tradition, but he masks

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[325] Reynolds (1846a) p127 (col a)
[326] Worthington (2005) p16
[327] See Richardson (2001) pp95-98
[328] The term 'sphere of action' is taken from Propp (1928/1968) p79. He uses it to examine how the functions are distributed between the characters. I am not using it in any such taxonomic sense, and simply wish to indicate that Reynolds had a choice – he could have placed the sexualised corpse into the sphere of action of the surgeon

the prurient details by calling judgement upon the 'sacrilegious' body-snatchers who ultimately throw the corpse into a sack more in the way of a piece of meat than an object of beauty or sexuality. Indeed, the only physical interaction between anatomist and corpse is in the moment that the surgeon steps into his carriage and seats himself "close by his strange freight..."[329] This is the last word on the surgeon for some chapters to come – a gap of several weeks for the penny reader. Clearly the anatomist intends to defile the corpse in a way that would diminish even the roughest of handling by the resurrection men, though his professional-scientific credentials legitimise these actions so much so that no details of the anatomist at work are forthcoming. All that is given of him is his passionate attachment to anatomical studies and devotion "to the purposes of dissection and physiological experiment."[330] His purpose is elevated over and above voyeuristic ends.

The superstition that surrounds the dead with all its incumbent supernatural potential and the spectre of unsavoury resurrectionists combine into a gothic aesthetic *par excellence*, which Reynolds uses to great effect. On delivering a new body to the surgeon, one of the resurrection men lays the body out on the dissection table, while the other receives remuneration from the surgeon in his study. Once alone with the dead body, "[h]e thought he heard a slight movement of the corpse, and his whole frame trembled. Almost at the same moment some object was hurled violently against the window; the glass shivered to atoms; the candle was thrown down and extinguished; and total darkness reigned in the dissecting room...he felt his hand suddenly grasped by the cold fingers of the corpse."[331] Rather in the way that Ann Radcliffe explains away the supernatural, so does Reynolds. The corpse, it turns out, was never dead at all, merely in a death-like trance; the violently hurled object the work of a disgruntled neighbour who suspected grave robbing. Paradoxically, the work of the resurrection men has on this occasion saved a man's life.

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[329] Reynolds (1846a) p127 (col b)
[330] Ibid p331 (col a)
[331] Ibid p331 (col b)

Following this incident the anatomist turns doctor and acts in his capacity as carer further ameliorating the reputation of the surgeon. His attentions apparently restore the waking corpse to health. Juxtapose this against the grisly details of the resurrection men, who are in fact not straight-forward grave robbers, but killers to boot, modelled on the London gang of copycat murderers who followed Burke and Hare.[332] In this sense Reynolds draws a stark contrast. Medics give life and resurrectionists take it. From the mirage of a man who has called the body snatchers to the churchyard vaults on a moonless night, comes a surgeon, a healer, who must quell his own feelings of repugnance at the ghastly tasks ahead of him in order to restore order to the human body.

Modelling Medicine Anew

The effect of the body snatching scenes drives home the necessary murkiness of accessing medical knowledge, and distances the anatomist from the worst of the moral turpitude at the same time. Further to this, Reynolds gives his medics the credentials of the emerging scientific profession, which effectively places a wedge between them and the old-style medical men who were characterised by a paternalistic, moral tone. Such an emergent profession is described at length by Adrian Desmond (1989), whose aim is not so much to unpick the scientific gloss that was laid on reform medicine (also evident in Reynolds), but to draw out the social and political process of professional reform that went along with it. Medical reformers sought to break the nepotistic, old corruption that sat in power at the Royal Colleges and as a consequence were more likely to work at the margins of the medical establishment, as do Reynolds' anatomist-surgeons. Breaking 'old corruption' also gave them common ground with radical politics per se. Desmond describes *The Lancet* published by the surgeon and radical politician, Thomas Wakely, as the medical version of William Cobbet's (radical) *Political Instructor.* Such a perceived affiliation

[332] Richardson (2001) p193-7

between independent medics and radicalism along with Reynolds' clear affirmation of this new model of medicine also affirms his deprecation of 'improving' drives.

A good example of the kind of doctoring which Reynolds eschews, is exemplified in the much celebrated 19th-century fictional doctor created by Samuel Warren. In a study, which takes account of scientific reforms in medicine, Meegan Kennedy (2004) examines the intersection of gothic and 'curious' discourses that ran through and around debates about the proper presentation of medical case histories. Samuel Warren's *Passages from the Diary of a Late Physician* was serialised in *Blackwoods* between 1830 and 1837 and remained in print throughout the Victorian period. Warren's fiction consists of a series of short stories masquerading as case histories taken from the diary of a one-time medic, who is a pre-reform medic on both Desmond's and Kennedy's accounts. There is no doubt that Warren's vignettes, bearing such titles as *Intriguing and Madness*, *The Spectral Dog* and *Thunder-struck – The Boxer*, amplified the sensational and moral aspects of medicine. Such spectacle was well aligned with the discourse of the 'curious' which, though considered to be an 18th-century phenomenon, remained fashionable well beyond that. Kennedy describes how an emergent professional class of medical men outlawed the flavour of the carnivalesque miracle-cum-morality tale that the 'curious' case invoked.[333]

She argues that such sensational, miraculous stories share "the romantic discourse of the Gothic, especially its interest in the supernatural and the unexplainable and its narrative aim of arousing suspense, horror, and astonishment in the reader."[334] Gothic medicine of this kind is certainly Warren's stock in trade and was immensely popular. In the Victorian period he came to epitomise an old fashioned, informal, personal style of doctoring, which took an overbearingly moralising tone and combined it

[333] The late 18th and 19th-century 'curious' appealed, perhaps more, to those outside the medical profession and it emphasized the extraordinary and freakish, for example "*A Menstruating Man: A Curious form of Hermaphroditism*" (1899), or "*Account of William Dempster, who swallowed a table-knife nine inches long...*" (1824), both cited in Kennedy (2004) p333

[334] Kennedy (2004) p327

with sensational, miraculous, and sometimes supernatural elements.[335] As such, Warren countered the clinical drive toward a realist medical discourse, which stipulated the use of scientific nomenclature and plain language devoid of emotion and subjective judgement. Indeed, 19th-century medical reformers campaigned successfully for a formal, objective, professional clinical discourse, which in the clinical sphere, at least, slowly replaced the gothic note that hung on from the 18th-century 'curious' case. [336]

Reynolds himself combines gothic and medical discourses. Nevertheless, where Warren's case histories represent medical practise as gothic in itself; Reynolds' medics are distinguished from a gothic background by bringing natural, material order to the disordered state. The bodysnatching surgeon well exemplifies this feature of Reynolds in the scenes that follow the incident of the waking corpse. When the patient begins raving of heaven and hell, his friend becomes alarmed by the uncharacteristic verve, which seemed like "an emanation from a source belonging to the mysteries of other worlds". When the surgeon hears of this he passes off the delirium "with the coolness of a professional man who saw nothing extraordinary in such results following so strange a resuscitation, from a death-like trance..." and dismisses any superstitious proclivity in the visitor with the assertion that the patient "may rave of any nonsense...but that is no reason why we should allow ourselves to be affected by it – as I see you are."[337] Such a claim aligns the surgeon on the one hand with the fictional scientist Victor Frankenstein, who had never "feared the apparition of a spirit..." and on the other, with the scientific medic for whom all things gothic, mysterious and supernatural are beyond the bounds of professional expertise.[338]

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[335] Desmond (1989) documents the medical reform drive in the second quarter of the 19th century. He describes how the professional standard shifted from an emphasis on good breeding and a classical education, to a scientific training. See pp32-33 for summary

[336] To this day examples of the medical curiosities persist in the popular realm. Television schedules are full of stories of obesity, rare genetic conditions, extraordinary feats of survival etc

[337] Reynolds (1844a) p349 (col a)

[338] Shelley et al (1818/1994) p80

One of the most striking features of Warren's *Passages* is its overbearing moral tone. Indeed, in the Preface to the 1854 edition, the author describes himself as having the feelings, "not of a Novelist, but of a MORALIST"[339]. His 'cases' include titles like *The Forger*, *The Man about Town*, which make direct links between diseases of the body and diseased morals, although almost all his stories have some moral message to impart. In *The Man about Town*, Warren relates the case of a man whose debauchery, his "constant feeding on garbage", lead to an agonising, tortuous death, which is described in detail.[340] Warren is near comic in his judgemental verbosity, yet the sense of a disease causing moral miasma was deadly serious and the patient caused his own death by "wallowing swinishly in the foulest sinks of depravity, heading among the acknowledged outcasts, commingling intimately with the very scum and refuse of society, battening on the rottenness of obscenity, and revelling amid the hellish orgies celebrated nightly in haunts of nameless infamy."[341] The imperious tone speaks for itself.

In turning to Reynolds' Mr Wentworth, an entirely different model emerges of the relationship between professional medic and the morality, or not, of his/her patients. Wentworth is a struggling middle class medic, initially drawn into the narrative by Ellen, who at this point on her 'road to ruin' is full-term pregnant and about to give birth to an illegitimate child. Wentworth is brought blindfold to the house and somehow delivers Ellen of a baby boy in complete darkness without seeing her face. The surgeon takes £40 for his trouble and the baby, who is to be cared for by his wife. He leaves Ellen exhausted and forlorn but with her reputation still intact. Some days later the doctor is called to the house again and is able to identify Ellen as the mother of the baby he had so recently delivered. Ellen is terrified, but Wentworth is compassionate. He reassures her that her secret is safe and devises a way for her to visit the baby in secret. This episode serves to

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[339] Warren (1854) pv
[340] Warren (1830) "Man About Town" in Morrison and Baldick (1995) p187 "Man About Town" was first published in *Blackwood's Magazine* as were all of Warrens' *Passages*, but the collected editions remained popular for much of the 19th century.
[341] Warren (1830) "Man About Town" in Morrison and Baldick (1995) p192

emphasise the doctor's adherence to an ethical code that strictly maintains patient confidentiality and suspends moral judgement.

On another occasion, Wentworth tends to a well-known society mistress, who has been badly burnt in a house fire. The surgeon is commissioned by her lover to spare no expense and it is in this instance that he makes claims to professional medical training: "I possess certificates," and knowledge, "I am not ignorant of my profession..."[342] In the same scene, when questioned on his willingness to treat a woman of equivocal moral standing, the doctor asserts that "medical men have no scruples of that kind."[343] In the event the patient is restored to full health, unscarred even, and the surgeon is duly recompensed for his able handling of the case: "Mr Wentworth became rich in one day."[344] The accent placed upon the character of the surgeon is of a man of no small skill, an expert of impeccable integrity, whose professional allegiance excludes moral reckoning of any kind. Man and profession are duly recompensed.

Most interesting is the fact that Mr Wentworth's function is not only confined to the restoration of physical health. Paradoxically by suspending his own moral judgement and keeping patient confidentiality, Wentworth allows Ellen and the society mistress to reinstitute their own moral standing. Ellen eventually forces the child's father to marry her and can then openly be a mother to her son and the society mistress, having returned to good health, is wedded by her lover. According to the likes of Samuel Warren, and indeed the utilitarian 'improvers', lost virtue has to do with undeveloped reason and in Warren's worldview disturbed morals lead to disturbances in physical health. Reynolds' narrative reverses this and positions virtue as something that can be lost by dint of hardships suffered at the hands of an unjust society, which cannot be rectified by fatuous attempts at educating the victim. For Reynolds the restoration of virtue

[342] Reynolds (1846a) p381 (col a)
[343] Ibid p380 (col b)
[344] Reynolds (1846b) p94 (col b)

relies at least partly, upon specialist knowledge – the reason and science – of a professional expert.

In reality the actual material benefits to patients from the new 'scientific medicine' of the 1840's were patchy to say the least.[345] Shortt (1983) has argued on this count that medical professionalization coincided with a middle-class cultural appropriation of science but was not caused by it. According to Shortt, the 18th-century appreciation for natural knowledge, as developed from the polite, domestic model of the sort that inspired Radcliffe, had become by 1840, "an essential component in the value system of the entrepreneurial middle class. Science was a mode of cultural expression and a means of social legitimation."[346] In a sense, the instrumental value of Radcliffe's beneficent, though rather passive, science has been realised, ideally, if not practically. Professionalising medics sought to gain a place in the day-to-day material lives of their clientele by providing what medical services they could, while seeking a place in middle-class value systems by using, not the content, but the rhetoric of science.

Indeed, Shortt cites Peterson (1978) who comments that doctors "gained stature not because they could always act effectively, but because only they could name, describe and explain."[347] Such a strategy of course, produces the idea of special knowledge, unobtainable by those who do not know the special method, which in itself is alluring and inclined to bring alive the desire for it, especially in such an emotionally charged arena as health care. The link that Radcliffe and Co made between reason and virtue is taken up, remodelled and emphasised for a different people and a different period – the value placed upon science, and presumably, then reason, is taken up by the middle class professional doctor, who, in Reynolds' popular view, is

[345] See Shortt (1983) p58 for useful summary of scientific medicine; Sparks (2009) for a summary of science and fictional doctors p12-22
[346] Shortt (1983) p67
[347] M Jeanne Peterson (1978) *The medical profession in mid-Victorian London* cited in Shortt (1983) p63

able to promote both the physical and the moral health of his patient community.

In the previous chapter, I argue that the fictional detective shares a heritage in the gothic genre with the mad scientist, although each represents an opposing model of science. The detective can be seen as an embodiment of reason that in Radcliffe's 18th-century gothic is a source of individual virtue, which when relocated to the detective becomes a source of moral order in society. Reynolds' doctors are similar in this respect and might be seen as a precursor to the detective. Along the same lines, Worthington (2005) has drawn attention to the importance of Samuel Warren's *Passages* as a prototype for the detective story in which the reader is introduced to a professional case structure given by an observational eye. The moralising aspect of Warren's case histories is repeated in detective stories and, like the detective, Warren's doctor takes on a disciplinary role in condemning deviance. Reynolds' middle-class scientific professional is another important model for the detective figure – the rational, scientific, middle-class professional who is able to restore order, whether that be moral, social or corporeal order.

Given his plot is melodramatic and peopled by typified professionals including clergy, bankers, government spies, lawyers, a mesmerist and two medics, Reynolds shows surprising alacrity in giving his storylines the texture of 'truth'. In one context, he makes a mockery of the emotionally cold scientist, who in all the grand regalia of his objectivity, has no clue that he is being passed off as irrelevant. Yet in a different context, the similarly icy anatomist who begins as macabre body-snatcher ends, through a process of emotional and physical distancing from the worst of the grisly details, as professional healer. Reynolds seems to be building on the commonsense feeling, sociologically formalised by Robert K Merton (1938), that the innovator, particularly in science, is both challenging and desirable at the same time.[348] Further to this sociological instinct, Reynolds' big picture

[348] The innovator is a theme that returns in this study. See pp140-42 for further examples

anticipates the ecological vision of Everett C Hughes (1971) in its pool of professionals all vying for a position in the landscape of the functions, which supply the needs of the people. Except in Reynolds' tale, it is hypocrites who serve themselves without fulfilling any of society's needs, who are punished and disappear from the plot. In other words, this is Hughes' model with the edge of a morality-tale.

Reynolds' position at the apex of an emerging mass market and his enormous popularity with lower and middle classes gives him a special position in the history of popular representation. His popularity meant that he was much imitated in his own time and beyond.[349] The point here is that, although Reynolds' fiction has not stood the test of time, his influence is felt in those authors who are still read today. In this way he was likely an important vehicle in the trend to place increasing cultural value upon science in his own time and beyond. With the vision of the scientific professional in place, the full-blown detective novel still did not arise for another decade or so. The next chapter focuses on how detective methods, scientific methods and narrative methods converge in a detective narrative.

[349] See Thomas (1996) in Reynolds and Thomas (1846/1996) for summary pix

CHAPTER FIVE

REASON, MAGIC AND VILLAINOUS INGENUITY

Mary E Braddon (1861) *Trail of a Serpent*

GWM Reynolds' popular *Mysteries* (1844-46) demonstrates the value of the newly rationalised professions in a plot peopled by institutional caricatures of clergy, bankers, government spies, lawyers and medics. Most of these are hypocritical, self-serving and hopelessly out of touch with the needs and wants of the people, a function that Everett C Hughes identified as being the key for the development and survival of any institutionalised profession. The only humanitarian professional characters are the medical men – an anatomist and a surgeon. In something bordering on a morality tale it is these characters who are rewarded, while the self serving types are punished. Reynolds' major contribution establishes a role for science as a positive instrumental force in healing the sick. This is opposed to the kinds of factual science that were doled out to middle and working class publics considered to be in deficit of knowledge and virtue, a system which, for Reynolds, encouraged hypocritical freeloaders.

Though relatively little known today, Reynolds influence was second to none. Sitting as he did at the apex of the early mass market, he was in a prime position to add to, set a tone for or perhaps even transform in some manner, the popular sphere as it was itself growing. Probably for this reason he was an influence on Mary Braddon, but also even on those authors (like Dickens) who professed to take strongly against him.[350] Reynolds surgeon-anatomist is an important model for the detective figure – the rational, scientific, middle-class professional, a man of science who is able to restore order.[351]

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[350] See Braddon 'My First Novel' in Braddon and Willis (1861/2003) p422; Maxwell (1992) p166-170

[351] See Barton (2003) who finds the label 'men of science' commonly used to describe a number of different professional men who used or purported to use a scientific method in the 19th century. Her period is actually mid-Victorian, later than Reynolds' *Mysteries*, nevertheless the term seems appropriate, and was likely in use by the time Braddon was at work

Two decades later Mary Braddon's *Trail of a Serpent* (1861) presents a network of specialists whose particular skill-profiles mark them out as experts, but who have little identification with particular professional bodies as Reynolds' medic does.[352] Rational specialisation is almost a taken-for granted norm, yet in the course of his narrative, Braddon's detective actively disassociates himself from state licensed police detectives, who are blundering fools in comparison. Instead of emphasizing the combined potential of professional status and scientific method as Reynolds did, Braddon's story focuses on the rational, scientific process itself and explores the different forms that it can take. So, although her narrative upholds the power and value of scientific methods of various kinds, Braddon does not share Reynolds' enthusiasm for an institutionalised professional science. Her detective is an independent expert whose function is restorative and, like Reynolds' doctor, conducts a process based on reason, which has an allegiance to science. Braddon's scientist, restorative like Reynolds' grave-robbing anatomist, is the equally shadowy eccentric magician-scientist who alone can provide elements of expertise that evade Braddon's detective.

Although *Trail* is the first actual detective novel in this study, its narrative reverses the usual logic of the detective plot to create a 'howdunnit' as opposed to a 'whodunnit,' in which the murderer, Jabez North, is known to the reader from the outset.[353] The novel then relates the parallel plots of North's criminal career and the detective, Mr Peters' investigative process. Crossing both plots is the enigmatic, magician-scientist, Laurent Blurroset. These three characters form the principal focus of investigation here. They all use, and represent, reason or science in different ways and, because the narrative of a 'howdunit' is essentially taken up with method, method will

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[352] *Trail of a Serpent* was first published as *Three Times Dead* (1860), this version sold badly, but was edited and reissued as *Trail* in 1861, selling 1000 copies in a week, it became an immediate best seller. It was serialised in the *Halfpenny Journal* (1864-65). *Trail* was reprinted several times throughout the 19th century. See Carnell (2000); Willis in Braddon and Willis (1861/2003). The version used here is the 1861 text, taken from an 1890 text of *Trail* published by Simpkin, Marshall, Hamilton, Kent & Co in Braddon and Willis (1861/2003)

[353] See Willis *Afterword* in Braddon and Willis (1861/2003) p408-414

form the main focus of this chapter. How far the fictional detective relates to and is constructed from the image of the real profession is a topic that will be taken up in the next chapter. That said, Braddon does make a significant and lasting contribution to the construction of popular conceptions of the investigative process.

In 1864 the *Westminster Review* testified to the importance of Braddon's work in establishing the detective as a familiar cultural figure, in writing that "[i]f it be good to stimulate our predatory instincts... while we trace the dodgings and doublings of an accomplished scoundrel matched with an adroit detective, then let all praise be given to Miss Braddon."[354] Her influence upon the emerging detective genre is rarely given the credit it deserves. Braddon combines models drawn from an adventuring, indomitable detective-type based upon Bow Street traditions, and a rationalised vision of their process, which was partly derived from contemporary popular sciences like phrenology and partly from debates about how proper science should be conducted.[355] Since her time, these two elements, rational process, and what I will call 'picaresque detection', have reverberated through subsequent generations of detective fictions. [356]

The association between detective and scientist that Braddon paints is equally significant. It is an early example of a relationship that persists forever afterward and occasionally is conjoined in characters as diverse as Conan Doyle's (1887) Sherlock Holmes and Kathy Reichs' (1997-2010) anthropologist, Temperance Brennon. In her pairing of scientist with detective, Braddon very much sits on the crest of a wave, as though

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[354] Quoted in Willis "Afterword" in Braddon and Willis (1861/2003) p410

[355] The Bow Street Runners 1749-1839 were a mobile police force attached to Bow Street Court in London. They were the brainchild of Henry and John Fielding. See Rawlings (1995) for a discussion of their initial aim of investigating crime, although they later incorporated regular patrols

[356] The rational component of detective work was made famous by Edgar Allen Poe's (1841-45) detective Auguste Dupin, whose process is intellectual, although both he and the crimes he investigates are so rarefied as to be too improbable for an everyday detective. *The Murders in the Rue Morgue* (1841) *The Mystery of Marie Rogêt* (1842-3) and *The Purloined Letter* (1845) are the only of Poe's stories to feature Auguste Dupin.
Rational process and derring-do combine in varying proportions, of which extremes are represented in 'golden age' fiction of authors like Agatha Christie and 'hard boiled' fictions of authors like Raymond Chandler respectively.

anticipating Holmes and his scientific descendants. It is notable that in *Trail* science is a necessary addendum to the detective's process, which appears like a poor relation in comparison to an exotic cousin. As such, her fiction provides an ideal opportunity for comparing methods, or models of reason, between scientist and detective as they were perceived and constructed in the formative years of detective fiction. I will argue that such a comparison reveals that the model of reason exemplified by most mad scientists is an alternative to the detective model and does not constitute a critique. It represents the mysterious, intuitive side of reason, while the detective demonstrates a more mechanical, open process.

Braddon created her detective-scientist pair in response to her villain who "reigned triumphant till the Nemesis of the last chapter" as she described it thirty years later.[357] Here is a third model of reason, now turned to evil ends. Within my selection of texts, there is a general shift away from passions that were drivers of disorder at the turn of the 18th and 19th centuries. Broadly speaking, what arises instead, to some extent, in *Frankenstein*, and more substantially in mysteries fiction, in Braddon's *Trail*, and in sensation fiction generally, is a concern with how a stratified society might create monsters such that individuals occupying marginal positions get forced into transgression, as their situation leaves them little choice.[358] The role of reason, and indeed of science, and the ways it may function either to order societal forces and minimise crime, or to further disorder them, becomes a fulcrum of interest over and above the potential debasing effect of the passions. That is, of course, the crux of detective fiction. The role of reason in the restoration of moral order is the one remaining motif of Ann Radcliffe's 18th-century gothic, which, in a 19th-

[357] Braddon (1893) 'My First Novel' *The Idler* 3:25 quoted in Braddon and Willis (1861/2003) p422

[358] For a Marxist reading of *Frankenstein* as metaphor for capitalist society in which the Creature is equivalent to proletariat, see Moretti (1983) p83-90; see Reynolds (1846) *Mysteries* for an example of how urban institutions corrupt; see Humpherys (1991) on this topic. Sensation fiction is more concerned with how the institutions of family and law combine with gender politics to create monsters, see Pykett (1994) pp8-13 on the social significance of sensation fiction; there is the genre of so called Newgate fictions, in which the focus of the narrative was on the criminal as hero/anti hero. Examples include: Charles Dickens (1838) *Oliver Twist* and William Harrison Ainsworth's (1839) *Jack Sheppard*

century reworking, includes the realisation that reason can also be a means of deliberate transgression, as it is for Braddon's villain. From this point of view, *Trail* is one of the first of a slew of popular novels about reason that arise in the form of the detective story.

Beginning with Braddon's initiating actor, I will consider how her villain reflects a shift away from the cultural conflation of intellectual and moral virtue. Moving on to restorative characters, I examine the process of the magician-scientist and show that some of what looks like magic today was in fact perfectly acceptable science, albeit popular science, in the 19th century. Braddon, herself, plays upon the indistinctness of the boundary and in doing so creates a classically odd and exotic scientist. In comparison the detective's process is more prosaic, combining traditions of adventure and crime with a systematic approach to data gathering. In the final section, I attempt to draw such exotic and mechanical visions together, to explore the meaning of enchanted science as opposed to the more down to earth model. I will argue that Braddon's fiction holds within it a dual conception of reason, which was widely debated across popular and intellectual cultural domains, as both imaginative and mechanical, and that her scientist and her detective represent different ends of this scale. Furthermore, I will suggest that this duality of reason is reiterated in the generic figures of the detective and the mad scientist forever afterward. Last I come full circle, to the villain again, and show how debates about genius relate it to the imaginative model of reason, which is exemplified by the mad scientist – a feature which makes him a particularly good candidate to be an unequivocally bad, or evil, villain.

REASON – A MEANS OF DELIBERATE DISORDER

Jabez North launches the action of *Trail* by disrupting the lawful and moral order of a little town called Slopperton. Braddon's murderer is every bit the melodramatic villain, his most potent weapon is a rare and calculating intellect. He says of himself that "...it pleased that Power [Heaven or Fate]

to give me nothing but my brains for weapons..."[359] Within the confines of the current corpus, the possibility that reason need not be tied to moral virtue first arises with *Frankenstein* (1818) and though Reynolds does allow the darker side of rationality to emerge in a minor way, Braddon makes very much more of the theme.[360] One of the significant steps made by Reynolds had been to recognise the uselessness of imposing 'useful knowledge' upon the masses. Braddon's vision of malevolent reason takes a step further by positioning the outcome of useful knowledge as a function of the moral character of its bearer, entirely switching the assumed order of events in which moral virtue inevitably follows from intellectual virtue.

In another way, Braddon's juxtaposition of reason and crime in a single character is evocative of Reynolds' anatomist, whose dark science reveals the ambiguities of innovation, which deviates from social norms, but at the same time has its own restorative value. Braddon's villain, on the other hand, has no such restorative function. He innovates in order to lift himself from one marginal extreme of society to another. Initially fished from 'Slopperton's' river, North is brought up a charity foundling and rises to become something of a town mascot as "assistant and usher at the academy of Dr. Tappenden."[361] Braddon parodies the smug respectability of Victorian charity, for in the eyes of Slopperton, North can do no wrong. Yet his aspirations do not match his social position. The kind of wealth and status that he truly desires, a goal undoubtedly championed by many a Sloppertonian, is not available to lowly foundlings, who have lived off the town's charity. This is another example of a Mertonian innovator who is driven to unlawful means in striving for a goal that is culturally sanctioned.

In a 1959 addendum to Merton's deviance typology, Cloward, endorsed by Merton, points out that while the original scheme had posited a differential opportunity-structure, which provided greater or lesser access to legitimate

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[359] Braddon and Willis (1861/2003) p172
[360] For example Reynolds draws an alarming picture of surveillance work undertaken by the State which draws on the typified emblems of knowledge/science given flesh in 'The Examiner' see Reynolds (1846a) pp75-76
[361] Braddon and Willis (1861/2003) p6

means, access to illegitimate means was also stratified. There are "socially patterned differences of access to *learning how* to perform particular kinds of deviant roles..."[362] In other words, social networks provide support and training in criminal technique, just as they would for any legitimatised professional practice. Although there was a strong tradition of writing about criminal social networks that could supply necessary know how, safe houses, access to black markets and such like, Braddon's miscreant is part of no such system. [363] Reynolds' anatomist, for example, must rely on a network of grave robbing expertise since he himself has not mastered the technicalities of illicit exhumation. In *Trail*, what replaces North's need for any such a resource is his rarefied intellect.

The notion that reason can replace the need for society is a recurring theme too, in mad science stories, in which the scientist is a loner and all the more dangerous for it. The idea that social isolation can lead to immoral behaviour is a central concern of Adam Smith's (1759) *The Theory of Moral Sentiments* in which he argues that all moral restraint, or conscience, arises through two-way social relations. Sympathy and self-restraint, neither of which are very evident in characters such as Braddon's villain or in Victor Frankenstein, arise as a result of empathy with another's state and a concomitant moulding of our own expression to fit the extent of the other's empathy. What this teaches us according to Smith are "[t]he soft, the gentle, the amiable virtues ...[of]... indulgent humanity...[and]... the virtues of self-denial, of self-government..."[364] Although Adam Smith's philosophy prefigured Braddon's period by more than a century, the proposal that social relationships are necessary for the development of moral restraint, becomes almost a common sense dictum that runs through many a narrative of the scientific villain, or the evil genius.[365]

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[362] Merton (1959) p188

[363] Examples of fictional criminal communities occur in Charles Dickens (1838) *Oliver Twist*; William Harrison Ainsworth's (1839) *Jack Sheppard*; and GWM Reynolds (1846) *Mysteries of London*

[364] Adam Smith (1759/2009) Loc 395

[365] See Shapin (1996) pp106-9 on the development in the 17th century of a cultural distrust (among natural philosophers) of individual, or private, intellectual activity. For a modern example see Weingart et al (2003) who find that in modern feature films, those disciplines conducted in secrecy are the ones that are most likely to flout ethical values

North, is just such a lone, and evil, genius, which raises an interesting question about whether he could be called a mad scientist. His structural function is unquestionably disordering, though that does not necessarily make him a mad scientist. He is repeatedly referred to as philosopher who is also "something of a physiologist as well as a mathematician" with a "calculating brain and icy temperament"[366]. His object of study is people, not nature, though his purpose is instrumental and selfish, he does not invent a tangible object of the kind that can run out of his control. It is probable, too, that without the insignia of a laboratory, he would not be widely recognised as a scientist.

The laboratory is a typified emblem of science, which sometimes serves as a diagnostic feature. Haynes (1994), for example, dismisses even the most scientific of detectives, Sherlock Holmes, as irrelevant to considerations of the scientist in fiction since he is similar to "routine crime-solvers such as Agatha Christie's Hercule Poirot."[367] There is every reason to believe, however, that such 'routine crime solvers' are scientists, or 'men of science', in the sense that they must gather data and eliminate false possibilities and that this approach, which forms the substantive part of a detective narrative, effectively constitutes a form of scientific method.[368] Indeed scholars argue over whether such methods approximate induction or are closer to a hypothetico-deductive method.[369] The narrative of literary laboratory scientist, on the other hand, is far less scientific, the process

[366] Braddon and Willis (1861/2003) p143 and p180, respectively. For examples of North as a 'philosopher' see Braddon and Willis (1861/2003) p85 and p92

[367] Haynes (1994) p179

[368] I use the 19th-century term 'men of science' here to show that I am not referring to professional image and identification in describing detectives *as* scientists. I have already noted the fact that in the 19th century many professionals were known as 'men of science', a term that was preferred to 'scientist' because the professional bounds of science were much more loosely drawn in this period than they are now. See Barton (2003) for a full discussion of this

[369] For example Agassi (1982); Smith (1994) p211-237

being almost always obscured and amounting to something much more like magic than any scientific method, a theme to which I will return below.[370]

Mad scientist, or no, Braddon quite clearly designates North as an intellectual, loner and acquisitive villain - a genius, even. In the 19th century, Isaac Newton had long provided a potent model of a 'real' lone genius, not evil admittedly, but definitely eccentric. Yet, Richard Yeo (1988) has charted the way in which such eccentricity began to destabilise the assumed link between intellectual and moral virtue. He finds that such a shift was influenced partly by early 19th-century psychological ideas relating genius to insanity and partly by the revelation of Newton's temporary mental collapse. The idea of a genius as an extraordinary personality, perhaps verging on madness, inevitably renders such a person a loner, even in the midst of society. In Smith's terms the major drive for developing moral sentiments, the two-way flow of empathy, cannot function fully for a person who is by their very nature extraordinary, or mad. Indeed, in 1837, William Whewell seems to recognise this problem when he describes Newton's genius as "almost irreconcilable with the common conditions of human life" requiring a "steadiness of will" and "the strongest character" as a means of resisting vice.[371]

That is not to say that such a figure as an evil genius did not exist until 19th-century cultural currents brought it to the surface, though the association with secular science is a transformation of a figure that had often been portrayed as magical.[372] In gothic horror fictions, Lewis' *The Monk* and Dacre's *Zofloya*, transgressive genius is located within supernatural individuals like Matilda and Zofloya, who have the power to supply the means by which Ambrosio and Victoria can meet their desires. All the evil of Radcliffe's gothic, on the other hand, is located within the earthly powers of individuals whose means reside in their elevated social rank. The

[370] See Weart (1988) for a discussion of magical influence on popular portrayals of 20th-century physicists; For Frankenstein's magical process see Smith (1994) "Frankenstein and Natural Magick" in Bann (1994); and Ellis (2000) p152
[371] Whewell (1837) from *The History of the Inductive Sciences*, quoted in Yeo (1988) p276
[372] For example, Prospero in Shakespeare's *The Tempest*

structural narratives of all of these villains are the same, beginning with personal desire and ending in a disordered world:

- The villain desires wealth/power/knowledge. The villain uses exceptional powers of reason/social rank/magic to pursue his/her goals. In doing so the villain creates disorder.

In the villain's narrative, magic, reason and social power all make the same kind of sense. Means of action are, of course, interchangeable as Propp (1928) shows in defining fairy tale functions.[373] Braddon's North is a classic gothic villain who, like Radcliffe's Marquis will stop at nothing, has no redemptive feeling and is entirely self-serving. What differs between Frankenstein, whose narrative is also encompassed in these functions, and North, is that the former does preserve some of the association between reason and virtue. The distinction here points to one made by Andrew Tudor (1989a) in his study of the mad scientist in 20th-century horror movies, in which "evil men pursuing their own ends" are contrasted against "good men corrupted by their overwhelming commitment to science."[374] Frankenstein's flaw is hubris as opposed to the near fiendish greed of the gothic malefactor.

REASON – A MEANS OF RESTORING ORDER

Countering North are Braddon's detective, Mr Peters, and her magician-scientist, Laurent Blurosset. It takes two brains and two styles of reason to put the correct man behind bars, free the innocent one and restore the town of Slopperton to order. The narrative function of both characters is entirely focussed on, and responsive to North, who threatens to create ever more expansive ripples of disorder. Following a bungled robbery involving a murder, which Peters investigates, North fakes his own death by switching clothes with his (conveniently) dead twin and flees Slopperton for Paris,

[373] Propp (1928/1968) pp25-65
[374] Tudor (1989a) p589

where Blurosset opposes him. He arrives with an urgent need to secure an income, though he "does not care to grow grey and decrepit in making a fortune by that slow and uncertain mode which people call 'honest industry'"[375]. In an ironic twist of the aphorism credited to Francis Bacon, 'knowledge is power', North makes it his business to discover the secrets of the affluent. Fixing on a rich young woman, Valerie de Cevennes, whom he suspects of clandestine love, he undertakes a little surveillance and a few gentle bribes to garner all the data he needs to overpower her. In a sense, he subverts the detective process to his own ends and the process is then mirrored and surpassed by his two adversaries.

Ordering and disordering characters of this narrative are in an arms race, each being pushed to develop greater methodological artifice by the ingenuity of the other. Such a phenomenon is of course well known to real agencies of the law today, where each new forensic technology is matched by a novel technique for evading it on the part of the criminal.[376] It is unlikely though that this was the case at the time of Braddon's writing since the real detective work of the period was inclined to be distinctly unsophisticated.[377] All the more interesting then is the notion that the arms race is an inevitability arising from pitting adversaries against one another in a plausible narrative. Having introduced such a powerful villain, Braddon requires, if you like, an equal and opposite force to counter him.

Something similar to an 'arms race' narrative is described by Davida Charney (2003) in her reading of Dava Sobel's (1995) bestselling factual, or perhaps, more accurately, 'factional', popular science book *Longitude*, which relates the story of the invention of the marine chronometer. Charney finds that Sobel adopts a 'horse-race' frame, which casts scientists as

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[375] Braddon and Willis (1861/2003) p173

[376] Examples of criminal counter tactics can be as simple as wearing gloves to avoid leaving fingerprints, or as complex as computer hacking. Criminologist Paul Ekblom (1997) has used metaphors from evolutionary biology to describe such an arms race and advocates that technological designers take account of the need for ever changing security measures

[377] See Emsley (2000) p93 and Robert Morris (2006) "Crime Does Not Pay" in Emsley and Shpayer-Makov (2006) and (2007) "History of Criminal Investigation" in Newburn et al (2007)

individual heroes or villains in a competitive arena.[378] From an analysis of reviews of Sobel's book posted on Amazon, Charney finds that most reviewers accept such framing without question. She uses this evidence to support the notion that 'popular media' are responsible for creating a pervasive understanding of science as an individualistic process, and wrongly so, in her terms. Yet she does not consider that the horse-race frame is potentially the very thing that readers on Amazon found so compelling about Sobel's book.[379] Indeed, it is likely that Sobel has engaged many readers with the science of measuring longitude, who would not have read a book about chronometers *unless* it was set within such a classic narrative. That such a narrative form is in itself engaging is evidenced by the example of its long history in popular fiction, and Braddon's novel is just one of the many best-selling examples of it.

