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Softly, Softly: Genetics, Intelligence, and the Hidden Racism of the New Geneism

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Biographical Statement

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Softly, Softly: Genetics, Intelligence, and the Hidden Racism of the New Geneism

Abstract

Crude and dangerous ideas about the genetic heritability of intelligence, and a supposed biological basis for the Black/White achievement gap, are alive and well inside the education policy process but taking new and more subtle forms. Drawing on Critical Race Theory the paper analyses recent hereditarian writing, in the UK and USA, and highlight a strategy that I term *racial inexplicitness*; this allows hereditarian advocates to adopt a colorblind façade that presents their work as new, exciting and full of promise for all of society. The paper is in two parts: the first exposes the racism that lies hidden in the small print of the new geneism, where wildly misleading assertions about genetic influences on education are proclaimed as scientific fact while race-conscious critics are dismissed as ignorant ideologues. The second part of the paper sets out critical facts about the relevant science, including the difference between the mythic and real meaning of heritability; fundamental problems with the methodology of twin studies; the little-known history of IQ test score manipulation; and the continuing use of a stylistic approach that Howard Gardner characterized as 'scholarly brinkmanship'.

Key Terms: *Behavioural genetics, critical race theory, Education policy, Geneism, Intelligence, IQ, race, racism*

Introduction

> 'Racial patterns adapt. Or, to switch from the passive voice, strategic individuals adapt race.' Ian Haney López (2014, p. xii)

> '… the idea of innate group inferiority is still on the table, despite all the progress blacks have made in this society … the last great battle over racism will not be fought over access to a lunch counter, or the right to vote, or even the right to occupy the White House; it will be fought in a laboratory, under a microscope, on the battleground of our DNA.' Henry Louis Gates Jr. (2008)

Why write a paper about racism and genetics in the second decade of the Twenty-First century? Surely arguments about race, intelligence and genetics are dead and buried? A Black man has been President and, in both the US and UK, bold assertions about racial minorities' supposed intellectual inferiority have led to public condemnation for the speaker. Part of my answer lies in the main title of the paper, which quotes Professor Robert Plomin, one of the principal figures in contemporary writing about genetics and education. As I explain (below), Plomin has become something of a celebrity-academic in the UK; his claims make headline news, his views are sought by policy-makers, and he features in pop-science radio shows. In one such show, hosted by Jim Al-Khalili (Professor of Physics and Professor of Public Engagement in Science at the University of Surrey, UK) he was challenged on the topic of race. Plomin described his approach as follows:

> 'In general I've felt softly softly is a better way to go…' (BBC Radio 4, 2015).[1]

Until recently many in the field of behavioural genetics have been far less reticent about airing their views. *The Bell Curve* (Herrnstein & Murray, 1994) is the most famous, but by no means the only, example of such work (see Eysenck, 1971; Gottfredson, 1986; Jensen, 1969; Lynn, 1991 & 2001; Rushton, 1997). This paper shows how, in recent years, a softly softly approach (that avoids explicit reference to race) has become more common. I argue that this *inexplicitness* should not be mistaken for an absence of racialized thinking and does not signal that the current work is free from possible racist consequences. Indeed, if anything, the new softly softly version of hereditarianism may be even more dangerous than the outspoken version of earlier periods.

In this paper I explore how *racial geneism* - the belief that genes shape the nature of ethnic group achievements and inequities - has returned with a vengeance but in a new and more dangerous form.[2] Throughout this paper I use the terms ability, intelligence and IQ interchangeably. This is a deliberate reflection of the ways in which the debates play out in both the academic and popular domains. Hereditarian writers, who argue for a significant genetic basis to human abilities, and to race inequalities in education, frequently claim the high ground as scientists interested only in facts. As the paper demonstrates, however, the scientific aura of such work proves to be illusory when subjected to detailed critical analysis.

The paper is written from a perspective informed by critical race theory (CRT). This approach views contemporary understandings of race as historically patterned, contextually specific and multifaceted social constructions (Bell, 1992; Crenshaw et al., 1995; Delgado, 1995; Gillborn & Ladson-Billings, 2010; Ladson-Billings & Tate, 1995; Taylor, 2009). One of the many strengths of CRT is its ability to explore beneath the surface, to expose the deeper currents of race inequity that are often camouflaged by an apparently neutral and scientific façade (Bell, 1995). This is especially important in relation to the mobilization of pseudoscientific discourses that dehumanize the poor and promote biological theories of inferiority (Delgado, 1998). One of the core tenets of CRT is that 'racism is normal, not aberrant, in American society. Because racism is an ingrained feature of our landscape, it looks ordinary and natural to persons in the culture' (Delgado & Stefancic, 2000, p. xvi). This insight is vital because, as I show below, many of the arguments that are presented in defence of geneism rest on beliefs that take for granted, and further legitimize, a view of the world shaped by the interests of White people, i.e. a world where speculation about the supposed inherent intellectual inferiority of whole population subgroups can be defended in the name of science and the pursuit of truth:

> 'let me say again that its *science* here. And as a scientist I want to know what causes these differences and I think a lot of good often comes out of basic science and big discoveries, like the fact that genetics *is* so important. You know, it takes - people react against that, I understand that, but *we are truth seekers*.' (Robert Plomin, BBC Radio 4, 2015, original emphasis)[3]

