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‘One Part Truth and Three Parts Fiction’: Race, Science and Narrative in Zadie Smith’s *White Teeth*

In June 2000 US President Bill Clinton joined with British Prime Minister Tony Blair (via satellite), Francis Collins, Director of the National Human Genome Research Institute, and Craig Venter, Chief Officer of Celera Genomics Corporation, at a White House press conference to announce that the first-ever draft of the human genome had been completed. The Human Genome Project (HGP), begun fifteen years earlier, had identified all 25,000 genes in the human genome and sequenced the 3 billion base pairs in human DNA. The culmination of international scientific collaboration, as well as public and commercial scientific work (represented by Collins and Venter respectively), the project came to symbolize half a century of rapid developments in the biological sciences and placed the new scientific discipline of genomics at the forefront of twenty-first-century scientific endeavour. In pronouncing on the significance of the completed first draft, and the scientific knowledge and subsequent medical benefits that would be made possible by this major achievement, the scientific and political figures at the White House meeting described the genome variously as a book, language or writing, which scientists would now be able to read. Collins explained that the genome was ‘the human book of life’, arguing that we must now ‘learn how to speak the language of the genome fluently’,¹ Clinton claimed it was ‘the language in which God created life’,² while Venter declared that ‘for the first time our species can read the chemical letters of its genetic code.’³ The book metaphor had first developed from genetic scientists’ use of the initial letters A, C, G and T to stand (metonymically) for the names of the four base molecules (adenine, cytosine, guanine and thymine) that make up DNA.⁴ From this, a whole set of equivalences developed in genetic discourses; a gene was a sentence, a chromosome a chapter, DNA a language and the genome the book.⁵ By the time it was used by Clinton, Venter and Collins to announce

the completion of the draft, the book metaphor was more than what Brigitte Nerlich, Robert Dingwall and David D. Clarke describe as 'a conventional means of articulating a shared understanding of the biological phenomena being discussed';⁶ it provided a way for the speakers to convey a sense of profundity about the project in language which would be readily understood by the public.

However, describing the genome as a book also had wider implications for books more traditionally conceived, an issue of which both scientists involved in the announcement seemed peripherally aware. Collins stated: 'We are here today to celebrate a milestone along a truly unprecedented voyage, this one into ourselves. Alexander Pope wrote, "Know then thyself. Presume not God to scan. The proper study of mankind is man." What more powerful form of study of mankind could there be than to read our own instruction book?'⁷ In quoting from a literary source, Collins appears unaware of the irony of his analogy; while using Pope's words to explain the importance of sequencing the genome, of studying man, he then asserts the genome to be the ultimate book, there being no 'more powerful' way to understand human life than reading it. Reading other books which may grapple with the study of mankind, such as Pope's, appears less significant. The question of the place of the literary in a world where the genome is proclaimed to be the definitive book of life is taken up more directly by Venter, who ended his speech thus:

Some have said to me that sequencing the human genome will diminish humanity by taking the mystery out of life. Poets have argued that genome sequencing is an example of sterilizing reductionism that will rob them of their inspiration. Nothing could be further from the truth. The complexities and wonder of how the inanimate chemicals that are our genetic code give rise to the imponderables of the human spirit should keep poets and philosophers inspired for the millenniums.⁸

Venter imagines a productive future for literature inspired, rather than threatened, by the genome, yet the meaning and mysteries of life remain grounded in the 'genetic code', which in his brief account of the direct linkage between 'inanimate chemicals' and 'the imponderables of the human spirit' leans towards the reductionism he describes poets as fearing. Science has often provided poets with inspiration but, in Venter's account, literature is framed as merely responsive to science, capable of expressing a form of humanity which has already been delineated by science.

These comments by Collins and Venter, the 'book of life' metaphor, demonstrate how the sequencing of the genome presented an implicit challenge to the literary. If the genome was a book, then scientists were the new literary critics, interpreting

the meaning of an array of different genes by ‘reading’ them, making ‘the body a text for interpretation.’⁹ As Patricia Waugh contends, ‘the idea that the human self is written was hardly news to anyone who had spent the past twenty-five years in the literary academy,’¹⁰ yet the kinds of readings of the genes being conducted by scientists were somewhat different to the mode of reading and interpretation which characterized contemporaneous literary criticism. Deborah Lynn Steinberg has argued that while the language metaphor ‘would seem to democratize, to open up the expert conceptual terrains of science and to invite a familiar, interpretive mode of address to the non-scientific reader,’ what it actually signified was a fixed mode of reading where ‘the genetic scientist as “reader”; decodes, but significantly does not produce; is a discoverer rather than mediator of meanings construed as already embedded.’¹¹ Rather than understanding genes as being open to multiple kinds of interpretation and analysis, the meaning of which is dependent on their context (in the way that a literary critic might understand language), in genomics at the turn of the new millennium ‘the phenomenon of language itself is essentialised in structuralist, positivistic terms. The denotive properties of *genes* as *words* – their “claims” as it were – emerge as naturalized, as equivalent certainties.’¹² Such an understanding of language (and thus of genes) was rooted in the origins of the book/writing metaphor which Lily E. Kay identifies as ‘historically specific and culturally contingent.’¹³ The metaphor reflected the culturally dominant modes of thought of the early twentieth century, and became embedded in the very structure of science itself: Judith Roof, for example, has shown how the emphasis on the double helix structure of DNA was in part the product of structuralism and theories about the binary nature of language prevalent at that time.¹⁴ Therefore at the completion of the draft of the HGP, the scientific reading and interpretation of genes led their meanings to become relatively fixed and singular despite the complexity that the sequencing uncovered, enabling geneticists to present their claims about the genome in definitive and certain terms.