The Magician-Scientist

Of the two of Braddon's avenging angels, North's real alter ego is Laurent Blurosset. First drawn into the plot by North himself, the magician-scientist is the villain's equal in the coolness of impassivity, having "come to hold everything beyond my little laboratory too lightly," as he himself confesses.[380] North hires Blurosset to read the future for Valerie de Cevennes in her cards. She, meantime, is persuaded by North that her

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[378] The conception of science as a 'race' has a long history that Nerlich (2009) sees as arising from the 19th-century insistence on natural science as progress. She also describes the 'race' to achieve the first human clone and its framing as such in both popular and scientific discourse. See Nerlich (2009) "Breakthroughs and Disasters: The (Ethical) Use of Future-Oriented Metaphors in Science Communication" in Nerlich et al (eds) (2009)

[379] In the essay entitled *Interpreting the 'Variorum'*, Stanley Fish (1976) describes 'interpretive communities' as groups of like-minded individuals, who share similar assumptions about how a text should be read and converge on the same interpretation. The idea has been empirically tested and seems to hold water. See Dorfman (1996) who finds people untrained in literary criticism are more respond to the content of stories while those with literary training focus on narrative, structure, genre etc. The point being that a community of Amazon reviewers may not have articulated any views on narrative technique in the way that Charney does, unless they happen to be a particularly literary sample of reviewers. And some readers may have enjoyed Sobel's book because of its framing, without realising it. It is possible that some people conflate the narrative with how real world science works, but on the other hand they likely would not have read the book at all if it had played down the human conflict in favour of process as Charney advocates.

[380] Braddon and Willis (1861/2003) p183 Here is a lone scientist, who has some awareness of the value of social relations

husband is unfaithful. Blurosset's reading confirms her unhappy union and predicts her husband's imminent death, which "bears no outward signs of violence."[381] All this is undertaken in order to fire Valerie's jealous rage and prepare the ground for her to consider revenge by poison. North is successful, and Blurosset seemingly acquiescent. Valerie, made improbably biddable by grief, agrees to the purchase of a little "something which will change a glass of wine into a death warrant, but which will defy the scrutiny of a college of physicians."[382] Blurosset, however, secretly reads North's duplicity in the cards, and supplies a drug, which creates a death-like state, but is ultimately harmless. With this drug, Valerie poisons her husband and believing him dead, is drawn into a veil of secrecy with North and subsequently is compelled to marry him. Later in the novel, Blurosset restores Valerie's husband to health following a prolonged fever and his final act brings together wronged husband and wife and ends the magician-scientist's part in the plot.

Though he has a restorative function, in his first appearance as an associate of North's, Blurosset appears malign and his true function is not revealed for some chapters to come. The sense of latent potential for malevolence is highlighted by the show of magic. Like the Satanic tempters of gothic horror novels, Blurroset engages the powers of magic and science equally, being able to read the future in a pack of cards, to concoct potions and poisons or to heal the sick.[383] He has arcane manuscripts and books heaped about him in piles: "Mathematical charts, inscribed with figures such as perhaps neither Newton or Leplace [sic] ever dreamed of. Volumes in old worm-eaten bindings, and written in strange languages long since dead and forgotten upon this earth; but they all seem familiar to this pale student, whose blue spectacles bend over pages of crabbed Arabic..."[384] At the

[381] Braddon and Willis (1861/2003) p150
[382] Ibid p153
[383] For example Matilda of Lewis' (1794) *The Monk*, and Zofloya of Dacre's (1806) novel of the same name. See pp 91-97 for discussion of these
[384] Braddon and Willis (1861/2003) p275

same time, "He is a chemist who will one day work a revolution in the chemical science...he is a fanatic...his crucible is his mistress."[385]

Despite such exoticism, Braddon's magic is very much more rooted in the everyday world than are the dark and powerful alchemical activities represented by the gothic horror novelists. Blurosset is not himself an ambiguous natural-supernatural being, even if he is a little unconventional and his setting, for all its magical-scientific paraphernalia, is distinctly domestic, cosy even. He lives in "a cheerful little apartment lighted by gas. There is a small stove, near a table, before which is seated a gentlemanly-looking man..."[386] The homely nature of the scene belies the exotic magical-scientific performance that follows when he first meets Valerie. As a consequence, both science, specifically chemistry, and magic of a divinatory kind, are domesticated, as it were. Since, Blurosset practises both in equal proportion, it is difficult to place him as either scientist or wizard, or to work out which end of Simon Locke's (2005) scale of enchanted science and 'scientized' magic, he falls into. In the gothic examples this was more clear-cut since the beings themselves were magical.

Braddon, herself, equivocates on a similar point, for his mystery in that respect is part of his attraction. Indeed Blurosset is "the fashion in Paris...[and] the rage in London... he rarely stirs beyond the threshold of his own door, though his presence is eagerly sought for in scientific coteries, where opinion is still, however, divided as to whether he is charlatan or a great man. The materialists sneer-the spiritualists believe."[387] Here Braddon engages with a cultural ambivalence over whether 'proper science' should include the spirit world as an object of study or not, spiritualism having been imported to England from America in the 1850's. For although the practise of card reading is a folk-magic skill, Braddon is careful to point out firstly that Blurosset is a 'pseudo-magician' as opposed to a pseudo-scientist, and secondly that it is the 'mighty dead' who privilege him with

[385] Ibid p151
[386] Ibid p147
[387] Ibid p278

information about the future.[388] So, his kind of fortune telling is, by nature, spiritualist. Since spirit contacts were plausibly a topic for scientific investigation, Blurosset probably falls into the enchanted science end of the magic-science spectrum, which Braddon celebrates for all its exoticism, mystique and restorative potential.

Indeed, what we are given of Blurosset's method is dressed up as decidedly scientific, or at least, mathematical. For example, even as he reads the future from a deck of cards, Blurosset "seems to be working some abstruse calculations with these groups of cards, assisted by those he has in his hand. The spectacles wander from threes to the nines; from the sevens to the fives; back again; across again; from five to nine, from three to seven; from five to three, from seven to nine..."[389] Reading the future is the magician-scientist's answer to North's particular talent for something close to mind reading. As a means of getting close to Valerie, North confronts her maid with the (hypothesised) fact of her mistress's secret marriage "One glance at the girl's face tells him he has struck home, and has hit upon the entire truth. He is striking in the dark; but he is a mathematician, and can calculate the effect of every blow."[390] Braddon dresses up the ability to read thoughts or feelings as a science that can be calculated, or at least reasoned through. Like spiritualism, in her own time, the science of reading people is made credible by the contemporary cultural belief, contested as it may have been, in the sciences of phrenology and physiognomy, which are heavily referenced throughout her work.[391]

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[388] Ibid p278. For a summary history of spiritualism see: Otto (2008); on spiritualism and science see: Noakes (2004) in Brown et al (2004) and Lamont (2004); for folk magic see Davies (2003) who points out that magical methods such as folk remedies, fortune-telling, anti-witchcraft protection and thief catching were one resource among many for people experiencing all kinds of misfortune throughout the 19th century.

[389] Braddon and Willis (1861/2003) p148

[390] Ibid p128

[391] For example see: Braddon and Willis (1861/2003) references to phrenology p7; p18; p26; p73; p121; p172; p196; p197; p256; p396; and references to mathematics or calculation appear less often: p128; p143; p148; p172; p307

Phrenology, physiognomy and mathematics are the most widely referred to of all sciences in *Trail*, a factor that supports John van Wyhe's (2004) argument for the inclusion of phrenology as a major contributor to the cultural diffusion of scientific naturalism in the 19th century. Scientific naturalism, or the idea that causal explanations for any number of phenomena can be traced to nature, has been well described in such systems as agnosticism, materialism and positivism, which became increasingly prevalent in the 1860's. Van Wyhe's study of phrenology, Alison Winter's (1998) study, *Mesmerized,* and James Secord's (2000) history of *Vestiges of the Natural History of Creation* all, in various important ways, chart the diffusion of a scientific world view into and through the fabric of everyday culture, by means other than via established disciplines like chemistry, doctrines such as materialism and positivism or epochal moments like the publication of the *Origin of Species* of 1859.

Winter points out that already in the 1840's, "mechanics' institutes were now abandoning 'useful' knowledge...improving institutions diversified, choosing lecture topics according to their own members' intellectual taste." The topics that rose in popularity were those that sat outside the normal range of 'improving sciences'. High on the list were mesmerism and phrenology, or a combination of the two partly because, as Winter says, they "could not be defined by scientific luminaries in the same way that they put their stamp on sciences like chemistry or comparative anatomy. Mesmerism was therefore anyone's property."[392] The same seems to have been true of phrenology, and van Wyhe builds upon this to show how it became an important vehicle for disseminating naturalism, a 'phrenological naturalism'.

Certainly, the fact that Braddon refers so readily to it (often in combination with physiognomy), as a kind of taken for granted causal explanation,

[392] Winter (1998) p111

shows how widely the ideas had been assimilated.[393] Given that it does represent a kind of scientific naturalism, in linking skull shape and/or facial features to behaviour, any character, detective or otherwise, who exploits the link becomes her/himself a kind of scientific naturalist. Several authors have emphasized a link between the spread of scientific thought and the emergence of detective fiction, but most like Charles Rzepka (2005) and Laura Snyder (2004) emphasize the influence of seemingly orthodox sciences such as geology, paleontology, cosmology and others. Although Rzepka does make note of phrenology, he sees it as part of the thrust of historical or 'reconstructive' sciences, in general, which looked to understand historical narratives by interpreting material evidence as opposed to ancient texts, and gave rise to a similarly 'reconstructive' drive in detective fiction. There is no doubting that these developments were coincidental, but the example of Braddon's work suggests a greater importance for more populist sciences such as phrenology and physiognomy.

References to phrenological causes are dispersed throughout *Trail,* but physiognomy is further embedded in the text in what amounts to a diffuse, taken-for-granted wisdom. The skew is probably only a product of the accessibility of the face, as compared to contours of the head, which are not apparent at distance. Braddon transposes character traits on to facial features as a matter of course, so Valerie de Cevennes has "a little too much of the demon in those great almond-shaped black eyes and that small determined mouth."[394] Richard Markham, the hero, has "a fine candid countenance,"[395] Jabez North, "very beautiful blue eyes...[that] had a shifting way with them,"[396] and Peters' adopted boy has "[d]etermination, concentration, energy, strength of will, and brightness of intellect...all written in unmistakable lines upon that pale pinched face."[397]

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[393] For example, North's villainy is given foundation in phrenological terms as a "deficiency in the entire moral region..." Braddon and Willis (1861/2003) p7
[394] Braddon and Willis (1861/2003) p121
[395] Ibid p18
[396] Ibid p7
[397] Ibid p196

It is significant that many of Braddon's characters, including Peters, North and Marwood all have some ability to read character from a face, whereas such a science as chemistry is confined to the expertise of Laurent Blurosset, as indeed is fortune telling.[398] This mapping of expertise resonates with Winter's (1998) suggestion that some sciences were 'anyone's property' given Braddon's community of 'non-experts' who have daily recourse to phrenological naturalism and physiognomical readings, but not to the specialist arena of chemistry (or magic). Judging by the occasional casual irony with which she references phrenology, Braddon clearly expects her readers to have access to the same popular, non-expert knowledge profile. For example, when a character called Richard Marwood is wrongly arrested for crimes committed by North, he suggests that his detainees are "afflicted with an over–large allowance of the organ of adhesiveness..." causing them to cling to him.[399] Such an embedded example of phrenological naturalism supports the view that perhaps phrenology did function as an important source for the propagation of a more generalised scientific naturalism, especially because in *Trail* other sciences do not get the equivalent exposure.

Braddon's villain, however, is a particularly talented physiognomist, able to assess the character of his victims in order to give himself a point of leverage and control. As a result the two characters who counter him necessarily have expressionless faces, particularly Blurosset who, by virtue of the "blue spectacles, which entirely conceal his face," is able to doublecross North. Indeed, "[y]ou cannot tell what he is thinking of; for it is a peculiarity of this man, that the mouth...has with him no expression whatever."[400] Mr Peters, too, is difficult to read being "...exactly one of those people adapted to pass in a crowd."[401] This is an effect of the arms race narrative in which North's skill must be countered by the enigmatic faces of his adversaries. For all that it demonstrates an immensely valuable

[398] Ibid p197 for an example of Marwood's physiognomy; p172 for North's; and p245 for Peters'
[399] Braddon and Willis (1861/2003) p26
[400] Ibid p147
[401] Ibid p28

technique of detection, though here it is most keenly developed by the villain, it is both evaded and matched in some measure by Peters, who, for example, knows "the look of a man as is guilty..."[402] In this regard the influence of phrenology and physiognomy has cast a long shadow, for although phrenology was long contested, the fashion for it did not wane in the early years of the 20th century. Some method of reading people remains a vital part of the detective armoury, one that Sherlock Holmes develops into scientific second sight.[403] The ability then bleeds into 20th-century detectives as a kind of generalised understanding of people - one need only think of Miss Marple's skill in reading motive and intent garnered from her experience of the social life of a small village.[404]

Braddon's paired alter-egos, Jabez North and Laurent Blurosset, counter one another in a good example of Charney's (2004) horse-race framing. Such a frame when applied to characters who engage reason as the basis for their actions, as do these two, leads to an ever-increasing armoury of complex and powerful methods on the part of each player. The intuitive brilliance of North, the lone genius, is best put to use in his talent for reading people, and yet his adversary uses spiritual contacts to read the future in a pack of cards. Such enchanted science is easily passed off as straightforward magic or pseudoscience and its status as a form of naturalism, however bogus it seems now, goes unacknowledged. Yet Braddon's fiction supports the view that phrenology, physiognomy and spiritualism were important vehicles for diffusing naturalism, however far fetched they may now appear to be. The mapping of expertise in *Trail* falls into a predictable pattern such that sciences like phrenology and physiognomy are practiced by many of the characters, but chemistry, a long established discipline, is the province of a single, life-long expert practitioner. So far, we have seen the countering of one genius by another

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[402] Ibid p245

[403] For example, Holmes 'reads' Watson in the first Sherlock Holmes story, see Conan Doyle (1887/1981) p24

[404] Miss Marple is depicted as a gossipy villager, who observes human nature which gives her the knowledge and ability to read motive, truth telling, or lying, in people's countenance and behaviour. For example see Agatha Christie's "Murder in the Vicarage" (1930), the first of the Marple novels, in Christie (1997) vol III

of a different kind, but there is a third and complementary method, which comes in the hands of Braddon's detective, Mr Peters.

The Detective

Although Blurosset is his alter-ego, the principal of North's opponents is really Joe Peters, the working class detective, whose narrative weaves in and around North's story from the outset. If Blurosset and North could be said to look forward to a more artful, rational, scientific or magical process of detection, Peters, in some measure, harks back to a detective tradition of old. Although in saying that, it is important to acknowledge that each character does carry some element of the other and in many ways, Peters, is a hybrid between a new, more expert detective and an older model based upon a more haphazard and adventurous process. Early detective stories took inspiration from morally murky thief-takers some of whom came to man the London force, the Bow Street Runners and similarly, the criminal investigation bureau, the Parisian Sûreté in Paris.

One of the most famous detectives of the century was Eugène François Vidocq, a real French detective and one time criminal, who was bought into the Napoleonic policing system, eventually rising to head up the Sûreté. He published his memoires in 1827, which were swiftly translated into English and became widely popular.[405] He was renowned more for his audacity and daring than for any rational empirical work, especially his talent for disguise. He also relied heavily on his experiential knowledge of the criminal underworld. His methods and style were very much in line with the Bow Street tradition. In the same year, an English picaresque detective appeared in the pages of the anonymously published *Richmond: Scenes in the life of a Bow Street Runner*, which never gained quite the same foothold as Vidocq, though it drew upon the same mix of adventure, elastic morality and proximity with the criminal fraternity.[406]

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[405] See Knight (2004) pp23-24; Rzepka (2005) pp59-62; Messac (1929) pp 286-302
[406] See Introduction by EF Bleiler (1974) in Anon and Bleiler (1976)

Braddon's detective Peters incorporates two particular elements which are prominent activities of the Bow Street/Sûreté tradition; first and foremost is a tendency to take the law into his own hands, and second, a talent for blending into the background. The boldest of Peters' picaresque escapades is when he masterminds and participates in a successful operation to break Marwood out of a lunatic asylum where the innocent man was incarcerated following a bogus plea of insanity. In such scenes, Braddon closely echoes William Harrison Ainsworth's (1839) picaresque novel *Jack Sheppard,* the story of the hero-criminal of the same name, who was famous for his repeated prison escapes, his dare devil tactics and bids to rescue the underdog along with his struggle against the 'evil' thief-catcher, Jonathan Wild.

Furthermore, Peters adopts a foundling baby pulled from the River Sloshy and named Slosh in remembrance – an exact equivalent of a character named Thames in *Jack Sheppard.* These are references to a popular culture well known to Braddon's audience and to that extent she reinvigorates the themes of Ainsworth's novel. *Jack Sheppard* was a popular example of what became known as 'Newgate' fiction, which included Charles Dickens' (1837-39) *Oliver Twist.* Ainsworth's novel sold in greater numbers than Dickens' and caused greater controversy. If *Oliver Twist* was considered to be shockingly equivocal on the nature of criminal morality, *Jack Sheppard* was ten times worse. It portrayed the lower classes, including Sheppard himself, in much more sympathetic light than even the most benevolent of Dickens' working classes or criminals. To some extent Braddon might have escaped similar disapproval by making her protagonist a detective and law enforcer and so rendering him marginally less ignominious than Sheppard, the out and out criminal.

In their discussion of *Jack Sheppard*, Jacobs and Mourão (2007) focus on what they call its 'excarceral' politics.[407] By this they mean a culture of escape and flight that stands in counterpoint to the carceral structures with

[407] See Ainsworth et al (1839/2007)

which society literally incarcerates the working classes. Such structures equate to the workhouse, factory, hospital or school, or apply more broadly to the physical or class situations of the labouring classes, particularly in urban situations. *Jack Sheppard* is identified as an excarceral work on two counts. First, it identifies the protagonist with the working class and second, it suggests that for people in that situation, escape and disguise are necessary, possible and can be socially improving.

Indeed in Braddon's novel, Peters is, or at least begins as a working class, uneducated 'scrub' who is forced to act unlawfully to obtain justice just as Jack Sheppard does. Yet he is law enforcer, not runaway criminal, and the innocent victim, Richard Marwood, is rather more privileged in origin. So what Braddon's story appears to be suggesting is that in order to achieve justice, of a kind that works on moral terms, then excarceral action may be required, a damning indictment of the official channels of law, indeed. Excarceral activity is, of course, another form of Mertonian innovation. Reverberating with the excarceral, are the unauthorised detective methods, which resurface regularly in detective fictions of the 20th century. They are common in the so-called hard-boiled genre exemplified by Raymond Chandler's detectives, as Joseph Agassi (1982) has pointed out.[408] The picaresque perhaps never completely loses its influence.

By such unorthodox means Peters rises to the privileged position of private detective of personal means. Another of his skills is a variant on the inevitable ability shown by all picaresque heroes to disguise themselves, both in look and manner.[409] In later years, Sherlock Holmes will demonstrate his own prowess in the realm of camouflage. Peters, however, has no need of such complex artifice, as he comes with his own in-built

[408] See Agassi (1982) p106

[409] See Ainsworth et al (1839-2007) pp286-300 for a story of one of Jack Sheppard's feats of disguise Also see *Caleb Williams* by William Godwin (1794) in which the last third of the book is the story of how the protagonist adopts one form of disguise after another to escape his erstwhile employer and the thief taker that he has enrolled.

disguise.[410] Unusually, he is dumb, but not deaf; a feature that makes him the consummate eavesdropper since others tend to assume that dumbness comes attendant with deafness and drop their guard, giving away secrets without realising that every word is being noted. Such is the means by which Peters sets off on the trail of Jabez North from the early stages of the novel. This, together with his "utterly commonplace and unnoticeable" demeanour make the detective ideally suited for surveillance work.[411]

The last, but by no means the least of Peters' talents, and one that is not inherited from any picaresque traditions, requires patience in the rather more stolid affair of systematic data gathering. For example, in the final stages of the story Peters, now on the trail of his quarry, traces North to Liverpool and expecting him to fly the country on a ship, spends days trudging the docks interviewing all whom he meets, before he picks up the lead again, but "Still, neither Mr Peters's spirits nor patience failed him..." His companions, brought along to aid in the inquiries, do not exhibit the same tenacity; "if anything, the detective's so-called assistants were decidedly in his way" and at least one among them has sights on a more glamorous style of work and "considered himself an amateur Vidoque...,"which is here set in opposition to the dogged data gatherer.[412] In bringing these skills together, Braddon joins two strands of influence to create a detective whose method, on the one hand harks back to an older tradition of adventure and excarceral activity, and on the other looks forward to a systematic, scientific approach to crime investigation. Such themes have remained remarkably consistent, varying only by degree, but perpetually recycling through generations of detective fictions.[413]

STYLES OF REASON

Mechanical and Magical Methods

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[410] For examples of Holmes in disguise see *The Man with the Twisted Lip* for Holmes as a wizened opium addict, and as an elderly book seller in *The Empty House* in Conan-Doyle and Hodgson (1994)

[411] Braddon and Willis (1861/2003) p28/9

[412] Ibid p364

[413] For example, Conan-Doyle's (1887-1915) Sherlock Holmes; Raymond Chandler's (1939-1958) Phillip Marlowe; Kathy Reichs' (1997- 2010) Temperance Brennan

Braddon's magician-scientist, detective and villain embody distinct styles of reason that relate to commonly recurring models cropping up across cultural domains. In a paper that draws together the themes of fictional detective work, reason and magic, Agassi (1982) explores these kinds of models and the significance of reasoning style. He begins by comparing 'pedestrian' scientific research with 'exciting' research, relating the former to Baconian induction or Kuhnian 'normal' science and the latter to Kuhnian paradigm shifts or what he calls, 'romantic' science. Given that the proper method of science, especially Baconian science, was a particular obsession in 19th-century culture, Agassi has some apt observations to offer regarding popular conceptions of method, models of reason and their relation to the detective narrative.

For Agassi, pedestrian research amounts in fictional terms to the detective's legwork, calling at address after address, interviewing one person after another, following up hopeless leads, all the kind of work that requires the patience and persistence of Braddon's Peters. This, he says, is the kind of approach recommended by Bacon as the way to achieve solid scientific progress. It amounts to induction - the "patient gathering of masses of details and their repeated examination until, perhaps with the aid of a systematic elimination of false possibilities, facts fall in to a pattern by themselves, until the pattern or law of nature clicks, as it were."[414] In Bacon's view a guiding hypothesis, or preconceived idea ran the risk of obscuring potentially significant data points and valuable clues by suggesting shortcuts in fact gathering.

The details of what Bacon really did intend was a topic that drew a wide circle of cultural commentators into energetic debate in the 19th century. Jonathan Smith (1994) summarises the dialogue that revolved around the idea of what proper scientific method should be. In broad terms he finds a shift, across the 19th century, away from Baconian induction as the

[414] Agassi (1982) p101

benchmark of bona fide science, to a general acceptance of a system similar to the hypothetico-deductive method. Participants in the debate stemmed, not just from science, but from all disciplines and were together involved in the business of defining science. Leaving aside the exact details of Smith's argument, what his work very clearly points to is the surprising prominence of the Baconian question to the 19th-century culture. It was not restricted to a few lofty minds conversing over the latest laboratory study, rather "It was an issue of cultural importance that surfaced relentlessly in the productions of novelists, scientists, logicians, philosophers, historians and poets."[415]

As a result of the sheer visibility of debates about induction, which were partly, perhaps even largely carried out in the general press, some notion of the Baconian question diffuses through the whole culture, if only as a reference point marked by a few words or an image. These bubble up in Braddon's novel, so Blurroset describes himself as " [t]he chemist, the physiologist, the man whose head had grown gray in the pursuit of an inductive science..."[416] In the event there is no evidence at all of Blurroset gathering any factual data of any kind. Oddly, Blurroset's methods and to some extent North's, rely on mathematical calculation, a rather more deductive approach than Bacon would have been happy with, which goes to show that the word 'induction' has a more general importance in signifying some kind of scientific, logical process. Nonetheless, Peters and North both engage in bouts of data collection and to that extent represent an element of the Baconian process.

The most widespread critique of Baconian method, now and in the 19th century, hinged upon the role of hypothesis in scientific method. Coleridge sums up critique and counter-critique in his evocation of what he referred to as the "common notion of Lord Bacon." According to the great poet, this notion directed "that you are to watch everything without having any reason for so doing, and that after you have collected facts that belong to any subject...you may proceed to the theory." The 'common notion' was the

[415] Smith (1994) p5
[416] Braddon and Willis (1861/2003) p308

wrong notion, for Coleridge and others, who argued for a more nuanced reading of Bacon, requiring that some preconceptions are formed, "which the pure reason in man reveals to him" before attending to nature, where corresponding laws will (hopefully) be found. [417] Attempts at redefining the Baconian method to rescue it from such a naïve 'common notion' were frequent enough and one way of doing so was to argue that Bacon did not, in fact, prohibit the use of hypothesis.

In many ways Agassi reiterates this element of 19th-century thinking and makes a similar manoeuvre to rescue Bacon from the 'common notion'. He finds that Bacon does not entirely proscribe hypotheses, rather the warning is against letting a preconceived idea become a prejudice, such that the investigative process is hampered. Agassi also argues that in advocating the gradual elimination of possible explanations of the observed facts, Bacon did not envisage an infinite number of possibilities. Instead, he advocates the "principle of the simplicity of nature, or of limited variety."[418] This, Agassi argues, is well exemplified by empirical science during a normal Kuhnian period on the one hand, and by the 'locked room' detective scenario on the other. Whether 'limited variety' really can explain Kuhnian normal science is a moot point and too large a topic in its own right to take up here.

Regardless, in the example of a locked room mystery, limited variety is exactly the scenario. The number of suspects is limited and identification by elimination is made possible because the list is limited to a certain number of possibilities. In fact, both notions of limited variety and of hypothesis as prejudice are neatly demonstrated in Wilkie Collins' (1868) *The Moonstone*.[419] When a diamond is stolen from a locked house, the perpetrator has to be one of the members of the house party. Sergeant Cuff fixes his suspicions indelibly on the 'wrong' suspect despite the limited field, and the investigation stalls until it is re-ignited with new evidence,

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[417] Coleridge quoted in Smith (1994) p16
[418] Agassi (1982) p101
[419] See this work pp172-204 for a discussion of *The Moonstone*

later in the narrative. Collins' novel neatly demonstrates these two facets of Agassi's Baconian interpretation.

Having said that, Braddon demonstrates that fictional detectives are on a long rein when it comes to a specific research method. Right from the outset, Peters decides on the strength of "a inward conwiction that he [Marwood] was...hinnercent of the murder...[sic]"[420]. This is another case of hypothesis taken to prejudicial extreme, which effectively limits the field of investigation to a single possibility that in the event, turns out to be the correct one although the method is about as un-Baconian as it is possible to be. Yet, at other times, Peters engages in an eliminative method. For example, he excludes the possibility that a dead body identified as North is in fact him, because the body lacks an identifying scar above the eyebrow. To try and find any rigorous scientific methodology in the process of the fictional detective is a fairly unrewarding business, since many of them, including Sherlock Holmes, utilise a mishmash of systematic method and inspired intuition as Peters does.[421] That is not to say, however, that these processes are not based upon methods which are perceived *as* scientific. They are, but in a manner that incorporates a fundamental duality, which underlies everyday notions about reason and science.

Agassi (1982) exposes a split between the notion of reason as an intuitive, imaginative process and the image of the drudgery of recording and collecting facts. He suggests that much of the fascination of mystery, thriller and detective fictions is that they give expression to a major conflict about reason, in which "[w]e hold as obvious both the view that reason is mechanical and that reason is mysterious."[422] In terms of Braddon's fiction, Mr Peters represents the dogged data gatherer, the mechanical legwork and

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[420] Braddon and Willis (1861/2003) p244

[421] Although some scholars have done just this see: Smith (1994) pp211-237 who has nicely demonstrated that contradictory facets of Sherlock Holmes' methods reiterate both pro-Bacon *and* pro-hypothesis positions of how 19th-century science 'should' proceed; also see Agassi (1982). The methods of most, if not all, 19thC detectives, would contravene the famous "Twenty Rules for Writing Detective Stories" devised by SS Van Dine (1928) (aka Willard Huntington Wright) the first of which insists that "the reader must have equal opportunity with the detective for solving the mystery" in Haycraft (1974) pp189

[422] Agassi (1982) p105

cog-wheel thinking in a limited domain, the element of reason that has a translucent process. For Agassi this process conjures a vision of Kuhnian 'normal' science. Contrast this with Peters' intuitive judgements, or more dramatically, perhaps, the mysterious process of Laurent Blurosset, possibly corresponding to paradigm-shifting science. This process is obscure, can happen in one step, or a flash, and is not easy to fathom, even in oneself. As Agassi points out, here is an ambivalence indeed, the two models of reason are incompatible and yet they appear to be applied in one form or another in a wide variety of circumstances in different cultural domains.

In a famous psychoanalytic essay on detective fiction, AD Hutter (1975) notes at the outset that the objective, rational elements of detection are called into question "by the subjective and intuitive vision of the detective, but they are made to appear as two faces of the same coin."[423] In an earlier articulation of a similar dichotomy, Marjorie Nicholson (1929) distinguishes Baconian versus intuitive methods, identifying Scotland Yard with the former lacklustre style, and intuitive thought as a francophilic process, which reaches its goal surprisingly through the "strength of logic alone."[424]

Indeed, Smith (1994) then identifies a further example of dichotomous thinking about science, within 19th-century responses to Bacon. Negotiations over 'proper' method threw up a new formulation, which replaced the strictly Baconian style and "consciously sought to portray science as an imaginative, speculative, creative enterprise" associated with hypothesis formation. At the same time it "did not abandon its claims to be an objective and authoritative pathway to truth, but it did assert more openly that this truth is obtained through, rather than at the expense of, the creative imagination. 'Baconianism' was seen as too sterile, too mechanical, and too impersonal to capture the artistic quality of the scientist doing science."[425] Furthermore, when sociologist Max Weber delivers a lecture in 1918

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[423] From AD Hutter "Dreams, Transformations and Literature: The Implications of Detective Fiction" in Pykett (1998) p176

[424] From Marjorie Nicholson "The Professor and the Detective" (1929) in Haycraft (1974) p126

[425] Smith (1994) p13

entitled *Science as a Vocation*, he appears to adhere to the same dual concept of reason. When he compares the process of art with that of science, he finds that both are reliant upon "destinies that are hidden from us..." because science requires inspiration and imagination, just as art does. For him inspiration is a process that cannot be controlled, ideas arrive suddenly and in unexpected ways, yet this cannot happen, he says, without having done the legwork of "brooding and searching at our desks..."[426]

Ironically, given Weber's dictum of the disenchanting effects of technoscience, Agassi uses a magical metaphor to describe exactly this dualistic notion of reason.[427] Fact collecting, or indeed 'brooding and searching' at a desk, he says, is the "magic ritual preparatory to the mystic insight."[428] He finds such a pattern within the detective narrative itself, which consists of a period of magic ritual, the data gathering, culminating in a revelation of the whole picture – the whodunit, or the mystic insight. Such a structure does apply in broad terms to most detective fictions, although Braddon's work does not fit this model quite so tightly, being a 'howdunit' as opposed to a whodunit. In effect, this makes her detective representative of ritualistic fact collection, while her magician scientist carries most of the mystical insight. In a way, Agassi's metaphor enchants both models of reason, though it has been more usual to see intuitive, imaginative insight as magical and Agassi's ritual, as mechanical, methodological science.

Such a bridge between magic and intuition was not lost on 19th-century academics, who, believing that mechanical methods alone were insufficient for innovative discovery, wished to inject science with a shot of imaginative flair. For example, the philosopher and historian, William Whewell, wrote of Newton, whom he believed to be a genius, "as an irresistible and almost supernatural hero of a philosophical romance."[429] Later in the century, the physicist and science professionaliser, John Tyndall, talked in distinctly

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[426] Weber (1918) in Gerth and Mills (1991) p136
[427] See pp264-69 of this work for a discussion of Weber's disenchantment in relation to the whole corpus
[428] Agassi (1982) p105
[429] Quoted in Smith (1994) p30

mystical terms of the scientific imagination as "the continued exercise of spiritual insight, and its incessant correction and realization...[E]xperiments constitute a body of which...purified intuitions are, as it were, the soul."[430] Such visions of enchanted science as these, arising from intellectual quarters, suggest that the metaphor of enchantment is, or certainly was, widely indicative of imagination and intuition and was alive in the same time frame as was Braddon's fiction.

The observation also suggests that magic has long been a reference point for the invocation of the kind of thinking process that defies understanding. Braddon's magician-scientist in *Trail* embodies just such impenetrability, as his "expressionless mouth, which betrays no secret, tells nothing of the nature of his thoughts. Sometimes he makes notes on a long slip of paper; rows of figures, and problems in algebra, over which he ponders long."[431] The reference to numbers somehow invokes a more mechanical, additive style of thought, but how the magician moves between the numbers, the spirits and the futures of his clients is shrouded in mystery. Both man and process are obscure. The emphasis on hidden process echoes the gothic "scientized" magic, which, I have argued, was a reflection of the complication of scientific method and its distancing from public view.[432] The issue here builds on the same notion, but the obscured process is also representative of the little understood intuitive leap, an obscured thought process, an imaginative insight, the eureka moment, or the way in which some scientific discoveries are believed to be made.

Christopher Toumey (1992) is one among a number of scholars who have interpreted the obscurity of process that is so often associated with mad science as an "exercise in anti-rationalism," and a fundamental critique of science.[433] "The physical artefacts of...science are presented as miscellaneous material junk of alchemists, illogically connected and barely justified", writes Toumey, such that the scientific process is portrayed

[430] John Tyndall quoted in Smith (1994) p35
[431] Braddon and Willis (1861/2003) p181
[432] The expression 'scientized magic' is taken from Locke (2005)
[433] For example, see Haynes (2006); Weingart (2006); Toumey (1992); Frayling (2005)

"ambiguously, illogically and mysteriously, in other words, irrationally."[434] Emptying the "rationalism out of the tangible evidence of science" is part and parcel of the "homilies on the evil of science" that Toumey perceives in the mad scientist.[435] But the incorporation of magic, or what Toumey suggests is antirationalism, I would argue does not necessarily add up to a negation of science and rationality. On the contrary the invocation of magic suggests something much more subtle about science. On the one hand magic indicates that the process is a mystery to those of us who do not practise its methods and on the other hand it is a nearly universal type of thinking which exists at the level of a sudden understanding, an intuition. Such leaps of inspiration can appear to be antirational in the sense that they are unfathomable and uncontrollable.

When they are drawn together, as they are by Braddon, the scientist and the detective reiterate these two models of reason. The association of the mad scientist with such an inspired, mysterious model of reason explains why his process is so often depicted as magical, short on detail, obscure, and inclined to bear fruit suddenly from a combination of odd, alchemical equipment. The detective on the other hand follows some kind of method, which is on show, of necessity involves some data gathering and very often some eliminative process as well. The narrative itself is an example of a mechanical open process, though the detective, too, can have near magical insight, of course. But the fact that the detective story *is* method, while the mad scientist's narrative only hints at method, suggests that, to use Agassi's metaphor, the detective represents the 'magical ritual', while the mad scientist embodies the 'mystical insight'. What I do not mean to suggest, however, is that the detective *only* uses mechanical-style thinking, nor that the mad scientist *only* works by magical intuition. The difference is by degree. The former acts out more of the ritual of data collection, while the latter emphasises his reliance on magical insight.

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[434] Toumey (1992) p414
[435] Ibid p414 and p411 respectively

Genius or Method?

Smith (1994) has reported on the ways in which, science in the 19th century sought to encompass an imaginative, creative process. Such a process is one that cannot necessarily be learned because, by its very nature, it does not often work in a stepwise fashion that can be taught. So, the effect of absorbing creative imagination into scientific process amounts to stipulating that special talent is required in order for the advancement of scientific discovery. It is on this point that debates about genius dovetailed with debates about scientific method, a matrix which is discussed by Richard Yeo (1988) who finds that it was with reference to Isaac Newton that notions of scientific genius came to the fore and raised questions about whether scientific breakthrough was achieved by following a prescribed method, or by the individual brilliance of genius. These two processes clearly map on to the two models of reason that were identified by Agassi (1982) and others. The mundane, data-gathering type of reason amounts to discovery by specified method, and the intuitive, magical kind to individual genius.

Similar models of scientific process, it turns out, have important function in the social lives of 20th century scientists. In order to explore how scientists themselves explain innovation, Michael Mulkay (1985) has analysed written accounts of the Nobel prize-winning discovery of oxidative phosphorylation. Like any social group, scientists are challenged by innovators who break with norms, though they, in particular, are caught in a dilemma since, ostensibly, that is also what they all strive towards. Mulkay points toward this conflict, which raises questions of how the "discoverer's perspective on the world should have been different from, yet ultimately consistent with, other peoples' perspectives on the one, knowable-in-common world."[436] In the face of such a contradiction, how do scientists interpret discovery? Mulkay distinguishes two theories of discovery, which,

[436] Mulkay (1985) p175

he hypothesises, are used under different social conditions, one is the 'genius' folk theory and the other is the 'cultural maturation' theory.[437]

Unsurprisingly, the 'genius' account focuses on the role of the individual scientist, their uniqueness, creativity and exceptional mind. In the example that Mulkay gives, this figure is drawn as a bright light, the only one able to solve what was previously unsolvable.[438] Mulkay finds that this narrative is employed predictably, in a way, in celebratory accounts of scientific discovery in which a single scientist, or a small group of scientists are honoured. The theory of 'cultural maturation', on the other hand, downplays the role of the individual scientist and sees the discovery as an inevitable outcome of a scientific process, which could have been made by anyone had they been in the right place at the right time. This account, which treats all discoveries as realisable by anyone, means that breakthroughs, identical or not, are potentially manifold. Mulkay suggests that this theory is used to diminish the perceived brilliance of contending discoveries, which may have come to dominate the field within which the innovator works, though his conclusions are, of necessity, tentative because of the tiny sample size of three.[439]

Having said that, an interesting twist emerges if we apply Mulkay's folk theories to a scientific villain, to Braddon's North, for example. In the scientific community the cultural maturation theory is more likely to serve as a means of opposition by way of downplaying the individual agency involved in innovation. Such interpretations have exactly the reverse meaning when applied to a villainous or criminal innovator because to downplay individual agency, by suggesting that crime is an inevitable outcome of process or society, is to detract from the moral turpitude of the criminal, to mitigate in some measure. The criminal had little choice;

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[437] Ibid (1985) pp 174-176 for folk theories
[438] Ibid (1985) pp176-182 for this example
[439] Yet, Mulkay's two folk theories of discovery are reiterated repeatedly in different cultural domains. See: Yeo (1988) for a summary of the 'genius versus method' debate in the 19th century; Smith (1994) for a reiteration of the same debate in relation to hypothesis, imagination, genius and Baconian science; Charney (2003) for a description of the hero/genius narrative 20th-century popular science writing.

society creates criminals, indeed Merton (1938) talks of the 'pressures for deviant behaviour'. This phenomenon was the crux of the matter for critics of Ainsworth's (1839) *Jack Sheppard*, because the novel showed crime to result from an overly stratified society in which morality and lawfulness were not always indelibly linked. The mitigation of crime was one step on the slippery slope for many a critic.[440]

If, on the other hand, a criminal innovator is couched in terms of the genius theory all such mitigation is removed. The emphasis now is on individual immorality, which, combined with genius is a fearful fusion indeed. Such is Braddon's villain and he openly casts himself in that light. For example, when he finally shows his hand to Valerie, North says, "[y]ou have passion, genius, courage...but you have not the power of calculation, that inductive science, which never sees the effect without looking for the cause, which men have christened mathematics. I, mademoiselle, am a mathematician. As such, I sat down to play a deep and dangerous game with you...and you will see that I hold the winning cards...I knew I was no bad player, and I sat down to the game with the determination to rise a winner."[441] North, clearly trusting in his own ability to play a competitive intellectual game, as has been described as a 'horse race frame', sets himself up as a villainous genius. By having North describe himself in this way, Braddon is building on the social value of the 'genius folk theory' and, in so doing, she emphasizes the iniquity of the villain, extending it to melodramatic proportions, turning North from straight-forward miscreant into arch villain.