My analysis is presented in two separate, but closely interrelated, parts. The first examines the return of genetic determinism to education debates. I describe the key events that propelled geneism to the top of the news agenda in the UK and show that a similar approach is also evident in the US. Here my method involves a combination of critical discourse analysis and the kind of policy sociology developed by Stephen J. Ball and colleagues, where social theory (in this case CRT) is applied to highlight how connections are drawn across public debates and controversies that construct a particular view of education and the public good (see Ball, 2006 & 2013; Ball & Junemann, 2012; Ball et al., 2012). Contemporary forms of hereditarianism have learnt from the fate of those, such as James Watson and Jason Richwine, whose arguments about race-based differences in intelligence were too easily identified as racist in their conception and consequences.[4] The new geneism adopts a colorblind, meritocratic and celebratory tone whereby 'race' is rarely mentioned at all and the supposed 'advances' are hailed as good news for everyone. Race has become an 'absent presence' in these debates (Apple, 1999), hidden in the background and only visible to those willing to dig into past debates and publications. A strategy of *racial inexplicitness* is at work such that race is rarely mentioned directly and, if it *does* appear, is positioned as an aspect of human diversity that adds to the richness of society but is by no means central to the 'scientific' debate. When race-conscious critics try to put racism on the agenda they are portrayed as trouble-makers who do not understand the science and are driven by emotion and/or ideology.

The second part of the paper stands back from the current controversies to examine some basic 'facts' that challenge widely-held assumptions about nature/nurture debates and the 'science' underlying them. I begin by examining the gulf between the technical meaning of *heritability* as a concept in research and the mythic understandings that feature in press coverage and the grand claims made by certain authors. Subsequent sections examine the dubious assumptions that lie behind the use of twin studies and the little-known history of the routine manipulation of IQ test assessments. Finally I analyse the 'scholarly brinkmanship' (Gardner, 1994) that continues to characterize hereditarian writing, i.e. a strategy that blends exaggerated claims alongside occasional qualifications that provide a defensive shield in case of challenge.

PART I:

Genes, Intelligence and Race: the changing face of scientific racism

> a corruption …has spread throughout American intellectual discourse: If you take certain positions, you will be cast into outer darkness. Whether your statements are empirically accurate is irrelevant. (Murray, 2013)

This is how Charles Murray, co-author of *The Bell Curve* (Herrnstein & Murray, 1994), reacted to the resignation of Jason Richwine from his post as policy analyst at the conservative think tank, *The Heritage Foundation* (see Valencia, 2013). Richwine's decision followed media reporting of his Ph.D. thesis, in which he stated that 'today's immigrants are not as intelligent on average as white natives' and that this threatens 'substantial negative effects on the economy and on American society' (Richwine, 2009, p. 134). Murray notes that Richwine is not the first White academic to lose his job for publicly airing a belief in the genetic heritability of race differences in intelligence:

> In resigning, Dr. Richwine joins distinguished company. The most famous biologist in the world, James D. Watson, was forced to retire from Cold Spring Harbor Laboratory in 2007 because of a factually accurate remark to a British journalist about low IQ scores among African blacks (Murray, 2013).

In 2007 James Watson, who shares a Nobel Prize for his work on the structure of DNA, left the UK in disgrace after he was reported to be 'inherently gloomy about the prospect of Africa' because 'all our social policies are based on the fact that their intelligence is the same as ours – whereas all the testing says not really' (Hunt-Grubbe, 2007). He was quoted saying that he hoped everyone was equal but 'people who have to deal with black employees find this is not true'. In response the Science Museum in London cancelled an event in Watson's honour, describing his views as 'beyond the point of acceptable debate' (BBC News Online, 2007) and 25 Members of Parliament (MPs) signed a motion stating 'his alleged comments are altogether unscientific and unsophisticated' (Hansard, 2007).[5] Watson's planned book tour was abandoned and, less than a week after his views were published, he returned home to explain himself to his employers. Watson's fate made headline news on both sides of the Atlantic, including coverage in *Time* (Blue, 2007), the *New York Times* (Dean, 2007), and the *Washington Post* (Gates, 2008). In 2014 Watson sold his Nobel medal (for $4.1 million) and, in an attempt to rehabilitate his reputation, gave some of the money to charity (Hartocollis, 2014).[6]

The ferocity of the backlash against Watson was unprecedented and in sharp contrast to sometimes celebratory reception, some 13 years earlier, that greeted *'The Bell Curve'* (Herrnstein & Murray, 1994) and put hereditarian perspectives on race and intelligence at the top of news agendas on both sides of the Atlantic (for further details see Gillborn & Youdell, 2000, pp. 56-60; Kinchloe, et al., 1996; Montague, 1999). Not surprisingly, in view of Watson's high profile fall from grace, contemporary geneism tends to adopt a very different tactic to the bold stance taken by earlier advocates; the new softly softly tactic – which I term *racial inexplicitness* – is present in both popular and academic treatments. It has had remarkable success in the UK where talk of genetics and intelligence is once again judged to be newsworthy and politically relevant across the spectrum. In the following sections I describe how this situation unfolded and then analyse the role of racial inexplicitness in the key texts.