Indeed one of the only things that those gathered at the White House were able to be immediately definitive about – as discoverers rather than mediators of genetic meaning – was one of the project’s most significant findings about humanity; that race has no biological meaning. Clinton’s speech is famous for his assertion that ‘one of the great truths to emerge from this triumphant expedition inside the human genome is that in genetic terms, all human beings, regardless of race, are more than 99.9 percent the same.’¹⁵ This point was reiterated later in the proceedings by Venter who, describing the different ethnicities of the people whose genomes he had sequenced, claimed that they could not be distinguished from one another genomically and that the results showed ‘the

concept of race has no genetic or scientific basis'.¹⁶ Francis Collins received a long round of applause following his statement 'I am happy that today the only race we are talking about is the human race'.¹⁷ Geneticists only had one reading of the human body when it came to race, its genetic non-existence put forward as a hard fact that it was no longer possible to dispute. Yet reading genes, as Steinberg contends, is not the neutral and definitive act it may be presented as; 'the power to "read" genes is, in part, embedded in the power to manipulate them ... *editorial* decisions about which genes are meaningful; which genes can or should be deleted, are predicated on the inequalities and dependencies that shore up the boundaries of professional expertise, authority and authorship'.¹⁸ Put differently, scientists' readings of genes at the turn of the second millennium were perhaps not only more contingent and provisional than they appeared, but rather than simply reading genes geneticists were also in part authors of the genome. As Waugh notes, 'as science grows more theoretical' (and in the case of the genome its objects of study less visible) 'so it becomes more dependent on narrative presentation and the use of rhetorical tropes such as metaphors'.¹⁹ The book of life metaphor itself evinced geneticists' reliance on language and narrative in ways which suggest that their subsequent readings of the gene were anything but straightforwardly factual or definitive. Writing and reading occurred simultaneously, and just as the powerful and shaping language metaphor was the product of the wider cultural discourse of the moment, in the case of race, scientists' readings of the gene should themselves be read and understood in the context of wider socio-political discourses about race which ultimately became part of the narrative of race which emerged from the HGP.

For it is clear that the announcement that race had no biological meaning occurred at a time when in the wider political sphere race was being minimized as a meaningful subject of public concern. As discussed in the Introduction to this book, the anti-racist movements of the 1980s and 1990s, which drew their impetus from struggles against racism such as the anti-apartheid movement, had begun to give way to the disappearance of race from political and social dialogues.²⁰ In the United States, political conservatives were advocating the removal of the concept of race from law and politics, and advocating colourblind policies, often employing genetic reasoning as evidence that race was no longer valid, as a means of attacking affirmative action programmes.²¹ In the UK, anti-racist legislation came into force in 2000 in the wake of the racist murder of Stephen Lawrence and the finding of the MacPherson enquiry that the police were institutionally racist. The Race Relations Amendment Act placed a duty on public bodies to eliminate discrimination and promote equality, but the effect

of this move was in fact a quieting of discussions of race and racism, as David Theo Goldberg contends, 'formal public admissions also slide into absolutions, dissolving the energy of the insurgent into the modest, quieting force of the law, reducing resistant antiracist anger each time to the formalisms of antiracial insistence. "We will not tolerate racism" invariably and quite quickly becomes "We cannot speak the language of race"'.²² This was certainly the turn taken by the leaders of the HGDP, who, as discussed in the previous chapter, saw the solution to accusations of racism as being to deny the biological reality of race itself.

It was in this context that those gathered at the White House stressed that they would ensure that the mapping of the genome would not result in discrimination of any kind, a public affirmation of the anti-racist credentials of the project. But it was their assertions about the genetic non-existence of race which were put forward as the project's ultimate contribution to anti-racism; what they announced was the end of race itself, a biofictional 'reading' and narrative of race which both fed into and drew upon the political and social discourses of the moment as well as preceding scientific statements of race. There is little doubt that the anti-racist intentions of the scientists involved in the HGP were genuine, and their findings found favour with the views of many in the humanities that race as concept was nothing more than a social fiction made biological by bad science. The year 2000 was also the year in which Gilroy published his influential text *Against Race*, in which he argued that developments in genetics had caused a crisis in racial thinking which presented the opportunity to move beyond race. However, as Waugh asserts, 'a science that threatens to impinge on human life not merely in the form of technology but also in the shaping of values and public policy, needs to be as vigilant as possible about the status of its evidence and the effects of narrative transmission'.²³ For the effect of the transmission of the anti-racist reading of the gene was a narrative which could be used to support a wider erasure of race and de-prioritization of the need to tackle racism. While 'commitments to do away with race ... have long been associated with social movements to end racism', as Goldberg contends, 'the end of racism is confused with no more than being against race, the end of race substituting to varying degrees for the commitment to – the struggles for – ending racism. The refusal of racism reduces to racial refusal; and racial refusal is thought to exhaust antiracism'.²⁴ Ending genetic race was – as in the case of the HGDP – posited as enough to end racism (rather than anti-racist action), but this position risks silencing populations historically discriminated against because the basis of that discrimination is no longer thought to apply.

Zadie Smith's debut novel *White Teeth*, published in the same year that the draft of the HGP was announced, examines the consequences of the removal of race – and thus the possibility of racism – from genetic science. The novel tells the story of the Iqbals and the Joneses, two working-class, multi-racial north London families, in which the fathers, Samad Iqbal and Archie Jones, met as soldiers during the Second World War. Their children, Irie Jones and twins Magid and Millat Iqbal, grow up together, before meeting the Chalfens, a middle-class family to whom they are sent by their school to be mentored. Marcus Chalfen is a geneticist whose experiments have led him to engineer the genome of a mouse (his FutureMouse© bears a close resemblance to Oncomouse®, a genetically modified mouse predisposed to contracting cancer, created in the 1980s by a group of Harvard scientists). Both Irie and Magid become interested in his science and the Chalfens' 'scientific' approach to life more generally. Marcus is insistent that his science has nothing to do with racial classification or racism, but as the novel progresses it is revealed that the creation of FutureMouse© has been possible only through the work of his predecessor and mentor Dr Perret, who is revealed to be the Nazi racial scientist that Archie and Samad had encountered during the Second World War. This is one of several moments in the novel at which Smith suggests that the removal of race from science leads to both cultural and scientific amnesia about historical racisms and to the reproduction of past structures of racial thinking in the present. Arguing against critical assessments of the novel which read Smith's engagement with genetics as linked to a post-racial message about the blending, mixing and hybridity which are seen to make race increasingly redundant in postcolonial London,²⁵ this chapter contends that it is Smith's portrayal of genetic science which destabilizes the notion that contemporary London is post-racial. For the novel uncovers how the science upon which such conclusions often rely is the product of not only historical and contemporary political currents but of narrativization – it is a story which cannot be reduced to a singular or definitive meaning.