Such is the model for the kinds of villainous 'mad scientist' whom Tudor describes as "evil men pursuing their own ends."[442] The effect of turning a villain into a genius is to make him or her unequivocally bad, evil even. Indeed such an effect explains, perhaps, why the 'mad scientist' is so

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[440] Reviews of *Jack Sheppard* from the *Literary Gazette* (1839); the *Athenaeum* (1839); *The Examiner* (1839); *Fraser's Magazine* (1840) in Ainsworth et al (1839/2007) pp499-528 all refer, with varying degrees of horror, to the mitigation of criminal responsibility and the possible effects this could have on society.
[441] Braddon and Willis (1861/2003) p174
[442] Tudor (1989a) p589

common an instigator of disorder in the 20th century horror movie genre.[443] He quite simply makes a first-rate villain. Interestingly enough, the model of reason, which is inherently contained within most stories of mad science, is not the same model that Braddon chooses for her villain. Though he is most certainly a lone genius, his method has more in common with the detective. The story of *Trail* is his story and so his process, from surveillance, through bribery, disguise, and physiognomic skills, is visible. Although it has its moments of inspired intuition or indeed, of luck, on the whole North's process builds upon itself in an intelligible way, more in the way of the mechanical mode of reasoning. If mad scientists were to be defined as representative of reason based upon the intuitive model, then this villain does not comply. On this basis he would be the dark detective.

One of the values of Braddon's fiction has been to draw out a more subtle meaning from mad scientists, than are usually accorded to them. Their intuitive unfathomable methods make them mysterious and perhaps frightening especially when they work in a disordering direction. In this respect, the detective does provide an alternative model of science in fiction. The detective whose narrative *is* method and whose function is (usually) restorative is an important counterpoint to the mad scientist in 19th, 20th and 21st centuries. If the classic emblems of mad science are hard to locate within 20th and 21st century restorative narratives (though that is the impression, but not necessarily the case) then this might be because it is the detective to whom we need turn for such a model of science. As Agassi has so rightly pointed out the detective story reiterates, or rather anticipates themes of Kuhnian science, in which the final revelation of whodunit equates to Thomas Kuhn's revolutionary science, and the fact gathering up to that point consists of 'normal science.'

Yet, I propose that the mad scientist's process – whether Braddon's Blurosset, or Shelley's (1818) Victor Frankenstein – is much closer to

[443] See Tudor (1989b) pp133-157. In over a quarter of the films in Tudor's study of horror films (1931-1984) science is the source of disorder, and in well over half of these it is a 'mad scientist' who is at heart of the problem

Kuhn's view of paradigm shifting episodes, in which "...a new theory... is seldom or never just an increment to what is already known. Its assimilation requires the reconstruction of prior theory and the re-evaluation of prior fact, an intrinsically revolutionary process..."[444] What he describes here is the kind of leap in thinking that is not preceded by an open process of reasoning. This is much like Braddon's magician, who calculates in some mysterious way that is unfathomable to others. This is a quality perhaps of someone able to transcend paradigms because they lack social restraint of consensus. The detective on the other hand problem solves in the manner of 'normal science' within a socially restrained universe and is committed to maintaining the same paradigm. With that said, these two models are not so distinct as not to bleed into one another and Sherlock Holmes, for example, straddles the two, though his story is his method and when he solves crimes he always works within the shared paradigm of moral order.[445] In the following chapter, where I explore the construction of a detective image, I find that these two models reoccur in another detective-scientist pair - the vision, this time of Wilkie Collins (1868) in *The Moonstone.*

[444] Kuhn (1962/1996) Loc 235-9
[445] I return to discuss Kuhnian themes in the concluding chapter pp260-62

CHAPTER SIX

CONSTRUCTING THE DETECTIVES

Wilkie Collins (1868) *The Moonstone*

In 1861 Braddon told a story about a villain so powerful that he required the expertise of a detective and a magician-scientist to bring him to order. Her novel *Trail of a Serpent* featured a diminutive police assistant, who in rising to the challenge of the case, is transformed from working-class 'scrub' to man of means and private detective. The typically exotic scientist who flashes in and out of the plot is instrumental in thwarting the villain at key moments of his bid for power, while the detective plods through the narrative collating evidence. In portraying this pair, Braddon makes a significant and lasting contribution to the construction of popular conceptions of the investigative process. She drew upon themes that were current in contemporary cultural debates about how proper science should proceed. Such debates touched upon a nexus of linked ideas on genius, imagination, hypothesis and reason, which Braddon reiterates in various ways within the confines of her story. A comparison of the methods of her detective with those of her scientist reveal the former to be based upon a rather mechanical, open process of reasoning while the latter represents the mysterious, intuitive side of reason.

Wilkie Collins (1868) novel, *The Moonstone*, similarly features a scientist-detective pair. The same dual conception of reason was equally alive and still widely debated across popular and intellectual domains a few years following Braddon's publication *Trail*. If, as I have suggested, these two contradictory models of reason are represented, not just by Braddon's characters, but to some extent by detectives and mad scientists more generally, then Collins' detective-scientist pair ought to fit the same pattern. Indeed, Collins does pick up on and rework very similar themes to Braddon in this respect. Although that is where the similarity ends because *The Moonstone* is set within a much more realist frame than Braddon's novel. Collins minimises the sensational melodrama in so far as he can in a

mystery story such as this is. This means that the differential between characters is less pronounced and so is the distance between the two models of reason.

Collins' use of a more realist frame provides an opportunity that Braddon's melodrama, in some measure, impeded, which is to examine how the dual narratives of developing professional detective force and detective fiction intersect. Collins is especially helpful in this regard because he drew upon factual details of real world cases and people, whereas Braddon draws on ideas rather than any factual details, and her work is more symbolic. The first professional detectives were employed at Scotland Yard in 1842, and the first detective stories began appearing shortly afterwards.[446] A link between the two is often assumed and a blurring of the line between fact and fiction is a point of focus for much scholarly work on the public face of the police force.[447] Yet Collins' novel is not often discussed as one of the early public images of the police detective department in its developing years. Perhaps this is owing to disciplinary strictures, which tend to place the histories of the professional police and the literary studies of detective fictions under the covers of different journals.

Another good reason for re-visiting *The Moonstone* is because its influence spreads way beyond its own time. It is one of the few 19th-century detective novels to have been widely read since it was first published and over the years it has attracted some erudite fans who have done much to keep it alive. TS Eliot's oft-quoted tribute has it as "the first, the longest, and the best of modern English detective novels" and Dorothy L Sayers speaks of it as "probably the very finest detective story ever written."[448] Collins' detective, Sergeant Cuff, remains an iconic figure today and it is generally agreed that he provided an important model for Conan Doyle's Sherlock Holmes, a factor which places Collins' creation at the head of a veritable

[446] See Knight (2004) pp30-38
[447] For example see Leishman and Mason (2003). Note also the subtitle of their book: *Facts, fictions and factions*
[448] Eliot is quoted by Farmer (1999) in Collins and Farmer (1868/1999) p11 and by Dorothy L Sayers in Haycraft (1946) p89

detective dynasty.[449] What was especially innovative about Sergeant Cuff was the way in which Collins constructed his image out of a repertoire of typified structures that are normally used to signify the scientist, magician or knowledge-seeker. This makes Cuff a scientist, of sorts. It would be foolhardy to say that he is the *first* scientific detective, but certainly he is the first to have such strong influence on future popular images of the detective police.

The social import of such images takes them way beyond the bounds of their original narratives, as is nicely demonstrated by a study that compared how USA detectives and police dealt with the drudgery of their work. In this study, Janet Heinsler et al (1990) report that "[t]he detectives we studied surmounted...daily hassles and disappointments, but the campus police did not. The detectives called upon their more glamorous media image to construct a valued core identity that rendered mundane tasks significant, not menial. They saw themselves as Sherlock Holmesian 'students of crime' and used this identity to redefine repetitive tasks as important. In addition, the detectives found support for their valued identity from...supervisors, peers, and...criminals...The campus police lacked both the symbolic capital...and the ...appreciative audience."[450] That a 19th-century figure of fiction can drift into culture and impact the lives of police officers on a different continent a century later, is testimony indeed to the power of fiction or modern myth. Wilkie Collins' *The Moonstone* is part and parcel of the making of that myth.

Fictional images are both produced by and help to produce the sum of social knowledge with which we understand and experience the society we live in. This chapter is primarily concerned with the way in which Wilkie Collins draws upon real-world and fictional traditions to create an iconic image. The effort is to try and understand something of how *The Moonstone* was both a response to its own time, a meaningful contribution to its own

[449] Farmer (1999) in Collins and Farmer (1868/1999) p16 and Hodgson (1994) in Conan-Doyle and Hodgson (1994) p111
[450] Heinsler et al (1990) p236

culture, and simultaneously left a legacy of mythic proportion for generations of detectives to come, both real and fictional.

The novel itself sets a mythic tone at the outset. In a prologue, Collins tells the story of an ancient Indian diamond. The moonstone, blessed and cursed by the god Vishnu, threatens to bring disaster to anyone who should steal it from its sacred place. In these first pages, Collins sets a tone of mystery and magic that pervades parts of the novel. As the story unravels so does the mystery, but the magic is never quite unscrambled and the novel finishes on a note of enchantment when the moonstone is restored to its place in the forehead of the Moon god. What lies between folkloric prologue and epilogue is the detective story proper, set in an English country estate in 1848. Although the detective work of the novel is shared by a whole host of characters, the focus of this chapter is on the 'great Cuff', the metropolitan police detective, and the extraordinary Ezra Jennings, a weary doctor's assistant and talented scientist. It is from the space between these two characters that a meaningful image of the scientific detective emerges, an image that has different meaning in Collins' own time, to the one that will evolve to lighten the life of a few US police detectives over a century later.

The story begins when the diamond is bequeathed to Rachel Verinder and presented to her on her birthday. It is collected and delivered by her cousin and favourite suitor, Franklin Blake, and received with awe and delight by Rachel to the wonderment of all her birthday guests. Even the rather pragmatic butler, Betteredge, is captured by the brilliance of the stone, which "seemed unfathomable as the heavens themselves."[451] On the night of her birthday, she wears it in a brooch at a dinner party, but the diamond seems as if it has already begun to work its unhappy magic and the party is unexpectedly flat and ill at ease. That night the diamond disappears from Rachel Verinder's chamber. In the morning the house is searched for possible points of forced entry. None such is found. No-one has entered or

[451] Collins and Farmer (1868/1999) p118

left the house since the break-up of the dinner party. The diamond was taken by an insider – from hence begins the classic 'locked room' mystery.

I will begin by setting *The Moonstone* in its own culture and to do so I will first review the cultural response to the real detective police in the 19th century. I aim to show that the Foucauldian viewpoint, powerful as it has been in describing the rise of a state sanctioned disciplinary body and its fictional mirage, loses some of the finer grains of history in the big sweep of its picture. What arises from the details of history is that the practise and ideal of policing, detective and otherwise, were quite at odds. I move on to show how Collins reflects this contradiction in his portrayal of Cuff's failure and how this representation blends fictional and factional details, which give it a powerful realist edge and feed into the public image of the detective. Following this, I will compare Jennings' process to Cuff's and find that Collins builds upon the same models of reason as does Braddon, incorporating in Jennings both magical and contemporary scientific traditions. Last I look at how the two characters compare with one another and with other typified scientists in terms of their iconography. Cuff is given the veneer of a scientist – but he is a failed scientist. Collins begins a process, which I will argue, amounted to a critique of the detective squad in his own time, but ended in the laudatory myth of the all-knowing detective.

DEVELOPING PROFESSION, DEVELOPING FICTION

The development of a real world professional detective force and the emergence of a fictional detective genre happened in Britain over roughly similar time periods. It is reasonable to suppose that there is a link between the two, and no doubt there is one, but the precise nature of the connection is not easy to pin down. Literary scholarship, which is concerned with the development of 19th-century detective fiction usually acknowledges a link but does not investigate it in any great detail.[452] Of the most detailed considerations of the boundary between fictional and factual domains, none

[452] For examples, see Hutter (1975) in Pykett (1998) p178; Thomas (2006) in Bourne-Taylor (2006)

have focussed on Collins' *The Moonstone*.[453] Ronald Thomas' (1999) *Detective Fiction and the Rise of Forensic Science*, is perhaps the most comprehensive literary example, which explores intersections between states of knowledge, of technology, nationalist politics and notions of the body as a text that can be read and disciplined by detectives, real and fictional. Occasionally he finds that fictions anticipate forensics, but in rather a loose sense, and anyway his main interest is not in the construction of image, but rather in literary and cultural ideologies.[454] Criminological literature tends to have more of an interest in image, but most of this work focuses on 20th-century fictions and on professional policemen.[455] Having said that, what becomes apparent from all such work is the propensity for the blurring of the boundaries of fact and fiction, which has been a distinctive feature of the representation of police throughout their history.[456]

One reason for the lack of detail linking real and imaginary police is perhaps that scholars of detective fiction tend to have a literary outlook which seeks the demonstration of a particular theoretic bent within the fiction. Indeed Thomas (1999) provides a nice summary of these approaches, from Jacques Lacan's psychoanalytic analysis of Poe, to Peter Brooks' reading of Sherlock Holmes plots as dual narratives of death and desire.[457] Many such scholars, including Thomas himself, prefer the view that a Foucauldian drive away from sovereign power toward a disciplinary model created a fictional genre and real police in a single sweep. Control of

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[453] See Thomas (1999) and Worthington (2005)

[454] See Thomas (1999) pp4-5 for brief note on Poe's, Dickens' and Conan Doyle's popularisation of scientific theories, also for a 'commonplace' tendency of early criminologists to attribute inspiration to one or another fictional detective including the insistence of French forensic scientist Edmond Locard that colleagues read Conan Doyle's Holmes stories. Yet there is little to suggest that fiction leads fact in any other way except by symbolically recommending a systematic, rationalised, scientific system of detection. In this last regard Collins' *The Moonstone* is another of the texts to make a similar recommendations.

[455] For example see Mawby (2007) in Newburn et al (2007); Leishman and Mason (2003); O'Sullivan (2005)

[456] For in depth discussions of 20th-century faction see Leishman and Mason (2003); O'Sullivan (2005); and Mawby (2007) in Newburn et al (2007) p148 for earlier examples of faction

[457] See Thomas (1999) p7

self and others is emphasized through the synergy of rationalism, science and detection across cultural domains.[458]

Arguments that look to Foucault tend to treat the development of literary and real world detection as each mirroring, perhaps amplifying, the disciplinary process of the other. The nub of the argument is nicely summed up by Thomas (2001) "the literary act of transferring the authority to tell the secret story of the individual suspect to a designated professional expert is also a political act, one that corresponds historically to the reform of the English criminal code, the decline of aristocratic power, and the insistent rise of the modern professional police force in England."[459] Firstly, the 'insistent rise' of the professional police implies that there was an unproblematic cultural acceptance of a law enforcement body, which steadily advanced its technical expertise. Although this was sometimes how policing was painted by those with a vested interested, it was in fact far from the truth.[460] Nevertheless, in terms of a broad sweep the statement does hold water, but it implies that the literary form along with law reforms and professionalization advance along a single path and that the meaning of the fiction corresponds directly to these large-scale socio-political changes. What this amounts to is a conflation of historical fact and fiction.

First, in terms of fiction, there are influences aside from a disciplinary drive that stimulate the invention of a detective narrative. In an early classic study of the sensation genre, Winifred Hughes (1980), talking of *The Moonstone*, offers an alternative view on why Collins embraces the detective figure. She writes "What happens in the Moonstone is that the professional viewpoint begins to take over – the dispassionate, almost

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[458] See pp34-36 of this work for a discussion of detectives and Foucauldian discipline. Scholars working within the Foucauldian paradigm include Knight (2004); Miller (1980) in Pykett (1998); Pallo (2006); Thomas (1999); Worthington (2005)

[459] Thomas (2001) "Detection in the Victorian Novel" p177 in David (ed) (2001)

[460] See Jäger (2001) on the history of judicial photography: although anthropologists and criminologists recommended it, police photography was by no means systematically applied until the end of the 19th century and was more useful as a display of effectiveness, a symbol of modern, scientific, legal and professional police work, than as a useful tool. Jäger questions its utility as an instrument of discipline even after it was systematically employed

clinical perspective of human sin and human suffering expressed by various doctors, lawyers, and police detectives who play a larger and larger role in sensational fictions."[461] This is true to an extent, although, in Collins' particular mystery of the missing moonstone, the input of an independent, non-professional outsider is required to unravel it.

That is as may be, but Hughes' belief is that Collins' professional-detective narrative is a means for him to restrict the chaotic and contradictory themes of the sensation genre, which incorporated a gothic penchant for supernatural potentialities. She argues convincingly that the bid to create a plot, which "trace[s] results back, by rational means, to natural causes" provides Collins with the space to showcase his talent for intricate, naturalistic plotting, without having to deal with the confusion of keeping both natural and supernatural causes in play.[462] He had done exactly that in *Armadale* (1866), which is a mystery that allows for potential supernatural causation - a feature, which to Hughes' mind had somewhat diluted the impact of his mainly naturalistic plot. Such a view, as Hughes holds, does not exclude a Foucauldian one by any means, but it acknowledges that, as much as detective fiction develops in concert with the ideals of discipline, it may also develop for reasons particular to the literary fashions of the period. Although, it is also plausible to suggest that in rationalising his plots, Collins was indeed, disciplining them.

Different considerations come into play with regard to the development of a real-world police force. Jan Golinski (1998) speaks of science when he warns that the tacit assumption of teleology can obscure the finer grains of history, though it applies equally to the police. He argues that to avoid insinuating an idealised goal driven process, professionalization might be best viewed as "the unintended outcome of the interaction of uncoordinated, even conflicting, forces."[463] Such a view accords well with Everett C Hughes' ecological model of professionalization, in that ecological

[461] Hughes (1980) p163
[462] Collins and Farmer (1868/1999) p351
[463] Golinski (1998) p69

specialisation of a Darwinian kind is usually reckoned to be a distinctly un-teleological process.[464] Hughes sees the competitive element of the evolution of institutions as arising from the needs and wants of the people which can be fulfilled by any number of means that are not initially linked to any one institution. So, a profession can only develop if it offers a service that concurs with the needs and desires of the people. Yet, where Hughes then departs from a Darwinian model (and Golinski) is in the view that, once arisen or perhaps on emerging, the institution survives and develops because it maintains a place in the day to day lives of the people and in their desires, and most importantly its "professionals do not merely serve; they define the very wants which they serve."[465]

An attempt to define the wants of the people corresponds with elements of what criminologist Rob C Mawby (2007) has labelled, 'image work' which he defines as all the ways in which meanings of policing are projected, including anything from placing uniformed officers in visible positions, to actively engaging journalists. Mawby and others find that in all such work, the "police have consistently promoted their image as crime fighters and investigators despite crime fighting being neither their primary activity nor their most impressive quality."[466] By happy coincidence for 'image workers', crime fighting is attractive to storytellers of all kinds because it works as a traditional heroic narrative. Indeed this is one of the likely reasons for the construction of police as crime fighters in the first place. The notion of a heroic force who must protect the populace by warding off waves of malevolent crime is an appealing selling point. The first English state police bureaucracy or the 'New Police' was instituted in 1829 in London to fulfil such a role. The Scotland Yard detective squad followed some thirteen years later in 1842.

The New Police were designed to function via standardised processes of crime control, operated by professionals who excluded or at least narrowed

[464] For example see Bowler (1989) pp5-6 or Darwin (1859/1968) "I believe...in no law of necessary development" P348
[465] Hughes (1984) p424
[466] Mawby (2007) in Newburn et al (2007) p146

popular involvement in law enforcement. The first joint Police Commissioners, Richard Mayne and Charles Rowan, specifically engineered a benign and dignified image of a bureaucratic, disciplined force in order to subvert the strength of opposition that existed to any kind of state police force.[467] The introduction of a plain clothed detective department faced an even greater public relations problem because of their association with French governmental spies or secret agents who had once been employed to root out English Jacobins. An 1845 article in *The Times* emphasizes this view: "When Sir Robert Peel first introduced his favourite measure, he lulled the suspicions of those who saw in it the latent springs of a spy system...The detective force seemed somewhat at variance with this, but its object was confessedly useful...Nevertheless there was and always will be something repugnant to the English mind in the bare idea of espionage. It smacks too strongly of France and Austria..."[468] Such sentiments fuelled fears about the erosion of civil liberties, duplicitous methods, and the taint of criminality that clung to the police by association with Eugène Vidocq (1828) and others like him.[469]

By the time *The Moonstone* was published in 1868, the New Police were well established, though their public image was still variable. A continuing mood of suspicion co-mingled with admiration for a new body of crime fighters of the kind projected by Mayne and Rowan. They appear to have been intermittently lauded for their courage and efficiency or castigated for buffoon-like bungling. For example, a letter to the editor of the *Times* in 1865 refers to the "extreme stupidity" of an inspector, who, if he "had been an accomplice...could not have played the cards better for [the felon]." An equally derogatory letter calls for "reform in Scotland Yard. Until a more efficient system of police is organised, neither our homes nor our property

[467] See Reiner (1992) pp60-73 for discussion of the legitimation of the first New Police
[468] *The Times* Dec 02 1845 p4 col E. Two further letters to the editor, also complaining of underhand detective methods, appeared in *The Times* Jul 04 1851 p5 col C and Jul 05 1851 p7 col C. The latter is insistent that "The end does not justify the means" and is signed "A Barrister"
[469] See Emsley (2005) p241; Knight (2004) p10; Worthington (2005) p117

can be regarded as secure."[470] Such lamentable visions of policing are posted between congratulatory pieces that praise the "superior efficiency of our modern police" are thankful for the "rapid logic of a detective" and the "ready instinct with which the two constables pounced upon their man..."[471] Such excerpts from *The Times* indicate a rather extreme form of ambivalence; especially pertinent is the swing from 'extreme stupidity' to the 'rapid logic of the detective'.

The late 1860's, too, was a period of crisis for the New Police who, in 1867, failed to prevent a bomb attack on Clerkenwell prison, despite having received accurate prior intelligence. Twelve people were killed and many more injured. There was a public outcry. A furore exploded into the press; so much so that the Home Office instigated an inquiry to deal with what *Punch* and others called the 'Defective Department.'[472] A year later Richard Mayne, then sole Police Commissioner died, amidst a moral panic over rising crime. Faced with a failure to deliver on the crime fighting front following so soon after an embarrassing demonstration of incompetence, Mayne's successor decided to place more, rather than less, emphasis on the detective department.[473]

It is at this point in the development of the real-world detective squad that Collins was searching for a way to develop the naturalistic detail of his plots to their fullest extent. That he was successful in creating a masterful form of naturalistic plotting is evident from Henry James' comment on Collins' "massive and elaborate...mosaic work, for the proper mastery of which it would seem, at first, that an index and notebook were required. They are not so much works of art as works of science."[474] Collins' success in drawing readers like Henry James into detective activities with his 'index and notebook,' places his work as one of the milestones in the diffusion of a

[470] *Times* 17 May 1865 p13 col B "How not to catch a thief" and *Times* 29 Oct 1868 p5 col D "London Burglars"
[471] *Times* 09 Dec 1864 p6 col E
[472] See Morris (2006) 'Crime Does Not Pay' in Emsley and Shpayer-Makov (2006) p83
[473] See Reiner (1992) p70
[474] From Henry James (1865) 'Mary Elizabeth Braddon' in James and Edel (1984) p743

new genre, though his actual police detective, like the 'public image' at this time is harder to pin down.

THE MOONSTONE, DETECTION AND SCIENCE

'The Great Cuff'[475]

The 'great' Sergeant Cuff steps onto a cultural stage, as it were, in which a real police force were apparently openly failing the people whom they were intended to serve. This circumstance is mirrored by the famed detective's summons to the Verinder country home where fictional police, being equally inadequate, have made no headway in the case of the missing moonstone, and require a metropolitan police detective to set the situation straight. A "renowned and capable character...the celebrated Cuff" is greeted with great fanfare, for "when it comes to unravelling a mystery, there isn't an equal in England."[476] What then follows is a demonstration of exactly how not to approach an investigation. On this point Collins' plot, like Braddon's *Trail*, engages with 19th-century debates about scientific method and particularly with the role of hypothesis in generating knowledge.[477]

Cuff begins promisingly with a detailed search of the crime scene - Rachel Verinder's bedchambers. Taking note of a freshly varnished door, "He laid one inquiring finger on...[a] small smear..." and looked to the local Superintendant for an explanation, who shrugged it off as "a mere trifle."[478] The response comes back, "I made a private inquiry last week...at one end of the inquiry was a murder, and at the other end there was a spot of ink on a tablecloth that nobody could account for...I never met with such a thing as a trifle yet..."[479] Cuff's enquiries then reveal that the wet varnish on Rachel Verinder's bedroom door was smeared within the same time period that the diamond was taken, leading him to surmise that the door paint was smudged

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[475] Collins and Farmer (1868/1999) p158
[476] Ibid p155
[477] See pp 158-66 of this work
[478] Collins and Farmer (1868/1999) p158 and 159
[479] Ibid p159

by clothing adorning the thief. So the "mystery of the smear on the bedroom door...means the mystery of the Diamond also."[480] Strictly speaking, of course, he could not be sure that it was the thief and not another who smeared the door, but he discounts as many other possibilities as he can. In an exemplary Baconian process of gradual elimination he finds it was not, for example, the household dogs, neither was it Miss Verinder's maid etc.[481] So far so good.

The mistress of the moonstone, Rachel Verinder, is apparently in some emotional upheaval following the loss of her jewel. Behaving seemingly erratically, she barges into the midst of Cuff's enquiries after the door paint, with an insinuation that the detective be cautious about accepting Franklin Blake's word as fact. Ignoring the detail that Blake and Miss Verinder had been lovers and so were potentially embroiled in some sort of tiff, Cuff fixes his suspicions indelibly on Miss Verinder from this moment on. The family butler, Betteredge sees that in a moment "a new light (and a horrid light)...[had] suddenly fallen on the case, in the mind of Sergeant Cuff – purely and entirely in consequence of what he had seen in Miss Rachel, and heard from Miss Rachel, at that first interview between them."[482] Before going very much further Cuff declares that "*Nobody has stolen the Diamond...*"[483] In other words, Miss Verinder has hidden, sold or otherwise disposed of her own diamond.

Cuff goes on to demonstrate perfectly the danger of being blinded by a preconceived hypothesis, which according to Agassi (1982), was what Bacon's warning amounted to.[484] The detective is so prejudiced that he then fits all other evidence, which he collects meticulously, to this one preconception, a hypothesis that is never tested against other possibilities. So when one of the family servants, also behaving oddly in various ways, is reported to have been awake through the early hours, her bedroom door

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[480] Ibid p173
[481] See Agassi (1982) for an explanation, or Smith (1994) and pp158-66 of this work
[482] Collins and Farmer (1868/1999) p161-2
[483] Ibid p166 Collins' emphasis
[484] See p161-62 of this work for a discussion of hypothesis as prejudice

locked and a fire burning on a midsummer night, he assumes her to be acting on behalf of Miss Verinder in some manner. In fact, the girl has fallen in love with Blake and having seen the varnish stain on *his* nightshirt, hides it, and then sits the night long, sewing a replacement to save him from suspicion. Some days later, when the girl drowns in local quicksands, Cuff believes her to have met with a fatal accident whilst attempting to hide the smeared clothing on behalf of Rachel Verinder. Betteredge, aware of the girl's unrequited love, has a different understanding: "The girl's altered looks...the numbed, deadened way in which she listened to me, and spoke to me...but a few hours since...warned me, even as the Sergeant spoke, that his guess was wide of the dreadful truth."[485] Indeed, a suicide note recovered some time after the event, reveals Betteredge to have been correct.

Such a sequence of events has Cuff falling short of the job on two fronts. His prejudice is clearly one. He is also a bad judge of character and this, as I have discussed in relation to phrenological and physiognomical readings in the previous chapter, is one of the detective's most prized, and important skills.[486] In the interaction between Betteredge and Cuff, which is sustained through the whole of Cuff's visit to the house, Collins juxtaposes the 'common sense' feeling of the former against the reason of the latter. Although Betteredge is unable to even begin to fathom who stole the jewel, he is a reasonable judge of character and following Cuff's explanation of the case against Miss Verinder, Betteredge proudly announces himself "constitutionally superior to reason" which enables him to "hold firm to my lady's view" that the character of the young mistress would have prevented her being able to do anything so duplicitous as to steal her own diamond.[487] Cuff on the contrary looks to find answers in reason alone. In terms of method, he begins well and is an assiduous data gatherer from first to last, but his hypothesis is deeply flawed, and since he settles on it so soon and holds to it without test, so his reasoning is equally flawed.

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[485] Collins and Farmer (1868/1999) p218
[486] See the near mythologizing of this skill in the popular, factional work of Summerscale (2008) pp77-89, which re-tells the story of the famous Road murder of 1860.
[487] Collins and Farmer (1868/1999) p229

Fictional or Factional?

Cuff's grounds for suspecting the young mistress are almost entirely tied up with her unwillingness to cooperate, which according to his previous experience of family scandal adds up to some secret indebtedness on her part. On this point, a review in the *Spectator* expressed similar sentiments to Betteredge and Lady Verinder, in that "[t]he idea of a girl like Rachel Verinder...stealing her own jewel, is one which, though it might by possibility have taken in the detective, cannot take in the reader."[488] The failure of the detective's reason is then no surprise to the reviewer, although the reader, of course, is more discerning. These aspects of 'the great Cuff' project a rather poor view of the efficiency of the Detective (or Defective?) department. Much in the same way that the pledge of crime control made by the real police disappoints, so does Cuff's promisingly powerful presence and his ultimate contribution to solving the mystery is small. Finally, his accusations have him dismissed from house and case by Lady Verinder.

In addition to his reflection of contemporary debate, Collins incorporates details from the real-world detective, Inspector Jonathan Whicher, and his involvement with the Road murder. Whicher was lambasted in the press for his part in the case, after he accused Constance Kent of murdering her three-year-old half-brother. His case rested upon a missing nightgown that he believed the adolescent girl to have disposed of after having stained it with her brother's blood. Collins reiterates both the missing garment and Whicher's supposed failure of reasoning. Whicher was apparently discredited and resigned, only to be vindicated some years later, when in 1865 Constance Kent came forward of her own volition and confessed to the crime.[489] These details were undoubtedly well known to many of Collins' audience since the Road murders were highly sensationalised in the popular press where the divide between fact and fiction was equally difficult

[488] Quoted at length in Collins and Farmer (1868/1999) p547
[489] See Farmer (1999) pp26-27 and pp560-576 in Collins and Farmer (1868/1999)

to pin down. In the way of a myth, Whicher's story never dies it seems, for he has recently been given new life in a 21st century bestselling 'factional' work by Kate Summerscale, who has celebrated the detective with a real kaleidoscope of fact, fiction and faction.[490]

By incorporating such contemporary detail and debate into *The Moonstone*, Collins gives Cuff an edge of realism and the real police force the edge of his fiction. Indeed, a *Times* review of *The Moonstone* acknowledges the likeness to life and amplifies the fuzziness between fact and fiction even further:

> Cuff is the inevitable detective, a character apparently so regularly retained on the establishment of the sensational novelists that it would be convenient for a due appreciation of their new works to find appended to advertisements of them, along with extracts from the critical journals, such remarks as "Very true to life!" and the like, dated from Scotland Yard. We cannot affect to love the police-court flavour these characters infuse into modern tales. But "the great" Sergeant Cuff would almost reconcile one to the type.[491]

Again, a note of ambivalence. Surprisingly Cuff's failure fails to put the reviewer off the 'police court flavour' and brings out a tone of acceptance if not sympathy toward it. I return to this issue below.

Such a confusion of imagined and material worlds is so characteristic of crime writing across different domains that it draws inevitable questions about how public(s) divide fact from fiction.[492] An issue that is, of course, as important to those who are concerned with deficits of public understandings in science as it is to police 'image workers'.[493] Nevertheless, in terms of television crime stories, Leishman and Mason

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[490] Summerscale (2008)
[491] *The Times* Saturday Oct 3rd 1868 'The Moonstone' p4
[492] See Leishman and Mason (2003) for treatment of modern media crime representation, its authenticity, possible meaning and effects; Hurd (1981) "The Presentation of the Police" in Bennett et al (1981); and Warwick (2006) for a discussion of the construction of the serial killer in fiction, faction and factual domains
[493] Michael and Carter's (2001) focus group study of science in public, for example, suggests that fictional images are not confused with reality by lay public(s)

(2003) comment that any "assessment of the realism and authenticity of fictional representations of the police is based on the viewer's own knowledge and experience of them."[494] In 1868, most readers of *The Moonstone* would have been hard pushed to have any direct experience of detectives, since there were only 15 detectives in a force of 8,000 men.[495] In this sense, then cultural producers of all kinds, reporters of crime and novelists included, in the mid-19th century are pivotal in terms of constructing the detective as an ever-abiding icon of culture. That said, the presentation of fiction cannot simply impose an image upon its audience, whatever social world is imagined it must be 'convincing' or 'believable' and 'fit' with the mindset of the reader.[496] To this effect, Collins' assimilation of real-world elements of policing grounds the story in what Hurd (1981) has referred to as a 'heritage of realism' which amounts to an engagement with socially constructed and sanctioned knowledge, whether that be from contemporary debate, typificatory detail, or mythic structures.[497]

Especially powerful in Collins time, is the notion that Hurd (1981) utilises of a 'half formed picture,' by which he means a process, person, or type, held within the minds of a readership and completed by the fiction. To argue that a single work of fiction, in itself, can complete the 'half formed picture' seems to go a little too far. Though the idea of a partly formed image, which can be modified by individual details from different knowledge sources, fiction included, is more likely. A 'public image', of say, detectives, police or indeed scientists, builds through an accretive process that combines information and impressions from eclectic sources that in themselves have drawn upon one another, in a network of 'realisms'

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[494] Leishman and Mason (2003) p3

[495] See Reiner (1992) p70

[496] That is not to suggest that fiction must always reflect the extant real world. Magic and fantasy are believable, because they: a) fit in with a tradition of story telling which is familiar, and b) they engage with other psychological realisms, for example the perception of reason as mundane or intuitive (see previous chapter pp158-66). These two levels of 'fit' add up to what Hurd describes as 'heritage of realism', Hurd (1981) in Bennett et al p55

[497] See Kirby (2003), whose study of consultant scientists on film sets finds fictional narratives that naturalise both accurate and inaccurate science.

each gaining authenticity by making reference to the others.[498] Alexandra Warwick (2006) has used the idea of a 'discursive concept' to describe a rather similar process in the build up of a complex of images and meanings such as are invoked by the terms 'Jack the Ripper' or 'the serial killer'.[499] If a 'public image', is in fact a complex of images, so the public face of a detective, is not one, but many faces, then it is possible, indeed likely, that some of these images will apparently conflict with one another. This is especially the case in the mid-19th century, with regard to the detective. So, while the *Times* professes not to like the 'police court flavour' invoked by Cuff, they are at the same time 'reconciled' to it by Cuff.