The Return of Genetic Determinism

> 'Can I talk about genetics and IQ? (Pat Glass MP, December 2013)[7]

In the British Parliamentary system certain areas of policy are subject to scrutiny by 'Select Committees' of MPs nominated by the major political parties. The question (above) was asked by a Labour Party member as the Education Select Committee began its investigation into 'Underachievement in Education by White Working Class Children'.[8] To understand why the Education Committee had explicitly called for evidence on *genetics* we must understand how the issue came to prominence over the preceding months.

The return of genetic determinism as a focus for policy and media debate began in October 2013 with the leaked publication of a 237 page document written by Dominic Cummings, one of the closest advisers to the then-Secretary of State for Education, Michael Gove (Wintour, 2013). Cummings' 'essay', as he termed it, covered a wide range of issues but drew most attention because of his views on genetics:

> Work by one of the pioneers of behavioural genetics, Robert Plomin, has shown that most of the variation in performance of children in English schools is accounted for

> by *within school* factors (not *between* school factors), of which the largest factor is genes. (Cummings, 2013, p. 73 original emphasis)

Cummings attacks policy-makers' failure to embrace what he calls the 'relevant science' concerning 'evolutionary influences' on intelligence and notes that, in an attempt to bridge the gap between natural scientists and politicians, he had arranged for Plomin to visit the Education department in order 'to explain the science of IQ and genetics to officials and Ministers' (Cummings, 2013, p. 64). Not surprisingly, the fact that a key education policy advisor was promoting the 'science of IQ and genetics', and that ministers had been privately briefed by Professor Plomin, generated enormous media interest. This was fuelled still further when, a month later, Boris Johnson (Mayor of London and one of the most prominent Conservative politicians in the UK) used the annual 'Margaret Thatcher Public Lecture' to assert that 'human beings … are already very far from equal in raw ability, if not spiritual worth' (Johnson, 2013). In a section of the speech that was widely interpreted as a call for more selective education that explicitly privileges those with greatest assessed ability, he stated:

> Whatever you may think of the value of IQ tests, it is surely relevant to a conversation about equality that as many as 16 per cent of our species have an IQ below 85, while about 2 per cent have an IQ above 130. The harder you shake the pack, the easier it will be for some cornflakes to get to the top. (Johnson, 2013)

Britain's biggest selling daily newspaper summarized the speech with the headline *'Boris Johnson: Thickos are born to toil'* (Ashton, 2013). Johnson's political opponents criticized him for offensive elitism but commentators on the right portrayed him as a brave maverick 'who tells it like it is' (Pollard, 2013) and states 'the kind of *plain truths* that too many politicians avoid expressing' (Brogan, 2013, emphasis added). Some journalists used his speech to rehearse their own belief in the inevitability of inequality and the significance of supposedly innate differences in ability:

> 'It's not clever to pretend IQ doesn't matter' (Chivers, 2013)

> 'Of course we should discriminate by intelligence' (Gill, 2013)

The latter headline is particularly significant. The term ‘discrimination’ is usually viewed in a pejorative way, but the article argues that discrimination on the basis of intelligence is meritocratic and benefits the whole of society: ‘the bright should find themselves at the top. I can’t quite believe this is controversial’ (Gill, 2013). The article mentions various objections to the use of IQ tests, including the influence of social class and bias in the tests themselves (which are described as ‘very slight’), but one major objection remains unspoken, that is, the repeated historic use of IQ tests, and other assessments of ‘ability’, as a camouflage for institutional racism on a grand scale. As I explain below, the colorblind nature of the coverage is extremely important.

The Absent Presence of Race in Contemporary Geneism

> ‘race does not exist outside of ability and ability does not exist outside of race’ (Annamma et al., 2013, p. 6)

It is difficult to over-emphasize the significance of the historical linkage between ideas of race and ideas of intellectual superiority/inferiority. Even when a discourse does not explicitly mention race, these ideas remain a vital part of the landscape; what Michael W. Apple terms an ‘absent presence’ (1999, p. 9). Summarizing the history of US psychological research on intelligence, race and genetics, Robert Sternberg (a psychologist) and his colleagues state:

> The history of the concept of race is inextricably intertwined with attempts by the winners to explain or justify why they perceive themselves to be winners (Sternberg, Grigorenko & Kidd, 2005, p. 51)

Similarly critical analyses have been offered by authors in a range of disciplines, including education, sociology, politics, and genetics (Artiles, 2011; Fraser, 1995; Gould, 1981; Kinchloe et al, 1996; Krimsky & Sloan, 2011; Lane, 1999; Skiba, 2012; Thomas, 1984; Williams, 2011). As Zeus Leonardo and Alicia Broderick (2011) have noted, the two concepts (race and intelligence) have been co-constitutive in US (and indeed ‘Western’) hegemony (p. 2216).

In view of the historically intimate relation between race and intelligence, it is remarkable that race and racism have remained almost entirely absent from both the academic and the popular debates surrounding the return of geneism to UK education. Among the mainstream print media, radio and television treatments that dealt with Cummings' essay, Plomin's recent writings, and/or Boris Johnson's speech, for example, 'race' and 'racism' rarely appear at all. One of the few exceptions was an article in the *Times Education Supplement* (TES) by the neuroscientist Steven Rose - one of the most distinguished UK critics of hereditarian writing (cf. Rose, 2009; Rose, Kamin & Lewontin, 1984). In his *TES* article Rose mentions that race has been a controversial aspect of historic discussions of genes, intelligence and education but, because race does not obviously feature in the current controversies, he does not return to the issue in the main body of the article (Rose, 2014, p. 26). The most striking exception to the dominant 'colorblind' discourse occurred in a BBC radio show broadcast shortly after Cummings' essay made the headlines. In the following section I examine what happened and argue that the incident is symptomatic of a broader trend, whereby race-conscious criticism is increasingly being ruled-out as *by definition* irrational, unscientific and hateful.