White Teeth explores how genomic science, far from being neutrally objective in its 'readings' of the body and of genes, creates and transmits stories which, like those of fiction, are complex, messy, multiple and contradictory. Smith sets up an extended comparison between the methods of the scientist and the writer of fiction as a means of testing this hypothesis, drawing on Lionel Trilling's claim that 'plot is to the novelist what experiment is to the scientist'²⁶ to offer a metafictional consideration of the similarities between the science the novel addresses and the narrative form of the novel itself. *White Teeth* is written in a Forsterian comic mode characterized by coincidence, irrationality, humour and

melodrama, designed, in the vein of Forster's novels, to convey the 'messy human concoction'²⁷ of life and the muddle of human nature. That this understanding of life can only be fully realized through the 'artificial' imposition of these forms by the novelist to test human nature is what makes her practice, Smith imagines, comparable to the experiment of a scientist. However her comparison also opens up space for a consideration of how, conversely, science is like writing, and how the messiness of the human in fiction might be closer to that of science than those who announced the mapping of the genome imagined it to be. This chapter examines how in highlighting the narrative qualities of genomics, rather than simply being passively inspired by that science, *White Teeth* becomes one of the 'stories that expose the stories that are told to us, by the scientists "for our own good"'.²⁸ Rather than upholding the anti-racist story told by the Human Genome Project 'for our own good', the novel's examination of the stories told by science leads us to the questions posed by Steinberg; 'can there be a genetics divorced from its own history? ... how is an anti-racist genetics possible?'.²⁹ The beginnings of an answer, the novel suggests, lie in interrogating the nature of scientific narrative and its transmission. For it is in science as narrative that race is variously latent, fictionalized and varied in meaning, an emblem of the instability of scientific 'reading' and an indicator of shifting (scientific) interpretations of the genes themselves.

Genetics, race and the comic novel

In 1943, long before his intervention in the two cultures controversy between C.P. Snow and F.R. Leavis, Lionel Trilling published an essay on E.M. Forster's first novel *Where Angels Fear to Tread* in which he offered a comparison of the methods of the scientist and the writer of fiction. In defence of Forster's melodramatic plots, from which, Trilling suggests, 'contemporary taste draws back, insisting that life is not like that', he writes:

Plot is to the novelist what experiment is to the scientist, which is exactly what Zola did not know when he wrote his essay 'The Experimental Novel'; Zola's defense of scientific naturalism in fiction has nothing at all to do with experiment. The science he had in mind as analogous to novel writing was medicine as practised by the great physician Claude Bernard; that is to say he had in mind an empirical, not an experimental science. And Zola's novelistic 'science' was a science of observation, and precisely not of experiment. He condemned plot as artificial, but experiment is artificial too – nature does not exist in test-tubes and

retorts and under controlled conditions, and to conclude that what happens in the laboratory is what happens in the universe requires a leap of the imagination. But experiment, with its artificiality, is our best way of making things act so that we can learn about their nature. And plot in the novel does the same for human nature.³⁰

Interviewed in 2002 about her short story *The Trials of Finch*, Zadie Smith refers to Trilling's scientific analogy as she reflects on the construction of character and plot in her own writing, coming to a similar defence of artificiality:

Real character gives itself away, I think, in the quiet moments, and, for me, it's a great effort to write the quieter bits, to not always explicate through plot. The objection, again, with Finch was this: life is not like that! But I'm still not sure what's meant by that idea. That's sort of why I'm studying the novel again. I do believe in the uses of plot – Lionel Trilling talked about it as a sort of laboratory of ideas. What happens in a lab is an artificiality that sets us up for an experience of the world. The scientist begins with a thesis he wants in some way to prove – he may not get the results he expects, but his experiment is tangential to the world, it has a place there. I think the intention is the same in fiction.³¹

It seems likely that Smith came to Trilling's essay through her self-professed 'love' of E.M. Forster, 'to whom' she has stated, 'all my fiction is indebted'.³² Smith has written of and, similarly to Trilling, defended Forster's melodrama, recognizing its influence on her own work.³³ Following the publication of *White Teeth*, Smith was criticized for the artificiality of her style: James Wood branded the novel part of an emerging genre which he dubbed 'hysterical realism', novels characterized by improbable plots in which novelists 'clothe real people who could never actually endure the stories that happen to them'.³⁴ For Wood – espousing the kind of objection to melodrama that Trilling identifies – 'they are stories which defy the laws of persuasion'.³⁵ Yet Smith's reflections, via Trilling, on the use of plot suggest that the 'artificial' elements of her writing are strategic and considered, rather than indicative of the out of control postmodernism that Wood considers them to be.

Indeed they are the product of her emulation of the characteristics of the Forsterian comic novel, of which she has both written and spoken extensively. Asked in an interview about what appeals to her in Forster's work, Smith stated that 'Forster represents one of the earliest loves of my reading life and the first intimations I ever had of the power and beauty of this funny, artificial little construction, the novel'.³⁶ Smith identifies two characteristics of the Forsterian comic novel which have influenced her writing; the artificial and, related to

this, the funny, which is characterized, for Smith, not only by humour but by the peculiarity, inconsistency and muddle of the human condition. She writes that:

there is a lot in Forster that fails, is both cloying and banal: his Pantheism, his fetish for the exotic, his idealisation of music. The mystic will occasionally look the fool. Forster took a risk, opening the comic novel to let in the things it was not designed for; small patches of purple prose were the result. But Forster's innovation remains: he allowed the English comic novel the possibility of a spiritual and bodily life, not simply to exist as an exquisitely worked game of social ethics but as a messy human concoction. He expanded the comic novel's ethical space (while unbalancing its moral certainties) simply by letting more of life in.³⁷