Collins' incorporation of details from the famous Whicher case is a trigger point invoking a host of cultural references to this detective and his colleagues at Scotland Yard. One writer in particular, who is likely to have been known to many of Collins' readers, and who also wrote about Whicher, is Charles Dickens. He had written about the police from the early days of his work as a journalist on the *Morning*, and subsequently the *Evening Chronicle*.[500] The novelist's own love of order, his "mania for tidiness, punctuality, routine and efficiency" fuelled a boyish hero worship for the police, particularly the detective police according to Dickens scholar, Phillip Collins (1962), and his articles about the latter are nothing short of eulogies.[501] Historians both of real and fictional police argue that Dickens was very influential in constructing a positive image of the detectives in a series of five articles, which he wrote for *Household Words* (1850-1853).[502]

The first article was entitled *Detective Police* and appeared in *Household Words* in two parts in July and August of 1850. It consists of a report on a

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[498] In my view, Hurd's (1981) 'heritage of realism' is a network of cultural references
[499] Warwick (2006) see especially p554
[500] See Worthington (2005) pp130-136 for detailed discussion of Dickens' early pieces, which featured 'bobbies' not detectives.
[501] From Collins (1962) *Dickens and Crime* quoted in Worthington (2005) p161
[502] Authors who cite the importance of Dickens include Mawby (2007) in Newburn et al (2007); Thomas (1999) and (2001) "Detection in the Victorian Novel" in David (ed) (2001) and (2006) "The Moonstone, detective fiction and forensic science" in Bourne-Taylor (ed) (2006); Worthington (2005); Symons (1985); and Summerscale (2008) takes Dickens' word as read

visit, made by the whole detective squad of seven, to Dickens' own office; a factor that suggests they were very keen to court this particular journalist, and rightly so. What is especially striking about the descriptions that Dickens relates is his emphasis on their 'scientific' skills. So, Inspector Weild, as he calls him, has "a knowing eye"; Sergeant Dornton "is famous for steadily pursuing the inductive process, and from small beginnings, working on from clue to clue until he bags his man"; and Sergeant Witchem "has something of a reserved and thoughtful air; as if he were engaged in deep arithmetical calculations".[503] To a man, they are respectable looking...of...unusual intelligence...with an air of keen observation and quick perception when addressed; and generally presenting in the faces, traces more or less marked of habitually leading lives of strong mental excitement."[504] In sum, Dickens describes men who are "forever on the watch, with their wits stretched to the utmost...[and their] Suspicion...directed, by careful inference and deduction, upon the right person..."[505]

Following his descriptions of the detectives themselves, Dickens goes on to relate some of the anecdotes that they recounted on their visit. None show much evidence of 'careful inference and deduction' nor of 'steadily pursuing the inductive process'. In the four detective tales that follow, all are cases that involve tracking down known offenders, so there is never a need for directing 'suspicion by careful inference and deduction.' In one story the culprit is tracked through the postal service; another involves entrapment; a third, undercover work to catch a gang of thieves; and in the last case, the felon is apprehended via a coincidental meeting. In all cases the men show a complete disregard for evidence; amusingly in the postal case, the suspect is eventually acquitted owing to "a defect in the evidence."[506] Oddly enough the skills that the detectives do have - bravery, for one, dedication to duty, determination, knowledge of the criminal social

[503] Dickens and Pascoe (1997) p247. Weild is a pseudonym for Inspector Field and Witchem is a pseudonym for Whicher; Cobb (1957) has identified all the real-world equivalents
[504] Dickens and Pascoe (1997) p248
[505] Ibid p261
[506] Ibid p253

world and a talent for disguise - are all features that go unremarked by Dickens, presumably because those attributes were a little too closely associated with the unsavoury Continental methods or the outmoded Bow Street Runners.

Dickens at first builds the squad up as capable intellectuals and then demonstrates that their methods are not even investigative, let alone any exemplar of supposed brainpower. To openly express conflict, or contradiction, in such a manner that the dilemma involved is somehow evaded, glossed over, or linked by a narrative, is the job of myth, modern myth, and some would say of fiction, in general.[507] Collins follows and amplifies Dickens in this trend. His "renowned and capable" police detective comes much flaunted as the only man up to the mystery.[508] He begins promisingly with assiduous data collection, but in the end cannot come up to the intellectual challenge of the investigation. Further to this, the mirage of Whicher that resides within Collins' Cuff highlights the failure of the latter even further, for Whicher had been right all along, whereas Cuff was entirely mistaken. Yet Collins does allow his detective a measure of success. Once the investigation comes to a head and the novel cuts to the chase, then the great man is able to lead the way to the thief with style and confidence. Here on the streets of London, Cuff demonstrates the same actual skills that Dickens relates in the *Detective Police*.[509]

The tensions that these authors encompass in different ways seem to reflect contemporary cultural contradictions between the ideal of policing and its practice. The ideal, which was disseminated from its first institutionalisation, was of an expert, apolitical, scientific force, rather similar to the kind of professional image that was advocated and believed by GWM Reynolds (1844-46) to be a counter to the old, corrupt order. By the time of Collins' writing, and indeed before and after, this professional

[507] See Carroll (1981) on myth and Hurd (1981) in Bennett et al (1981) on police television drama and its treatment of contradictions
[508] Collins and Farmer (1868/1999) p155
[509] Similarly, Dickens' journalistic account of Inspector Field (1851) on a tour of duty, places him as near mythical hero and man of the people, more reminiscent of a picaresque hero than a policemen

image ran counter to the very public failures of the 1860's detective squad. Both ideal and practice are played out in Collins' and Dickens' representations and they contradict, just as they did in the contemporary mid 19th century English society. This is a point that sometimes goes unacknowledged in studies that emphasize the Foucauldian rise of disciplinary technologies and institutions. For example, there is a yawning gap between what Thomas (2001) describes as Cuff's "keen powers of observation, his uncanny judgement of character, and his acute deductive reasoning..." and what Collins shows his detective to be capable of doing.[510]

Historians of 'real-world' crime generally agree that most offenders in the 19th century, who were caught, were arrested at the scene of the crime or captured as a result of positive identification by witnesses and victims, rather than being subject to any kind of detective work.[511] The actual skills used by policemen for most of the 19th century were minimal and largely unsophisticated.[512] Indeed, in a Home Office enquiry following the 1867 Clerkenwell bomb attack, a Superintendent giving evidence on this matter in 1868 is noted as saying, "in my whole experience [since 1835] I never knew a man of superior education join unless there was a screw loose somewhere." This kind of inference was not unusual.[513] According to RM Morris (2006) the scarcity of educated manpower available to the police force was a persistent worry for much of its 19th century history. What had drifted into the culture of this 'reality' was reflected in Collins' work hidden behind the image of the scientific, capable Cuff.

Once Cuff fails, the mystery of the moonstone is left with no single detective eye able to follow it through to resolution. Instead elements of the puzzle are relayed from one character to another, baton like, for each to make a contribution, however small, before passing it on to the next. In a

[510] See Thomas *Detection in the Victorian Novel* p183 in David (ed) (2001)
[511] Emsley (2000) p93
[512] See Emsley (2000) p93 and Morris (2006) "Crime Does Not Pay" in Emsley and Shpayer-Makov (2006) and Morris (2007) "The History of Criminal Investigation" in Newburn et al (2007)
[513] See Morris (2006) "Crime Does Not Pay" in Emsley and Shpayer-Makov (2006) p83

now famed reading of *The Moonstone*, DA Miller (1980) describes how the function of the detective is dispersed through the whole community of characters. In Collins' story a "policing power is inscribed in the ordinary practices and institutions of the world"[514] and "natural curiosity and common gossip double for an informal system of surveillance that is in force on the estate well before the Moonstone is stolen."[515] This is indeed the case, as evidenced in the way the servants tell tales on one another. Miller's work is one of the first and most perceptive of the Foucauldian approaches to detective fiction, and it allows for the acknowledgement of the failure of official channels of crime detection and the success of unofficial ones. Although, one does have to ask whether Collins' depiction of a failed professional does not constitute a criticism of the official channels of crime detection, particularly given the regular popular griping about police inadequacy that was evident in contemporary press.[516]

Indeed, as if to press that message home, there is an unofficial detective in *The Moonstone* who is anything but mundane. He brings the speciality of scientific application to the detective process, in such a way as to underline, more emphatically than does Braddon, that this is *the* process of successful detection, because of all characters he is the most effective in the restorative function. But, like Braddon's magician-scientist, the 'extraordinary Jennings' is an eccentric outsider who carries no institutional legitimacy.

The Extraordinary Jennings

In the interim, with Cuff gone, 'detective fever' transfers from one character to another, even infecting minor characters who are charged with providing key pieces of information, filling in elements of the mystery as they do.[517] In the main, however, Franklin Blake, the young friend and lover of Rachel

[514] Miller (1980) in Pykett (1998) p208
[515] Ibid p207
[516] See Morris (2006) "Crime Does Not Pay" in Emsley and Shpayer-Makov (2006) for a summary of dissatisfaction with police
[517] "Detective fever" is a phrase Collins uses liberally to reflect the way in which the characters 'infect' each other and the reader, as they each take their turns at investigative work. See: Collins and Farmer (1868/1999) p191; 215; 248; 249; 369; 372; 374; 504.

Verinder, Mr Bruff, the family lawyer, and the extraordinary Ezra Jennings take up the reins of detective work. Blake and Bruff go as far as they can, but the investigation stalls when Rachel Verinder declares that she actually saw Blake take the diamond from her chamber. Blake has no memory of the deed. It is at this point that Ezra Jennings, Dr Candy's assistant and sometime scientist, appears on the scene, with new evidence. He has discovered that, in order to prove a personal point on the effectiveness of drugs, Dr Candy had secretly administered opium to Franklin Blake unbeknownst to him or anyone else on night of the robbery. Though Candy planned to reveal all to Blake the following morning, he was unable to, having been taken ill himself that night - so ill that his memory was badly and irrevocably damaged.

Jennings, who cared for the sick doctor, finds a method of decoding patient's delirious wanderings and in so doing, discovers Candy's tricks with the laudanum bottle. As a self-confessed expert in the physiological effects of opium, Jennings hypothesises that Blake, being worried over the safety of the diamond, took it while in an unconscious drugged state and hid it somewhere safely. He persuades the central characters to conduct an experiment to replicate 'exactly' the circumstances of the crime, and when they do, Blake takes the diamond but falls asleep with it in his hand. The question then becomes did someone else take the diamond from Blake or did Blake hide it? At this point Jennings' part in the story is over. Apart from setting the investigation back in progress, Jennings' function has also been to exonerate Blake in the eyes of Rachel Verinder and to restore the couple to harmony. In this regard Jennings is the ultimate restorative character, since the convention for all Victorian novels is to end, or resolve, with marriage.

Though he is a lowly doctor's assistant, Jennings has some mysterious past, involving an accusation, which has prevented him from achieving the great things that are suggested in his character. He is a classically odd looking and socially isolated scientist whose loneliness drives him to use his leisure time in study of the human brain. Jennings, in fact, is marked with many of

the emblems of the mad scientist, although his function is restorative. As such, he is reminiscent of Braddon's magician-scientist, Laurent Blurosset. Mad scientists, I have proposed, represent a model of reason, which obscures process, incorporating intuition, imagination, ideas and hypotheses, as opposed to the detective who represents the rather more dreary, though open, process of additive, mechanical thinking and data gathering.[518] Jennings is unusual among fictional scientists who use the experimental method, in that much of his process is also open. So his is not quite the unfathomable method of a magician-scientist like Braddon's Laurent Blurosset, though neither does it represent the mundane data gatherer of Braddon's Mr Peters.

From the outset, Jennings has a clearly framed hypothesis and collects data accordingly. His initial reliance on theory aligns his mode of thought more closely with imagination and intuition than with the legwork of amassing data. When, his employer, Dr Candy, falls delirious, he has an ideal opportunity to test a theory, which he has been pondering. His belief is that, in cases of delirium, the loss of connected speech does not necessarily signal the loss of connected thinking. By recording verbatim Dr Candy's incoherent wanderings, he is able to study them at length and ascertain whether they do have an underlying meaning. At this point, his method does take a mysterious turn, though he emphasizes its simplicity by describing it as "something like the principle which one adopts in putting together a child's 'puzzle'. It is all confusion to begin with; but it may be all brought into order and shape, if you can only find the right way."[519] The right way is not given, and the reference to a child's puzzle invokes ideas of childlike receptivity and imaginative fantasy that partly lead AD Hutter (1975) to emphasize Jennings' ability to take on the perspective of others and draw on their subjective experience, an intuitive skill, invaluable to many a detective.[520]

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[518] See pp158-66 of this work for this discussion
[519] Collins and Farmer (1868/1999) p442
[520] As I have already noted, the detective most famed for this ability is probably Agatha Christie's Miss Marple, whose understanding and observation of behaviour is second to

Other critics have described Jennings, in this regard, in rather more exotic terms, as Stephen Knight (2004) does, who writes of a cross between a "mesmeric séance and a psychoanalytic session."[521] Such interpretations come closer to the kinds of enchanted science that are represented by Braddon's scientist who is able to 'read' events in the cards, in a similarly séance-cum-psychoanalytic set up.[522] What happens in such sessions is that the scientist sees the future, the private thoughts, or the past as a whole picture, at once, in a flash. Jennings too has such flashes of intuition. For example, as Blake explains his mystifying story of stealing the diamond without any memory of having done so, nor having had any desire to own it, all of a sudden, Jennings "started to his feet, and looked at me with breathless eagerness"... "'Stop!' he said. 'You have suggested more to me than you suppose. Have *you* ever been accustomed to the use of opium?'"[523]

Such flashes of inspiration, along with the experiment that follows, provoke the kind of review as appeared in *The Times*: "Ezra Jennings, is one of those occult medical geniuses that are found in novels..."[524] It is not absolutely clear from the text of the review, what is meant by 'occult' - magical or hidden, since both meanings were in use at the time.[525] Whichever, Collins' portrait of Jennings reaches into the same intersection of genius, creativity, science, magic and imagination, as did Braddon in her representation of Blurosset. In this respect too, these authors can be seen as invoking Hurd's (1981) 'heritage of realism,' because, despite the fact that their representations are decidedly fantastical, they invoke real-world issues – an example of how fact and fiction can be blurred. Fiction is one of the cultural products within a network of 'realisms' that cross-reference one

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none. That said, most detectives have some ability to understand the intent and motive of others, except, it seems Sergeant Cuff

[521] Knight (2004) p45

[522] See pp147-50

[523] Collins and Farmer (1868/1999) p449

[524] *The Times* Saturday Oct 3rd 1868 p4 col D 'The Moonstone'

[525] See entry 'Occult' Oxford English Dictionary http://www.oed.com/ accessed 18th August 2010

another, taking authenticity and meaning one from another. Such a network might include scientific ideas, material realities, fictional narratives, socially sanctioned typifications and more. There is no line between fact and fiction in terms of such networks.

One of the fictional 'realisms,' upon which Collins draws is a tradition of certain well-defined magical cues. Jennings, for example, seemingly materialises from nowhere at moments when the 'detective fever' loses its momentum. On three separate occasions he appears coincidentally, just at the moment he is needed.[526] This, of course is a fairy tale tradition, in the way, for example, of the fairy godmother. That the characters of fairytales have typical means of entering plots, I have already noted following Propp (1928).[527] The device is a way of priming the reader for the kind of character that they are going to meet with and Propp finds that the accidental encounter is the characteristic means of entry for the donor. The fairy godmother is just such a donor, whose part in the structure of the story is to provide the hero with "some agent (usually magical), which permits the eventual liquidation of misfortune."[528] Jennings too is a donor. The gift of knowledge that he offers absolves Blake from any guilt and is the trigger that allows the mystery of the missing stone to be laid to rest.

Moving seamlessly from such magical cues, Collins then follows through by drawing on 'real-world' processes in an unusually clear illustration of experimental science. So, although the man comes enchanted, his gift does not. Jennings' knowledge comes in the end through squarely based scientific, not magical, channels. The experiment itself seems improbable in its goal to induce the crime a second time. Nevertheless, Jennings shows himself to be a man who knows how to conduct an experiment, however improbable. First he has the flash of intuition that tells him that Blake's state on the night of the robbery combined with the opium draught could have triggered the theft. Next, he declares "We must put our conviction to

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[526] See Collins and Farmer (1868/1999) p390; p402; and 435
[527] See p114 of this work
[528] Propp (1928/1968) p39

the proof... Are you willing to try a bold experiment?"[529] Then, he contextualises his hypothesis for Blake within the "admitted principles, and recognised authorities..." of William Carpenter, professor of forensic medicine at University College London, Dr John Elliotson, the physiologist famous for supporting the use of mesmerism as anaesthetic, and George Combe, the inevitable phrenologist.[530] The effect for the reader is to ground the story in real-world science and with Blake convinced too, the pair set out to replicate the night of the robbery down to the last detail.

The character of Jennings, then, reaches into both the magical and the scientific spheres, invoking an overlapping heritage of realism of fact and fantasy. Hutter (1975) argues that Jennings "is the ultimate detective of the novel who succeeds precisely because he is able to see both the significance of the most trivial details and to allow his mind to wander past the boundaries of rational thought."[531] To what extent Jennings does wander beyond rational thought is actually not clear from the story, and it is probably from the invocation of mystery and magic that Hutter takes this impression. That said, his perspective on Jennings as the 'ultimate detective of the novel' holds up, especially when he is compared to Cuff. Cuff's assiduous data collection and prejudicial hypothesis is to Jennings' superior knowledge, flair for ideas and understanding of hypothesis testing, as a poor cousin is to a wealthy relative. In this regard Cuff's is very much the model of mundane reason as compared to Jennings' genius. The inequality between the pair serves only to emphasize the negative side of the cultural ambivalence toward the detective figure, that was evident in insinuations of 'extreme stupidity' and calls for 'speedy reform' which writers to *The Times* were moved to voice.[532] Collins' remedy is given in a method that was developed by scientists, mad, sad or otherwise.

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[529] Collins and Farmer (1868/1999) p457
[530] Ibid p458-59
[531] Hutter (1975) in Pykett (1998) p183
[532] Respectively, *The Times* May 17 1865 p13 col B 'How Not to Catch a Thief'; *The Times* Oct 29 1868 'London Burglars' p5 col D

As if to really emphasize the need for a scientific method of policing, or perhaps to critique its lack, Collins gives Cuff many of the external attributes, the typificatory details that signify science, or knowledge. Following the build up to his much vaunted arrival at the Verinder house, there then arrives a "grizzled, elderly man, so miserably lean" with a face "sharp as a hatchet"; skin "as yellow and dry as a withered autumn leaf"; and eyes that "had a very disconcerting trick...of looking as if they expected something more from you than you were aware of yourself. His walk was soft; his voice was melancholy; his long lanky fingers were hooked like claws. He might have been a parson, or an undertaker..."[533] This is Sergeant Cuff, clearly not what the house party expect, nor relish.

Likewise, Jennings is unforgettable by appearance alone, or worse than that Blake is moved to agree with Betteredge's summary that "speaking from popular point of view, [his look] was against him."[534] In other words his looks shocked. Jennings combines a youthful body and the face of a seventy year old. "His fleshless cheeks had fallen into deep hollows...His forehead rose high and straight from the brow. His marks and wrinkles were innumerable...[his] eyes, stranger still, of the softest brown – looked out at you, and...took your attention captive at their will"[535] and his black hair was emblazoned with shocks of pure white.

These two figures are built from similar materials, showing signs of depleted strength and a faded magic, yet retaining some spark of mesmeric power in the eyes. Wizened looks too, often come as a sign of accumulated knowledge, sometimes magical, sometimes natural. The fictional wizard, alchemist or indeed, 'old hag', are usually characterised as haggard, physically spent and advancing in years, sometimes prematurely.[536] In

[533] Collins and Farmer (1868/1999) p155
[534] Ibid p436
[535] Ibid p390
[536] GW Reynolds, for example, has a classic 'old hag' in the Vol 1 of the *Mysteries of London*. The old wise woman, benevolent or malevolent, was a stock figure of gothic

William Godwin's *St Leon*, for example, the powerful alchemist who holds the secret of the philosopher's stone is "feeble, emaciated and pale, his forehead full of wrinkles and his hair and beard as white as snow. Care was written in his face...yet his eye was still quick and lively, with a strong expression of suspiciousness and anxiety."[537]

The same complex of signifiers conjures Shelley's vision of the crazed, or 'used- up' scientist Victor Frankenstein, who had once been good-looking, but now whose cheek has "grown pale with study, and...[his] person...emaciated with confinement" owing to the "unremitting ardour" of his task.[538] Vestiges of such drained vitality recur again in GWM Reynolds' (1844) portrait of Mr Wentworth, who is "pale, but good-looking... [with] a somewhat melancholy expression of countenance. He was attired in deep black... his voice was mournful..."[539] The surgeon, like Cuff, is gloomy as an undertaker, pale from over-work and good looking as Frankenstein once was. A similar refrain again arises in Braddon's (1861) drawing of her magician-scientist, Laurent Blurroset, who is another "pale, thin studious-looking man..."[540]

This is the aesthetic of the knowledge-seeker, scientist or magician. The pinnacle of which, must be Collins' Dr Benjula, the vivisectionist of *Heart and Science* (1883). Benjula "was so miserably...thin that his enemies spoke of him as 'the living skeleton'. His massive forehead, his great gloomy gray eyes, his protuberant cheekbones, overhung a fleshless lower face... His complexion...was a true gipsy-brown, and being darker in tone than his eye, added remarkably to the weird look, the dismal thoughtful scrutiny, which it was his habit to fix on persons talking to him...His straight black hair hung...either side of his hollow face. His great dusky

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fiction: see Punter (1996) p142. These kinds of character, male or female, would also have been familiar to many readers from their own life experience, as example of 'cunning folk' who ministered folk medicine, sold love potions, retrieved lost belongings and captured thieves: see Davies (2003); also Weart (1988) for a brief discussion of the fictional scientist as sorcerer or alchemist

[537] Godwin and Brewer (1799/2006) p155

[538] Shelley et al (1818/1994) p85

[539] Reynolds (1846a) p247 (col b)

[540] Braddon and Willis (1860/2003) p275

hands... showed amber-coloured nails...he could handle the frailest objects with exquisite delicacy..."[541] Such exaggerated iconography appears to extend the potency of the message turning this knowledge seeker into a veritable genius, and by dint of that, exploding his villainy to melodramatic proportions.[542]

The point here is that all these characters, bar one, are scientists of some kind. Only Cuff is not. The detective, then, has taken on the façade of the scientist, knowledge-seeker and magician. Cuff's reputation *and* his image belie his abilities. By the end of the century, Conan Doyle's apotheosis of scientific detection will follow through with method as well. Like Cuff, Holmes looks like a scientist, as Watson recounts, "In height he was rather over six feet, and so excessively lean that he seemed considerably taller. His eyes were sharp and piercing...his thin hawk-like nose gave his whole expression an air of alertness and decision. His hands invariably blotted with ink and stained with chemicals, yet he was possessed with extraordinary delicacy of touch, as I frequently had occasion to observe when I watched him manipulating his fragile philosophical instruments."[543]

Naturally, not all detectives were or are drawn from the typified parts of scientists as are Cuff or Holmes. In the 19th century some were derived from the picaresque tradition, and there were a host of more prosaic types, like Braddons' Mr Peters, along with a number of women who appeared in cheap 'yellowback' novels from the 1860's onwards.[544] The scientific face of the detective is one among a number of public faces, which in a manner imbricate fictional and factional influences forming a frustratingly slippery complex that at times appears to run in contradictory directions. That said, it is significant that the only two of these 19th-century detective faces have remained popular in the 20th and 21st centuries. They are Collin's Sergeant Cuff and in much larger measure, Sherlock Holmes, who has just been

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[541] Collins (1883/1990) p61
[542] See pp166-171 of this work for a discussion of the way genius appears to amplify the iniquity of the villain.
[543] Conan Doyle (1887/1981) *A Study in Scarlet* p18
[544] See Knight (2004) pp33-48 for a survey of 1860's detective fictions.

given a new Hollywood treatment in a feature film bearing his name and a 21st-century gloss in a new UK television serial also bearing his name.[545]

The continued currency of *The Moonstone* places the novel as pivotal in a formative period of construction of the iconic detective image that would, like *Frankenstein*, turn into a modern myth.[546] Collins' development of a naturalistic narrative encourages him to create a detective whose expertise lies in the investigation of natural knowledge, or in science. Such a move is really an elaboration upon the ideal of scientific policing. Yet, to achieve this Collins, is borrowing from other traditions of representation, to fill in, or add to, a 'half-formed' detective image, as it were, he uses the typified emblems of the scientist. This is a powerful move indeed, since Cuff, the detective, now resonates with the archetype of the knowledge-seeker, scientist or magician, and such icons symbolise, what Gieryn (1995) has described as "an enduring cartographic classification of the cultural territories that people use to make sense out of the world about them."[547] This amounts to a shift in perception of the boundaries of the detective – s/he is now a scientist, or in Collins' narrative, he *should* be a scientist.

Such a shift in perception is reminiscent of the process that Shortt (1983) describes in relation to the medical men of the 1840's, undoubtedly also the process of which Reynolds' (1844-46) *Mysteries* was a part. In his belief it is unlikely that the reformed medical profession of this decade widely benefited their patients with any greater material cures. Yet, under the semblance "of an objective explanation of natural phenomena, science became a code-word for a methodology, a designation for specialized expertise, and a vehicle for social mobility" that was particularly valued by the middle classes.[548] Just as the physicians of the 1840's earned legitimacy by assimilating the rhetoric of science, so detectives effectively constructed

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[545] *Sherlock Holmes* (December 2009) directed by Guy Ritchie A Warner Brothers Film; *Sherlock* (Summer 2010) BBC Television Drama Series consisting of three 90-minute films first broadcast 25th July, 1st August and 8th August 2010 on UK terrestrial television

[546] Conan Doyle's debt to Wilkie Collins (1868) *The Moonstone* is broadly accepted, see Farmer (1999) in Collins and Farmer (1868/1999) p16

[547] Gieryn (1995) p415

[548] Shortt (1983) p64

a depoliticised, scientific image, which carried greater legitimacy owing to its scientific gloss, particularly in relation to the dangerous image of the Continental spies. The language of science, according to Shortt " had entered the substratum of nineteenth-century British thought at a level quite divorced from its practical achievements."[549] This is Collins' subtext and it is perhaps even more apposite to the detective police than it was to the reform doctor.

There is no question that the advent of the fictional scientific detective is grist to the mill in the activity of maintaining the people's desire for crime fighters, if only by virtue of keeping the ideas of 'crime' and 'fighters' current in the popular mind. So, it is, for science too. That said, in Collins' detective-scientist collaboration, the police detective falls short of the scientist, and later in Conan Doyle's work, the professional policeman is a dull automaton compared to the brilliant amateur. In other words, the really clever work is not always carried out by the established authorities, in fact, it is often a means of showing up their inadequacy. That said, in overall terms, the image is potent enough to bathe all crime fighters in some of its reflected glow and in the 20th and 21st centuries science has made a stronger relationship with the officialdom of crime fighting.[550] In this case, then, Collins unwittingly created an image, which in his own 'fully formed picture' symbolised the failure of real world police in the 1860's. Yet, in doing so, he launches an icon so powerful that it is reiterated for nigh on a century and a half in celebration of the crime fighter, official or not. Taking into account the importance of image to the development and maintenance of professional status, such a turnaround reflects Golinski's warning that professionalization might be best viewed as "the unintended outcome of the interaction of uncoordinated, even conflicting, forces."[551] A factor that is just as true for the scientific professions whose work hitches a restorative ride with the mythic, all knowing detective.

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[549] Ibid p63

[550] For example in the UK are television dramas *Silent Witness*, *Waking the Dead* and *Cracker* and from America *CSI*, *Criminal Minds* and *Quincy*, featuring crime fighting pathologists, psychologists and assorted forensic scientists

[551] Golinski (1998) p69

Since the 1860's, conspicuous and rewarding relationships have persisted between fictional detectives, scientific methods and scientists. I will now move on to explore a situation in which this partnership, which is so successful in fighting crime, reaches the limits of its plausibility in stories that pit reason against supernatural transgressors. The occult detective who applies science or reason to ghostly phenomena is an ephemeral figure who has not stood the test of time in the way that criminal detectives have. The most sophisticated example of this figure is Sheridan Le Fanu's (1872) Dr Hesselius, who appears in a volume of short stories entitled *In a Glass Darkly* that also includes a vampire story. In the next chapter I will examine the experiment to bring reason to bear on the supernatural and ask why the sole surviving icon from this period is the vampire hunter – a modern myth in its own right.

CHAPTER SEVEN

MAGICAL DETECTION OR DETECTING MAGIC

J Sheridan Le Fanu (1872) *In a Glass Darkly* – Bram Stoker (1897) *Dracula*

The focus of the previous two chapters has been on texts in which the official institutions designed to carry out crime prevention and detection fail. Mary Braddons' (1861) heroes, Mr Peters and Monsieur Blurosset, both work outside official professional bodies of the law, though both have considerable rational and magical expertise. Together they outperform the state-sanctioned institutions from courts, to police force and house of detention. Likewise, Wilkie Collins' (1868) professional policeman, Sergeant Cuff, fails, and the crime is only solvable with the help of the maverick outsider, Ezra Jennings. Although these stories demonstrate failure of state sanctioned professional channels, they do uphold GWM Reynolds' (1844-46) vision of the value and efficacy of the scientific method. In both novels models of reason are apportioned out such that the detective gets the larger share of the drudgery of data gathering, while the scientists demonstrate magical leaps of intuitive thought that ultimately turn their respective investigations around.

J Sheridan Le Fanu's *In a Glass Darkly* (1872) returns to a similar landscape of themes raised by gothic fiction, which opposed magic, in association with Satan, and reason, with virtue. In 1872, morality goes unassumed and the polarity is softened such that Le Fanu creates the feel of two systems of thought meandering side-by-side, occasionally intersecting to create a confusion of potentialities. Reason is the province of a scientific investigator, a metaphysical doctor, who gives glimpses of Holmes-styled razzle-dazzle logic, and appearing as he does some fifteen years before Holmes, shows that a cliché of an all-knowing detective was already well worked. Certainly, there is no evidence of data-gathering in this portrait and Le Fanu's investigator conforms to the magical model of reason, both literally and metaphorically.

Yet, in Le Fanu's short story 'Green Tea,' unlike Braddon's and Collins' narratives, both the professional expertise *and* scientific approach fail. Oddly enough just as Collins created a fiction, which constituted a critical perspective on professional potentialities in his own time and ended as laudatory myth decades later – so Le Fanu's work has met with a similar fate. As Sherlock Holmes is to Collin's Sergeant Cuff, so Bram Stoker's vampire slayer, Professor Van Helsing is to Le Fanu's Dr Hesselius, a factor that adds to the significance of Le Fanu's work.[552]

Le Fanu's volume comprises five stories, although it is really only the first three, and particularly the first of those, which will form the focus for this chapter along with the framing narrative. The five stories are 'Green Tea'; 'The Familiar'; 'Mr Justice Harbottle'; 'The Room at the Dragon Valont'; and 'Carmilla.' They claim their origin from amongst the papers of a deceased, fictional scientist and physician, Dr Martin Hesselius, and are edited and introduced by his secretary who frames each story with its own prologue and epilogue. The first three stories of the collection are rare examples of Tzvetan Todorov's (1975) genre, 'the fantastic' in that supernatural events are strongly suggested, yet each tale also hints that events may have natural provenance. The fourth story is a crime mystery that falls entirely within the natural realm and the fifth is a vampire tale and entirely supernatural.

I will begin by exploring how Le Fanu builds Hesselius as a professional, by his emphatic separation of expert from lay discourses, which cut across the whole volume of stories. *In a Glass Darkly* rather drives home the point that professional expertise cannot solve every problem. What emerges is a kind of distant professional wizardry, emphasized by Le Fanu's artful imitation of professional and lay voices, which anticipate a flavour of the 'contingent and empiricist' repertoires that were described by Gilbert and

[552] Farmer (1999) in Collins and Farmer (1868/1999) p16 and Hodgson (1994) p111 in Conan-Doyle and Hodgson (1994); for Le Fanu's influence on Stoker see Skal (2001) p103; Byrne (1973) p92; and Tracy (1993) pxxi in Le Fanu and Tracy (1872/1993)

Mulkay (1984) as a means for scientists to negotiate authority. Indeed, Le Fanu skilfully imitates a kind of professional pomposity that ultimately is laughably impotent. In this respect, he dismantles the facade of professional potency that Reynolds so avidly recommended. Nevertheless, a professional of any kind is likely to be hampered in a fantastic setting, since the genre is defined by its lack of resolution. It maintains the potential for real and imaginary so that the reader is left hanging between the two, unable to come down on either side. This idea moves me on to a discussion of the late 19th-century fantastic culture, and its attempt to divide real from imaginary, science from non-science, natural from supernatural.

Finally I examine the late 19th-century experiment that followed from Le Fanu's example, but more straight-forwardly attempted an investigation of the supernatural by natural means. I demonstrate that the central conflict between the scientific cause-and-effect narratives and the ghost story is a clash of time schedules, which effectively means that the two systems simply talk past one another. Last I will go on to raise the spectre of the modern myth that arises from this experimental fusion of science and supernatural and explore why the vampire hunter was, and still is, a plausible story, when other occult detectives did not stand the test of time.

PROFESSIONALS THROUGH A GLASS DARKLY

Expert Frames for Lay Narratives

Dr Hesselius' presence in *In a Glass Darkly* is confined to the framing device that links the stories through prologue and epilogue, apart from in 'Green Tea' where he does take a part in the story. The effect is of a literal, textual distance between the metaphysical scientist and his object, a factor that serves to highlight his seeming 'objectivity.' In the preamble to each story Hesselius' secretary makes great play of the physician's expertise, which is superior and more complex to any general knowledge that the reader may bring to the text. In the prologue to the first story, he is at pains to point out that Hesselius himself "writes in two distinct characters. He describes what he saw and heard as an intelligent layman might, and...he

returns upon the narrative, and in the terms of his art, and with all the force and originality of genius, proceeds to the work of analysis, diagnosis and illustration."[553] In the event of the actual stories, Hesselius' secretary avers over and again that 'the genius' of 'analysis, diagnosis and illustration' is, in the main, withheld from the 'unlearned reader.'[554]

Such a tone of pomposity pervades the linking frame of the whole volume, which is scattered with phrases that apologise, for example, for "this irregular form of publication..."[555] or the "medically imperfect..." statement to which the doctor has added "a great deal which is of interest only to a scientific physician..."[556] and "[t]he strictly scientific view of the case would scarcely interest the popular reader..."[557] Since the volume is "...simply to interest the 'laity'..." he refrains from a "...précis of the learned Doctor's reasoning..." which involves "...some of the profoundest arcana of our dual existence, and its intermediates.'"[558] Here is a near parody of the professional who guards his knowledge in order that it appear all the more alluring. It is reminiscent of John Baptista Porta's (1658) instruction to keep methods secret and in so doing create wonder and appreciation in the audience.[559]

The effect of so accentuating the gap between professional and lay discourses creates the illusion of a mysterious, expert culture that is alien and off bounds to a lay-person. In one sense, Le Fanu is reaching into the kind of scientific authority, which Shortt (1983) so well described as "a code-word for a methodology, a designation for specialized expertise..."[560] Yet, the cases have been selected, we are told, from Hesselius' "immense collection of papers" on the criterion that they may "amuse or horrify the

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[553] Le Fanu and Tracy (1872/1993) p5-6
[554] In fact, in 'Green Tea' some technical detail is given despite the editor's affirmation that he "reserves all that borders on the technical for a strictly scientific paper..." Le Fanu and Tracy (1872/1993) p6 and p8
[555] Prologue to 'The Room at the Dragon Valont' Le Fanu and Tracy (1872/1993) p119
[556] Prologue to 'The Familiar' Le Fanu and Tracy (1872/1992) p41-42
[557] Prologue to 'Mr Justice Harbottle' Le Fanu and Tracy (1872/1993) p84
[558] Prologue to 'Carmilla' Le Fanu and Tracy (1872/1993) p243
[559] See p64 of this work for citation of Porta (1658)
[560] Shortt (1983) p64

lay reader..."[561] The job of professional scientific discourse was precisely to avoid creating any such affect in the reader, and instead to present an 'objective', unemotional account of proceedings in technical, though plain, language. In contrast, the aim of amusing and horrifying the reader is very much a characteristic of the gothic narrative.

The combination of gothic and medical discourses here raises again the spectre of the 18th-century appetite for sensational or miraculous medical case histories given by the term 'curious', which were engaged by Samuel Warren in his *Passages from the Diary of a Late Physician* (1830-1837). Elsewhere I have discussed the observations made by Meegan Kennedy (2004) of a medical reform agenda, beginning in the 1830's, which aimed to outlaw the flavour of 'curious' that pervaded clinical discourse, professional and otherwise.[562] As Kennedy (2004) well demonstrates, Warren's *Passages* were a good example of the type of carnivalesque narrative that reform medics were keen to banish from the professional arena. Le Fanu, whose content is, if anything more gothic than Warren's, with a stronger accent on the supernatural, emphatically situates professional discourse as outside of, or other to, the gothic, in a way that Warren did not.

Nevertheless a review appearing in the *Athenaeum* shortly after publication of *In a Glass Darkly* does see a connection with Samuel Warren.

> Considerable skill is displayed in the mechanism by which the series of wonders is connected, purporting, as it does, to be a selection from the case-book of one Dr. Hesselius, a German professor of 'metaphysical medicine'...A certain verisimilitude is given to the most extravagant flights of fancy by this method, which resembles, perhaps, the successful machinery which Mr. Warren employed in 'The Diary of a Late Physician' more closely than do numerous subsequent parodies of that now celebrated book.[563]

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[561] Le Fanu and Tracy (1872/1993) p5 and p6
[562] See pp128-134 of this study
[563] 'Novels of the Week' *The Athenaeum* July 6 1872 p13

The link to a network of realist discourses, the same 'verisimilitude' to which this reviewer refers, is neatly described by Kennedy (2004) as a 'fiction of factuality.' She argues that, by such a technique, Warren's *Passages* raised anxieties in the medical community by co-opting the structure of the professional case history for the purposes of imitating factuality. In so doing, Warren "jeopardized the rhetorical authority of other medical texts seeking to claim cultural status as professional, serious, and true."[564] Warren's cases were ostensibly written by the hand of the doctor as any case history at the time would be. Through his complex framing device, however, Le Fanu allows the reader only glimpses of a professional discourse, while the central lay narratives are 'other' to it, just as the review acknowledges with its reference to 'flights of fancy' and 'parodies' of Warren. Aside from the physical separation of the discourses, Le Fanu accentuates the distinction between the two with a skilful imitation of profession versus lay voice.