The Silencing of Race-Conscious Criticism

The Moral Maze is a weekly radio programme, broadcast by the BBC, in which a panel of four cultural commentators quiz 'witnesses' who take differing positions on that week's chosen topic. In October 2013 the programme considered 'genetics and education' and witnesses included Dr Kathryn Asbury (one of Plomin's co-authors) and Dr David King, who was introduced as Founder and Director of the campaign group 'Human Genetics Alert' (BBC Radio 4, 2013). King was the only participant to mention racism as an issue and his contribution provoked a strong reaction. King started by directly linking the current discussion to eugenics:

> 'I think the history of eugenics, you know, shows us where this is going (…) I'm trained as a molecular biologist and I don't have the slightest problem in using genetics for responsible purposes. Unfortunately, as I said, the history of eugenics is it's used for highly *irresponsible* purposes and, in this case, the association of the field of genetics with extreme right-wing and racist politics.' (David King, BBC Radio 4, 2013, original emphasis)[9]

Michael Portillo, a resident panellist on the show (and former Conservative Party MP), responded by calling King prejudiced. The extract below shows what happened when King tried to offer evidence to support his argument; he was denounced as both 'prejudiced' and 'ignorant' by Portillo and silenced by the moderator (broadcaster Michael Buerk) who considered his views potentially libellous:

King: … excuse me chair, I just want to make it clear that this *whole field* is full of very unpleasant people basically. And if you want to do good scientific research in this field of genetics and IQ, I certainly wouldn't deny that's possible but in order to do that, you have to really strongly dissociate yourself from the right-wing people, the *racist* people, who have, you know, who have *dominated* this field for a long time –

Portillo: [interrupting] I'm, I'm, I'm really disappointed to hear a scientist -

King: - Robert Plomin hasn't done that.

Portillo: I'm really disappointed to hear a scientist proceed in this way because, you know, what you're saying *is* entirely prejudiced. The fact that some knowledge can be used for *bad* purposes obviously doesn't imply that knowledge can't be used for *good* purposes. And the idea that you're going to sort of *stop* the knowledge from occurring in the first place seems to me to be, well, really quite an ignorant position I'm sorry (…)

King: Let me give you an example of the research project that Robert Plomin is involved in with the Chinese genome sequencing centre –

Moderator (Michael Burke): [interrupting] I don't want to get, er, go into that at this particular stage –

King: – the point is –

Burke: [raising his voice] *I'm sorry*, we just haven't got the time to do that…

King: [trying to continue] ... the funders of that project are really clear -

Burke: *No. Now*, we're *not* going to go into that. And also we're not going to libel Professor Plomin. So I ask you to consider some of your language and the terms in which you're describing him and his work. I mean, you can disagree with it as a scientist but not in the way that you have.
(BBC Radio 4, 2013, original emphases)[10]

This exchange is highly significant. Note, for example, that it is the person who breaks the silence around race (by naming the eugenicist history of the field and describing previous work as racist) who finds themselves portrayed as 'entirely prejudiced' and 'ignorant'. It is as if simply mentioning race/racism is taken to evidence a lack of sophistication and irrationality on the part of the speaker. This dismissal of King's argument is reinforced by the supposedly neutral moderator who, rather than seeking justification for King's views simply closes down the discussion and judges his language as at best unscientific, at worst libellous.

This example is no one-off: several writers have noted that, on both sides of the Atlantic, any mention of racism by critical race-conscious writers and commentators is increasingly dismissed as hysterical and irrational (Ahmed, 2009; Gillborn, 2008, pp. 178-9; López, 2014; Rollock, 2012; Warmington, 2009). This relates to the CRT understanding of the 'rules of racial standing' (Bell, 1992, pp. 109-126) whereby the validity and sincerity of a person's statements on racism are judged, not by the evidence, but in relation to the person's perceived race and whether or not their statements support or oppose the racist status quo:

'No matter their experience or expertise, blacks' statements involving race are deemed "special pleading" and thus not entitled to serious consideration (…) the usual exception …is the black person who publicly disparages or criticizes other blacks…' (Bell, 1992, pp. 111 and 114, original emphasis)

The rules of racial standing, combined with the absence of explicit racial language in the new geneism, render any antiracist critique as automatically suspect and unscientific. In this way the space for serious race-critical debate is closed down. This tactic is frequently deployed by authors who wish to stress a powerful genetic basis for race inequalities in education and the economy. Linda S. Gottfredson (Professor of Educational Psychology at the University of

Delaware), for example, has devoted an entire paper to defending the work and character of J. Philippe Rushton – one of the most outspoken and controversial of the race/IQ hereditarian authors.[11] The cornerstone of her argument is that 'Rushton is a scholar and gentleman but it appears that his critics often act like neither' (Gottfredson, 2013, p. 218). Gottfredson constructs a table to detail the 'terms of derogation' used to 'impugn' Rushton (2013, pp. 221 & 222). Hence, critics' arguments about the racist nature of Rushton's concepts, and their relationship to eugenic thought, are defined as mere slander and name-calling; what Gottfredson terms 'mob science' (2013, p. 222). In both the UK and the USA, from academic journals to popular media treatments, therefore, we see the emergence of a powerful discourse that leaves no place for serious race-conscious criticism. This adds a new and even more dangerous aspect to the 'scientific boundary-marking' that operates through the dismissive attitude that frequently characterizes the natural sciences' view of social scientific incursions into *their* territory:

> this powerful rhetorical argument misleadingly casts geneticists' writings on race as seeking objective truths, while portraying all skeptics as motivated by unscientific fears, passions, and politics. (Frank, 2012, p. 316 quoted by Morning, 2014, p. 1681).