For Smith, Forster's strength lies in the fact that he 'suggested there might be some ethical advantage in not always pursuing a perfect and unyielding rationality', and that he 'wanted his people to be in a muddle: his was a study of the emotional, erratic and unreasonable in human life'.³⁸ The influence of this Forsterian comic muddle on *White Teeth* is clear: from Samad's decision to send one of his twin sons to Bangladesh to remove him from the 'corruption'³⁹ of English culture in response to his own affair with the twins' teacher Poppy Burt-Jones, to Archie's coin tossing to decide whether or not to commit suicide or later, whether to shoot Dr Perret, or Irie's decision to sleep with both twin brothers Magid and Millat within hours of each other, the novel is full of people who behave in emotional, unreasonable and funny ways. However there has been a critical tendency to overlook the comic form of *White Teeth*, despite the fact that it was the novel's comedy which was arguably responsible for its almost instant popularity: the novel's back cover attests to the fact that Smith's humour was celebrated (and marketed) above all else: reviewers described the novel as 'funny, generous, big-hearted', 'swooping, funny', 'relentlessly funny', 'hilarious', 'extremely funny'.⁴⁰ Literary critics have instead focused more on articulating the postcolonial themes of the novel, on Smith's portrayal of race relations in late twentieth-century London and of the inevitable hybridity and cultural mixing which the presence of immigrant populations has brought about.⁴¹ Where the novel's comedy is commented upon, it is interpreted as a tactical strategy through which Smith avoids being overtly political: for Claire Squires the comic deflation which characterizes Smith's portrayals of racism works to show that racism is out of date,⁴² while for Susie Thomas, Smith's comic mode more problematically evades painful questions about race and multiculturalism.⁴³

Yet Smith's comic style does not consist simply of the whimsical, the light-hearted or even the funny treatment of her subjects, but in emulating a Forsterian 'messy human concoction,' Smith is able to present an altogether more complex understanding of race and racism in relation to science. For while the novel explores the racial implications of contemporary genetics through Marcus's science to offer what Ashley Dawson calls a 'timely warning that the history of "race" is by no means over,'⁴⁴ it does so in a comic mode in which science is subject to the irrational and misguided interpretations of the novel's characters. Smith makes popular misunderstandings about genetics part of the comic fabric of the novel, depicting the ways in which Marcus's genetic ideas infiltrate the thoughts of the other characters, where they become muddled and confused. Alsana's nightmare vision of the 'dissolution, *disappearance*' that the immigrant fears is expressed through her comic misunderstanding of the process of genetic inheritance, her anxieties about the behaviour of her children merging with broader, cultural anxieties about the meaning of genetics:

Even the unflappable Alsana Iqbal would regularly wake up in a puddle of her own sweat after a night visited by visions of Millat (genetically BB; where B stands for Bengali-ness) marrying someone called Sarah (aa where 'a' stands for Aryan), resulting in a child called Michael (Ba), who in turn marries somebody called Lucy (aa), leaving Alsana with a legacy of unrecognizable great-grandchildren (Aaaaaaa!), their Bengali-ness thoroughly diluted, genotype hidden by phenotype.⁴⁵

Cultural, racial and genetic forms of inheritance become conflated in a kind of reductionism that Roof has identified as characterizing popular understandings of DNA: 'When we imagine genes as agents, they become literal representatives of our bodies, our wills, and our desires. We become our genes and our genes become us, so that we imagine that we, too, somehow survive from generation to generation.'⁴⁶ Millat's attempt to shoot Dr Perret at the end of the novel comically becomes a mission determined by his genetic inheritance from his revolutionary great-great-grandfather Mangal Pande; 'his is an imperative secreted in the genes and the cold steel inside his pocket is the answer to a claim made on him long ago. He's a Pandey deep down. And there's mutiny in his blood.'⁴⁷ The genes become the ultimate carriers of historical meaning; history is 'made to appear materially in the present, carried with us always ... We are what we are because they were who they were.'⁴⁸ Patterns of behaviour are repeated from generation to generation, the past lives on in the present, through the genes. Thus Samad's 'sins' – his affair with Poppy – will be passed on to

his sons 'stored up in the genes',⁴⁹ while the Chalfens comically consider the success of their extended family in terms of the '*good genes* which were so often referred to'.⁵⁰ In an analysis of film comedies about science, Roof suggests that 'science comedies take over and amplify cultural beliefs as part of their generic working. Popular misconceptions about science become part of the stuff of the comedy so that comedies are much more symptomatic readings of myth than more "serious," or even fantasy, genres might be'.⁵¹ Such an amplification of cultural belief is evident in the comic misconceptions of genetics presented in *White Teeth*: making science the stuff of comedy and, specifically, the stuff of the comic novel, Smith uncovers the myths about genetics which circulate in contemporary culture.

Yet the novel suggests that science itself is part of the human muddle and mocks the attempts of scientists to extricate themselves from the unreasonable and irrational human behaviour which contributes to such popular misinterpretations of their science. Marcus, explaining his FutureMouse© experiment to Irie, emphasizes the precision, predictability and rationality of his science, everything that the novel's muddled and impassioned characters are not: 'if you *re-engineer* the actual genome, so that *specific* cancers are expressed in *specific* tissues at *predetermined* times in the mouse's development, then you're no longer dealing with the *random*. You're *eliminating* the random actions of a mutagen'.⁵² However, no amount of explaining can prevent the public's misunderstanding of his work. Waiting for Magid at the airport Marcus encounters an Asian girl reading his popular science book, whose interpretation of his science, 'where are we going here? Millions of blonds with blue eyes? Mail order babies? I mean, if you're Indian like me you've got something to worry about, yeah?' leaves him bemused;

It was exhausting just to listen to her. Nowhere in the book did Marcus even touch upon human eugenics – it wasn't his field, and he had no particular interest in it. And yet this girl had managed to read a book almost entirely concerned with the more prosaic developments in recombinant DNA – gene therapy, proteins to dissolve blood clots, the cloning of insulin – and emerge from it full of the usual neo-fascist tabloid fantasies.⁵³