As Hesselius, Le Fanu adopts a clipped style of language, emotionally detached and peppered with technicalities. For example, "the cerebral circulation undergoes periodically that vibratory disturbance, which, I believe, I have satisfactorily examined and demonstrated, in my MS essay A.17. This vibratory disturbance differs, as I there prove, from the congestive disturbance...examined in A. 19." A body of research is invoked by the numbered references and the verbs too - examine, demonstrate and prove – are verbs of science. A few sentences later, the tale begins for real, and the voice of 'Rev. Thomas Herbert' starts off, "I was a young man at the time, and intimately acquainted with some of the actors in this strange tale; the impression which its incidents made on me, therefore, were deep, and lasting." [565] Immediately, in the first sentence of the story proper, the tone has switched to a personally affective account. This signals a change of genre from the professional to the lay, and a shift in mood from clinical observation and dusty library stacks to home fireside.

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[564] Kennedy (2004) p329 and p333 respectively

[565] Hesselius' voice is from the prologue of 'The Familiar' and the voice of the clergyman from the story itself, Le Fanu and Tracy (1872/1993) p42

The two voices that Le Fanu so deftly imitates here broadly anticipate what Nigel Gilbert and Michael Mulkay (1984) have labelled as 'empiricist and contingent repertoires' from their study showing that scientists use alternative interpretative strategies in the face of controversy. The repertoire refers to distinctive patterns of language, such that in an empiricist frame "speakers depict their actions and beliefs as a neutral medium through which empirical phenomena make themselves evident...professional actions and scientific views [are] seen as inevitable, given the realities of the natural world under study." In the contingent repertoire on the other hand, "actions are no longer depicted as generic responses to the realities of the natural world, but as the activities and judgements of specific individuals acting on the basis of personal inclinations..."[566]

I do not wish to push this analogy too far, since the original example of the empiricist repertoire comes via the passive voice, third person accounts, which almost entirely remove the human factor from 20th-century professional scientific papers. Clearly, Le Fanu's Dr Hesselius has not reached such heights. Yet, the essence of the contrast that the empiricist repertoire is built around material facts, while the contingent one is built around personal human experience is evident between Le Fanu's professional voice, and the personal voice of the stories themselves.[567]

Expert Failure

Having belaboured the division between lay and professional discourses and exalted the expert beyond anything to which any ordinary person may aspire, Le Fanu immediately tears down the edifice. The only story in

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[566] Gilbert and Mulkay (1984) pp56-57

[567] Gilbert and Mulkay (1984) cite the work of Melvin Pollner to suggest that such interpretive strategies used by scientists might echo a much more widely used everyday strategy. Simon Locke (1999) refers in more depth to the same work in discussion of 'golem science' and public understanding. The fact that Le Fanu is imitating similarly divergent strategies in 1872 suggests that they may indeed have a wider, everyday incidence

which Dr Hesselius takes a part is the first of the volume and here he falls so far short of his function that he is worse than useless. Indeed Thomas Loe (1998) describes the first tale 'Green Tea' in terms of its 'strange modernism' because it appears to raise authority, only to resist it.[568] As a general point, this is so, and fits well with some of the developments in contemporary cultures at the time, to which I shall return. First, I want to draw attention to the same dichotomy as was highlighted by Le Fanu's alternating voices, and suggest that *In a Glass Darkly* generally draws a landscape in which the gap between professional and personal has opened up to such an extent that success in one arena almost inevitably means failure in the other.

'Green Tea,' sets out as if it were a detective story. Hesselius and reader alike are presented with the enigma of a mild mannered, charitable priest who has an odd secret. Mr Jennings is "always tolerably well...[but] when he goes down to Warwickshire, to engage in actual duties of his sacred calling, his health soon fails him, and in a very strange way."[569] And so, begins the mystery of the haunted clergyman. Hesselius is at first depicted as every bit the all-knowing, razor sharp detective-cum-doctor. Doctor and vicar meet at a party thrown by Lady Mary Heyduke, and when drawn by the mystery of the vicar, Hesselius scrutinises him with "more minuteness than the ordinary practitioner" and finds in him the "likelihood of rewarding inquiry."[570]

Immediately, Jennings is turned 'investigated' to Hesselius 'investigator,' a factor that makes their relationship manifestly more evocative of detective and suspect than of doctor and patient. The language, too, is couched in terms of suspicion and guilt rather than diagnosis and disease. So, it is "in the agitation of a strange shame and horror" that Jennings sometimes falls ill in the midst of his ministerial duties.[571] There is an element of furtiveness

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[568] Thomas Loe (1998) "The Strange Modernism of Le Fanu's "*'Green Tea'*" in Stewart (ed) (1998) pp293-306
[569] Le Fanu and Tracy (1872/1993) p7
[570] Ibid p8
[571] Ibid p7 (my emphasis)

about him, as a man "...whose transactions and alarms were carefully concealed with an impenetrable reserve..." Yet he is no match for the doctor who "...penetrated his thoughts without him being aware of it, and was careful to say nothing which could betray...[his] suspicions.."[572] Last, on finding that the priest shares his interest in 'metaphysical medicine' Hesselius probes the point, and Jennings turns guilty suspect: "He dropped his eyes, and folded his hands together uneasily, and looked oddly, and you would have said, guiltily for a moment."[573]

Armoured with his observations of the 'suspect-patient', Hesselius indulges in a display of veritable Holmes-styled 'deductive' logic for Lady Mary, a long-time friend of Jennings. He dazzles her with his inexplicable knowledge. Jennings is a bachelor who has given up writing on a topic of an esoteric nature; he drank a good deal of green tea; and one of his parents once saw a ghost. Lady Mary, confirms him to be correct on all counts, is incredulous and declares the doctor to be quite the 'conjurer'. He ends this little routine with the affirmation that "I have already conceived a theory about him...I should like much to ascertain from his own lips."[574] So far so good, Dr Hesselius makes an impactful start. What follows is a long interview between Jennings and Hesselius, in which the debilitated clergyman 'confesses' his case history. He is the victim of a haunting that takes the form of a malevolent monkey, which has taken greater and greater hold on his life. Yet, the whole story and circumstance of the haunting is ultimately surplus to Hesselius' requirements because his final assessment of the case is based almost entirely on the key 'deductions' he showed off to Lady Mary, with a little Swedenborgian philosophy thrown in.[575]

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[572] Ibid p9
[573] Ibid p10
[574] Ibid p12
[575] Hesselius is a medic with an interest in 'metaphysical medicine' and in this respect owes a debt to the Swedish scientist cum Christian mystic, Emanuel Swedenborg (1688-1772). His notions of spirituality are beyond the scope of this piece, except to say that fundamental to Swedenborg was the idea that life exists on dual planes of existence, the spiritual and the physical.

In theory a 'metaphysician' is the right expert for the job, perhaps more able than most to deal in both physical and spiritual matters. Indeed, 'Green Tea' ends on a long explanation of how nervous fluids, being 'spiritual' fluids, connect body and soul. Yet, Hesselius' doctoring function proves to be ineffectual to say the least. Thomas Loe (1998), along with Richard Haslam (1998), both make note of the fact that at the very moment when Hesselius is most needed by the beleaguered priest, he is unattainable, having taken leave of his usual lodgings so as not to be disturbed whilst deliberating the case.[576] Yet Hesselius already has a theory worked out as he tells Lady Mary, add to which Jennings has recently made a suicide attempt on the apparent recommendation of the monkey. Unaccountably, at this moment Hesselius leaves the poor clergyman alone after insisting, "should the monkey return, I should be sent for immediately."[577] On that note the doctor cloisters himself away where he cannot be reached at all, with the result that Jennings' desperate pleas for help go unheard and the next day Hesselius finds his 'patient' dead, his throat cut by his own hand.

Loe (1998) quite rightly interprets Hesselius' failure as expressing ambivalence toward the doctor's method of knowing – science – which, on the one hand, promised new and rational explanations of mysterious phenomena and, on the other, challenged old systems of belief. The result is some strange middle ground where neither science nor belief can find firm footing. In the event, it is not just science that is destabilised, rather it is the broader, though related category, of 'the professional,' that has fallen short of the mark. In Mary Braddon's (1861) and Wilkie Collins' (1868) novels, professional police detectives fail because they have neither competency of reason nor of scientific know-how to successfully unravel the mystery.[578] Yet, Hesselius' failure is apparently not at the level of specialist competency, since he has the case pretty much sewn up from the start. He fails at the personal and commonsense level. It does not take scientific or

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[576] Haslam (1998) "Le Fanu and the Fantastic of Ghost-Colonial Ireland" in Stewart (ed) (1998) pp267-286 and Loe (1998) "The Strange Modernism of Le Fanu's "*'Green Tea*"" in Stewart (ed) (1998) pp293-306

[577] Le Fanu and Tracy (1872/1993) p33

[578] See pp135-204 of this work for discussion of these characters

professional expertise to understand the risk of leaving a suicidal, haunted and distressed man to spend the night alone with no way of contacting the help he needs.

Le Fanu is masterful in demonstrating Hesselius' guilt-ridden pontification after the death, which is well described by Haslam (1998) as a "pompous, self-exculpatory denial of responsibility."[579] It also amounts to an over-specification of causative agents in Jennings' demise. The case, we are given to believe is "the process of a poison" in which Mr Jennings has disrupted the equilibrium of 'spiritual' or 'nervous fluid' by taking too much green tea; he is anyway subject to "hereditary suicidal mania" and on top of that he did not place "full and unreserved confidence" in Hesselius, who ends the story, "[i]f the patient do [sic] not array himself on the side of the disease, his cure is certain."[580] So Hesselius' final act in this case is to apportion blame to the patient.[581]

In drawing a scientific professional who has the 'force and originality of genius,' Le Fanu is reaching into the whole tangle of related ideas that I have already explored, which interprets genius as conferring an extraordinary and potentially isolating persona on the bearer.[582] Isolation suggests the loss of the ability to forge social connections, or more significantly to empathise, which, of course, is a feature that seems well demonstrated by Hesselius' lack of human connection to the hard-pressed Mr Jennings.[583] So, although the effect of 'Green Tea' is as Loe (1998) describes it, to undermine an overly positivist position, it equally suggests that a narrowly professional role is simply not enough if society is to

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[579] Haslam (1998) "Le Fanu and the Fantastic of Ghost-Colonial Ireland" in Stewart (ed) (1998) p272

[580] Le Fanu and Tracy (1872/19993) p37 (poison quote) and all others p40

[581] That the idea of disease as moral miasma was still current at this time is evidenced by the continued popularity of Samuel Warren's *Passages from the Diary of a Late Physician* (1830) which has a distinctly moral tone and though it was strongly contested by professionals, it still had considerable popular currency

[582] Le Fanu and Tracy (1872/1993) p5-6

[583] That said, the genius and isolation that mark out Wilkie Collins' (1868) scientist, Ezra Jennings, do not preclude the capacity for empathy – see p193-98 of this work. For a discussion of the unempathic lone genius, see p142 and pp166-71

harness the benefits of science. Or in the simplest of terms, if professionals are not humane first, then dire consequences may follow.

Indeed, the first three stories of *In a Glass Darkly* feature professionals of Church, Navy and Law and each is haunted by some mirage that seems to relate to guilt over some personal failure or other. Mr Jennings the clergyman is the mildest of the three - aside from Hesselius' profusion of potential causes, there are also hints that Jennings' haunting has origins in some of his own arcane and unchristian research.[584] In 'The Familiar', Captain Barton is haunted by a miniature of the man whom he has wronged in the Navy, and Mr Justice Harbottle, in the story of the same name, is haunted by a mirage of his own judicial cruelty. In this respect, these stories reinvigorate traditional themes that replay old scripts about the wronged returning but they all introduce the idea that guilt is a causative agent.[585] 'The Familiar' ends on a question about Barton's state of mind: "It seems...more than probable that they [ghost and guilt] were at least, in his own mind, closely associated."[586] Harbottle is found hanged following surreal accounts of a ghostly court and a terrifying spectral gibbet, yet "there is medical evidence to show that, in his atrabilious state, it was quite on the cards that he might have made away with himself."[587]

Such caveats create a kind of uneasy equivocation placing the reader on uncertain ground. All three stories force the issue - ghost or guilty conscience? Loe (1998) describes the effect as a decentring of authority. True, this is the overall effect, but it comes via the personal failings of these four (Hesselius included) high-ranking professionals, who have in common some inability to access the most basic elements of human conscience. Each one has some lack in their capacity for empathy or for personal

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[584] Jennings begins his case history with reference to his own exhaustive research on pagan religions, which he had become involved with but admits it was "not good for the mind – the Christian mind, I mean. Paganism is all bound together in essential unity, and, with evil sympathy...and the subject is a degrading fascination and the nemesis sure. God forgive me!" Le Fanu and Tracy (1872/1993) p21

[585] See Davies (2007) p5 for examples of ghosts who return to seek revenge and the credulity of systems of law on such matters.

[586] Le Fanu and Tracy (1872/1993) p82

[587] Ibid p117. An atrabilious state is melancholic

restraint – the two most important sources of Adam Smith's (1759) moral sentiment.[588]

Thomas Loe's (1998) observations of Le Fanu's propensity to oppose different versions of reality in 'Green Tea' does more than raise questions about the merits of the professional, scientific or lay spheres. It also raises questions about the natural-supernatural boundary. In her study of supernatural fiction, Julia Briggs (1977) quotes a letter sent from Le Fanu to his English publisher, George Bentley, stating his intention to produce a narrative which hovers in "equilibrium between the natural and supernatural, the supernatural phenomena being explained on natural theories – and people left to choose which solution they please."[589] The first three tales of *In a Glass Darkly* achieve exactly such an outcome, a factor that makes it possible to take Hesselius as charlatan, wizard or creditable scientist, or all three. Although in this period, the science was creditable and certainly some contemporary reviewers took it absolutely seriously.[590]

That aside, Briggs describes these stories as "poised between demanding our total assent to a traditional supernatural world, and on the other hand exposing such experiences to the detached and curious judgement of an impartial investigator."[591] If the act of exposing such experience to an 'impartial investigator' is aimed at pinning down either supernatural or natural causation, however, then the investigator is set up to fail because the point is that the reader resolve the cause for themselves. Le Fanu skilfully manipulates the situation in 'Green Tea' so that Hesselius' professional expertise is protected, since his verdict proposes multiple erudite causes to explain Mr Jennings' 'illness'. The failure, as I have already argued, is in

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[588] For example, "..to feel much for others and little for ourselves, that to restrain our selfish, and to indulge our benevolent affections, constitutes the perfection of human nature." Smith (1759/2009) Loc 416-17

[589] Le Fanu quoted in Briggs (1977) p49

[590] An *Athenaeum* review remarks on the plausibility of science in, 'Novels of the Week' *The Athenaeum* July 6 1872 p13. And a review in *The Graphic* takes the science so seriously as to spend more than half the space in a pedantic critique of the consistency of Dr Hesselius' theoretical reasoning across the volume, see "New Novels" *The Graphic* Aug 3 1972

[591] Briggs (1977) p51

his personal inability to meet the needs of a fellow human. The point here is to simply to say that the genre, which itself avoids resolution, does not automatically undermine professional investigative procedure, even though this may at first seem to be the case.

As a whole, *In a Glass Darkly* with its emphatic separation of expert and lay discourse, its distinction between professional and personal voices, and the personal failings of its professionals raises the question of whether technical mastery, in the broadest possible sense, reduces our ability to live humane and fulfilling lives.

GHOSTS IN A FANTASTIC CULTURE

Tzvetan Todorov (1975) described the genre demonstrated by Le Fanu's equivocation between natural and supernatural as the 'Fantastic.' He poses the dichotomy perfectly, either the devil is an imaginary being, or else he really exists (though rarely encountered). The moment of indecision, of unknowing, is how Todorov defines the fantastic, which "occupies the duration of this uncertainty. Once we choose one answer or the other, we leave the fantastic for a neighbouring genre, the uncanny or the marvellous."[592] Le Fanu's first three stories are wholly situated in this middle ground, whereas novels, such as Radcliffe's gothic can contain elements of the fantastic, but then resolve them, as does Radcliffe in her own rationalist terms, the text eventually reverting to the natural (uncanny) domain.[593]

Few narratives, in fact, conform to the fantastic in their totality, largely because the genre forces the reader to interrogate the line between real and imaginary – does the devil exist or not? Is Mr Justice Harbottle haunted by a ghost or does he imagine it? In order to be hesitant in the face of these

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[592] Todorov (1975) p25. The uncanny, here refers to disturbing, mystifying or frightening stories of natural causation (many crime novels or thrillers, for example), and the marvellous is the same though rooted in supernatural causation

[593] See p79 of this study for a discussion of Radcliffe's explained supernatural. And Todorov (1975) p41

questions, the reader must accept the possibility that both statements could be correct and knowable. Chris Morash (1998), to whose definition of the supernatural genre I will return, points toward the difficulty that the defining features of the fantastic in Todorov's terms arise not from the text themselves, but from the reader's response to the text. A person who does not believe in the possibility of a supernatural realm cannot experience the fantastic, except by suspension of their own belief, in which case, the moment of hesitation loses much, or all, of its power. Morash makes exactly this point in another way: "that element of hesitation which constitutes the fantastic will vary from reader to reader...so that the real object of study in Todorov's argument turns out to be not the genre of the supernatural literature *per se*, but the belief systems of its readers."[594]

In fact, Todorov does acknowledge this element of reader response, if only by sideways glance at the short lifespan of the genre. The fantastic only appears between the late 18th and the early 20th century, unlike the full-blown supernatural tale that has always existed and still does. One reason for this stems firstly from the fact that "[i]t is the category of the real which has furnished a basis for our definition of the fantastic."[595] Is the malevolent monkey that haunts Mr Jennings real or unreal? For a reader to hesitate on this question, s/he must believe that s/he can know the answer *and* that both options are equally possible. What is relevant here is Todorov's argument that the fantastic relies upon a belief in an 'immutable, external reality' that can be captured by literature and provide a common basis against which to measure the imaginary.[596] Such an idea is what leads him to suggest that "the literature of the fantastic is nothing but the bad conscience of this [19th-century] positivist era."[597]

Supernatural entities can be read as manifestations of metaphysical powers of a kind that positivism might deny, or as the forces of an obscure natural

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[594] Morash in Stewart (1998) (ed) p129
[595] Todorov (1975) p167
[596] By 'immutable' here, I believe Todorov to be referring to a 'single' reality, rather than reality that is immutable over time
[597] Todorov (1975) p168

dimension which was beyond the current limits of positivist enquiry. What this boils down to is another version of Todorov's question about the supernatural – is it real and metaphysical or unreal and natural. These kinds of questions were not simply the province of popular fictions. They pervaded the last third or more of 19th-century English culture in different ways and at all levels. Science and supernatural were juxtaposed in a way that echoes Todorov's assertion that underlying the existence of the fantastic was a belief that there was a single reality that could be measured and reproduced in a text. Indeed, in the last third of the 19th century, or more, there seems to have been a surge of interest in resolving the dichotomy of *either* real *or* unreal, along with a whole creative profusion of ways to address the issue, and a belief that the enterprise could bear fruit.

In literary and preliterary cultures, the supernatural is ubiquitous, and probably because of this, it has proven a slippery focus for academic scrutiny, lending itself on the whole to psychoanalytic and formal readings that emphasize constant, rather than contextual interpretations.[598] Nevertheless the ever-abiding prevalence of human-ghost relations speaks of their cultural import and, as such, the ways in which science is allied with, or opposed to, the spirit world is a very compelling topic. Indeed, social historian of the supernatural, Owen Davies (2007) stresses the cultural significance of ghosts on the basis that they "flitted through some of the most profound developments in intellectual thought over the last 500 years...to discover how they were conceived in the past is to understand how society itself changed."[599]

His own study on the history of haunting reveals that a wholehearted, though always contested, belief in ghosts has persisted through Reformation

[598] For a psychological or psychoanalytic reading see: Briggs (1977); Stoddart (1991); Scarborough (1917) or Todorov (1975) on genre and formal readings. It is important for my approach to take into account that, as Punter (1996) citing Birkhead points out, although the supernatural was largely absent from the early 18th century novel, it was present before this in early popular chapbooks, broadsheets, ballads and translated tales, and ghost stories need to be seen in the light of this provenance; see Punter (1996) p13; and see Davies (2007) for a social history of ghosts

[599] Davies (2007) p101

and Enlightenment, through fads for mesmerism, spiritualism, and well into 20th and 21st centuries.[600] Aside from the intellectual engagement with ghosts, which was unquestionably important in the period of Le Fanu's writing, his ghost stories need also be seen in light of the persistence of popular belief, an important and oft neglected facet of supernatural history in the 19th century.[601]

Coincident with the rising fashion for spiritualism was the spread of the daily press, which according to Davies (2007), helped shaped public perception of ghosts.[602] At the same time, ghost hunts, sometimes drawing thousands of people on to the streets, were regularly reported by, and a likely product of, the press.[603] They became a feature of court lists owing to the disturbances that ensued from them and were costly affairs in terms of police man-hours. Perhaps as a consequence, police and courts were sceptical and court reports painted the hunts as unruly and overly superstitious. An Inspector giving evidence on the haunting of a residence in Pond Place referred to it at as "an absurd story" while a magistrate presiding over a case following disturbances at a ghost hunt in Woburn Square expressed "his astonishment at the credulity of those who could be so misled by an idle ghost story..."[604] The ghost hunt was very much an

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[600] See Davies (2007) pp65-132. He describes, as significant, the survival of ghosts beyond the Reformation when purgatory – the transitional arena in which souls were made ready for Heaven – was vetoed by the new Church of England (see pp104-108). For 21st century ghosts see pp241-249

[601] The phenomenon of popular belief in ghosts in the second half of the 19th century is often passed over or elided with spiritualism, undoubtedly important, but nonetheless different; see Davies (2007) p9

[602] Davies (2007) p91

[603] A rumoured haunting at No 6 Pond Place in Chelsea drew crowds such that "the neighbourhood had been in a state of uproar...it had been necessary to send a number of the police to disperse the crowds," see *The Times* Sept 12 1853 p10 Col B. A follow up reports a séance in which the spirit of "Shelley, the poet" confirmed that there was a spirit in No 6 Pond Place, see *The Times* Sept 12 1853 p5 Col F. Large crowds caused nightly disturbances at St George's Church, Southwark, see *The Times* May 27 1865 p11 Col G. The same happened at Woburn Square, London, see *The Times* June 01 1867 p11 Col E. Crowds of between 5,000-6,000 people are reported to have converged nightly on Christ Church, Westminster until a PC Thew apprehended a man running across the graveyard with a sheet over his head, see *The Times* Jul 06 1874 p13 Col E. Crowds of 300-400 people congregated in New Weston Street, Southwark hoping to see the ghosts of notorious murderers the Mannings who had lived nearby, see *The Times* July 06 1876 p11 Col A

[604] *The Times* Sept 12 1853 p10 Col B and *The Times* June 01 1867 p11 Col E, respectively

urban working class affair, which seemed to shout out the reality of ghosts, while the courts boomed back their rationalist answer in the negative.

Yet an alternative form of ghost hunt was apparently reserved for the middle classes. Spiritualism was likely seen by many as a more thoughtful, and perhaps more decorous, route to the spirit world. Nevertheless there is undeniable sensationalism in the act of a medium, who called up spirits that variously talked, rang bells, rapped the table, moved objects, wrote messages, and caused people to levitate. Indeed it proved to be a veritable cultural hot spot for mid-Victorian society drawing to it a remarkable variety of discourses on, science, supernatural, mesmerism, phrenology, the Scriptures, Christianity, electricity, telegraphy, to name a few.[605]

On this note, Davies (2007) points toward a key shift in orientation to ghosts evidenced by the fact that "[s]piritualism was about the human desire to make contact with the dead, while much of the prior history of ghosts was about spirits seeking out the living and attempts to prevent or limit their earthly appearance. With spiritualism the tables were turned in more ways than one. "[606] Such a turnaround in itself suggests a newly charged will to interrogate the boundary between natural and supernatural. Indeed spiritualism provided a much expanded intellectual ground for debating the real and the unreal, especially because in comparison to random hauntings, the séance more or less aimed to call up the dead on demand, thereby providing ideal conditions for scientific experiment and research. Spiritualism was the ultimate convergence of supernatural with scientific and rational interests and all manner of societies were formed to apply the order of reason to matters ghostly.[607]

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[605] See Cooter (1984) and Van Wyhe (2004) on phrenology; Noakes (2004) 'Spiritualism, science and the supernatural in mid-Victorian Britain' in Brown et al (2004) pp23-43; Noakes (1999) on spiritualism and telegraphy; Noakes (2002) 'Instruments to lay Hold of Spirits: Technologizing the Bodies of Victorian Spiritualism' in Morus (2002) pp125-164; Luckhurst (2002) and Lamont (2004) on spiritualism and science; Winter (1998) on mesmerism

[606] Davies (2007) p132

[607] For example, in 1851 the Cambridge University Ghost Club was inaugurated; in 1862 the London Ghost Club followed; the Oxford Phasmatological Association was established

Noakes (1999) and others detail the complexity of the issues involved in spiritualism and caution the too rigid use of categorisation in this respect, since the meaning of the terms 'natural' and 'supernatural' themselves were under negotiation.[608] Debates were indeed complex and many were conducted in the press.[609] For example, Noakes (2004) writes that "a survey of books, pamphlets and articles on Spiritualism from the mid-Victorian period underlines the lack of consensus on the provenance of Spiritualistic manifestations, with works upholding a range of natural and supernatural explanations including evil spirits, angels, conscious acts of trickery, unconscious psychological and physiological mechanisms or hitherto unknown forces associated with the human body."[610] Yet what is apparently not at stake according to Noakes' analysis is the existence of a single knowable reality. Each of the causes he lists ultimately flows from *either* supernatural *or* natural provenance. The whole spiritualist project seems to be a gigantic exercise in the fantastic.

Ultimately, if there was a single, knowable reality, the next logical question would by whom and by what method, could that reality be best exposed? The 'truth' of the narrator is an issue to which the historian, Peter Lamont (2004), in some measure turns, in his discussion of the play on trustworthiness between lay observation and 'expert' observation that arose from a 'crisis of evidence' stimulated by the spiritualism debate. Using the case of the famous medium David Home as an example, Lamont (2004) shows that his particular spiritual feat of levitation was an extremely

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in 1879; and the Society for Psychical Research, which became the most active of all such groups, began its work in 1882. See Davies (2007) p89

[608] Also see: Cooter (1984); Noakes (2004) in Brown et al (2004) and Van Wyhe (2004) for cautionary notes on categorising science, Spiritualism, pseudo-science etc

[609] Noakes (2004) "Spiritualism, science and the supernatural in mid-Victorian Britain" in Brown et al (2004) pp25-28 quotes examples from the *Illustrated London News*, *The Saturday Review* and a long run of correspondence in *The Times*. Stories about spirits, ghosts and spiritualism ran right through the regional press as well, for example: *Cheshire Observer* March 25 1871 p8 "A Real 'Sensational' Report of visitation by a spirit.."; *The Wrexham Advertiser* March 12 1870 p4 "A Terrible Midnight Adventure"; *The Dundee Courier & Argus* March 14 1870 "Extraordinary Doings of a 'Ghost'"; *Manchester Times* June 18 1870 "Credulity"; *New York Herald* Jan 15 1870 "Mr Home, The Spiritualist at Darlington"; *The Derby Mercury* Aug 2 1871 "Modern Superstition and Credulity"

[610] Noakes (2004) "Spiritualism, science and the supernatural in mid-Victorian Britain" in Brown et al (2004) p28

awkward empirical fact for those who wished to dismiss supernatural action. Home levitated somehow, but conjurers were not able to explain how and some scientists who examined his work, such as William Crookes FRS, concluded his phenomena were real. Crookes went as far as to postulate the existence of a 'new psychic force', but was vehemently attacked by anti-spiritualist scientists like John Tyndall, William Carpenter and others, on the basis of incompetence amounting to bad science, yet none could be more eminent than Crookes, with three Royal Society medals to his name.[611] Lamont (2004) describes the whole debacle as impetus for science to shore up the boundaries and muster cultural authority with increasingly sophisticated observational methods.

The application of scientific method to the supernatural realm both in practice and in literature could be seen as indicative of such a 'shoring up' of scientific authority. Oddly enough, the project largely had the opposite effect, and occult detectives were heavily compromised in scientific terms, often needing to rely on all those skills formally disassociated from scientific method, such as subjectivity, their feeling nature and perhaps the power of their own souls. These characters were popular in fiction for a short period spanning the turn of the 19th and 20th centuries, but have not been so widely and regularly re-worked as has the criminal detective or the mad scientist. Yet the experiment to mix science and supernatural has produced some surprisingly long lasting results of mythic proportion. This is the topic of the next section.

THE DETECTIVE NARRATIVE AND THE SUPERNATURAL

Hesselius, a Detective?

One potentially truthful narrator of reality that storytellers chose to experiment with was the rationalised, scientific detective figure. Indeed, the term 'occult detective' is what most scholars reach for when they describe Hesselius, although there are reasons to believe he is anything but, and I

[611] See Lamont (2004) and Noakes (2004) in Brown et al (2004) for discussion of Crookes' experiments and the subsequent attacks made on his competence.

will return to this. He is nevertheless reckoned to be a forerunner of other such men of supernatural-scientific expertise as Bram Stoker's (1897) vampire hunter, Professor Van Helsing; E and H Heron's (aka Hesketh and Katherine Prichard) Flaxman Low; Algernon Blackwood's Dr John Silence; and William Hope Hodgson's Thomas Carnaki, the ghost finder. The one long-lasting, towering icon to emerge from this group is the vampire hunter. In this section I will show how the normal detective narrative, with its method based upon science, is destabilised in the face of many supernatural phenomena. Yet the experiment of placing detectives in the occult, which, in the main, seems not to have taken a lasting hold on the mass market, created a mix that ultimately allowed science to piggy-back one of the most popular genres ever to have existed in fiction – the vampire story.

In a study that explores how the discourses of vision, both scientific and spiritual, intersect with those of literary ghosts and detectives, Srdjan Smajić (2010) remarks that where Hesselius fails as doctor and exorcist, he succeeds as "a detective of the *causes* of occult phenomena and *motivations* for actions and behaviours."[612] Perhaps, Hesselius does have more success in the detective line than in the medical way since he does suggest some potential causal factors. Yet, his over determination of causes is a long way from the usual dénouement of the detective story, which demonstrates the single, knowable reality. The detective narrative sets out with many possible realities, which it investigates, weeding out one after another to reveal the one true one at the end.

This, as Joseph Agassi (1982) suggests, is an echo of Baconian method and it is the narrative shape that characterises the detective story *per se*. By this, he means that the overall detective narrative begins by demonstrating the drudgery of fact collecting and a gradual elimination of suspects, and then quickens momentum and excitement nearing resolution, when the facts all come together. This shape undoubtedly matches the narrative of

[612] Smajić (2010) p152 (his emphasis)

Baconian induction and the narrative of the detective story. Fundamental to such a narrative, both in inductive science and in literature, is the move from a disordered world (of facts or society), to an ordered world (of understanding or retribution). In other words, the Baconian narrative follows a restorative pattern. Both Mary Braddon's (1861) novel, *Trail of a Serpent* and Wilkie Collin's (1868) *The Moonstone* could be said to follow such a narrative arc. [613]

'Green Tea,' however, does not have the same structure. There is no investigation. Hesselius appears to make his final inferences at the outset whilst chatting to Jennings 'upon indifferent subjects' at a cocktail party. This is apparently the sum of Hesselius' enquiry and the intervening long interview with Jennings does not seem to furnish him with further details that allow him to either eliminate false possibilities or to find new ones. Loe (1998) suggests that in juxtaposing of the "lack of causality in the sequence of events to Hesselius' supposedly rational inquiry, one can see how Le Fanu strengthens the effect of the story by having one type of structure countering the other."[614] The effect is to oppose a Baconian narrative. The story begins with a simple question. What is wrong with Mr Jennings? We end with the same question plus a whole array of potential answers with no way of choosing between them. In this regard, 'Green Tea' ends with a more disordered world than the one it started with. And in so doing, the narrative structure sits within the hesitant ground of the fantastic and not the detective story.

Todorov describes the structure, which in a fantastic tale, such as 'Green Tea', usually presents dual narratives, "one probable and supernatural, the other improbable and rational."[615] Indeed, of the two, the supernatural story may well have seemed the more probable at the time of writing. This is not necessarily because the supernatural is less plausible now, rather it is because psychological theory, which provides a natural alternative to it, has

[613] See pp158-166 and pp193-198 of this work
[614] Loe (1998) in Stewart (ed) (1998) p301
[615] Todorov (1975) p49

become culturally embedded in a way that it was not in the 1870's. In other words, the rational explanation of Jennings' haunting may have corresponded to MR James' recommendation of a 'narrow loophole' left open for a rational explanation, and not been the dominant reading at the time of publication.[616] That the loophole has widened with the advent of Freud and the spread of psychological thought is clear.

Regardless, a mix of probable and less probable scenarios does exist, but where the fantastic leaves all potential realities open, the detective story seeks to reveal the one knowable reality. And this is the ultimate difference between the fantastic and the detective story although they share dual narrative structure, as Todorov (1977) has pointed out in a now famous essay entitled 'The Typology of Detective Fiction.' Here he stipulates that the detective story, contains "not one but two stories: the story of the crime and the story of the investigation."[617] Todorov (1977) explains that we may "characterise these two stories by saying that the first – the story of the crime – tells 'what really happened,' whereas the second - the story of the investigation - explains 'how the reader (or the narrator) has come to know about it'"[618] In other words, the first story consists of events as they happened and the second the investigation.

Furthermore, these two stories correspond to ways in which readers make sense of narratives in general. These were initially described by Russian formalists and relate to the way that readers deal with distortions of time, such as flashbacks, flash-forwards or perhaps even, sideways moves (omniscience).[619] At a basic level, narrative structure consists of the order of events in which they are given by the text – the sjužet – which includes all its anachronies of time shift and is sometimes referred to as plot. Then there is the chronological sequence of events, which in most cases differs from the order given in the sjužet and is constructed by the reader – this is

[616] M.R James (1924) in Collins (1924) Introduction pvi
[617] Todorov (1977) p44
[618] Ibid p45
[619] Todorov (1977) uses the terms 'fable (story)' and 'subject (plot)', but it is often conventional to use the original formalist terms, fabula and sjužet as does Morash (1998) "The Time is Out of Joint (O Cursèd Spite)" in Stewart (ed) (1998)

the fabula. What Todorov (1977) notices is that, in detective fiction, the story of the crime, or 'what really happened' corresponds to fabula, and the detective's investigation corresponds to sjužet, the story as it is written. Put another way, the detective derives the 'truth' of what really happened from the clues s/he finds just as the reader derives the fabula from the sjužet.

In detective fiction the two narrative structures work together, the one supporting the other, so that the Baconian shape, the fact gathering and elimination of false possibilities, gradually positions elements of fabula with increasing impetus in their chronological order. This effectively situates the detective between the reader (and sjužet) and the fabula – in a sense, the detective becomes 'guardian' of the fabula. Seen in this light, the notion of restorative narrative takes on new meaning. It is only through the detective that the reader is able to reconstruct or to re-order the narrative to fit its 'true' chronological pattern. Likewise, the scientist constructs a fabula from Nature's sjužet, a correspondence that has not gone un-noted.

Charles Rzepka (2005), who argues that the advent of detective fiction is congruent with the rise in historical sciences, observes just this connection between scientist, nature and narrative.[620] He also points to one of the most influential of popular scientific developments of the 19th century, Charles Lyell's (1830) explication of uniformitarianism in *Principles of Geology*, as a key development in the making of a detective narrative. The term 'uniformitarianism' was actually first coined by William Whewell with the publication of *Principles*, to distinguish it from other theories of geological change.[621] Lyell argues that the earth's structure can, or should, only be understood by recourse to processes visible in the present that had acted in the past with the same degree of intensity. Rzepka (2005) has argued that such thinking, popularised in *Principles*, was influential on the detective narrative, because its inference of an orderly nature *and* an orderly process that forges nature, meant that the present is the sure key to the past.[622]

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[620] See Rzepka (2005) p33
[621] See Secord (1997) "Introduction" pxix in Lyell and Secord (1830/1997)
[622] See Rzepka (2005) pp68-71

Similarly, Laura Snyder (2004) has drawn attention to the ways in which Conan Doyle modelled Holmes' methods on conceptions of scientific procedures that were popular in the mid to late 19th century. They are well described by TH Huxley (1896) in his essay *On the Method of Zadig*, in which he draws on Voltaire's (1747) detective, Zadig, from the story of the same name, to exemplify the process of science. The observations of scientists, he says, are "retrospectively prophetic and strive towards the reconstruction in human imagination of events which have vanished and ceased to be."[623] Perhaps, even more powerfully, he continues "inasmuch as...retrospective prophecies are the result of following backwards, the very same method as that which invariably leads to verified results, when it is worked forwards... [provides] as much reason for placing full confidence in the one as in the other."[624] Science, then is the method by which the past can be (re)constructed and the future too, a means for establishing a narrative of nature. Similarly, Holmes pontificates to Watson, that "[t]he ideal reasoner...would, when he had once been shown a single fact in all its bearings, deduce from it not only all the chain of events which led up to it but also all the results which would follow from it."[625]

The notion of science as a reasoning process that allows the 'reasoner' to move around in time, and to do so with confidence for Smajić (2010), deeply implicates it in the occult (by which he means the 'supernatural', not the 'hidden'). He sees Holmes' 'ideal' reasoning as something similar to "communicating with the dead..." reading, as it does an object that doubles "as a portal to the spirit world..." and "[t]his, or something like it, occurs in every scene in which the detective makes an inference about the unseen based on his observations of the seen."[626] There is no doubt that there is a concordance here.[627]

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[623] Huxley (1896/2008) Kindle Ed Loc 106-8
[624] Ibid 131-3
[625] From Conan Doyle "The Five Orange Pips" in Conan-Doyle and Green (1892/1993) p114
[626] Smajić (2010) p190
[627] The observation that Holmes is a magical figure is fairly commonly made. See: Botting (1996) p154; Knight (1980) p72-3; Saler (2003)

Yet he concludes a short analysis of *In a Glass Darkly*, by stipulating that "[w]hat we get in Hesselius then is science forging inroads into what it denies and represses, and of detective fiction returning to its occult roots – but also a case of the ghost story's incorporation of the intellectual concerns and investigative procedures typically encountered in detective fiction."[628] There are two problems with this viewpoint. The first is his simple assumption that science 'denies and represses' supernatural beliefs. This is not an issue I wish to take up here since it has been well established that relations between science and belief are far more complex and nuanced than this suggests.[629] The second problem is more apposite and involves the application of detective method to occult phenomena and it has to do with the problems that this creates in terms of the narrative of time in cause and effect relationships.