Racial Inexplicitness: Race in Contemporary Educational Geneism

Being inexplicit about racial issues has a particular place in English education policy. In one of the first major studies of the field, David Kirp argued that 'racial inexplicitness' was a *positive* defining characteristic of English approaches to multicultural education:

> 'Inexplicitness … is consistent with a pronounced political and bureaucratic preference for consensual, incremental decision making, which is threatened by the confrontational, potentially revolutionary, nature of a racial orientation.' (Kirp, 1979a, p. 289)

In contrast to the US's explicit approach to addressing race inequality through the law, Kirp judged racial inexplicitness in the UK to be 'doing good by stealth' (1979b, p. 2) – a judgement that was roundly criticized by the British antiracist Barry Troyna, who viewed his use of the term 'both inappropriate and misleading' (1992, p. 71). Troyna argued that the very inexplicitness that Kirp celebrated, acted as a strategy to mask the discriminatory and racist

policies that British local- and national governments continued to exercise beneath a smokescreen of fine-sounding but fuzzy terms (such as 'justice' and, I would now add, 'diversity'). This historical analysis is relevant because inexplicitness characterizes the place of race/racism in current manifestations of geneism in education discourse. As the examples demonstrate, this is not the same as merely removing racial terms from the discourse in a simple colourblind rhetorical swipe. Rather, race hovers in the background. The issue of race and intelligence is no longer addressed explicitly but neither is it dismissed as unthinkable – this is the crucial element in racial inexplicitness. Direct and clear discussion of a supposed link between race and intelligence is avoided; instead there are obtuse references to diversity and 'what if' formulations that serve to keep the issue alive but out of sight. Rather than simply state whether or not they believe in such ideas, hereditarians now prefer to discuss how emotional their critics become and highlight their own role as, in Plomin's words, 'truth seekers' (BBC Radio 4, 2015).

Racism <u>not</u> based on 'kooky' genetics? the case of Dominic Cummings

Dominic Cummings' 237-page essay, *Some thoughts on education and political priorities*, is explicit in its criticism of contemporary educational standards:

> The education of the majority even in rich countries is between awful and mediocre. In England, few are well-trained in the basics of extended writing or mathematical and scientific modelling and problem-solving. (Cummings, 2013, p. 1).

In view of Cummings' low opinion of general educational standards, and literary studies in particular (2013, p. 78), it is surprising that his own writing is frequently poorly organised and obtuse. His sole mention of *racism*, for example, comes in an extended quotation that ends a section entitled 'Endnote: intelligence, IQ, genetics, and extreme abilities':

> 'And what happens if one of these days people discover alleles for certain aspects of cognitive function? … Whatever ability you want, valued or not so valued, what if those alleles begin to come out? ... What if somebody begins to look for the frequency of those alleles in different ethnic groups scattered across this planet? (…)
>
> 'Then for the first time there could be a racism which is based not on some kind of virulent ideology, not based on some kind of kooky versions of genetics, because the

> eugenicists in the beginning of the 20th century, as well as the Nazis hadn't had any idea about genetics, they were just using the word (…) what happens if now for the first time we, i.e., you who begin to understand genetics, begin to perceive that there are, in fact, different populations of humanity that are endowed with different constellation of alleles that we imagine are more or less desirable?
>
> 'What's going to happen then? I don't know. But some scientists say, well, the truth must come out and that everything that can be learned should be learned, and we will learn how to digest it and we will learn how to live with that. But I'm not so sure that's the right thing. And you all have to wrestle with that as well.' Weinberg, winner of the National Medal of Science 2007, Biology professor at MIT (2004)
> (Cummings, 2013, pp. 202-203)

Note the 'what if' phrasing which raises the issue of race and intelligence, but the author's refusal to answer their own rhetorical question. Cummings' bibliography does not include a reference for Weinberg 2004. An attached footnote offers no further bibliographic clue but rather discusses 'Socrates' nemesis, Callicles' and the view that 'among the other animals and in whole cities and races of men … justice (*dike*) [is] that the superior rule the inferior and have a greater share than they' (*Gorgias*)'; in line with how racial inexplicitness works in such texts, having set out this position, Cummings offers no evaluation of its rights and wrongs (Cummings, 2013, p. 203).