What might otherwise be a sympathetic portrait of a scientist struggling to communicate the truth of his science is undermined, however, by the fact that in his desire for a straightforward and rational understanding of his science, a desire reflected in the design brief for the 'white/chrome/pure/plain ... uncontaminated cavity'⁵⁴ of the Perret Institute, Marcus has ignored the truth of his science's

history; the fact that his work on FutureMouse© is the direct result of the racial scientific research of the Nazis. Dr Perret's photograph hangs on Marcus's wall alongside those of Watson and Crick, and at the launch of FutureMouse© at the Perret Institute, Marcus describes his mentor as 'elemental and inspirational. Not only is he a personal inspiration, but he laid the foundations for so much of this work'.⁵⁵ The racial aspects of Perret's science have become obscured in the present, their trace to be found only in small details, in the fact that FutureMouse© is programmed to lose its pigmentation and turn from brown to white, and in the ironically blank yet racialized space of the Perret Institute, which is 'pared down, sterilized, made new every day by a Nigerian cleaning lady with an industrial Hoover and guarded through the night by Mr DeWinter, a Polish nightwatchman'.⁵⁶ Science, Smith suggests, cannot exist in an empty, purified space, separate from the complexities and entanglements of its history; it is, unavoidably, part of the popular interpretations the public attribute to it, part of the muddle that the comic novel strives to represent.

It is the scientific approach to race in the novel which exposes precisely the ways in which science can be muddled and unreasonable, as Smith calls attention to the contradictions and inconsistencies in geneticists' comprehension of both race and racism. While Marcus's denial of the significance of race in his work is undermined by history, it is also shown to be dubious given the attitudes towards the Iqbals and the Joneses displayed by the Chalfen family. Irie is sent to the home of Marcus and his wife Joyce by the headmaster of her secondary school Glenard Oak Comprehensive. The headmaster makes Irie part of a 'guinea-pig project', with the aim of 'bringing children of disadvantaged or minority backgrounds into contact with kids who might have something to offer them'.⁵⁷ The educated, middle class liberals Joyce and Marcus are the modern-day heirs of the school's colonialist founder, Edmund Glenard, who set up the school as an experimental workhouse for Jamaicans, because 'the natives required instruction, Christian faith and moral guidance'.⁵⁸ Indeed scientists Joyce and Marcus, from an extended family characterized by 'the *good genes* which were so often referred to: two scientists, one mathematician, three psychiatrists',⁵⁹ have something of the colonialist about them as they interact with Irie and the twins. This is an attitude first hinted at when Smith introduces Joyce through an extract from her book on plants, *The New Flower Power*, which is full of language common to racial science:

Yes, self-pollination is the simpler and more certain of the two fertilization processes, especially for many species that colonize by copiously repeating the same parental strain. But a species cloning such uniform offspring runs the risk

of having its entire population wiped out by a single evolutionary event ... cross-pollination produces more varied offspring that are better able to cope with a changed environment⁶⁰

The way in which Joyce writes and thinks about her science spills over into her interaction with the teenagers, whom she calls 'brown strangers'.⁶¹ Millat is 'Beautiful', 'gorgeous',⁶² 'exotic'⁶³ and Joyce comically theorizes about the children using a combination of her preconceptions about race and her knowledge of plants; 'Joyce paused and looked at Irie and Millat the way she had looked at her Garter Knight delphinium ... There was a quiet pain in the first one (*Irieanthus negressium marcusilia*)'.⁶⁴ Thinking of herself as someone who is helping the troubled teens, Joyce's interventions only serve to comically highlight her own prejudices and her own, inevitable muddled mixing of scientific ideas with non-scientific ones;

She had read up on the subject. And it appeared Millat was filled with self-revulsion and hatred of his own kind; that he had possibly a slave mentality, or maybe a colour-complex centred around his mother (he was far darker than she), or a wish for his own annihilation by means of dilution in a white gene pool, or an inability to reconcile two opposing cultures.⁶⁵

Marcus takes a comparable approach, deciding to educate Irie yet continually treating her as an exotic object of sexual fascination; he describes her as a 'big brown goddess' who 'has the most tremendous breasts'.⁶⁶

It is not only the Chalfens who are characterized in this way. The novel is full of white middle-class professionals who largely see themselves as non-racist yet who perpetuate racial stereotypes and racialized ways of thinking which impact people of colour. At the twins' primary school the Parent Teacher Association makes it clear that they have gone out of their way to consider cultural diversity, celebrating 'a variety of religious and secular events; amongst them, Christmas, Ramadan, Chinese New Year, Diwali, Yom Kippur, Hanukkah, the birthday of Haile Selassie, and the death of Martin Luther King',⁶⁷ although Smith shows that this has resulted from a fear of being racist as much as anything else. The chairwoman of the PTA, in arguing with Samad, 'wanted to check that it was not her imagination, that she was being unfair or undemocratic, or worse still racist (but she had read *Colour Blind*, a seminal leaflet from the Rainbow Coalition, she had scored well on the self-test) racist in ways that were so deeply ingrained and socially determining that they escaped her attention'.⁶⁸ While well-meaning, Smith suggests that such neuroticism about race is ultimately an inadequate way to recognize the impact of racism.

The teachers, like the Chalfens, cannot help but espouse a continual stream of subtle, racial microaggressions: teacher Poppy Burt-Jones who attends the meeting assumes Samad is Indian, compares him to Omar Sharif, his good looks explained because ‘they say dark skin wrinkles less’.⁶⁹ The novel suggests that racism and racial thinking, rather than having disappeared or been reduced to the preserve of ‘a few rotten folks’⁷⁰ as post-racialist politics would have it, are endemic and only reproduced when their possibility is denied. This is the social backdrop to Marcus’s genetic experiments and it has the important role of highlighting how the cultures in which scientists live and work impact upon their scientific thinking. In a study of the ideology of colourblindness in genomics, sociologist Johnny E. Williams found race to be deeply embedded in scientists’ socio-political belief systems because scientists are a part of a society in which everyone is racially socialized.⁷¹ Williams contends, however, that ‘the ideology of color blindness as a rhetorical mechanism conveniently enables genomicists to position their research as being beyond the influence of “race” and systemic racism’, enabling racial ways of perceiving and interacting with genes to go unacknowledged.⁷² In an example which strongly echoes the justifications of the fictional Marcus Chalfen quoted above, Williams cites a scientist who claims ‘I’m very much a scientist [who] believes in fact, not opinion. The interpretation is very simple. I know which mutation caused the disease, and the severity of the mutation determines the severity of the disease and how much treatment [I] have to give... As far as I’m concerned, race plays no part in the kind of work I do’.⁷³ Williams’s point is that the scientific removal of the significance of race from genetics comes from a position of (often white) privilege which does not recognize the ways in which racism is deeply ingrained in all parts of society, precisely the point that Smith makes in her portrayal of the Chalfen family. Marcus’s denials about the connection of his science to eugenics only produce muddle because he has failed to ask himself Goldberg’s question, ‘what residues of racist arrangement and subordination – social, economic, cultural, psychological, legal and political – linger unaddressed and repressed in singularly stressing racial demise?’⁷⁴ The novel provides an answer, identifying and uncovering the ‘residues of racist arrangement’ in everyday social interactions which feed into institutions and professions such as science which have placed themselves beyond race. Far from trivializing racism through the novel’s comic form, Smith uses that form to demonstrate the pitfalls of removing race from science; namely, the failure to recognize the residues of racial thinking which remain operative when race itself disappears.