In an essay entitled, 'The Time is Out of Joint (O Cursèd Spite!),' Chris Morash (1998) has pointed out a key irrationality of the supernatural, which in certain measure interferes with the detectives' ability to supply the necessary tools for the reader to re-order time. His title is taken from Hamlet, who speaks this line after the appearance of the ghost of his father. A ghost represents the dead returned and as such it is "a grotesque, disruption of the linearity of time and hence of reason itself."[630] This particular feature of the supernatural makes for a distinct narrative structure. Morash, using the example of Charles Dickens' (1843) *A Christmas Carol*, demonstrates that movements in time in the supernatural narrative, between Christmases past, present and future, "are not presented in such a way that we as readers are asked to put them back in their correct chronological

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[628] Smajić (2010) p154-55

[629] On science and spiritualism see Noakes (2004) 'Spiritualism, science and the supernatural in mid-Victorian Britain' in Brown et al (2004) pp23-43; Noakes (1999) on spiritualism and telegraphy; Noakes (2002) 'Instruments to lay Hold of Spirits: Technologizing the Bodies of Victorian Spiritualism' in Morus (2002) pp125-164; Luckhurst (2002) and Lamont (2004) also on spiritualism and science; Winter (1998) on mesmerism *as* science

[630] Morash (1998) 'The Time is Out of Joint (O Cursèd Spite!): Towards a Definition of a Supernatural Narrative' in Stewart (ed) (1998) p123

sequence when constructing a fabula."[631] Scrooge's travels in time are happening in the present of the story. Similarly the ghosts of past, present and future are incursions from different times into the present. For, Morash, "[t]his is the key structural definition of the supernatural tale."[632] What this amounts to is that time is allowably 'out of joint' in the fabula, something that does not happen in non-supernatural fiction, which only permits anachrony to exist at the level of sjužet.

According to Holmes, the detective is tasked with ironing out the anachrony of the sjužet, so that they and the reader can construct a fabula by "placing upon record that severe reasoning from cause to effect..."[633] But, in a supernatural world fabula and sjužet are collapsed into one, and so the rational, scientific detective is effectively redundant. Huxley, too, reminds us that the establishment of cause and effect relies upon, "[t]he *constancy* of the *order* of nature, being the common foundation of all scientific thought."[634] Here then is a difficulty for the occult detective. The investigation of a realm, the supernatural, which does not have the same 'constancy' of 'order' makes it impossible to reason from cause to effect and vice versa.

Such problems are well demonstrated by a case study discussed in an essay written by Susan Hoyle (2004) on the declining credibility of the witchcraft narrative in 19th-century England. She argues that it was not so much that the claims of science stole a march on the credibility of magic, or even gained greater respect, rather it was a falling off in acceptability of the kind of story that the witchcraft narrative was prone to tell. At the same time she finds a "rise in acceptability of a forensic narrative based on the demonstration of detective skills..."[635] She illustrates her case with evidential statements reported from court proceedings and, though her

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[631] Ibid (1998) p131-2
[632] Ibid (1998) p132
[633] From Conan Doyle "The Copper Beeches" in Conan-Doyle and Green (1892/1993) p270
[634] Huxley (1896/2008) Kindle Ed Loc 135 (my emphasis)
[635] Hoyle (2004) "The Witch and the Detective: mid-Victorian Stories and Beliefs" in de Blécourt and Davies (eds) (2004) p46

empirical evidence is sparse, she presents two cases that show how natural and supernatural narratives talk past one another in a similar way to Le Fanu's rationalist frame and supernatural story appear to do. She also suggests why and under what circumstances one narrative is preferred over another.

Hoyle analyses a case that involved a charge of wounding – a witch-cutting. The Davis family believed themselves to have been cursed by a neighbour, and since the traditional means of breaking a spell is to draw blood from the witch, John Davis cut his neighbour's cheek quite badly. According to the Davis's, the curses had taken the form of repeated instances of haunting. The case seemed to hang on one of these, in which, an invalid daughter was assaulted when "a man and woman came down the chimney...both persons headless, and seized her by the body, cast her violently on the ground, and then tossed her in the air, after which they took the sofa she had used and went through a similar feat with it."[636] This was the story given in defence.

The prosecution case rested upon the evidence of "Police-Superintendent Richardson [who] showed that the accumulated dust around the legs of the furniture proved that no such thing could have happened."[637] As Hoyle (2004) points out, the two narratives talk past one another. Firstly, the fact that the dust was not disturbed was no evidence against the presence of headless spirits since the magic that called up the spirits was surely able to enchant the dust. The dust narrative only works under natural material conditions. Similarly, if the order of time is distorted by an incursion of past into present then would not the normal order of cause and effect also be disturbed? In which case it is no longer possible to "conclude from an effect to the pre-existence of a cause competent to produce that effect..."[638]

Though he does not detail it as such, this is the nub of the conflict that Loe (1998) identifies when he juxtaposes the "lack of causality in the sequence

[636] *The Times* Nov 04 1867 'Witchcraft in Warwickshire' p7 Col D
[637] Ibid p7 Col D
[638] Huxley (1896/2008) Kindle Ed Loc 91-2

of events [in 'Green Tea'] to Hesselius' supposedly rational inquiry."[639] Indeed to combine a narrative that at heart is reliant on the linearity of time, with another that, by definition, distorts the time dimension, seems almost guaranteed to create the effect of the fantastic, since the reader has a choice of narratives, each talking past the other. Yet, many of the scientific supernatural investigators who followed Le Fanu's example were not, as he was, aiming to create such an effect. These authors were more likely swept along by the increased popularity and credence of a narrative that demonstrated detective skills, as Hoyle (2004) has illustrated within the legal system.

In the case of the witch-cutting, the court allowed the evidence about the dust and the papers reported it as legitimate evidence against the haunting even though it was no proof against witchcraft which was not on trial anyway (the cutting was). To demonstrate the opposite effect, Hoyle (2004) goes on to report a second case in which a man accused of poisoning, a known 'cunning man,' was not convicted despite the fact that there was ample evidence against him for the poisoning.[640] In this case, the forensic evidence was poorly marshalled by an inexperienced surgeon who had no prior knowledge of the case and contradicted himself as well. Hoyle argues that in this situation, "the prosecution for drugging failed because it did not have the services of someone who could tell a good forensic story."[641] What these two cases reveal is that when a forensic, or cause-and-effect, narrative was adequately marshalled, it was more persuasive than a witchcraft narrative in the courts at the time (so it has likely remained today).

That the belief in the supernatural did not wane in the face of the spread of scientific ideas is, apart from anything else, clear from the spiritualist revival and plethora of ghost clubs that followed from it. Science itself is

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[639] Loe (1998) in Stewart (ed) (1998) p301

[640] Cunning folk were one of the magical trades, who variously sold love-potions, found lost items, recovered stolen property and warded off witches. See Davies (2003)

[641] Hoyle (2004) "The Witch and the Detective: mid-Victorian Stories and Beliefs" in de Blécourt and Davies (eds) (2004) p59

unlikely to have caused a decline, observable through court reports, in witchcraft belief across the 19th century. Hoyle (2004) suggests that what changes people's belief is, at least partly, to do with fashions in storytelling. The story, which came to be preferred in the courts, and elsewhere, as evidenced by the spread of detective fiction, was the story of process, or of method, and its concomitant demonstration of cause and effect.

Perhaps as a result of the growing fashion for cause and effect stories, several occult detectives and scientists followed from Le Fanu's example, a factor that has sometimes been interpreted as the triumphant note for science and secularisation. Ascari (2007) in a manner, does just this, for he argues, that "[b]y specialising in supernatural mysteries, the detective – who had already acquired the status of an 'epistemological superman' – came to grips with a different kind of menace, embodying the collective desire of control not only over crime and the urban space, but also over exotic, the primitive and, ultimately, the unconscious."[642] The situation is more complex.

In the face of the supernatural, cause and effect reasoning is destabilised. So that in such experiments as Algernon Blackwood's (1908/2004) Dr John Silence, and E and H Heron's (1899) Flaxman Low stories, detectives are forced into using other means than reason, no matter how insistent they are on the natural provenance of events at hand. For example, Dr John Silence could "vicariously absorb these evil radiations into himself and change them magically into his own good purposes."[643] And occult detective Flaxman Low, who insists there is only natural causation, says of one case "everybody who, in a rational and honest manner, investigates the phenomena of spiritism will, sooner or later, meet in them some perplexing element, which is not to be explained by any of the ordinary theories."[644]

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[642] Ascari (2007) p81
[643] Blackwood (1908/2004) Loc 824
[644] See E and H Heron (1899/2006) Loc 366 (The nom de plume for Hesketh and Katherine Prichard)

I am not arguing that the methods of the occult detective-cum-exorcist are ineffective, simply that they do not conform to normal, rationalised scientific methods and process, in 19th-century terms anyway. In his extensive study of horror films, Andrew Tudor picks up intuitively on just this difficulty that science has in the uncharted territory of the supernatural. He writes of the separation of science from supernatural and psychological perturbations in the horror genre: "Throughout the modern genre, expertise – meat and drink to science-based horror movies – has been devalued." This is what happens "in a fictional world in which people can be routinely and inexplicably transformed into psychotics or zombies, [when] a belief in science seems peculiarly inappropriate."[645]

That said, the one truly successful occult detective is the vampire hunter, a figure that has spawned a variety of modern ghost busters who pit science against supernatural to varying degree. Of all supernatural investigators it appears to be the vampire hunter who has grown to mythic proportion.[646] The trailblazer for this breed of investigator is Stoker's (1897) Professor Van Helsing, the destroyer of Count Dracula. The advance that Stoker makes on other psychic investigators which gives his novel a coherence that the others do not have, is that his ghoul, though through and through supernatural has a material body. The Count's materiality allows the team to combine vampire lore with natural law to create more than a semblance of a cause-and-effect procedural investigation. What is fascinating about the success of this story is that it manages to retain the detective process intact. Indeed the whole structure of *Dracula*, like Wilkie Collins' *The Moonstone*, is epistolary and has the mark of a Baconian shape, a narrative occupied

[645] Tudor (1989b) p592

[646] There are other types of narrative. For example *Ghostbusters* (1984), a comedic feature film about parapsychologists, which turns the 'ghostbuster' into a joke of sorts. A BBC television drama series, *Apparitions* (2008), and William Peter Batty's (1971) *The Exorcist* return the supernatural to the professional expertise of the clergy rather than science. However, many more popular supernatural investigators are based on the investigative vampire hunter, see: *Buffy the Vampire Slayer* the (1997-2003), Joss Whedon's vampire hunter (who destroys a whole range of ghouls); *Van Helsing* (2004), the feature film; Stephenie Meyer's (2005-2010) *Twilight* Series about a vampire family, who police the vampire world and in a manner are vampirised versions of Van Helsing

with factual information, slowly building in intensity up to the moment of capture.

Once on their quarry vampire hunters use a kind of magic that has elements of a science anyway, a 'scientised' magic.[647] Vampire lore has clear-cut methodological rules that can be rote learned, and do not rely upon the subjectivity or soul of the detective or hunter. What emerges from Stoker's handling of science and supernatural is a structure and an outcome that proclaims the power of belief while it demonstrates the power of science.[648] Given the difficulty of bringing together two worldviews that talk past one another, this was and still is, an unexpected gift for popular science. It is unlikely that many scientists would see this as enhancing the cultural authority of their discipline, but to have their image embedded in one of the most popular story formats ever to have existed is cultural authority indeed.[649]

Le Fanu is at the foot of a set of experiments that test scientific rationalism in the face of supernatural time schedules. Yet his own stories were rooted far more firmly in his own time and explicitly aimed to challenge the idea of a single, knowable reality, or a Baconian ordering process. Le Fanu's fantastic not only undermines the potential of scientific method to find *the* answer, he also questions whether professional expertise can take over, or obliterate, common sense human decency. In 'Green Tea,' the genius-cum-expert, alone and eccentrically absorbed in a circumlocutious complexity of hypotheses, misses the one, the only, obvious solution, to stay with his suicidal patient. In painting such a picture, Le Fanu has dismantled the enthusiastic projections of Ann Radcliffe at the end of the 18th century and GWM Reynolds in the 1840's on the value of science and reason. Oddly enough, in similar fashion to the fate of Wilkie Collins' Sergeant Cuff, Dr Hesselius is said to have influenced Bram Stoker's drawing of Van

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[647] A term taken from Locke (2005) p33

[648] Jann (1989) has noted exactly this in an article entitled 'Saved by Science?'

[649] For example, the *Twilight* series is a publishing phenomenon. Meyer's books have spent 235 weeks on the New York *Times* best-seller list, 136 of them at the top slot. See Grossman (2009) and Alexander (2009)

Helsing.[650] What begins in Le Fanu's story as a cutting critique of scientific expertise is transformed into laudatory applause that allows the world to escape the hellish loneliness implied by vampirism.

[650] See Skal (2001) p103; Byrne (1973) p92; and Tracy (1993) pxxi in Le Fanu and Tracy (1872/1993)

CHAPTER EIGHT

BETWEEN MAGIC AND REASON

Concluding Thoughts

My overall aim has been write a history of two fictional icons of science and, in doing so, to move away from the temptation to find a single, uni-dimensional meaning for *the* scientist in fiction. This inevitably means that any conclusion must be interpretive, tentative and allow for many different answers. Here I attempt to focus on the most striking and consistent points to arise from the corpus as a whole. I will begin by summarising the thinking behind my approach and the significance of the work that has come out of it. Moving on to a consideration of the corpus and its major themes, I will draw out some of the overarching motifs that commonly coalesce into narratives about science. In essence, these fictions tend to unify the symbolic systems of magic and science at some level, and then they draw into this unified system issues related to professional expertise, innovation and transgression. I examine these themes in turn and in the final section I will speculate on the meaning that emerges from these observations in relation to Max Weber's (1918) vision of a world that is disenchanted by the inexorable spread of technoscience.

Although I have based my study on 19th-century fiction, it was the perpetual twinning of *Dracula* with *Frankenstein* in 20th and 21st century cultures that lead me to propose that Bram Stoker's (1897) Professor Van Helsing might provide a model of science as important as Victor Frankenstein is today. My initial observation was that the so-called mad scientist, by which I simply mean the whole string of characters who share heritage with Mary Shelley's (1818) scientist, excludes Van Helsing as an oddity, perhaps with the effect that he has been a relatively neglected figure in scholarly work on science in fiction. David Skal (1993; 1998) has also made note of this fact, but the question of whether Stoker's scientist is a one-off representation

peculiar to vampire fiction, or is indicative of an alternative wider fictional heritage of science, has not before been seriously addressed.[651]

In taking my cue from Stoker's vampire hunter then, I have stepped outside the typified limits of what a scientist is. To do this, I have emphasized process over iconography in order to identify scientists from non-scientists, or the scientific from the non-scientific. I have argued that Professor Van Helsing is a scientific detective by process, an investigator and an empiricist who seeks knowledge on the basis of reason.[652] Scientific detectives, such as he and Sherlock Holmes are undoubtedly 'men of science' in mid-Victorian terms.[653] They also share process, albeit more distantly, with such seemingly disparate hard-boiled characters as Raymond Chandler's detective Phillip Marlowe, who also uses a similar investigative process.[654] These observations led me to examine some of the 19th-century texts that are considered influential in the development of the figure of a fictional detective keeping the mad scientist always in relief.

Yet, my emphasis on process is not, for a moment, to suggest that iconography is not powerful. It certainly is, as evidenced by the emblematic features of the mad scientist, the unkempt, laboratory-bound villain who represents the public's fear, has framed much of the discourse on fictional science and is a likely reason for passing over Van Helsing or other detectives as important in this regard. He, after all, comes associated with a crucifix and holy water, his garb is not limited to the test tubes and galvanic apparatus that are so redolent of science. The advantage of stepping beyond the laboratory bench is that it reveals a whole raft of alternative characters, which are rarely studied in the context of science in public.

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[651] Skal (1993) p82-3 and (1998) p33 notes the pairing and centrality of science to the story of *Dracula*

[652] Add to which his creator calls him "one of the most advanced scientists of his day." See Stoker (1897/1993) p147

[653] See Barton (2003) for 'men of science'

[654] See Leane (2007) for an analysis of popular scientists who use these hard-boiled types as models for their own (popular) investigative process

In a study of scientific villains in the BBC television series, *Dr Who*, Lindy Orthia (2010) refocuses a tendency that she finds in the scholarly literature to emphasize villainous characters and interpret them as symptomatic of public(s) fearfulness, as the 'mad science trope.' I have rendered a similar ensemble of ideas as a typfication, which I feel better explains its persistence, its universality outside of fiction and its utilisation as a kind of social currency.[655] Either way, trope or typification, I would suggest that the complex as described by Orthia has framed much of the work so far on the fictional scientist, with important exceptions, of course.[656]

I too have noted a propensity within some of the scholarly literature on fictional science to emphasize negative, usually mad, bad images.[657] There are two possible reasons for this. One is the sheer prevalence of science in the disaster narrative, which makes it a topic of interest in its own right.[658] The other is a concern that seems to stem from an elision of ideas about the function of fictional images and public understandings, or lack of them. Some scholars of science in literature are inclined, as Orthia has pointed out, to assume a scientific villain is both symptom of and influence on negativity or fear on the part of public(s) toward science.[659] This is a deficit-type assumption. The inference is that public(s) are socially naïve and unable to understand the language of story telling, so much so that they believe that science really is mad, bad and dangerous.

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[655] The notion of a typification has more flexibility, in that only one or two typified components need be invoked to signify science. So, although I agree with Orthia (2010), I would distinguish typification from a trope as being less rigidly prescribed

[656] For work that sees scientists as different to this typified model, see Locke (2005); Orthia (2010); Russell (2007)

[657] For studies of representation which focus on, or emphasize mad, bad science see Baldick (1987); Basalla (1975) "Pop Science: The Depiction of Science in Popular Culture" in Holton and Blandpied (eds) (1975); Cohen (1981); Frayling (2005 and 2006b), Haste (1997); Haynes (1994; 2003; 2006), Jackson (2008); Jones (2001); Jörg (2003); Millhauser (1973); Rose (2003); Schummer (2006); Skal (1998); Toumey (1992); Tudor (1989); Turney (1998); Weart (1988); Weingart (2006); Weingart et al (2003); Weingart and Pansegrau (2003) for scientists bemoaning bad press see Emsley (2001) Sir David King in Frayling (2006b); Gilbey (2008); McDonald (1989); Pollack (1998); Rohn (2006)

[658] See Tudor (1989)

[659] Orthia (2010) p15 Authors who claim that scientific villains (and mad scientists) constitute a critique of science include Frayling (2005 and 2006b), Haste (1997); Haynes (1994; 2003); Jorg (2003); Milhauser (1973); Toumey (1992); Turney (1998); Weart (1988); Weingart (2006); Weingart et al (2003); Weingart and Pansegrau (2003)

Scientists, too, and this may influence scholars of science in fiction, are inclined to make similar assumptions. Michael and Carter (2001), for example, reported that scientists and science teachers tacitly employed a deficit type model when asked about the value of fictional science. For them science in literary contexts provides an inspirational platform that can lead consumers on to further exploration of the topic. But they generally also had concerns that fiction would misinform public(s) because of inaccurate portrayals. This is not an uncommon view among scientists.[660] In this scenario, then, public(s) are doubly in deficit, unable to understand the art and function of storytelling and unable to spot inaccurate science.

Yet, science in fiction does inform our understandings of it, not in any factual sense, but rather in the sense of what it means. Indeed, storytellers are unlikely to have a concern about whether public(s) understand science or not. No biology student reads *Jurassic Park* in order to learn how to extract DNA from amber encased insects, but they might reflect on what the process of DNA extraction may or may not be able to achieve. They may ask themselves where could this science go and what are the responsibilities involved in owning it? Indeed, the picture that emerges from focus group research is just that. Fictional images and narratives constitute a pool of resources for thinking about science and its meaning.[661] Two studies, Bates (2005) and Michael and Carter (2001), which analyse the ways in which people actually engage with popular science, support this view. They find that public(s) can utilise fictional, factual and factional sources in complex and sophisticated ways; acknowledge the value of all kinds of cultural production; and accept conflicting interpretations at the same time. Public(s) draw upon a variety of sources including fiction and socially sanctioned typifications in order to debate their own various claims about the values and meanings of different kinds of science to their own and others lives.

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[660] Rose (2003); Turney (1998); Gilbey (2008); McDonald (1989); Pollack (1998)

[661] Bates (2005) reports that subjects combine many different cultural referents from fact and fiction in support of their own particular claims about genetics recognising multiple, conflicting images as valid interpretations. Michael and Carter (2001) report that students did not absorb factual or fictional sources indiscriminately, but saw both as 'faction' and incorporated and valued many different sources of knowledge for different reasons

I have drawn a comparative history of two prominent imaginary figures, broadening out the palate of scientific representation, as it were, to include other professionals, or people, who use science. I have emphasized the process of detection as it developed in the 19th century and have compared this to some mad scientists who inhabit the same literary ground. The main relevance of this history is in the fact that these two figures still exist today within a shared pool of socially constructed images. The detective is as equally prescribed as the scientist. He is a criminal investigator who might peer at a footprint through a magnifying glass, have hawk-like powers of observation, a rarefied ability for reasoning from effect to cause, a drawn or pale look and often a difficult or conflicted home life. Indeed, Sherlock Holmes is to the detective what Victor Frankenstein is to the mad scientist. What is striking about these two figures is that although they appear very different now, each having their own professionally typified peculiarities, they have arisen from within a group of related fictions.

A taxonomist of literary images would almost certainly place them in a single clade, both arising from the common ancestor of gothic fictions that were extant at end of the 18th and beginning of the 19th century.[662] This is no whimsical metaphor. A biologist uses cladistics to reveal evolutionary relationships in order to better understand how each form of life has developed in a changing environment and hence how it can make a living in its present environment. A literary taxonomist, by analogy, might want to map the developmental relationships of iconic fictional figures in order to better understand their relationships to their own cultural contexts and by so doing perhaps gain a deeper insight into their meanings in the contemporary cultural landscape. One might also add that where an animal or plant must make a living by surviving long enough to reproduce, the survival of an iconic fictional figure is guaranteed as long as it still has meaning for the culture that gives it life, and if it were to cease to have meaning, it would no longer be reproduced and would go extinct.

[662] A clade is a group of life forms related to a single common ancestor.

My aim has been to recover something of the past understandings of science, or rather the past meanings of science, to which these two icons relate. Their histories are so deeply entwined that some of the characters in this corpus are hard to pin point as either mad scientist or detective, falling somewhere between the two, as for example, Dr Hesselius, Sheridan Le Fanu's (1872) doctor-detective or Mary Braddon's (1861) Jabez North, the scientific evil-doer who uses the detective method and what of Sherlock Holmes - detective and mad scientist? The entangled history of the two characters places the detective more squarely as a man or woman of science, although there is a general inclination today to treat the figure more narrowly as a crime fighter. Perhaps this is because scientific, investigative process has become so ordinary and so embedded in contemporary culture that we are no longer able to see it as scientific. On the surface of it today, mad scientists and detectives are sufficiently divergent to appear unrelated.

Indeed, the first major, though simple, point to be made about understandings of science in fiction that arise from this work, is that science in this corpus is not all bad, mad and dangerous. Though it may be typified as such, this is not the master narrative of science in fiction and probably never has been either.[663] This, at least, is the picture that emerges from this limited survey of some of the most popular fictions of the 19th century. Whether the picture would hold up in a wider sample, it is not possible to say and needs further study. But, the fact that both mad scientist and detective narratives have retained the same popularity through the intervening century plus, suggests that the detective figure provides us with an alternative master narrative of science, a modern myth, and a resource for thinking about science and society today and in the past.

In the body of the thesis I have defined science narratives as *either* disordering *or* restorative, using my method inspired by Vladimir Propp (1928/1968). I ask what is the function of science within this story? In other

[663] See p255 (footnote) and pp235-237of this work for modern fictions supporting this view

words, what does science mean in this story? This an unquestionably simplistic way of gauging meaning, but it has been helpful simply as a demonstration of the fact that, in the 19th century at least, one recurring 'myth' of science has it as an ordering process in the restoration of morality, and its opposite is in the narrative of the mad, bad scientific villain, who creates disorder. It seems significant that these two modern myths, as they are, have so often appeared together as versions upon versions of *Dracula* and *Frankenstein*. It is as though together these two stories have greater meaning than they do alone.

Having said that, it appears a simple business to identify Sherlock Holmes as having an ordering function, and Victor Frankenstein as having a disordering one. Indeed, based upon their narrative function, that is correct, but their personal moral orientation cannot be entirely equated with function. Shelley (1818), for example, hints at a noble potential in Frankenstein, and conversely Sherlock Holmes' periodic descent into drugs and depression suggests a darker side to his nature. While Propp's (1928/1968) idea of function has been useful as an overall indicator of the meaning conferred upon science by the texts, it may sometimes have led me to gloss over some of the finer grained subtleties that exist in some of the representations. That said, where possible I have discussed these kinds of complexities, particularly in cases like GWM Reynolds' body-snatching surgeon, in which image and function seem to diverge. So despite my simple starting point, I do try to honour some of the nuance that is undoubtedly present even in these most formulaic genres of fiction.

In the next section, I will go beyond this simple guide to textual meaning, and attempt to draw together some of the major themes that are commonly associated with science and scientists within the whole corpus. I have borrowed the notion of recurring literary themes from Tzvetan Todorov (1975). In his work *The Fantastic* he seeks to map networks of linked themes arising from the fantastic genre as he defines it. His concern is to discover the themes that distinguish the fantastic genre from others. I have adapted the idea here, to ask what are the themes that coalesce around

representations of science in the different, though admittedly related, genre fictions that I have included in this corpus.

Mapping distributions as opposed to meanings is a type of knowledge, which Todorov proposes is "more limited" but "less disputable" than an interpretative analysis.[664] For example, he finds concepts, such as sexuality and death, within the same thematic network as specific terms like the devil and vampires, and is at pains to point out that it does not then follow that the devil *means* sex or the vampire *means* necrophilia. Rather more usefully he writes of the compatibility or co-presence of themes that repeatedly arise concurrently or in clusters. Likewise, I have identified a linked network of themes that combine with notions of science and scientists and aggregate around both restorative and disordering forms. Having identified his networks, Todorov re-works them in psychoanalytic terms as related to self and other.[665] In a deeply interpretative step in the last of my concluding thoughts, I relate the network which I have identified, more prosaically it has to be said, to concerns about science and society. At the core of this network I want to place science and magic, while the abstractions that regularly radiate about them in the texts that I have analysed are reason, transgression, innovation and professionalism.[666]

In drawing the texts together as I have in the current corpus, I have created a narrative of my own, a story that has elements of ontogeny. At the outset, human transgression was a powerful theme in literature, countered only by the individual force of reason, but by the end the detective, person and narrative, embody reason as an instrument for containing both natural and supernatural transgressions. In the gothic period, the strong links between reason and individual virtue are opposed to supernatural magic which is

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[664] Todorov (1975) p141

[665] Despite his remonstrations against interpretation, his own discussion of fantastic themes, of the self and of the other, is ultimately interpretive. He does avoid proposing singular meaning or direct signification and by exploring commonalities across a whole network of linked themes, and this strengthens the interpretive analysis, but interpretive it still is.

[666] Here, as before, I use the term magic in the broadest possible sense to indicate a process or type of transformational knowledge that encompasses supernatural forces which may be instrumental, or not. I do differentiate between this type of knowledge and knowledge that is associated with organised religion or indeed secular magic

repudiated as immoral, and by the fin de siècle, in the gothic revival, I find reason and magic are mobilised together in stories that vanquish such deviant or troublesome entities as vampires, criminals or ghosts. My story requires a word of warning. This work is interpretative at every level, from choice of corpus, the details I draw from individual texts to the identification of networked themes, and finally the tentative conclusions that I will draw from them. In doing this, I have opted for a more 'disputable' but less 'limited' analysis, than Todorov suggests might be possible.

THE FICTION AND ITS THEMES

Science, Magic and the Gothic Origins of Detectives and Mad Scientists

Science and magic are categories, symbolic systems that designate aspects of the social world. Since the 17th and 18th centuries in the West anyway, they have been subject to such a degree of boundary work that many people today operate under the assumption that the two systems are opposed to one another. Where science is natural and rational, magic is supernatural and irrational.[667] Such views, often serving as unarticulated underpinnings to bigger statements, are dotted throughout scholarly works on gothic fictions and all its related forms.[668] Angela Carter whose own 'gothic' repertoire aims to interrogate boundaries, nicely sums up its obsession with the junction between reason and supernature or unreason and nature. When faced with the seductive, supernatural beauty of a vampiric Countess, the naïve matter-of-fact Hero reassures himself: "Soon it will be morning; the crowing of the mundane cock and first light will dissolve this gothic dream with the solvent of the natural. Yes, perhaps I shall take her to Vienna; and we shall clip off her finger nails and take her to a good dentist, to deal with her fangs."[669] The parody plays upon the polarity of natural and

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[667] Such oppositional terms underlie Max Weber's proposal that rationalism leads to disenchantment See Gerth and Mills (1991) pp139-143

[668] The term 'pseudoscience,' for example, contains a remnant of this distinction between natural-rational means and supernatural-irrational means. Also see Scarborough (1917/2001) p6; Toumey (1992), especially p414: "the physical artefacts of science are...miscellaneous material junk of alchemists...illogically connected" and Toumey (1996) pp128-29; for the opposite view see, Smith in Bann (1994) for discussion of natural magick as the roots of Frankenstein's science pp39-59

[669] Quoted in Frayling in Myrone (ed) (2006) p15

supernatural and in itself reveals the extent to which this opposition has become broadly accepted, assumed and unquestioned. If it were not the case, the tableau would not achieve its comic effect.

The dividing line itself is the joke, and only a few words are necessary to suggest the worlds on either side of it. Dreams, and so irrationality, and the supernatural, sit on one side against the mundane, the natural, and the rational, technical world of the dentist. The whole statement then encompasses the idea that the natural acts as a solvent to irrational, supernatural entities like vampires. This reiterates the 18th-century gothic precept in which reason really can dissolve supernatural entities, or those that walk the earth at least, the only allowable supernatural being in the power of God. It also precisely describes Radcliffe's 'explained supernatural' and is linked to much of the discourse in gothic texts, which relegates superstition to a weakness of mind, a failure of reason and the bane of Catholic belief. Some scientists took advantage of the same idea to advertise the benefits of their own specialism. Most notable among them was Humphry Davy who advocated natural philosophy as a means of calming an oversensitive and feeling nature of the kind that might be prone to supernatural suggestibility.[670]

The related dictum that reason is *the* path to human virtue is also key for all the gothic writers in this corpus.[671] Ultimately the terror and the horror of their texts arises from threats to reason. This happens in two ways. The first is as I have described, reason wavers in the face of an overactive imagination and superstition takes hold. The second, similarly, comes about when reason is not strongly developed, but in this case allows the basest passions, or sensual, selfish drives, to obliterate morality. This is what makes a gothic villain, as is evident in Radcliffe's (1791) licentious aristocrat, The Marquis, his milder accomplice, La Motte; in Matthew

[670] See this work p81

[671] Mary Shelley (1818) is more equivocal on this point. The message of her text on this point depends on whether Frankenstein's 'science' is perceived as having its basis in reason or magic and this is not clear-cut. Though it is fairly safe to conclude that she introduces the idea that reason or magic taken to extreme does not lead to virtue

Lewis's (1794) Ambrosio, the licentious monk; and a third sexually motivated character, in Charlotte Dacre's (1806) Victoria. All of these examples point in the same direction. They promote the power of reason to right the wrongs of desire. *Romance of the Forest* is a particularly strong fable in this regard, and Radcliffe continually drives home the value of reason for all of her characters almost from the first page, beginning as we do with a "gentleman whose passions often overcame his reason..."[672]

Radcliffe's pious science was an elevated form of reason, passive in the external world, but apparently able to elevate the mind and spirit of the practitioner beyond ordinary virtue. This vision of science consists of a strictly observational discipline that attempts to find the reflection of God's mind in the works of Nature. This, then, is about as far from the hackneyed image of a crazed, self-absorbed scientist as one could get. Here, science is domestic, democratising, pastoral, spiritual and not only is it unthreatening, it is positively uplifting. Its lack of instrumentality means that it has a function only through its association with reason and where reason can curb the most dangerously tempting of the passions, science can do better and is said to be able to balance human feeling to exquisite proportion.

I have suggested that this myth about reason and science, if it can be called that, contains the essential ideational elements of detective fiction. The reasoning detective is able to apprehend the impassioned criminal in the same way that the gothic heroine, Adeline, uses her reason to resist both the passions of the Marquis and her fear of the supernatural. Reason and science have equivalent functions in both detective and gothic scripts. Indeed, it was a gothic revivalist, Edgar Allen Poe, who was one of the first to popularise the detective as a rational investigator. Earlier incarnations of detectives had existed but they had relied to a greater extent on picaresque skills than on reason.[673] Later in the 19th century detectives take up magical means to pursue material objects and vice versa, but the skeleton of the

[672] Radcliffe (1791/1986) p2
[673] Vidocq was picaresque for example, and Braddon's (1861) Mr Peter has his moments of derring-do

narrative, which remains popular today, very often still involves the rational purification of the worst excesses of the passions, though the story has been secularised.

The modern myth of mad science has more in common with the passion fuelled portraits of Ambrosio and Victoria, for whom science functions as a means to satiate desire, whether that be for power, control or sexual delights. These images of science fuse it with Satanic magic, such that the stories retain a strongly moral and religious tone. Indeed, both of these villains ultimately pay their dues to Satan. Shelley's innovation was to take Satan out of the equation and draw a deeply ambivalent picture of the scientist, as perhaps noble, perhaps reasonable, maybe magical, but always neglectful of his social responsibility. Victor Frankenstein's overblown ideas about his own potential are of similar, perhaps even greater, proportion than the villains of Lewis's and Dacre's writing. Their desires are centred around the acquisition of personal power for pleasure, but Frankenstein is of another tradition altogether, he admits his desires have more in line with the alchemists who sought to control life and death, no less.[674] In many later incarnations the mad scientist retains such a link with alchemy, maintaining a certain equivocation between magical and scientific phenomena.[675] I would suggest then that the figures of the detective and the mad scientist arise out of the same groundswell of literary images and ideas. And, although they usually have opposing functions, they are each compatible with the same set of themes.

The two symbolic systems, magic and science (usually reckoned to be based on belief and reason respectively), are central, because they are the basis or means of action for each of these two characters. Both are forms of transformational knowledge and, in narratives, they can serve equivalent functions. Of course, all knowledge is transformational in one sense, since it transforms the mind, but in the narratives here, excepting Ann Radcliffe's

[674] See Smith in Bann (1994) and Ellis (2000) p152
[675] For discussions of the magical elements of mad science see Ellis (2000); Schummer (2006); Smith in Bann (1994); Toumey (1992); Weart (1988)

gothic, science and magic are instrumental in the external world. They are a means, intentionally or not, of ordering or disordering the imaginary worlds of the fictions. The reason I use the term transformational, as opposed to instrumental, is that Radcliffe's notion of reason sits more readily under that banner since it has the power to transform the individual and can only influence the exterior world indirectly through its effect on individuals. Whichever way, science, connected in some way to magic, is a feature that cuts across the whole corpus.

Gothic Science and Magic in the 1840's and Beyond

In the 1840's, GWM Reynolds' (1844-46) *Mysteries of London* is set in an urban environment peopled by professionals, most of whom seem to be unscrupulously self serving and corrupt. Magic and science are drawn together in scenes associating grave robbers with medics (anatomists-surgeons). These characters resemble Victor Frankenstein in their self-confessed rejection of the supernatural, while simultaneously surrounded by insignias of magic like a moonlit graveyard, a lonely garret, a corpse or a death-like trance. Reynolds scientist-medic has split off from the magical, supernatural realm, such that he is able to negotiate eerie scenes, "with the coolness of a professional man..."[676] The function of Shelley's mad scientist is flipped here, and Reynolds' anatomist succeeds where Frankenstein fails. The surgeon-anatomist does learn how to heal the living by dissecting the dead and is rewarded for doing so.

These two examples demonstrate that magic is a compatible theme for science, beyond the gothic preoccupation with piety and regardless of whether science has a restorative or disordering function. In Reynolds' writing, the suggestion is of a dark, gothic, perhaps Satanic magic, which is denied by the scientific protagonist. Mary Braddon's (1861) Monsieur Blurosset is a full-blown magician-scientist, and taking a powerfully restorative role in her plot, has little of the same darkness about him. On the

[676] Reynolds (1844a) p349 (col a)

contrary, in some scenes he radiates a positively cosy aura of fireside fortune telling. Wilkie Collins' (1868) enigmatic scientist, Ezra Jennings, carries the iconic hallmarks of the magician, although his process, unlike Blurosset's, is rooted in reason, science and experiment.

And last, in "Green Tea," the first story in the volume *In a Glass Darkly*, Sheridan Le Fanu (1872) has reason investigate magic. The metaphysician, Dr Hesselius, whose professional expertise is lauded in a framing narrative, is ultimately impotent, in a rare example of a story that conforms to Tzvetan Todorov's (1975) genre 'the fantastic' in which the reader is left undecided and hovering between the natural and supernatural. Indeed, one of the troubles for scientific or magical methods as investigative tools in this genre is that ultimately the transgressor must not be revealed. In each of the three hauntings of *In a Glass Darkly* the reader never knows whether there has been a genuine unearthly haunting or whether the transgression occurred in the mind of the protagonists. Because the fantastic hesitates between natural and supernatural, no method can ever be wholly effective, even so the upshot is to cast doubt on the efficacy of the professional, Dr Hesselius. I shall return to this point below, but first it is worth looking at the way in which Bram Stoker (1897) manages a seamless join between supernatural magic and scientific logic. Stoker is particularly important because his story was a trigger for this study and it, or elements of it, have been re-worked so often as to keep audiences rapt today.