My own searches of the internet reveal that the extended quotation is from a lecture, given at MIT in 2004, by Professor Robert A. Weinberg and available in full (as downloadable video and transcript) over the web (Weinberg, 2004). Interestingly, Cummings' racial inexplicitness mirrors that of the original speaker; the lecture marks the end of an undergraduate course entitled 'Introduction to Biology' and Weinberg offers no clear view to his students about his own views on the possibility of racism based in contemporary genetics (as opposed to what he characterizes as 'virulent ideology' and/or 'kooky versions of genetics'). The viewer/reader is left to ponder the possibility of a new version of scientific racism but no explicit judgement about the rights and wrongs of such a position are offered; this is racial inexplicitness.[12]

The case of Robert Plomin and the 'genetically sensitive school'

> We aim to treat all children with equal respect and provide them with equal opportunities, but we do not believe that all our pupils are the same. Children come in all shapes and sizes, with all sorts of talents and personalities. It's time to use the lessons of behavioral genetics to create a school system that celebrates and encourages this wonderful diversity. (Asbury & Plomin, 2013, p. 187)

As he addressed the Education Select Committee, in December 2013, Professor Plomin proudly displayed his new book and stated 'That is partly what this publicity has been about in the media' (House of Commons, Education Committee, 2013, p. 30). Written with Kathryn Asbury, *G is for Genes: the impact of genetics on education and achievement* (Asbury & Plomin, 2013) seeks to provide an authoritative introduction to the role of genetics in educational achievement and to offer explicit guidance to policy-makers. Plomin is Professor of Behavioural Genetics at Kings College London, where he is listed as being involved in research projects totalling more than £26million;[13] Asbury is a lecturer in psychology at the University of York and previously worked with Plomin at Kings on the Twins' Early Development Study (TEDS). Despite the authors' academic backgrounds, their book is written for a general audience and adopts a proselytizing tone that provides a hard-sell on the benefits of genetic awareness for everyone:

> One way of helping each and every child to fulfill their academic potential is to harness the lessons of genetic research … It's time for educationalists and policy makers to sit down with geneticists to apply these findings to educational practice. It will make for better schools, thriving children, and, in the long run, a more fulfilled and effective population. That's what we want schools and education to achieve, isn't it? (Asbury & Plomin, 2013, p. 3-4)

The word 'racism' is entirely absent from the book. The word 'race' (as a reference to a population group rather than a sporting competition) appears just twice and both occasions are noteworthy. The first appearance is in a section entitled:

> *'IQ + Genetics = Controversy (and Name-calling)'*
> (Asbury & Plomin, 2013, p. 95)

This section-heading strongly echoes the position discussed above, where race-conscious criticism is not engaged with seriously, but rather is dismissed as irrationality, libel or, in this case, 'name-calling'. The reference to 'race' is as follows:

> It seems to us that the idea of genetic influence is not objectionable in itself, only when it is attached to traits that are emotionally loaded in our society— the bases of our discrimination. Therefore genetic findings that attach to intelligence, race, crime, or sexuality are always given a lot of (usually wrongheaded) coverage in our media; lines are drawn and tempers get frayed. When miscommunicated, the fact of genetic influence on ability appears to threaten reasonable political and moral debate. (Asbury & Plomin, 2013, p. 96)

In this way the sensitivity of race as a topic is mentioned (albeit 96 pages into the book) but it is presented as a kind of stylistic issue rather than a concrete problem to be addressed seriously. Hence, the topic is 'emotionally loaded', 'tempers get frayed' and 'reasonable' debate is threatened, especially where 'the *fact* of genetic influence on ability' (my emphasis) is 'miscommunicated'. Crucially, the 'facts' of genetic influences between different 'races' – as understood by Asbury & Plomin - are not communicated at all in the book, let alone established with evidence; neither are any of the major critics of this work discussed (Stephen Jay Gould, Leon Kamin, and Steven Rose, for example, do not appear anywhere in the book).[14]

The second time that 'race' appears in *G is for Genes* is equally intriguing and inexplicit. In a chapter called '*Education Secretary for a Day'* the authors present explicit policy recommendations as part of their 'line-drawing of a genetically sensitive school' (Asbury & Plomin, 2013, p. 178):

> The site we choose for our genetically sensitive school will be enormous, more like a small university campus than a traditional school. It will have to be this size to hold all of the facilities it needs to accommodate and all of the options it needs to provide. It will serve the community around it, and we will make it so appealing and so successful, and we will foster such a pleasant environment and such a wonderful reputation, that every child of every faith, every race, and every social background will want to be educated there. (Asbury & Plomin, 2013, pp. 178-179)

This description makes the 'genetically sensitive school' sound exciting, inclusive, and welcoming of all; 'every faith, every race, and every social background'. What remains unstated is the markedly different *kind* of education that certain groups might expect to receive. Because, although it is not apparent in *G is for Genes*, Plomin has, in an earlier more explicit period, very publicly aligned himself with those who advocate a view of intelligence as unevenly distributed by race to such an extent that Black children, for example, would likely find themselves *significantly* over-represented in low status, less academic parts of the school curriculum (see below). At the height of the controversy surrounding *The Bell Curve* (Herrnstein & Murray, 1994), and its claims about a genetic basis for race and class inequities, Plomin was a signatory to a high-profile contribution to *The Wall Street Journal* (WSJ) which claimed to represent the core facts about intelligence as agreed by 'mainstream science' (*Wall Street Journal,* 1994). Other signatories included Hans Eysenck (one of the leading hereditarian psychologists in the UK), Arthur R. Jensen (whose writings on race and IQ sparked controversy in the 1960s – see below), Richard Lynn (a British psychologist whose work is highly cited in *The Bell Curve* and who went on to advocate the benefits of eugenics in a 2001 book) and J. Philippe Rushton (whose 'evolutionary theory' of race and intelligence places 'Negroids' at the lesser end of the spectrum; see Rushton, 1997, p. xiii).