The science of fiction

In making scientific rationality and truth the stuff of the comic novel, Smith appears to present what might be deemed a typically literary or deconstructive view of science, the kind of critique to which scientists began to object during the culture wars of the 1990s. Waugh outlines how the questioning of scientific knowledge at the end of the twentieth century led to

constructivist claims that objectivity and rationality are culturally produced systems, that science cannot arrive at knowledge of a mind-independent natural reality, that its methods are always relative to shifting and heterogeneous theoretical frameworks, and that the 'objects' of scientific knowledge are therefore as 'intentional' as those of a literary text ... In other words, scientific knowledge and language are no more exact than aesthetic knowledge and language.⁷⁵

Smith does not fall into a constructivist trap, but instead satirizes the incomprehension of scientists towards literary critiques of their work while self-consciously addressing the status of her own novel as a literary representation of scientific endeavour. Marcus consistently identifies literature as the antithesis of scientific rationality and reason, the Chalfens espousing a traditional belief in 'the truth' which, for them, is the opposite of humanistic study:

If you were arguing with a Chalfen, trying to put a case for these strange French men who think truth is a function of language, or that history is interpretive and science metaphorical, the Chalfen in question would hear you out quietly, then wave his hand, dismissive, feeling no need to dignify such bunkum with a retort. Truth was truth to a Chalfen.⁷⁶

For Marcus, science and fiction have little to say to each other; 'science and science fiction were like ships in the night, passing each other in the fog';⁷⁷ his popular science collaboration with the novelist Surrey T. Banks, which is a 'split level high/low culture book, whereby Marcus wrote a "hard science" chapter on one particular development in genetics and then the novelist wrote a twin chapter exploring these ideas from a futuristic, fictional, what-if-this-led-to-this point of view, and so on for eight chapters each', is motivated purely by 'pecuniary reasons'.⁷⁸ Factual, high-culture science is pitted against fiction, which is culturally 'low', as Smith pokes fun at both Marcus's polarized view of the two cultures and her own portrayal of genetics, as the novel itself becomes the target of Marcus's objection to the 'great ocean of idiots, conspiracists, religious lunatics, presumptuous novelists, animal-rights activists, students of politics, and all the other breeds of fundamentalists who professed strange objections to

his life's work'.⁷⁹ Perhaps anticipating a criticism of the novel that never actually materialized, Smith acknowledges the limitations of novelists' attempts to represent complex scientific ideas, something of which she was conscious when writing the novel. Christina Patterson, interviewing Smith, reports that Smith 'read one "incredibly boring" book about onco-mice and cancer genes in mice and talked to "a lot of bright friends" in order to write the scientific stuff, but is still, with characteristic modesty, convinced that the science in the book is "incredibly bad"'.⁸⁰

Yet the novel demonstrates that its own literary, comic representation of science has value by showing that, contrary to Marcus's view, science does have similarities with fiction, and that the novel's inevitable representation of partial, plural and multiple truths about science simply reflects the fact that science itself consists of both the truthful and the fictional. Smith thus rejects the idea put forward by Magid when he writes to Marcus, that 'when you delve into the mysteries of inherited characteristics, surely you go straight to the soul of the human condition as dramatically and fundamentally as any poet, except you are armed with something essential the poet does not have: the truth'.⁸¹ Smith would not disagree with Magid's characterization of the literary as being inaccessible to a singular truth: she has written of writers' ability to 'speak simultaneous truths',⁸² and has said that the aim of her writing is 'truth without generalization, without cliché, and without simplification – which is almost impossible. But that's the nice thing about the novel. The aim is way out of everybody's reach, so you keep on writing them just in case'.⁸³ Indeed the status of writing as a source of 'the truth' is questioned everywhere in *White Teeth*: Irie, 'sick of never getting the whole truth',⁸⁴ turns to her grandmother's schoolbooks from Jamaica to try to discover the truth of her heritage, but the colonial books she reads '*Dominica: Hints and Notes to Intending Settlers*' and '*In Sugar Cane Land*' give her a false picture of 'dashing Capt. Durham',⁸⁵ the Englishman who impregnated her great-grandmother Ambrosia Bowden. The history of Glenard Oak School is reconstructed inaccurately through a booklet written by the PTA, who decide to remember the school's founder, Edmund Glenard – the English colonialist who tried to rape Ambrosia – as 'their kindly Victorian benefactor'.⁸⁶ Samad is incensed by the way historians have written of his great-grandfather as a drunkard rather than a revolutionary, 'the truth mutating, bending, receding'.⁸⁷