I have argued that when reason investigates magic, the cause-and-effect basis of the scientific detective narrative is destabilised by the supernatural, which is not governed by the same time schedule as are cause-and-effect narratives. Ghosts, vampires and ghouls are 'revenants,' they represent introgressions of past into present and when time loses its normal direction, the normal flow from cause to effect is also disrupted. Although there are branches of science post-Einstein that theoretically could deal more deftly with supernatural time schedules, they are not the kinds of thinking employed by scientific detectives, neither in the late 19th century, nor today. The result is that occult detectives, such as Algernon Blackwood's Dr John

Silence (1908) or E and H Herons' Flaxman Low (1899), are either forced to employ magical methods that are subjective, somehow requiring the psyche, or soul, of the individual investigator to put to rest or explain various visitants from the past, or they are unable to explain the phenomena at hand.[677] Then the usual reasoning of the process of detection either fails or must turn into a feeling process. Either way the sense of science that is created by working stepwise backwards from effect to cause is lost.

Yet, Bram Stoker and many beyond him have successfully united reason and magic in a way that seems acceptable to our commonsense selves. This is partly because the vampire takes a material form and so the detective and his team are able to combine a little of the classic material effect-to-cause reasoning to track the vampire down. Once on their quarry vampire hunters use a kind of magic that has elements of a science anyway, a 'scientised' magic.[678] Vampire lore has clear-cut methodological rules that can be rote learned, and it does not rely upon the subjectivity or soul of the detective or hunter. What emerges from Bram Stoker's handling of science and the supernatural is a story that proclaims the power of belief while it demonstrates the power of science. Professor Van Helsing is truly a scientist who resides somewhere between magic and reason.

That the formula is a success is evidenced by numerous immensely popular re-workings of the vampire-hunting story. Many of these continue with the loose tie up between natural, scientific means and magical formula, sometimes learned from ancient tomes that reside in dusty libraries, as in Joss Whedon's (1997) television hit *Buffy the Vampire Slayer.* The first book of Stephenie Meyer's (2005) *Twilight* series adds an interesting twist to the science-magic fusion, in that Dr Cullen, a handsome and "brilliant surgeon who could probably work in any hospital in the world..." is a

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[677] For example Dr John Silence could "vicariously absorb these evil radiations into himself and change them magically into his own good purposes." Blackwood (1908/2004) Loc 824. Occult detective Flaxman Low, who reckons on there being no supernatural, says of one case "everybody who, in a rational and honest manner, investigates the phenomena of spiritism will, sooner or later, meet in them some perplexing element, which is not be explained by any of the ordinary theories." See E and H Heron (1899/2006) Loc 366

[678] A term borrowed from Locke (2005) p33

'vampirised' form of Van Helsing. So while he and his family drink the blood of animals, they seek out and discipline other vampires who still have the taste for human blood. Thus, Dr Cullen combines the technoscientific brilliance and righteousness of Van Helsing with the supernatural powers of Dracula. Add to which the core of the narrative joins natural and supernatural in a love affair, a feature that has probably done much to make these novels into the publishing phenomenon that they have been.[679]

Clearly, then some degree of magic-science union has abiding appeal. It is evident in all texts of the corpus from the 1790's gothic to the 1890's neo-gothic and beyond in 20th and 21st-century re-tellings of similar narratives. Science may be dressed in magical iconography and vice versa, or there may be a straightforward blending of two processes. There is, however, a distinct shift in literary concerns beginning in Reynolds' (1844-46) *Mysteries* when gothic aesthetics are brought into an urban and more realist, contemporary setting and stay put.[680] As fairytale, dream-like landscapes and crumbling edifices from the late 18th century make way for dim lit graveyards and labyrinthine city streets, transgression, secrets and mystery are drawn into the everyday. Still science retains the magnetic draw of magic, but, after the initial gothic period, it triggers more prosaic concerns that coalesce around images of magical science and scientific magic. I shall return to look at the significance of science and magic fusions after exploring some of the other concerns that arise in the post-gothic period in connection with such transformational knowledge.

There are a set of three interlinked topical motifs that are notable in the corpus for their co-presence, and apparent on-going compatibility. This is the kind of pattern that Todorov (1975) maps of recurring connections between uncanny and other events in the fantastic, which for him designate the semantics of the genre. Here the concern is with the semantics, or meaning, that such radiating concerns raise in relation to science. The three

[679] See Alexander (2009) and Grossman (2009)
[680] This is not to suggest that Reynolds was the first writer to do this, he was just the first one in this body of texts

motifs that recur in connection with science across the different fictions are professionalism, innovation and transgression, all combining in some manner to produce moral order on the one hand or disorder on the other. Such motifs cluster about scientific-magical actors regardless of their narrative function and they represent some of the cultural concerns that presumably arose in the face of a growing body of knowledge, which was transforming lifestyles, communities and society as a whole. In the following section I will summarise notions of professionalism, innovation and transgression.

Professionalism

The twisted plots of GWM Reynolds' (1844-46) *Mysteries* converge upon the representation of professions and in something akin to a morality play, they sort the wheat from the chaff. Although professionals are depicted in the earlier gothic genre, there they consist mainly of soldiers, clergy or lawyers, the traditional professions reserved for the younger sons of the gentry and none are professional scientists, nor scientific professionals. Reynolds extends his picture to include financiers, lawyers, clerks, bureaucrats, police, doctors and more. Importantly, he shifts the association of reason, science and virtue that was so lauded by the gothic authors into the newly rationalised medical profession. Yet, he outlaws the kinds of scientist like the daguerreotypist and the mesmerist who use popular channels to earn ill-gotten gains that serve purely for their own self-gratification. These scientists are seemingly independent men, freeloaders on a hypocritical system. Here Reynolds disparages the kind of deficit model that operated at the time and linked a lack of scientific knowledge among the workers to their lack of moral fibre. He is derisory about the kinds of factual science that were disseminated through efforts like the *Penny Magazine* and Science Galleries.

In *Mysteries* the pornographic daguerreotypist and the money-grabbing mesmerist serve none of the needs of the populace and indeed Reynolds' parodic portrait of them paints them as an irrelevance, outcompeted by the

upward mobility of a new model of scientific professional. The 'proper' social and moral advantage of science, for Reynolds, has it as an instrumental force, a means to improve society that is administered by expert professionals. A similar model that places a high value on science for society is re-worked by forthcoming detectives, both real and fictional, who have varying relations to the professional. Whichever way, there is an assumption that high value is attended upon those people, professional or otherwise, who can deliver a function that is required by a population, or by analogy to fiction, required by a narrative. As I have noted, this idea, and Reynolds' text in particular, is an anticipation of Everett C Hughes' (1971) ecological metaphor in which institutions evolve as a result of selection pressures constituted by the needs and wants of the people. To survive, the profession must fulfil a necessary or sought after function.

With that said, the following three texts are not as optimistic as Reynolds about the ability of the newly rationalised, scientific professions to succeed in such an undertaking. Mary Braddon's (1861) heroes, Mr Peters and Monsieur Blurosset, both work outside official professional bodies of the law, though both have considerable rational and magical expertise. Together they outperform the state-sanctioned institutions from courts, to police force and house of detention. Likewise, Wilkie Collins' (1868) professional policeman, Sergeant Cuff, fails and the crime is only resolved with the help of the maverick outsider, Ezra Jennings. These stories of professional failures echo general contemporary concerns about the particular ability of the professional police force to detect crime, which had promised much by the promotion of a scientific image, but had delivered far less. That said, these two stories do uphold the view that scientific expertise in itself can fulfil an important function for society. This vision has been alive ever since and is evident in the endless rehashing of the story of a scientific detective like Sherlock Holmes and the popular forensic fictions that have regularly appeared on television and in fiction best seller lists.[681]

[681] UK television dramas such as an updated 21st century *Sherlock Holmes*, along with older shows such as *Silent Witness*, *Waking the Dead* and *Cracker*. American imports have included *Quincy*, *CSI*, *CSI NY*, *CSI Miami*, and *Criminal Minds*. Then novels like those of

Indeed, Sherlock Holmes is a potent enough icon that his image became a morale-boosting point of identification for real police detectives living on a different continent a century after the fictional detective first moved into 221B Baker Street.[682] The observation is testimony indeed to the power of fiction or of a modern myth. Wilkie Collins' (1868) *The Moonstone* is part and parcel of the making of that myth and his Sergeant Cuff is generally agreed to have provided an important model for Conan Doyle's Holmes.[683] Cuff is an especially innovative creation. His image is born out of a repertoire of typified emblems that are normally used to signify the scientist, magician or knowledge-seeker. This gives Cuff the look of a scientist. Yet the 'great Cuff' fails to live up to his much-lauded image. Real detectives of the period had also been painted as men of science, and their sometime failure to deliver on this point, or indeed to deliver the criminal at all, was a familiar gripe in newsprint at the time. Collins' portrait of Cuff cleverly points toward a gap between image and performance that his audience were primed to pick up. Yet, what amounted to a contemporary critique of the detective squad ended in a myth that many a real detective is, no doubt, pleased to be identified with. This is a wonderful example of how the meaning of an image shifts along with the culture that harbours it.

Although the professional fails in *The Moonstone*, science conducted by a magical outcast is able to turn the mystery around. Yet, in Sheridan Le Fanu's (1872) short story 'Green Tea,' both the professional expertise and scientific approach fail. I have already alluded to the fact that given that the point of 'the fantastic' genre is to leave the reader unresolved on the cause of the transgression – no kind of detective or scientific expertise can be one hundred per cent effective. That said, the general reader does not keep a definition of 'the fantastic' in mind, and the lack of resolution appears to result from some wanting in the professional, Dr Hesselius. This effect is

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Kathy Reichs, Patricia Cornwell and Jefferson Bass feature forensic science and are regular bestsellers

[682] Heinsler et al (1990)

[683] Farmer (1999) in Collins and Farmer (1868/1999) p16 and Conan Doyle and Hodgson (1994) p111

emphasized by Le Fanu's emphatic separation of expert from lay discourses across the volume of stories. *In a Glass Darkly* rather drives home the point that professional expertise is no magic bullet. Indeed, Le Fanu skilfully imitates a kind of professional pomposity that is laughably impotent. He dismantles the facade of professional potency that Reynolds so avidly recommended and drives home Everett C Hughes' point that if it is to be relevant, a professional body must pay attention to, cultivate and succeed in some fulfilment of function.

Along similar lines, Bram Stoker's (1897) *Dracula* demonstrates that a narrowly scientific approach is no panacea. Although Stoker is not as derisory about his professionals, Dr Seward the psychiatrist has too narrow a scientific focus and would certainly fail without the guidance of an eccentric outsider, Van Helsing. It takes more than science to avert the potential loneliness and devastation of a vampire outbreak, as Van Helsing points out, "we have the power of science...[and] tradition and superstition...Does not the belief of vampires rest on them?"[684] Without belief in the supernatural, of course, the vampire wins.

Since Stoker created Van Helsing the vampire hunter has turned into something of a storybook institution. It constitutes a fictional version of one of Hughes' 'bastard institutions' in that the individuals of this occupation represent "chronic deviations from established institutions" and have "a certain stability, although they do not have support of open legitimacy."[685] Vampire hunters flout the normal boundaries of science by drawing unashamedly upon magical rite while they deviate from the normal bounds of magic lore in being scientific. They are often members of an institutionalised profession as well, but practise at its periphery, in order to maintain their maverick alter-ego under low profile. Yet they fulfil a fictional function and have been reinvented over and again as a modern myth. They seem to send a message that reason or science *is* power, but

[684] Stoker and Byron (1897/1998) p277
[685] Hughes (1971/1984) pp98-99 'Real' bastard institutions include gambling, black markets, prostitution etc

only when it does not exclude other ways of understanding and functioning in the world.

Stoker's decision to bring in an eccentric outsider to tackle a problem that is intractable for appropriate professionals, highlights a tension within professional groups between regulation and creativity. Professional groups encourage specialism by such activities as devising and regulating entry examinations or other qualifying criteria for membership. Of course, such regulation is well and good, but the downside to it, which Stoker points out, is the loss of flexibility in the face of a novel problem. Creativity and innovation cannot be regulated, partly because by their very nature they involve stepping outside the boundaries of normal knowledge to create a new understanding, vision or technique. This tension has been the subject of long sociological enquiry and is another of the core motifs to recur together with science, magic and expertise in this corpus.

Innovation or Transgression

Innovation by its very nature must break with a social standard of some kind. It is, in a sense, a form of deviant or transgressive behaviour although it is not necessarily immoral. The relationship between innovation and deviance was formally captured by Robert K Merton (1938) and his model of innovation is well demonstrated by the activity of GWM Reynolds' (1844-46) bodysnatching surgeon. In this scenario, the desire for anatomical knowledge is a culturally sanctioned goal, yet it is unattainable for the surgeon owing to the scarcity of state licensed cadavers available for dissection. So, the surgeon simply innovates the means to reach a goal that does, after all, fulfil the wants and needs of the people, even though his means transgress social norms, are deviant and in this case, also criminal. Braddon's villain, Jabez North, is another example of a Mertonian innovator who is driven to unlawful means in striving for a goal, in this case wealth, which is also culturally sanctioned.

These are extreme cases where innovation has turned to moral

transgression, but scientists are forced to deal daily with a related but far more subtle conflict. As Merton's theory would predict, scientists like any social group are challenged by innovators who break with norms of, in this case, knowledge, though they, in particular, are caught in a dilemma since ostensibly, innovation is what they all strive towards. I have argued that models used by Michael Mulkay (1985) to describe the way scientists interpret innovations and discoveries made by their colleagues map in broad terms to the methods of mad scientists and detectives. The 'genius' folk theory focuses on the role of the individual scientist, their uniqueness, creativity and exceptional mind. The theory of 'cultural maturation', on the other hand, downplays the role of the individual scientist and sees the discovery as an inevitable outcome of a scientific process, which could have been made by anyone had they been in the right place at the right time. Mulkay finds that scientists use these models for social purposes, either to emphasize or to downplay the unusual quality of the particular individual that made the innovation.

Similar patterns are anticipated by Braddon (1861) and Collins (1868) in their respective portraits, each of a detective and a scientist. In both cases, the scientist is the more extraordinary and eccentric individual of the pair, seemingly able to rely on intuition and bursts of inspiration. The detective, by comparison, is a rather dull and plodding data gatherer. Mulkay's genius folk theory describes these scientists well, while his cultural maturation model better describes the way that the detectives work. There is a more general point to be made here, which is that all these visions, social models and literary figures alike contain within them a commonly held dual conception of reason as being both imaginative and mechanical at the same time. Furthermore, such notions of genius and individual brilliance on the one hand and learned method on the other became a pivotal focus for 19th-century debates about how science should properly proceed. Did science mainly proceed by mechanical, additive thinking in which case could it be learned, or could it only progress via leaps of intuitive genius?

All these ideas represent two poles of reason and I suggest that these map

onto fictions of detectives and mad scientists generally. Mad scientists tend to work by intuitive, unfathomable methods, which are magical, if only in their obscurity. Think only of Frankenstein's magical aura, which persists despite his insistence on pure natural philosophy. William Whewell, believing Isaac Newton to be a genius, writes of him in 1837 that he is "an irresistible and almost supernatural hero of a philosophical romance."[686] Ideas about magic, imagination, romance and scientific genius have long constituted a well-woven complex of harmonious themes. The detective narrative, on the other hand, plods through a method. Anyone can learn to walk from door to door fact checking, but not anyone can resemble a supernatural hero. So, as dogged data gatherer Mr Peters is to his magical ally Monsieur Blurosset, so Sergeant Cuff is to Ezra Jennings and so, in a measure is every detective to every mad scientist. All lie somewhere on a scale between magic and reason.

This is not to say that the detective figure is not associated with the same thematic complexes. Sherlock Holmes is a prime example of magical genius, but it is ultimately brought into the service of a socially prescribed moral order. Mad scientists usually are genuine innovators, doing surprising work that others have not done before them and changing their social world into the bargain. The common sense vision of reason as a dual process, its relevance to the detective narrative and the way in which it reflects Thomas Kuhn's (1962) vision of science are ideas that were brought together by Joseph Agassi (1982). He describes how the Kuhnian template for 'normal science' is represented by the fact gathering stages early in the detective narrative and the revelation of whodunit at the end he finds equivalent to revolutionary science. While I do not entirely disagree with this idea, I feel it can be usefully developed.

In *The Structure of Scientific Revolutions* (1962) Kuhn describes revolutionary, paradigm shifting science as having a deep impact upon the actual lives of the scientists who undergo the shift. It involves the rejection

[686] Quoted in Smith (1994) p30

of long held theoretical traditions that have served to provide the community with its the foundation for practice of 'normal science,' its research questions and its problem solving aims. There is usually strong resistance to this. A new theory can radically alter the landscape of available research options, and it fundamentally shifts what Kuhn calls "the scientific imagination," by which he means the actual parameters of scientific thought.[687] Such earth shattering shifts in thinking are exemplified by large-scale changes in worldview triggered by revolutionary paradigms like the Copernican, Newtonian, and chemical revolutions. Yet, Kuhn describes the process as proceeding commonly at a much lower and less obvious level. Small shifts draw similar resistance from colleagues, but the group is smaller, and there is no equal magnitude of change in worldview.

The latter, Kuhn's small revolutions, I would suggest are well exemplified in detective fiction. They happen when a new suspect throws the investigation off its course. The final whodunit too, is only a small revolution in that its function is to *restore* the old social and moral order, albeit with a difference caused by irreversible effects of the crimes. The mad scientist, on the other hand, *shifts* or disorders the whole social world of the novel from the outset. The point being that it is an innovation in science that shifts the outcome, often the whole story, of the narrative. Frankenstein's monster is a case in point of the disordering kind. Yet, Braddon's magician-scientist is able to shift the order of events by rescuing one of the protagonists, such that the whole outcome of the story is altered in an ordering direction. Detectives make breakthroughs that always conform to social order. They are Kuhnian problem solvers within a paradigm of socially constrained moral order.

BETWEEN ENCHANTMENT AND DISENCHANTMENT

Mad scientists, evil or otherwise, and detectives are long abiding icons of fiction. They provide alternative visions of how rationality, science or plain

[687] See Kuhn (1962/1996) Loc 227

reason arises from and influences people and society. I have proposed that fictional icons can only survive for as long as they bring meaning to the culture that gives them life. I would suggest that these figures have persisted for so long because the sheer extent and multiplicity of the potential meaning they bring gives them continued credence for different cultures in different ages. Literary meaning, however, is a thorny issue, because in one sense fiction refers only to itself. Yet because it describes objects, characters and actions that do have a non-textual reality it does have some representative role outside its own world.[688]

In their attempt to map some of the complexities of how fiction functions, Michael and Carter (2001) refer to the "dynamics, by which people shift criteria of what is valuable 'knowledge', of what is valuable about different sources of knowledge..."[689] Within the category of valuable knowledge they reported popular fictions, which were not confused with pedagogic resources by non-scientists, rather they were understood as a constructive means of debating the complexity of human experiences that arise in the face of certain scientific developments. Although I do not have access to similar data on how people use the iconic images of mad science and detection, I would hypothesise that such icons fulfil this kind of function. To confirm this would require further study. Yet the case is supported by the fact that the popular narratives in this study work through and experiment with human conundrums that arise from an increasingly technoscientific society and these are the same kind of problems that have occupied the minds of such preeminent academic thinkers as Everertt C Hughes, Robert K Merton, Thomas S Kuhn and Michael Mulkay.

One of the more general points to emerge from this thesis is just this continuity between the focus of certain academic concerns and issues worked out in popular narratives about science. Simon Locke (2005) has

[688] See Todorov (1975) p59-60 for a discussion of literary representation. It relates partly to the reason why fictional representations can be helpful thinking resources, because they have the flexibility of being neither real nor unreal: "We must also be careful not to confuse the problem of representation with truth: *only* poetry rejects representation but *all* literature escapes the category of true and false." p83 (his emphases)
[689] Michael and Carter (2001) p28-9

noted the same regarding the content of superhero comics and Philip M Strong (2006) takes up the point in a paper entitled "The Rivals: An Essay on the Sociological Trades." He argues that journalists, novelists and dramatists are "professional students of the social world," along with sociologists, of course.[690] He goes on to explore similarities and differences and finds that interpretative sociology has some continuity with the ways in which novelists construct their imaginary social worlds.[691] The current study clearly supports the notion that popular and academic spheres are not as firmly divided as they might at first seem and that science challenges society as a whole and different cultural sectors work through the issues it throws up in their own terms using their own or a shared pool of thinking resources.

To suggest continuity between academic and popular realms returns us to ideas about the splitting of cultures that perpetually arise when the two words, 'science' and 'the public' are brought into proximity. The particular public that CP Snow berated in his 1959 lecture consisted of 'literary intellectuals' and his vision of them as Luddites in binary opposition to scientists is now almost a cliché. In recent decades it has been denounced as irrelevant and outmoded, a surrogate political debate or an attempt to exalt science to a position over and above other types of knowledge[692]. Yet, anxieties over the splitting of knowledge have long been at issue, a topic that is nowhere better expressed than in William Whewell's (1834) lament on the increasing specialisation of disciplines. He bemoans the fact that "the students of books and of things are estranged from each other in habit and feeling...But the disintegration goes on, like that of a great empire falling to pieces."[693] Notions of human estrangement and the fragmentation

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[690] Strong and Murcott (2006) p119

[691] Strong uses the example of Mikhail Bulgakov's (1975) *A Country-Doctor's Notebook* within which he finds a model of social interaction that he had only been able to observe once in the consulting room, yet the fiction suggested to him that his single observation may have had wider significance

[692] See Leane (2007) pp61-64 for a review of critical approaches to 'two cultures' and Ortolano (2009) for a detailed history of 'two cultures' as it relates specifically to British post-war cultural politics

[693] William Whewell (1834) reviewing "*On the Connexion of the Physical Sciences* by Mrs Somerville" *Quarterly Review* in Kramer et al (2003) p360

of community here anticipate the kinds of alienation that are characteristic responses to techno-scientific reductionism. And this is one of the major issues at the heart of the 'two cultures' debate.

I proposed that mad scientists might in this regard be boundary objects between two cultures. My reason for suggesting so, was that they have been the ammunition for endless jibes that pass backwards and forwards from arts to science buildings.[694] In this corpus of texts mad scientists, and their detective counterparts, are deeply entrenched with magic, *the* symbolic system which professional Western science has excluded from its bounds. Where science seeks to disconnect itself from magic, almost all the fictions in this corpus perhaps with the only exception of Ann Radcliffe's (1791) *Romance of the Forest*, seek to unite the two systems. Similarly the sense of a science that fractures and a fiction that unites cuts across the Snow-Leavis controversy. In the course of CP Snow's original (1959) lecture, he splits literary intellectual from scientist, traditional from modern, science from art, individual from society, pure from applied, and so on. One of the difficulties that FR Leavis (1962) has with this account is its apparent assumption that human experience and behaviour is reducible, quantifiable and interpretable in such simple terms.[695] Essentially, Leavis, champion of fiction (though not of the popular kind) challenges Snow's assumption that humans are knowable in such reductionist terms.

A related notion, that the world is perceived as potentially knowable and 'rationalisable,' lies at heart of Max Weber's (1918) lecture "Science as a Vocation," and is the source of his pronouncement that science and rationalisation have a disenchanting effect on society. He is at pains to point out that rationalisation does not mean that each person has increased knowledge of the technicalities of their lives. Few people know how the streetcar functions, for example. Indeed, the person living in a rationalised society perhaps has less knowledge of such things than a "savage" who "knows incomparably more about his tools." Yet, intellectualisation,

[694] See Introduction to this work pp18-26
[695] See Collini (1998) in Snow and Collini (1959/1998) ppxxix-xliii

according to Weber, leads to a situation in which there is a generally held belief that the world is knowable by rational means. "Hence, it means that principally there are no mysterious incalculable forces that come into play, but rather that one can, in principle, master all things by calculation. This means that the world is disenchanted. One need no longer have recourse to magical means in order to master or implore spirits, as did the savage, for whom such mysterious powers existed."[696]

One interpretation of the fictional drive to reinvigorate mysterious powers, or to reconcile reason and magic might be to assume that in an age when society was becoming increasingly technical and disenchanted, fiction resisted the trend and attempted to re-enchant the world by making knowledge whole again. Michael Saler (2003) has commented on just such a drive to re-enchant modernity through an interplay of cultural productions, such as Sherlock Holmes stories and imagination. In line with the idea that fiction resists the fragmentation of cultures, Saler suggests that Holmes "became a modern icon partly because he utilised reason in a manner magical and adventurous, rather than in the purely instrumental fashion that many contemporaries feared was the stultifying characteristic of the age. He expanded the definition of rationality beyond a narrow, means-ends instrumentalism to include the imagination – he calls his procedure 'the scientific use of the imagination'".[697]

Yet Holmes' reason absolutely is 'means-end instrumentalism.' It is his means of restoring a moral order, which, lest we forget, is deeply connected in historical terms with rationality and reason in the first place. That said, the scientific use of the imagination was a topic that drew considerable energy in the 19th century and was related to the intuitive, enchanted type of reason evident in genius that so well describes the mad scientist. So how does this fit with Saler's ideas about Holmes' enchantment of reason? For Saler, Holmes makes reason magical because "[h]e believed that every detail of modern life, ranging from the footprints of a giant hound, to

[696] Weber (1918) in Gerth and Mills (1991) p139
[697] Saler (2003) p604

advertisements in mass circulation newspapers, was charged with meaning."[698] To imbue the mundane with meaning is indeed magical thinking. Yet, as Saler also notes, observational capacity of the Holmesian kind is a skill related to reason that can be learned. This is the data-collection, and the kind of process described by the 'cultural maturation' theory, or the mechanical model of reason.

What I would suggest is that enchantment does not exist in binary terms in the way that it is so often discussed. Holmes makes a fundamentally instrumental, rational, means-end process seem magical by lending meaning to the mundane. Yet, the image of truly magical thought, where intuitive sparks fly and shouts of eureka fill the air, belongs to the domain of the mad scientist, whose process is obscure and cannot be learned. For all that, it is worth noting that in his techno-reductionism the mad, bad scientist, uses an enchanted process to disenchant the world. This is the reverse of Holmes, yet, not all mad scientists are, of necessity, bad. So, just as Thomas Kuhn sees revolutionary science as existing in shades of grey, so enchantment comes in variable shades and doses. Indeed, Max Weber does talk of a "process of disenchantment" which implies that we may not yet have reached the zero point on that scale, although the fact that he sees science as being incompatible with religious belief suggests he is indeed working with a simple binary model.[699] Whichever way, such a simple model does not describe the complexities in the fiction at hand, a factor that Locke (2005) has also noted in relation to scientific figures in superhero comics.

Oddly enough, Weber himself invokes the mystery of intuitive thought in a comparison between the process of art and science. There is a tension at the heart of his discussion in this respect. His disenchantment is predicated on the fact that the world is all-knowable, though this seems a highly questionable assumption at the best of times. So although technoscientific knowledge apparently supplants the need for belief in 'mysterious powers,' he himself invokes mysterious power in a description of scientific

[698] Ibid p614
[699] Weber (1918) in Gerth and Mills (1991) p139

inspiration, which is an unfathomable and uncontrollable process. "Ideas occur to us when they please, not when it pleases us...ideas come when we do not expect them, and not when we are brooding and searching at our desks. Yet ideas would certainly not come to mind had we not brooded at our desks...inspiration plays no less a role in science than it does in the realm of art... the psychological processes do not differ. Both are frenzy...and 'inspiration'".[700] Here he clearly describes the dual conception of reason as both mechanical (brooding at our desks) and imaginative (frenzy and inspiration). Is there perhaps a little enchantment, even, in the midst of Weber's disenchantment?

Further to the obvious relationship between the interwoven themes of science and magic and enchantment in the current study, there is a trend beyond Reynolds' initial enthusiasm for professional men of science, to demonstrate a certain disenchantment with the institutionalised professionals. This appears as an ambivalence arising from the fact that expertise and specialisation fragment knowledge with a concomitant loss of flexibility in the face of novel problems. Indeed in this respect the fiction seems to resist Weber's dictum that, "[o]nly by strict specialisation can the scientific worker become fully conscious...that he has achieved something that will endure. A really definitive and good accomplishment is today always a specialized accomplishment."[701] After Reynolds, the fictions apparently value a much more fluid kind of expertise and narrow specialism alone is never sufficient to surmount human problems. The notion that different knowledges are necessary reverberates with Collins and Evans' (2002) suggestion that categories of knowledge be reformulated according to expertise and experience, such that legitimacy should be granted along these lines and not simply according to epistemology.

To this day fictional professionals are required to bring a special kind of flexible expertise to their particular quest otherwise they may fall short of the bar. Further work needs to be done to understand how far modern

[700] Ibid (1991) p136
[701] Ibid (1991) p135

myths about detectives and vampire hunters insist on the presence of the outsider in order to restore order to the world. Yet the same message is undoubtedly still manifest in the pages of at least some vampire fictions, whose protagonists, truly merging reason and magic, do occupy roles marginal to the institutionalised, rationalised professions.

Further to this, in the recent bestselling detective fiction, Stieg Larsson's (2008) *The Girl with the Dragon Tattoo*, an outsider, a journalist, not a detective is able to turn the case around within a year despite the fact that the state-sanctioned police authorities have been unable to fathom it in forty five years. A certain amount of enchantment too sparkles through this narrative. "On one day in June he was in Hedestad, thinking about something altogether different when his bus turned on to Järnvägsgatan and it suddenly came to him...The insight struck him like a thunderbolt out of a clear sky."[702] The thunderbolt woke him up to the significance of a tiny detail in an old photograph of a Children's Day Parade. In the 21st century there is still magic in the mundane and in the imagination.

It is beyond the bounds of this work to do more than note the continued existence of such thought patterns in contemporary 21st-century fictions. Yet, the exploration of the history of the fictional detective has shown that in their developing years, these figures were drawn into the same thematic networks as were fictional scientists, supporting the view that they do, or certainly did, provide a useful alternative model of science. Stepping outside the typified bounds of laboratory science has allowed us to go beyond the idea of the "*master* narrative of science" as the story of a mad, bad and dangerous man. Together the two icons – mad scientist and detective – give us a more complex picture of science and the ways in which we can think of it, than either can do alone.

Above all else, this study demonstrates that there is an extraordinary richness in images of science, of its method and of those who practise it,

[702] Larsson and Keeland (2008) p265

even in some of the most formulaic of fictions. I have shown that a few themes coalesce around a whole variety of 19th-century images, which appear to be relevant today, although they are likely to have shifted somewhat to reflect other 20th and 21st-century concerns. The point is that an understanding of the image of science in fiction requires more, much more, than a lazy re-hashing of stereotypes about mad scientists and public fears. Literary images that reoccur bring meaning to the culture in which they exist. Such meanings, like the culture they come from, are multi-faceted and unsettled and any investigation of popular images of science should at least attempt to honour such complexity. I have tried to do this by examining iconography, narrative function and cultural context. Although my way is not necessarily the best or the only way, it has exposed the fallacy of the temptation to seek out a unified image of science and its meaning. There is no single meaning, just as there is no single science, real or imaginary.

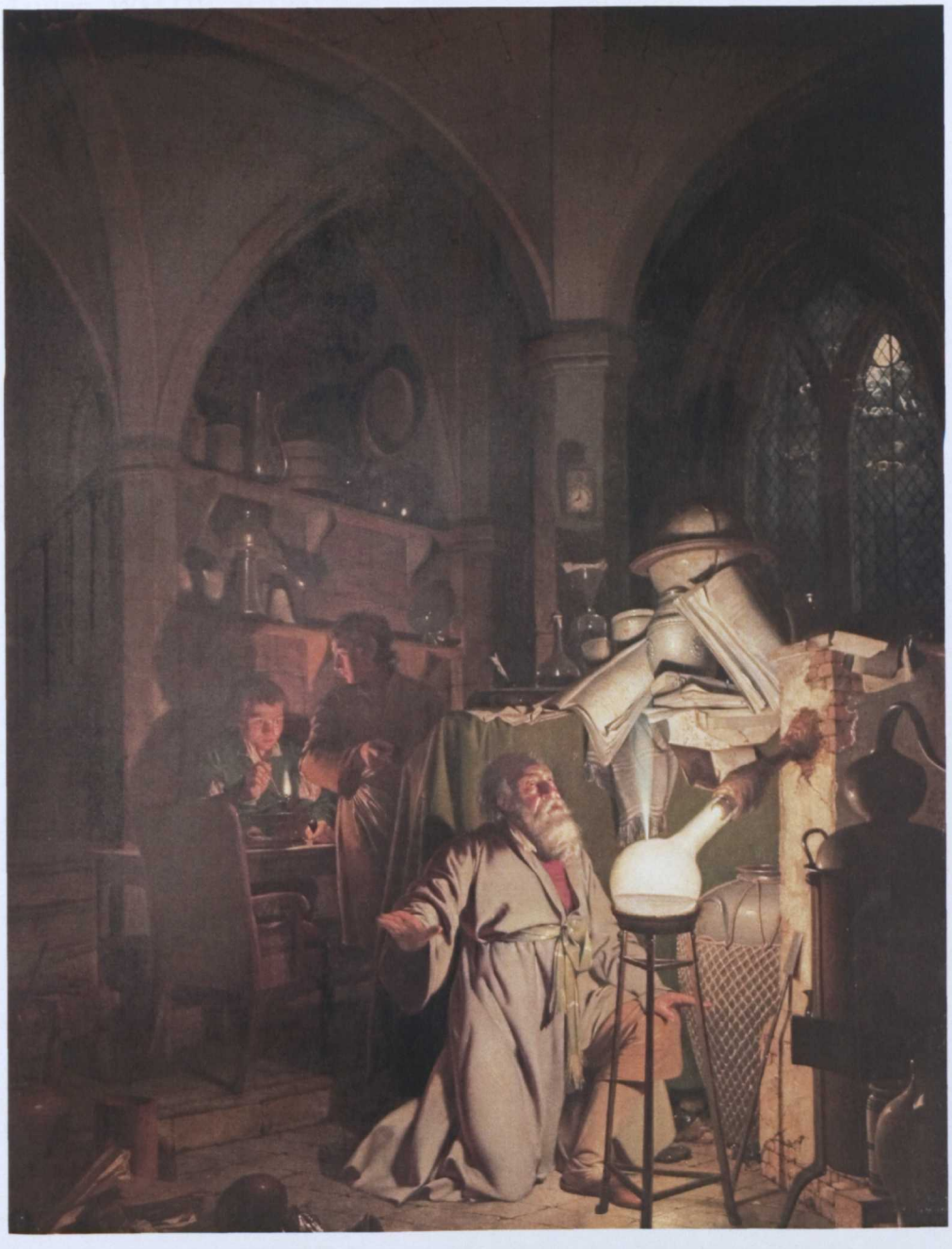
APPENDIX

Joseph Wright (1766) *The Orrery*

Courtesy of Derby Museums and Art Gallery © Derby City Council

APPENDIX

Joseph Wright (1771) *The Alchymist*



Courtesy of Derby Museums and Art Gallery © Derby City Council

BIBLIOGRAPHY

Primary Sources

Ainsworth, William Harrison; Jacobs, Edward; Mourão, Manuela (1839/2007) *Jack Sheppard* Peterborough CA, Broadview Press

Auden, WH (1975) *The Dyer's Hand and Other Essays* London, Faber and Faber

Blackwood, Algernon (1908/2004) *John Silence, Psychic Detective* Kindle Ed Berkeley CA, Renaissance E Books

Blackwood, Algernon and Bleiler EF (1973) *Best Ghost Stories of Algernon Blackwood* Mineola NY, Dover

Braddon, Mary Elizabeth and Willis, Chris (1861/2003) *The Trail of a Serpent* New York, Modern Library

Burke, Edmund (1790/2008) *Reflections on the Revolution in France* London, Eighteenth Century Collections On-line, Gale Group

Christie, Agatha (1997) *Miss Marple Omnibus* Vols I-III London, Harper Collins

Collins, Wilkie (1883/1990) *Heart and Science* Gloucester, Alan Sutton Publishing

Collins, Wilkie and Farmer, Steve (1868/1999) *The Moonstone* Peterborough CA, Broadview Press

Conan-Doyle, Arthur (1887/1981) *A Study in Scarlet* London, Penguin

Conan-Doyle, Arthur and John Fowles (1901/1974) *The Hound of the Baskervilles* London, John Murray and Jonathan Cape

Conan-Doyle, Arthur and Green, Richard Lancelyn (1892/1993) *The Adventures of Sherlock Holmes* Oxford, Oxford University Press.