***What a difference 20 years makes: Plomin, race, intelligence and* The Bell Curve**

The WSJ article was written by Linda S. Gottfredson who then circulated it among 131 individuals who were invited to sign it: 52 agreed.[15] Gottfredson has described her intention as to address 'the rising crescendo of misinformation on intelligence' that surrounded discussion of Herrnstein and Murray's book (1997, p. 17). Her own research features in *The Bell Curve*, including the argument that the apparent under-representation of African Americans in high status occupations (like medicine and engineering) is actually an *over*-representation when taking account of average differences in IQ (see Herrnstein & Murray, 1994, p. 321):

> Any psychometrician who is familiar with the black and white IQ distribution knows that, if cognitive tests are used in selecting workers, proportionately fewer blacks than whites will be selected for jobs requiring above average intelligence (Gottfredson, 1986, p. 398)

The WSJ article stated 25 ‘conclusions regarded as mainstream among researchers on intelligence’ (1994, p. A18). Eight of the 25 conclusions explicitly mention race and they set out a view of stable and genetically-based differences in average intelligence between particular ‘racial-ethnic groups’ including the following:

> 8. The bell curve for whites is centered roughly around IQ 100; the bell curve for American blacks roughly around 85; and those for different subgroups of Hispanics roughly midway between those for whites and blacks.
>
> 19. There is no persuasive evidence that the IQ bell curves for different racial-ethnic groups are converging.
>
> 23. Racial-ethnic differences are somewhat smaller but still substantial for individuals from the same socioeconomic backgrounds. To illustrate, black students from prosperous families tend to score higher in IQ than blacks from poor families, but they score no higher, on average, than whites from poor families. (*Wall Street Journal*, 1994, p. A18)

Remember that Robert Plomin is a signatory to these statements and that they were made at the height of the controversy surrounding *The Bell Curve*. These points echo, and describe as ‘mainstream’, some of the most contentious arguments contained in the book. The eighth conclusion (above), for example, is presented as follows by Herrnstein and Murray:

> *The difference in test scores between African-Americans and European-Americans as measured in dozens of reputable studies has converged on approximately a one standard deviation difference for several decades ... this means that the average white person tests higher than about 84 percent of the population of blacks and that the average black person tests higher than about 16 percent of the population of whites.’* (1994, p. 269, original emphasis)

Robert Plomin, therefore, is on record as supporting a view of intelligence as a genetically-based trait that differs markedly, and persistently, between different racial groups, with Black people scoring well below White people on average. I can find only one instance where Plomin has subsequently addressed the *Wall Street Journal* article, namely the radio

interview that gives this paper its 'softly softly' title (BBC Radio 4, 2015). Here is the relevant exchange between Plomin and the show's host, Jim Al-Khalili:

Al-Khalili: I know that you were one of 50 or so academics who signed a letter to the Wall Street Journal that endorsed the *data* in the book though not the authors' *conclusions*.

Plomin: Yes.

Al-Khalili:: But why, why would you do that?

Plomin: Good question, I don't usually do that. And it was just, in a way, just to be totally honest, I was feeling *bad* that I had *kept my head down* all the time and that was a point at which I felt it was important to stick my head above the parapet (…) I was really getting *tired* of psychologists just *bashing* anything genetic. And it was kind of like a frustration in a way, and just saying, you know, that you have to deal with the fact that genetics is important. In general I've felt softly softly is a better way to go but I got a lot of flak from people in the field for being a wimp.

Al-Khalili: So there came a point when you just felt you had to stand up for, for your field?

Plomin: Yeah. It's a complicated issue about erm personalities and politics at the time. It's a public understanding of science issue but it's so complicated and so fraught, that's why I kept my head down for so many years.

Al-Khalili: Have you regretted doing that since then?

Plomin: Well, I regret it to the extent it's a distraction to my research. But I think the basic *facts* are there.. erm, about heritability of intelligence, and it's just so unfortunate that some of the interpretations they made from that data are so, you know, some of them are quite bizarre and I would make just the opposite sorts of interpretations. (BBC Radio 4, 2015, original emphases)[16]