Smith demonstrates, however, that this might also be a description of Marcus's science, which frequently takes narrative and fictional forms that disrupt any straightforward access it may claim to 'the truth'. Marcus ironically recognizes the slippery nature of narrative as a source of 'the truth' when he

dismisses the Iqbals' history, 'a great revolutionary. So I've heard. I wouldn't take any of that seriously, if I were you. One part truth and three parts fiction in that family, I fancy',⁸⁸ yet is unable to recognize that his science is also part truth and part fiction. The boundaries between science and fiction are certainly more porous than Marcus is willing to admit: when Irie reads the FutureMouse© press release to a journalist, 'though she had repeated the words many times, they still seemed fantastical, absurd – fiction on the wings of fantasy – with more of a dash of Surrey T. Banks in them'.⁸⁹ The communication of science to the public relies on the use of narrative, but this imaginative strain also becomes part of the science itself. Marcus inadvertently hints at this when he contradicts his earlier assertion about science fiction when introducing Dr Perret, whom he describes as 'pushing the envelope, when work in this area was seriously underfunded and looked to remain in the realms of science fiction'.⁹⁰ However it is through FutureMouse© itself that his science becomes fiction: the hyperbolic promotion of FutureMouse© means that it becomes, in the public's eyes, a version of the cartoon character Danger Mouse; the mouse is a 'cartoon of an idea' where 'one expected the damn mouse to stand up and speak by itself'.⁹¹ Roof has argued that 'representations of science render scientific facts less "true" (or more culturally relative) while the figures of their representation become scientifically operative'.⁹² This is a paradox which *White Teeth* goes some way to uncovering: the science behind FutureMouse© is elided by the mouse itself, the mouse transformed into a fiction, which then becomes a kind of truth, as the novel ends with FutureMouse© escaping, Danger Mouse style, from its display case at the Perret Institute.

Suggesting points of similarity between Marcus's genetics and the fictional, Smith not only offers a comment on what happens to science in culture, on the biofictional nature of science and the representation of science, but also draws attention to the relationship between the novel itself and the science which it represents. If the comic novel conveys a Forsterian 'messy human concoction'⁹³ it does so, for Smith, through its portrayal of irrational, messy characters and, in the case of *White Teeth*, the entanglement of those characters with an equally as unreasonable science. However the comic novel is also characterized by its artificial form: writing of Forster's muddled characters, Smith states that 'what interests me is that his narrative structure is muddled also; impulsive, meandering, irrational, which seeming faults lead him on to two further problematics: mawkishness and melodrama'.⁹⁴ As I have already touched upon, both Smith and Trilling recognize that Forster's plots, which consist of 'all the old devices of recognition scenes, secrets, letters that prove something, stolen

babies, destroyed wills, long-lost brothers, hidden sins, shocking revelations and even physical conflict',⁹⁵ tend to melodrama, leaving his writing open to the charge of artificiality. Yet such artificiality of plot is justified, and has value, because it is the novelist's way of examining human nature, 'of making things act so that we can learn about their nature',⁹⁶ in the manner of a scientist. Trilling's comparison between scientific experiment and novelistic plot is a means of defending Forster's art but in *White Teeth* it becomes a means for Smith to further interrogate the relationship between science and the (comic) novel. For while Smith considers the ways in which science is like fiction, she also imagines how fiction is like science.

The artificiality and melodrama of the plot of *White Teeth* cannot be disputed. James Wood incredulously summarizes what is arguably the novel's most melodramatic point – its ending – thus, '*White Teeth* ends with a clashing finale, in which all the novel's characters – most of whom are now dispersed between various cults and fanatical religious groups – head towards the press conference which the scientist, Marcus Chalfen, is delivering in London, to announce the successful cloning of his mouse'.⁹⁷ The finale connects all of the novel's groups and characters together improbably in the same place, to which Smith adds the shocking revelations, recognition scenes and physical conflict of the Forsterian novel: Archie recognizes Dr Perret as the Dr Sick whom he failed to kill during the war, Samad realizes Archie's lie, Millat tries to shoot Dr Perret and FutureMouse© escapes. The muddle is complete, resolved with further, unresolvable muddle: it is unclear to the authorities which twin is responsible for the shooting, while it is also unclear which is the father of Irie's baby, a plot device too far for Wood; 'near the end of *White Teeth*, one of the characters, Irie Jones, has sex with one of the twins, called Millat; but then rushes round to see the other twin, called Magid, to have sex with him only moments after. She becomes pregnant; and she will never know which twin impregnated her. But it is really Smith's hot plot which has had its way with her'.⁹⁸

However Smith's 'hot plot', like Forster's 'hot melodrama',⁹⁹ is more controlled than Wood imagines it to be. Smith self-consciously turns her plot into part of the experiment around which it revolves. In a kind of literalization of Trilling's analogy, Smith imagines the manoeuvring of her characters through plot as a scientific experiment, inviting the reader to recognize the novel as a fiction, as artificially constructed and contrived as Marcus's FutureMouse©. Smith gestures towards this at various points in *White Teeth* where the novel's fictive, constructed nature is made explicit. For example, when Irie is employed by Marcus to organize his filing cabinet and is arranging the letters between Marcus

and Magid, she 'split the filing system in two, choosing to file by author primarily, then chronologically, rather than let simple dates rule the roost. Because this was all about people. People making a connection across continents, across seas'.¹⁰⁰ This is how Smith has structured each of the novel's four sections – by character and date, two dates for each section: Archie 1974, 1945; Samad 1984, 1857; Irie 1990, 1907; Magid, Millat and Marcus 1992, 1999. That the novel is organized in the same way as Marcus's filing cabinet is funny, but it also draws attention to the possibility of an experimental exchange between what science does and what the novel does, an idea Smith develops more fully at the novel's end, where she imagines, in the manner of a scientist or social scientist, how people would react to the scene at the Perret Institute. Although initially referring to the imaginary 'focus group' which has chosen the décor of the institute, the people Smith imagines as wanting to know about different strands of the plot become her readers, as Smith reveals how they too have been subject to the novel's experiment:

and there is surely a demographic pattern to all those who wish to see the eyewitness statements that identified Magid as many times as Millat... And it is young professional women aged eighteen to thirty-two who would like a snapshot seven years hence of Irie, Joshua and Hortense sitting by a Caribbean sea ... And it could be that it is largely the criminal class and the elderly who find themselves wanting to make bets on the winner of a blackjack game ... It would make an interesting survey (what kind would be your decision) to examine the present and divide the onlookers into two groups: those whose eyes fell upon a bleeding man, slumped across a table, and those who watched the getaway of a small brown rebel mouse.¹⁰¹