Conan-Doyle, Arthur and Hodgson John A (1994) *Sherlock Holmes: The Major Stories with Contemporary Critical Essays* Boston MA, Bedford/St. Martins

Crichton, Michael (1990) *Jurassic Park* New York, Alfred A Knopf

Dacre, Charlotte and Craciun, Adriana (1806/1997) *Zofloya* Peterborough, CA, Broadview Press

Darwin, Charles and Burrow, JW (1859/1968) *The Origin of Species* London, Penguin

Godwin, William and Brewer, William (1799/2006) *St. Leon* Peterborough CA, Broadview Press

Godwin, William and Kramnick Isaac (1793/1976) *Enquiry Concerning Political Justice* London, Penguin

Hodgson, William Hope and Davies, David Stuart (1913/2006) *The Casebook of Carnaki The Ghost Finder* Ware, Wordsworth

Huxley, Thomas Henry (1869) "Nature: Aphorisms by Goethe" *Nature* 1: 9-11

Huxley, Thomas Henry (1894) "Past and Present." *Nature* 51: 1-3

Huxley, Thomas Henry (1896) *On the Method of Zadig* Kindle Ed http://www.gutenberg.org/ Accessed 27.09.2010

Larsson, Stieg and Keeland, Reg (2008) *The Girl with the Dragon Tatoo* London, MacLehose Press

Le Fanu, Sheridan J and Tracy, Robert (1872/1993) *In a Glass Darkly* Oxford, Oxford University Press

Lewis, Matthew Gregory; Macdonald, DL; Scherf, Kathleen (1796/2004) *The Monk* Peterborough, CA, Broadview Press

Lyell, Charles and Secord, James A (1830/1997) *Principles of Geology* London, Penguin

Radcliffe, Ann and Chard, Chloe (1791/1986) *The Romance of the Forest* Oxford, Oxford University Press

Reynolds, George W (1846a) *The Mysteries of London* Vol I London, George Vickers

Reynolds, George W (1846b) *The Mysteries of London* Vol II London, George Vickers

Shelley, Mary; Macdonald, DL; Scherf, Kathleen (1818/1994) *Frankenstein* Peterborough, CA, Broadview Press

Snow, CP and Collini, Stefan (1959/1998) *The Two Cultures* Cambridge, Cambridge University Press

Stoker, Bram and Byron, Glennis (1897/1998) *Dracula* Peterborough CA, Broadview Literary Texts

Warren, S. (1854) *Passages from the Diary of a Late Physician* London, William Blackwood and Sons.

Wollstonecraft, Mary; Macdonald, DL; Scherf, Kathleen (1790/1997) *The Vindications* Peterborough CA, Broadview Press

Secondary Sources

Adams, Tim "The New Age of Ignorance" *The Observer*, Sunday 1 July 2007 http://observer.guardian.co.uk/review/story/0,,2115519,00.html Accessed 19.01.10

Agassi, Joseph (1982) "The Detective Novel and Scientific Method" *Poetics Today* 3: 99-108

Alexander, Harriet "Twilight:Book Breaks Sales Records" *Telegraph* 17 Nov 2009 http://www.telegraph.co.uk/culture/books/6590249/Twilight-book-breaks-sales-records.html Accessed 14.06.11

Altick, Richard D (1998) *The English Common Reader: A Social History of the Mass Reading Public 1800-1900* Columbus, Ohio State University Press

Anon and Bleiler, EF (1976) *Richmond: Scenes in the Life of a Bow Street Runner by "Richmond"* New York, Dover

Ascari, Maurizio (2007) *A Counter History of Crime Fiction* Basingstoke, Palgrave Macmillan

Asimov, Isaac (1983) "Popularizing science" *Nature* 306: 119

Baldick, Chris (1987) *In Frankenstein's Shadow: Myth, Monstrosity and Nineteenth Century Writing* Oxford, Clarendon Press

Baldick, Chris (1992) *The Oxford Book of Gothic Tales* Oxford, Oxford University Press

Ball, Philip (2006) "Chemistry and Power in Recent American Fiction" *HYLE: International Journal for Philosophy of Chemistry* 12: 45-66.

Bann, Stephen (ed) (1994) *Frankenstein: Creation and Monstrosity* London, Reakton Books.

Barker, Martin (1989) *Comics: Ideology, Power and The Critics* Manchester University Press, Manchester

Barthes, Roland (1972) *Mythologies* London, Random House

Barton, Ruth (2003). "'Men of Science': Language, Identity and Professionalization in the Mid-Victorian Scientific Community" *History of Science* xli: 73-119

Bates, Benjamin R (2005) "Public Culture and Public Understanding of Genetics: A focus group study" *Public Understanding of Science* 14: 47-65

Bauer, Martin W (2002) "Controversial medical and agri-food biotechnology: a cultivation analysis" *Public Understanding of Scie*nce 11: 93-111

Bauer, Martin W (2009) "The Evolution of the Public Understanding of Science-Discourse and Comparative Evidence" *Science, Technology and Society* 14: 221-240

Bennett, Tony; Boyd-Bowman, Susan; Mercer, Colin; Woollacott, Janet (eds) (1981) *Popular Television and Film* London, BFI

Bloom, Clive (2007) *Gothic Horror: A Guide for Students and Readers* Basingstoke, Palgrave Macmillan

Botting, Fred (1996) *Gothic* London, Routledge

Botting, Fred and Townshend, Dale (eds) (2004a) *Gothic: Critical Concepts in Literary and Cultural Studies: Volume I* London, Routledge

Botting, Fred and Townshend, Dale (eds) (2004b) *Gothic: Critical Concepts in Literary and Cultural Studies: Volume II Eighteenth Century Gothic* London, Routledge

Bourne-Taylor, Jenny (ed) (2006). *The Cambridge Companion to Wilkie Collins* Cambridge, Cambridge University Press

Bowler, Peter J (1989) *Evolution: The History of an Idea* Berkeley, University California Press

Boylan, Colin R; Hill, Douglas M; Wallace, Andrew R (1992) "Beyond Stereotypes" *Science Education* 76: 465-476

Braund, Martin and Reiss, Michael (2006) "Towards a More Authentic Science Curriculum: The contribution of out-of-school learning" *International Journal of Science Education* 28: 1373-1388

Briggs, Julia (1977) *Night Visitors: The Rise and Fall of the English Ghost Story* London, Faber and Faber

Brown, Nicola; Burdett, Carolyn; Thurschwell, Pamela (eds) (2004) *The Victorian Supernatural* Cambridge, Cambridge University Press

Byrne, Patrick F (1973) "Joseph Sheridan Le Fanu: A Centenary Memoir" *Dublin Historical Record* 26: 80-93

Carnell, Jennifer (2000) *The Literary Lives of M.E. Braddon* Hastings, The Sensation Press

Carroll, Michael P (1981) "Lévi-Strauss, Freud, and the Trickster: A New Perspective upon an Old Problem" *American Ethnologist* 8(2): 301-313

Charney, Davida (2003) "Lone Geniuses in Popular Science: The Devaluation of Scientific Consensus" *Written Communication* 20: 215-241

Clee, Nicholas "Crime fiction: the bestsellers" *The Times* April 17 2008 London

Cobb, Belton (1957) *The First Detectives* London, Faber and Faber

Cohen, I Bernard (1981) "The Fear and Distrust of Science in Historical Perspective." *Science, Technology and Human Values* 6: 20-24

Collins, Harry and Evans, Robert (2002) "The Third Wave of Science Studies: Studies of Expertise and Experience" *Social Studies of Science* 32(2): 235-296

Collins, Harry and Pinch, Trevor (1998) *The Golem: What You Should Know about Science* Cambridge, Cambridge University Press

Collins, VH (ed) (1924) *Ghosts and Marvels* Oxford, Oxford University Press

Cooter, Roger (1976) "Phrenology and the British Alienists, c.1825-1845" *Medical History* XX: 1-21

Cooter, Roger (1984) *The Cultural Meaning of Popular Science: Phrenology and the Organisation of Consent in Nineteenth-Century Britain* Cambridge, Cambridge University Press

Crichton, Michael (1999) "Ritual Abuse, Hot Air, and Missed Opportunities." *Science* 283: 1461-1463.

Cunningham, Andrew and Jardine, Nicholas (eds) (1990) *Romanticism and the Sciences* Cambridge, Cambridge University Press

Curtis, Ron (1994) "Narrative Form and Narrative Force: Baconian Story-Telling in Popular Science" *Social Studies of Science* 24: 419 - 461

Dalziel, Margaret (1957) *Popular Fiction 100 Years Ago: An Unexplored Tract of Literary History* London, Cohen and West

David, Deirdre (ed) (2001) *The Cambridge Companion to The Victorian Novel* Cambridge, Cambridge University Press

Davies, Owen (1999) "Cunning-Folk in the Medical Market Place during the Nineteenth Century" *Medical History* 43: 55-73

Davies, Owen (2003) *Cunning-Folk: Popular Magic in English History* London, Hambledon and London

Davies, Owen (2007) *The Haunted: A Social History of Ghosts* Basingstoke, Palgrave Macmillan

Day, William Patrick (1985) *In Circles of Fear and Desire: A Study of Gothic Fantasy* Chicago, University of Chicago Press

de Blécourt, Willem and Owen Davies (eds). (2004) *Witchcraft Continued: Popular Magic in Modern Europe* Manchester, Manchester University Press

De Vries, Raymond; Dingwall, Robert; Ofrall, Kristina (2009) "The Moral Organization of the Professions: Bioethics in the United States" *Current Sociology* 57(4): 555-579

Dear, Peter (2006) *The Intelligibility of Nature: How Science Makes Sense of the World* Chicago, Chicago University Press

Desmond, Adrian (1989) *The Politics of Evolution* Chicago, University of Chicago Press

Dickens, Charles and Pascoe, David (1997) *Selected Journalism 1850-1870* London, Penguin

Dickson, David (2000) "Science and Its Public: The Need for a 'Third Way'" *Social Studies of Science* 30: 917-923

DiFonzo, J Herble and Stern, Ruth C (2007) "Devil in a White Coat: The Temptation of Forensic Evidence in the Age of CSI" *New England Law Journal* 41: 503-532

Dorfman, Marcy H (1996) "Evaluating the interpretive community: Evidence from expert and novice readers" *Poetics* 23: 453-470

Dornan, Christopher (1990) "Some Problems in Conceptualising the Issue of 'Science and the Media'" *Critical Studies in Mass Communication* 7: 48-71

Duncan, CS (1916) "The Scientist as Comic Type" *Modern Philology* 14: 281-291

Durant, John and Gregory, Jane (eds) (1993) *Science and Culture in Europe* London, Science Museum

Durant, John R; Evans, Geoffrey A; Thomas Geoffrey P (1989) "The Public Understanding of Science" *Nature* 340: 11-14

Dyer, Richard (2002) *The Matter of Images* London, Routledge

Eadweard Muybridge: Defining Modernities (2011) http://www.eadweardmuybridge.co.uk/ Accessed 23.06.11 Kingston University, Kingston

Economic and Research Council (2000) *Who's Misunderstanding Whom?* www.esrc.ac.uk/_images/Whos_misunderstanding_whom_tcm8-13560.pdf Accessed: 09.08.11

Ekblom, Paul (1997) "Gearing Up Against Crime: a Dynamic Framework to Help Designers Keep Up with the Adaptive Criminal in a Changing World" *International Journal of Risk, Security and Crime Prevention* 2: 249-265

Ellis, Markman (2000) *The History of Gothic Fiction* Edinburgh, Edinburgh University Press

Emsley, Clive (2000) "The Policeman as Worker: A Comparative Study c.1800-1940" *International Review of Social History* 45: 89-110

Emsley, Clive (2005) (3rd ed.) *Crime and Society in England 1750 -1900* Harlow, Pearson

Emsley, Clive and Shpayer-Makov, Haia (eds) (2006) *Police Detectives in History 1750-1950* Aldershot, Ashgate

Emsley, John (2001) "Good news is no news" *Nature* 413:113

Fish, Stanley E (1976) "Interpreting the 'Variorum'" *Critical Inquiry* 2: 465-485

Frayling, Christopher (1991) *Vampyres:Lord Byron to Count Dracula* London, Faber and Faber

Frayling, Christopher (2005) *Mad, Bad and Dangerous: The Scientist and the Cinema* London, Reaktion Books

Frayling, Christopher (2006a) Introduction *The Gothic Reader* M. Myrone (ed) London, Tate Publishing

Frayling, Christopher (2006b) "All boffins are bonkers." *Telegraph* 9 May 2006 http://www.telegraph.co.uk/connected/main.jhtml?xml=/connected/2006/05/09/ecboff09.xml&sSheet=/connected/2006/05/09/ixconnrite.html Accessed 19.05.10

Gaskell, George and Biotechnology and European Public Concerted Action Group (1997) "Europe ambivalent on biotechnology." *Nature* 387: 845-847

Gaskell, George et al (2000). "Biotechnology and the European Public" *Nature* Biotechnology 18: 935-938

Gaskell, George et al (2006) "Europeans and Biotechnology in 2005: Patterns and Trends: Eurobarometer 64.3" http://ec.europa.eu/research/press/2006/pdf/pr1906_eb_64_3_final_report-

may2006_en.pdf Accessed 07.01.11 European Commission Directorate-General for Research

Gerth, HH and Mills, C Wright (1991) *From Max Weber: Essays in Sociology* London, Routledge.

Gieryn, Thomas F (1995) "Boundaries of Science" in *Handbook of Science and Technology Studies* Sheila Jasanoff; Gerald E Markle; James C Peterson; Trevor Pinch (eds) Thousand Oaks, Sage

Gilbert, G Nigel and Mulkay, Michael (1984) *Opening Pandora's Box: A sociological analysis of scientists' discourse* Cambridge, Cambridge University Press

Gilbey, John (2008). Fools! I will destroy you all! *Times Higher Education Supplement* 19 June 2008 http://www.timeshighereducation.co.uk/story.asp?storycode=402421 Accessed 10.08.11

Glover, David (1994) "'Our Enemy is not merely Spiritual': Degeneration and Modernity in Bram Stoker's Dracula" *Victorian Literature and Culture* 22: 249-264

Golinski, Jan (1992) *Science as Public Culture: Chemistry and Enlightenment in Britain 1760-1820* Cambridge, Cambridge University Press

Golinski, Jan (1998) *Making Natural Knowledge* Cambridge, Cambridge University Press

Greenway, John L (1986) "Seward's Folly: Dracula as a Critique of 'Normal Science'" *Stanford Literature Review* 3: 213-230

Gregory, Jane and Miller, Steve (1998) *Science in Public* Cambridge, MA, Perseus Publishing

Grossman, Lev "It's Twilight In America: The Vampire Saga" *Time Magazine* Nov 23 2009

Haste, Helen (1997) "Myths, Monsters, and morality: Understanding 'antiscience' and the media message" *Interdisciplinary Science Reviews* 22: 114-120

Haycraft, Howard (ed) (1946) *The Art of the Mystery Story: A Collection of Critical Essays* New York, Carroll and Graf

Haynes, Roslynn (1994) *From Faust to Strangelove: Representations of the Scientist in Western Literature* Baltimore, Johns Hopkins University Press

Haynes, Roslynn (2003) "From alchemy to artificial intelligence: stereotypes of the scientist in Western literature" *Public Understanding of Science* 12: 243-253

Haynes, Roslynn (2006) "The Alchemist in Fiction: The Master Narrative" *HYLE: International Journal for Philosophy of Chemistry* 12: 5-29

Haywood, Ian (2002) "George WM Reynolds and 'The Trafalgar Square Revolution': radicalism, the carnivalesque and popular culture in mid-Victorian England" *Journal of Victorian Culture* 7: 23-59

Haywood, Ian (2004) *The Revolution in Popular Literature* Cambridge, Cambridge University Press

Heinsler, Janet M; Kleinman, Sherryl; Stenross, Barbara (1990) "Making Work Matter: Satisfied Detectives and Dissatisfied Campus Police" *Qualitative Sociology* 13: 235-250

Heritage, John (1984) *Garfinkel and Ethnomethodology* Cambridge, Polity Press

Heron, E and H (1899/2006) *Flaxman Low: Occult Psychologist* Kindle ed http://gutenberg.net.au/ Accessed 15.12.10 Project Gutenberg

Hirsch, Walter (1958) "The Image of the Scientist in Science Fiction a Content Analysis" *The American Journal of Sociology* 63: 506-512

Hogle, Jerrold E (ed) (2002) *Cambridge Companion to Gothic Fiction* Cambridge, Cambridge University Press

Holmes, Richard (2008) *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science* London, Harper Press

Holton, George and Blanpied, William A (eds) (1976) *Science and its Public: The Changing Relationship* Dordrecht, D. Reidel Publishing Company

House of Lords Select Committee on Science and Technology (2000) *Science and Society* House of Lords 3rd Report.

Hughes, Everett C (1971/1984). *The Sociological Eye: Selected Papers* New Jersey, Transaction Publishers

Hughes, Winifred (1980) *The Maniac in the Cellar: Sensation Novels of the 1860's* Princeton, Princeton University Press

Humpherys, Anne (1983) "GWM Reynolds: Popular Literature and Popular Politics." *Victorian Periodical Review* 16: 79-89

Humpherys, Anne (1991) "Generic Strands and Urban Twists: The Victorian Mysteries Novel" *Victorian Studies* 34(4): 455-472

Ipsos MORI (2008) "Doctors still top the pole of the most trusted profession." http://www.ipsos-mori.com/researchpublications/researcharchive/poll.aspx?oItemId=232 Access 20.06.11

Ipsos MORI and Department for Business and Innovation Skills (2011) *Public Attitudes to Science 2011* http://www.ipsos-mori.com/researchpublications/researcharchive/2764/Public-attitudes-to-science-2011.aspx Accessed 09.08.11

Jackson, J Kasi (2008) "Gender, Mad Scientists and Nanotechnology" *Spontaneous Generations* 2: 45-55

Jacobs, Edward (1995) "Bloods in the Street: London Street Culture, 'Industrial Literacy' and the Emergence of Mass Culture in Victorian England" *Nineteenth Century Contexts* 18: 321-347

Jäger, Jens (2001) "Photography: a means of surveillance? Judicial Photography, 1850-1900" *Crime, History and Societies* 5: 27-51

James, Henry and Edel, Leon (1984) *Essays, American and English Writers* New York, Literary Classics of United States

James, Louis (1974) *Fiction for the Working Man 1830-50* Harmondsworth, Penguin Books

James, Louis (1981) "The view from Brick Lane: Contrasting Perspectives in Working Class and Middle Class Fiction in the Early Victorian Period." *The Yearbook of English Studies* 11(II Special Number): 87-101.

Jann, Rosemary (1989) "Saved by Science? The Mixed Messages of Stoker's *Dracula*" *Texas Studies in Literature and Language* 31: 273-287

Jensen, Eric (2008) "The Dao of human cloning: utopian/dystopian hype in the British press and popular films." *The Public Understanding of Science* 17: 123-143

Jones, Robert A (1997) "The Boffin: a stereotype of science in post-war British films (1945-1970)" *Public Understanding of Science* 6: 31-48

Jones, Robert (2001) "'Why can't you scientists leave things alone?' Science questioned in British films of the post-war period (1945-1970)" *Public Understanding of Science* 10: 365-382

Jones, Stephen (1993) *The Illustrated Vampire Movie Guide* London, Titan Books

Jörg, Daniele (2003) "The good, the bad and the ugly-Dr. Moreau geos to Hollywood." *Public Understanding of Science* 12: 297-305

Kennedy, Meegan (2004) "The Ghost in the Clinic: Gothic Medicine and Curious Fiction in Samuel Warren's Diary of a Late Physician." *Victorian Literature and Culture* 32(2): 327-351

King, Andrew. and Plunkett, John (eds) (2005) *Victorian Print Media: A Reader* Oxford, Oxford University Press.

Kirby, David (2003) "Scientists on the Set: Science Consultants and the Communication of Science in Visual Fiction" *Public Understanding of Science* 12: 261-278

Knellwolf, Christa and Goodall Jane (eds) (2008) *Frankenstein's Science: Experimentation and Discovery in Romantic Culture 1780-1830* Aldershot, Ashgate.

Knight, Stephen (1980) *Form and Ideology in Crime Fiction* London, Macmillan Press Ltd

Knight, Stephen (2004) *Crime Fiction 1800-2000* Basingstoke, Palgrave Macmillan

Kramer, Cheryce; Martyn Trea; Newton, Michael (eds) (2003) *Literature and Science 1660-1834: Volume 1, Science as Polite Culture* London, Pickering and Chatto

Kuhn, Thomas S (1962/1996) *The Structure of Scientific Revolutions* Kindle ed Chicago, University of Chicago Press.

LaFollette, Marcel C (1990) *Making Science Our Own: Public Images of Science* 1919-1955 Chicago, University of Chicago Press

Lambourne, Robert; Shallis, Michael; Shortland, Michael (1990) *Close Encounters?* Bristol, Adam Hilger

Lamont, Peter (2004) "Spiritualism and a Mid-Victorian Crisis of Evidence" *The Historical Journal* 47(4): 897-920

Landes, David S (2003) *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present* Cambridge, Cambridge University Press

Latour, Bruno and Woolgar, Steve (1986) *Laboratory Life: The Construction of Scientific Facts* Princeton, Princeton University Press

Leane Elizabeth (2007) *Reading Popular Physics: Disciplinary Skirmishes and Textual Strategies* Aldershot, Ashgate

Leishman, Frank and Mason, Paul (2003) *Policing and the Media: Facts, Fictions and Factions* Cullompton, Willan Publishing

Lévy-Leblond, Jean-Marc (1992) "About Misunderstandings about misunderstandings" *Public Understanding of Science* 1: 17-21

Liakopoulos, Miltos (2002) "Pandora's Box or panacea? Using Metaphors to create public representations of biotechnology" *Public Understanding of Science* 11: 5-32

Locke, Simon (1999) "Golem Science and the public understanding of science: from deficit to dilemma" *Public Understanding of Science* 8: 75-92

Locke, Simon (2005) "Fantastically Reasonable: Ambivalence in the Representation of Science and Technology in Super-Hero Comics" *Public Understanding of Science* 14: 25-46

Long, Marilee and Steinke, Jocelyn (1996) "The Thrill of Everyday Science: Images of science and scientists on children's educational science programmes in the United States" *Public Understanding of Science* 5: 101-119

Luckhurst, Roger. (2002) *The Invention of Telepathy* Oxford, Oxford University Press

Macnaughton, R. Jane (1998) "Evidence and Clinical Judgement" *Journal for Evaluation in Clinical Practice* 4(2): 89-92

Maidment, Brian E (1984) "Magazines of Popular Progress and the Artisans." *Victorian Periodical Review* 3: 83-94

Markel, Howard (2005) "The Medical Detectives." *New England Journal of Medicine* 353(23): 2426-2428

Martin, J R; Veel, Robert (eds) (1998). *Reading Science: Critical and fuctional perspectives on discourses of science* London, Routledge

Mawby, R. C. (2007) "Criminal investigation and the Media" *Handbook of Criminal Investigation* Tim Newburn; Tom Williamson; Alan Wright (eds) Cullompton, Willan

Maxwell, Robert (1992) *The Mysteries of Paris and London* Charlottesville, University of Virginia Press

Mayhew, Henry (1861/1968) *London Labour and London Poor* Vols I-IV New York, Dover Publications

McDonald, Kim (1989) "A Stanford President Warns Researchers of the Need to Combat the American Public's 'Alarming' Mistrust of Science" *The Chronicle of Higher Education* Jan 25 A4

McKeon, Michael (1985) "Generic Transformation and Social Change: Rethinking the Rise of the Novel" *Cultural Critique* 1: 159-181

McKinney, John C (1969) "Typficiation, Typologies and Sociological Theory" *Social Forces* 48: 1-12

Mead, Margaret and Métraux, Rhoda (1957) "Image of the Scientist among High-School Students: A Pilot Study" *Science* 126: 384-390

Merton, Robert K. (1938) "Social Structure and Anomie" *American Sociological Review* 3: 672-682

Merton, Robert K (1959) "Social Conformity, Deviation, and Opportunity Structures: A Comment on Contributions of Dubin and Cloward" *American Sociological Review* 24: 177-189

Messac, Régis (1929) *Le 'Detective Novel' et L'influence de la Pensée Scientifique* Paris, Libraire Ancienne Honoré Champion

Michael, Mike and Carter Simon (2001) "The Facts about Fictions and Vice Versa: Public Understanding of Genetics" *Science as Culture* 10: 5-32

Miles, Robert (1995) *Ann Radcliffe: The Great Enchantress* Manchester, Manchester University Press

Miles, Robert (2005) *Oxford Dictionary of National Biography: Radcliffe [née Ward] Ann* Oxford, Oxford University Press

Millhauser, Milton (1973) "Dr Newton and Mr Hyde: Scientists in Fiction from Swift to Stevenson." *Nineteenth-Century Fiction* 28: 287-304

Moretti, Frank (1983) *Signs Taken for Wonders: On the Sociology of Literary Forms* London, Verso

Morrison, Robert and Baldick, Chris (1995) *Tales of Terror from Blackwood's Magazine* Oxford, Oxford University Press

Morus, Iwan Rhys (ed.) (2002) *Bodies/Machines* Oxford, Berg

Mulkay, Michael (1985) *The Word and the World* London, George Allen and Unwin.

Mulkay, Michael (1995) "Parliamentary Ambivalence in Relation to Embryo Research" *Social Studies of Science* 25: 149-163

Mulkay, M. (1996) "Frankenstein and the Debate over Embryo Research" *Science, Technology and Human Values* 21: 157-176

Myrone, M (ed) (2006) *The Gothic Reader: A Critical Anthology* London, Tate Publishing

Nelkin, Dorothy (1995) *Selling Science: How the Press Covers Science and Technology* New York, W.H Freeman and Company

Nerlich, Brigitte, Elliott, Richard; Larson, B (2009) *Communicating Biological Sciences: Ethical and metaphorical dimensions* Aldershot, Ashgate

Newburn, Tim; Williamson, Tom; Wright, Alan (eds) (2007) *Handbook of Criminal Investigation* Collumpton, Willan Publishing

Noakes, Robert J (1999) "Telegraphy as an Occult Art: Cromwell Fleetwood Varley and the diffusion of electricity to the other world." *British Journal for the History of Science* 32: 421-459

O'Sullivan, Sean (2005) "UK Policing and its Television Portrayal: 'Law and Order' Ideology or Modernising Agenda?" *The Howard Journal* 44: 504-526

Orthia, Lindy A (2010) "Anti-rationalist critique or fifth column of scientism? Challenges from Doctor Who to the mad scientist trope." *Public Understanding of Science* Online First Volume:1-18

Ortolano, Guy (2009) *The Two Cultures Controversy: Science, Literature and Cultural Politics in Post-war Britain.* Cambridge, Cambridge University Press

Otto, Peter (2008) "Entertaining the Supernatural: Animal Magnetism, Spiritualism, Secular Magic and Psychical Science" http://www.victorianpopularculture.amdigital.co.uk/Introduction/Content/section-1-essay.aspx Access 10.08.11 *Victorian Popular Culture*

Pallo, Vicky A (2006) "From Do-Nothing to Detective: The Transformation of Robert Audley in *Lady Audley's Secret*" *The Journal of Popular Culture* 39: 466-478

Peschel, RE and Peschel, E (1989) "What physicians have in common with Sherlock Holmes: discussion paper" *Journal Royal Society of Medicine* 82: 33-36

Podlas, Kimberlianne (2006) "'The CSI Effect': Exposing the Media Myth" *Fordham Intellectual Property and Media Law Journal* XVI: 429-465

Pollack, Andrew (1998) "Scientists Seek a New Movie Role: Hero, Not Villain" *New York Times* 1 December

Priestman, Martin (ed) (2003) *The Cambridge Companion to Crime Fiction* Cambridge, Cambridge University Press

Propp, Vladimir; Scott, Laurence; Pirkova-Jakobson, Svatava; Wagner, Louis A; Dundes Alan (1928/1968) *Morphology of the Folktale* Austin, University of Texas Press

Propp, Vladimir; Martin, Adriana Y; Martin, Richard P; Liberman, Anatoly (1984) *Theory and History of Folklore* Minneapolis MN, University of Minnesota Press

Punter, David (1996) *The Literature of Terror: The Gothic Tradition.* Vol 1 Harlow, Pearson Education Ltd

Pykett, Lyn (ed) (1994) *The Sensation Novel: From the Woman in White to The Moonstone* Plymouth, Northcote House Publishers

Pykett, Lyn (1998) *Wilkie Collins* Basingstoke, Macmillan Press

Rahm, Jrène. and Charbonneau, Paul (1997) "Probing Stereotypes through Students' Drawings of Scientists." *American Journal of Physics* 65: 774-778

Rapezzi, Claudio; Ferrari, Roberto; Branzi, Angelo (2005) "White Coats and fingerprints: diagnostic reasoning in medicine and investigative methods of fictional detectives" *British Medical Journal* 331: 1491-1494

Rauch, Alan (2001) *Useful Knowledge: The Victorians, Morality and the March of Intellect* Durham, Duke University Press

Rawlings, Philip (1995) "The Idea of Policing: A History" *Policing and Society* 5: 129-149

Reach, Bethune and Aspin, Chris (1849/2007) *A Cotton-Fibre Halo: Manchester and the Textile Districts in 1849* Hebden Bridge, Royd Press

Reiner, Robert (1992) *The Politics of the Police* Hemel Hempstead, Harvester Wheatsheaf

Reisz, Matthew "In at the Kill" *Times Higher Education* 17 April 2008: 36-39

Research Councils UK and Department for Innovation and Skills (2008) *Public Attitudes to Science* 2008" www.rcuk.ac.uk/documents/scisoc/pas08.pdf Accessed 09.08.2011

Reynolds, George W and Thomas, Trefor (1844/1996) *The Mysteries of London* Keele, Keele University Press

Richardson, Ruth (2001) *Death, Dissection and the Destitute* London, Phoenix Press

Rohn, Jenny (2006) "Experimental Fiction" *Nature* 439: 269

Rohn, Jenny (2011) "Who are you calling a boffin?" *The Guardian* http://www.guardian.co.uk/science/blog/2010/sep/24/scientists-boffin-stereotype Accessed 25.06.11

Rose, Christopher (2003) "How to Teach Biology Using the Movie Science of Cloning People, Resurrecting the Dead, and Combining Flies and Humans" *Public Understanding of Science* 12: 289-296

Rosenberg, Charles E (1963) "Martin Arrowsmith: The Scientist as Hero" *American Quarterly* 15: 447-458

Russell, Nicholas (2007) "Science and scientists in Victorian and Edwardian literary novels: insights into the emergence of a new profession." *Public Understanding of Science* 16: 205-222

Rzepka, Charles J. (2005) *Detective Fiction* Cambridge, Polity Press

Sage, Victor (1990) *The Gothick Novel* London, Macmillan Press

Saler, Micheal (2003) "'Clap if You Believe in Sherlock Holmes': Mass Culture and the Re-enchantment of Modernity, c.1890-c.1940" *The Historical Journal* 46: 599-622

Scaggs, John (2005) *Crime Fiction* Abingdon, Routledge

Scarborough, Dorothy (1917/2001) *The Supernatural in Modern English Fiction* New Jersey, Lethe Press

Schnabel, Ulrich (2003) "God's Formula and Devil's contribution: science in the press" *Public Understanding of Science* 12: 255-259

Schummer, Joachim (2006) "Historical Roots of the "Mad Scientist": Chemists in Nineteenth-century Literature" *AMBIX* 53: 99-127

Schutz, Alfred (1932/1967) *The Phenomenology of the Social World* Northwestern University Press.

Schutz, Alfred and Natanson, Maurice (1973) *Collected Papers I The Problem of Social Reality* The Hague, Martinus Nijhoff.

Secord, James A (2000) *Victorian Sensation: The Extraordinary Publication, Reception and Secret Authorship of Vestiges of the Natural History of Creation* Chicago, University of Chicago Press.

Shapin, Steven (1991) "A Scholar and a Gentleman" *History of Science* 29: 279-327

Shapin, Steven (1996) *The Scientific Revolution* Chicago, University Chicago Press

Shaw, Daniel (1992) "Reason and Feeling In Hume's Action Theory and Moral Philosophy" *Hume Studies* 18: 349-367

Shortt, SED (1983) "Physicians, Science, and Status: Issues in the Professionalization of Anglo-American Medicine in the Nineteenth Century" *Medical History* 27: 51- 68

Simons, Jon (ed) (2002) *From Kant to Levi-Strauss: The Background to Contemporary Critical Theory* Edinburgh, Edinburgh University Press.

Skal, David J (1993) *The Monster Show: A Cultural History of Horror* London, Plexus

Skal, David J (1998) *Screams of Reason* New York, Norton and Co.

Skal, David J (2001) *Vampires: Encounters with the Undead* New York, Black Dog and Leventhal

Smajić, Srdjan (2010) *Ghost-Seers, Detectives, and Spiritualists* Cambridge, Cambridge University Press

Smith, Adam (1759/2009) *The Theory of Moral Sentiments* Kindle ed http://upliftingpublications.org/ Access 26.05.11 Uplifting Publications

Smith, Andrew (2007) *Gothic Literature* Edinburgh, Edinburgh University Press

Smith, Harold (1974) *The Society for the Diffusion of Knowledge 1826-1846: A Social and Bibliographical Evaluation.* London, Vine Press

Smith, Jonathan (1994) *Fact and Feeling: Baconian Science and the Nineteenth-Century Literary Imagination* Madison, Wisconsin University Press

Snyder, Laura J (2004) "Sherlock Holmes: Scientific Detective" *Endeavour* 28: 104-108

Sparks, Tabitha (2009) *The Doctor in the Victorian Novel* Farnham, Ashgate

St Clair, William (2004) *The Reading Nation in the Romantic Period* Cambridge, Cambridge University Press

Stewart, Bruce (ed) (1998) *That Other World: The Supernatural and the Fantastic in Irish Literature and its Contexts* Vol I Gerards Cross, Colin Smythe

Stoddart, Helen (1991) "'The Precautions of Nervous People Are Infectious': Sheridan Le Fanu's Symptomatic Gothic" *Modern Language Review* 86: 19-34

Storch, Robert D (1976) "The Policeman as Domestic Missionary: Urban Discipline and Popular Culture in Northern England 1850-1880" *Journal of Social History* 9: 481-509

Storey, John (2003) *Inventing Popular Culture* Oxford, Blackwell

Storey, John (2006) *Cultural Theory and Popular Culture: An Introduction.* Edinburgh, Pearson Education

Strong, Philip and Murcott Anne (2006) *Sociology and Medicine: Selected Essays by PM Strong* Aldershot, Ashgate

Subotsky, Fiona (2009) "In a Glass Darkly (1872) J. Sheridan Le Fanu" *The British Journal of Psychiatry* 195: 162.

Summerscale, Kate (2008) *The Suspicions of Mr Whicher or The Murder at Road Hill House* London, Bloomsbury

Sussex, Lucy (2010) *Women Writers and Detectives in Nineteenth Century Crime Fiction* Basingstoke, Palgrave Macmillan

Symons, J (1985) *Bloody Murder: From the Detective Story to the Crime Novel* Harmondsworth, Penguin Books

Terzian, Sevan G and Grunzke, Andrew L (2007) "Scrambled eggheads: ambivalent representations of scientists in six Hollywood film comedies from 1961 to 1965." *Public Understanding of Science* 16: 407-419

The Sherlock Holmes Society of London: http://www.sherlock-holmes.org.uk/world/cinema.php Accessed 10.08.11

The Wellcome Trust and The Office of Science and Technology (2000) *Science and the Public: A Review of Science Communication and Public Attitudes to Science in Britain* http://www.wellcome.ac.uk/About-us/Publications/Reports/Public-engagement/wtd003420.htm Accessed 09.11.2011

Thoman, Charles J (1998) "Sir Humphry Davy and Frankenstein" *Journal of Chemical Education* 75(4): 495-496

Thomas, Geoffrey and Durant John (1987) "Why Should we Promote the Public Understanding of Science?" *Scientific Literacy Papers*: 1-14.

Thomas, Ronald R (1999) *Detective Fiction and the Rise of Forensic Science* Cambridge, Cambridge University Press.

Thomas, Trefor (1996) *The Mysteries of London* Keele, Keele University Press

Todorov, Tzvetan (1977) *The Poetics of Prose.* Oxford, Basil Blackwell

Todorov, Tzvetan; Howard, Richard; Scholes, Robert (1975) *The Fantastic: A Structural Approach to a Literary Genre* Ithaca, Cornell University Press

Toumey, Christopher P (1992) "The Moral Character of Mad Scientists: A Cultural Critique of Science" *Science, Technology and Human Values* 17(4): 411-437

Toumey, Christopher P (1996) *Conjuring Science: Scientific Symbols and Cultural Meanings in American Life* New Brunswick, NJ, Rutgers University Press

Tudor, Andrew (1989a) "Seeing the Worst Side of Science" *Nature* 340: 589-592

Tudor, Amdrew (1989b) *Monsters and Mad Scientists: A Cultural History of the Horror Movie* Oxford, Basil Blackwell

Turney, Jon (1998) *Frankenstein's Footsteps. Science, Genetics and Popular Culture*: New Haven, Yale University Press

Van Wyhe, John (2004) *Phrenology and the Origins of Victorian Scientific Naturalism* Aldershot, Ashgate

Vieth, Errol (2001) *Screening Science: Contexts, Texts, and Science in Fifties Science Fiction Film* Lanham MD, Scarecrow Press

Wade-Chambers, David (1983) "Stereotypical Images of the Scientist: The Draw a Scientist Test." *Science Education* January: 255-265

Warwick, Alexander (2006) "The Scene of the Crime: Inventing the Serial Killer" *Social and Legal Studies* 15: 552-569

Warwick, Alexander and Willis, Martin (eds) (2007) *Jack the Ripper: Media, Culture, History* Manchester, Manchester University Press

Weart, Spencer (1988) "The Physicist as Mad Scientist." *Bulletin of Science, Technology and Society* 8: 143-152

Weingart, Peter (2006) "Chemists and their Craft in Fiction Film" *HYLE: International Journal for Philosophy of Chemistry* 12: 31-44

Weingart, Peter; Muhl, Claudia; Pansegrau, Petra (2003) "Of power maniacs and unethical geniuses: science and scientists in fiction film." *Public Understanding of Science* 12: 279-287

Weingart, Peter and Pansegrau, Petra (2003) "Introduction: perception and representation of science in literature and fiction film" *Public Understanding of Science* 12: 227-228

Winter, Alison (1998) *Mesmerized: Powers of Mind in Victorian Britain* Chicago, Chicago University Press

Worthington, Heather (2005) *The Rise of the Detective in Early 19th Century Popular Fiction* Basingstoke, Palgrave Macmillan.

Wynne, Brian (1992) "Public Understanding of science research: new horizons or hall of mirrors" *Public Understanding of Science* 1: 37-43

Yeo, Richard (1988) "Genius, Method, and Morality: Images of Newton in Britain 1760-1860" *Science in Context* 2: 257-284