The Perret Institute is transformed into a kind of laboratory in which, as with the design and engineering of FutureMouse©, there is 'no question about who was pulling the strings':¹⁰² Smith has, like a scientist in the lab, engineered the scene to see what results she gets, creating 'an artificiality which sets us up for an experience of the world'.¹⁰³

The 'scientific' aspects of Smith's plot are also evident in the novel's emphasis on cause and effect. Marcus demonstrates complete mastery over FutureMouse© by being able to determine how and when the mouse will die; he creates 'mice who year after year expressed more and more eloquently Marcus's designs ... planting instructions and imperatives in the germ line to be realized in physical characteristics. Creating mice whose very bodies did exactly what Marcus told them'.¹⁰⁴ His science is characterized by examining the consequences of actions in time, as he explains to Irie, looking at photos of the mouse with a

progressively bigger tumour in each picture, 'what you really want to know is how a tumour progresses in *living tissue*',¹⁰⁵ 'I plant a cancer and a cancer turns up precisely when I expect it'.¹⁰⁶ Marcus's science is based on predictability and precision, on being able to determine exactly how a tumour will progress in time, a precision which, I have shown, the novel undermines in its emphasis on the unpredictable and the irrational. Yet it is such causality which gives structure to the novel's melodramatic plot. For Trilling, the Forsterian plot 'represents the novelist's interest in causality' and 'because it is concerned not only with states of being, but with consequences, gives the greatest reality to social forces'.¹⁰⁷ Smith accords a similar importance to causality, writing that 'it seems that if you put people on paper and move them through time, you cannot help but talk about ethics, because the ethical realm exists nowhere if not here: in the consequences of human actions as they unfold in time, and the multiple interpretive possibility of those actions. Narrative itself is the performance of that very procedure'.¹⁰⁸

The plot of *White Teeth*, like Marcus's FutureMouse©, consists of the consequences of actions as they unfold through time: Archie, having saved Dr Sick during the Second World War, is not only destined to save him once again at the Perret Institute but his actions enable the rest of the plot to unfold in the existence of Marcus, his science and the relationship between Archie's daughter, Irie, and the Chalfen family. The consequences of Archie's coin flipping resonate throughout the novel, his predictable fate underscored by the repeated mantra that 'every moment happens twice: inside and outside, and they are two different histories'.¹⁰⁹ The uncertainty of repetition, the possibility of difference in the predictably repeated which this phrase encapsulates, is what makes the novel different to Marcus's science: Marcus's concern to 'eliminate the random'¹¹⁰ allows no room for chance, whereas Smith recognizes, as Alsana does when she understands that Magid (having been sent to Bangladesh) is more English than Millat, that 'you can't plan everything'.¹¹¹ An element of chance must also be factored into the plot, hence the escape of FutureMouse© at the end of the novel, and the fact that Archie's decisions rest on the toss of a coin. Trilling writes that 'one thing to say is that certain kinds of unmotivated events in fiction represent what happens in life. Life is not only a matter of logic and motivation but of chance. The storyteller may –perhaps should – suggest this element of life'.¹¹² *White Teeth* celebrates chance, placing it in opposition to Marcus's scientific rationalism, but at the same time Smith self-consciously demonstrates that such chance is part of the artificial and constructed nature of the novel's plot and is, in this sense, comparable to the artificial experiments of the scientist (Marcus) in the laboratory.

Narrativizing the genetics of race

In articulating the ways in which the novelist's engineering of plot is comparable to a scientist's engineering of a mouse, Smith moves beyond a defence of melodrama, beyond Trilling's analogy, to consider what fictional writing about science entails, which, the novel suggests, is a degree of reciprocity: in uncovering the narrative aspects of genetics as part of her wider critique of science's claims to rationalism, objectivity and neutrality, the novelist must also reflect upon her own claims to represent human messiness, the irrational, unreasonable and uncertain. Smith demonstrates that the fictional representation of the messy human concoction requires a degree of artificiality and, by making the novel's fictive, constructed nature explicit, reminds readers that what the novel does is only another form of what science does – both are practices which artificially test and experiment with (human) nature. Reflecting on the stories told by science through an examination of its own forms of storytelling, *White Teeth* demonstrates that the contemporary novel can do more than simply explore the science of race in the manner of Marcus's collaborator Surrey T. Banks, 'from a futuristic, fictional, what-if-this-led-to-this point of view'.¹¹³ It does examine the claims, forms of representation and cultural reception of contemporary genetics, but also thinks through its own relationship to the science which it represents, thus throwing into doubt Dominic Head's claim that

the dominant transnational forces of globalization are promoted through developments in science and technology, and this has become an area of human experience that is especially difficult for the novel to register. To engage with rapid technological change, an instantaneous response is demanded, and this is beyond the capabilities of a literary form that is, rather, cumulative in its procedures of reflection and commentary.¹¹⁴

White Teeth not only registers the rapid developments which led to the completion of the human genome sequence in the year of its publication, exploring the impact of the public prominence of genetics on conceptions of race, but Smith demonstrates that the novel's form, far from being the cumulative commentary to science's rapidity, is a reflexive form with the capacity to suggest points of confluence between science and fiction, shedding light on both practices at the beginning of the twenty-first century.

White Teeth suggests that we might approach the racial pronouncements of the HGP differently, viewing what was promoted as a definitive, anti-racist statement on the non-biological nature of race as anything but definitive.

Indeed, as the following chapter will investigate, the findings of the HGP did not put a stop to the use of racial categorization in genetics, which has, if anything, increased in a number of strands of genetic investigation since the mapping of the genome. *White Teeth* exposes the inconsistencies around race in science in the twenty-first century by demonstrating how such uncertainties inevitably arise from the narrative exposition and transmission of science combined with a politics of colourblindness which have together worked to obscure experiences of racism. If, as Roof writes, 'genetic sameness' is being acknowledged by science 'at the very moment conservative factions pressure for the end of programs that help disadvantaged citizens',¹¹⁵ then Smith suggests that understanding such pronouncements as scientific stories is one way of beginning to unpick the assumed anti-racist tenor of contemporary science which often ironically enables, rather than forecloses, the possibility of socio-political racisms.