Here we have racial inexplicitness trying to deal with earlier explicit racist statements on the same question. There are several things of note in this exchange. First, Professor Al-Khalili incorrectly states that the WSJ signatories supported the data but not the conclusions in *The Bell Curve*: in fact, as I have shown above, the WSJ article explicitly backs several of the book's key arguments about race and intelligence. Second, Professor Plomin states that 'some of the interpretations' in *The Bell Curve* 'are quite bizarre and I would make just the opposite sorts of interpretations'. But he does not explain *which* conclusions he has in mind. Herrnstein and Murray make a range of assertions, including statements about intelligence and social class, gender and disability. This would have been the perfect opportunity for Plomin to explicitly distance himself from the book's most infamous and racist assertions, but he repeats the strategy of racial inexplicitness. Despite being directly challenged about the WSJ article, Plomin says nothing about whether he still believes (as the WSJ article states) that, compared with their White peers, African American people are significantly less likely to score highly on IQ tests and that this difference is genetically based and of huge social importance. This is vitally important when understanding the particular character of racial inexplicitness; it is more than the mere absence of racial terms, it is a persistent tacit refusal to engage directly with the question of supposed differences in race and intelligence. I use the word tacit because, of course, the reader/listener can never know what is in the mind of the author/speaker, but the repeated failure to address the question takes on special significance in view of the Watson/Richwine episodes (see above). Despite the high profile coverage of his new book, and the numerous opportunities afforded him to address the issue, Professor Plomin has chosen not to disassociate himself from the racism so evident in *The Bell Curve* (Herrnstein & Murray, 1994). If Plomin *does* stand by the views expressed in the WSJ article then the average Black child in the 'genetically sensitive school' he now advocates will be much less-likely to find themselves engaged in high-status academic pursuits than their average White peer. Although Asbury & Plomin fail to discuss the matter, therefore, it seems likely that their 'genetically sensitive school' would display many of the characteristics of institutional racism already associated with schooling in the US and the UK, where Black children find themselves over-represented among those seen as sports people and entertainers, rather than academics and achievers (Gillborn, 2008; Lynn & Dixson, 2014).

Racial Inexplicitness and the US: the case of Linda S. Gottfredson

Racial inexplicitness, as demonstrated in the genetic-advocacy of Cummings and Plomin, provides a way in which authors can avoid public condemnation while indirectly advocating a causal biological/evolutionary connection between race and intelligence. Following the public ridicule and disgrace of James Watson this approach has become much more common than the old style direct assault in-the-name-of-scientific-truth that found its peak of popularity in the 1990s (in the work of Rushton, Herrnstein and Murray). Race and racism remain a vital absent presence in this work; the hereditarians have not changed their beliefs about race and the supposed intellectual inferiority of Black people – they simply do not advertise it any more.

To this point I have analysed the racial inexplicitness of Cummings and Plomin, the people who have put geneism back on the educational agenda in the UK, but the same approach is also visible more widely. Linda S. Gottfredson, for example, has played a hugely important role in establishing and defending the hereditarian position, both through her own research and through her advocacy work in organizing the WSJ statement of 1994 (see above). I have already noted her robust and impassioned defence of Rushton's writing on race and intelligence (Gottfredson, 2013). Given her longstanding, and continuing, advocacy for the hereditarian position one might expect this aspect of her work to feature prominently in her assessment of the field for a general audience; but one would be wrong. In 2011 Gottfredson authored an 'instant expert' primer on intelligence for *New Scientist* magazine and nowhere in the article's seven pages of text does race/racism appear (Gottfredson, 2011). The *New Scientist* piece pays generous tribute to the work of Arthur Jensen, whose 'analyses transformed the study of intelligence' (Gottfredson, 2011, p. ii), and yet fails to mention his most frequently cited work, *How much can we boost IQ and scholastic achievement* (Jensen, 1969), which 'rocked education' (Bereiter, 1995, p. 641) and which many view as launching the entire race/intelligence controversy in the modern age (Skiba, 2012, p. 35). Gottfredson's 'instant expert' primer does, however, include a neat example of racial inexplicitness:

> … our keen private interest in intelligence is matched by a reluctance to acknowledge publicly that some people have more of it than others. Democratic people value social equality above all, so they mistrust anything that might generate or justify inequality – but intelligence is no more equally distributed in human populations than height is. This tension has led to rancorous controversy over intelligence and intelligence testing but it has also benefited the science by pushing it exceedingly hard. A century

> of clashes and stunning discoveries has upended assumptions and revealed some fascinating paradoxes. (Gottfredson, 2011, p. iii)

In this way Gottfredson alludes to 'controversy' and 'mistrust' but reassures the reader that this has merely improved the science and prompted 'stunning discoveries'. The role of race and racism, in any of the controversies and discoveries, is left entirely unremarked.

PART II: Fact and Fiction: behind the 'scientific' façade

> The difference between little Johnnie's and little Jimmy's grades has a significant basis in their DNA. The inheritance of intelligence is such an emotive subject it's almost impossible to have a rational discussion about it. But surely it's time for this science to emerge from its cloud of suspicion? The flury of ire is present, of course, and you are entitled to your own opinions *but not your own facts*.
> Adam Rutherford (BBC Radio 4, 2014, original emphasis)[17]

The quotation above is how Adam Rutherford, an evolutionary biologist, ended the first of a three-part series that he presented on BBC radio in the spring of 2014 – a further example of the explosion of popular interest in the genetics of education that followed the events outlined in Part I (above). The quotation perfectly captures the dominant trope in public discussions of the issues; the 'inheritance of intelligence' is presented as a *scientific fact* that explains differences in individual achievement; critics of this view are assumed to be non-scientists driven by emotion. In this part of the paper I turn from an analysis of how race and racism feature in current debates, and consider the underlying 'science' itself. When the key concepts (such as 'heritability') and methods (twin studies) are scrutinized, their claims to scientific rigour and significance begin to crumble.

Heritability: one word, multiple uses

The question of heritability lies at the heart of debates about race and intelligence but it is a wildly misunderstood and misused concept. The idea of intelligence as a heritable characteristic is so synonymous with the school of thought that views race inequity as genetically shaped that writers such as Jensen, Eysenck and Rushton are frequently described – and describe themselves - as part of the 'hereditarian' tradition (see Chitty, 2007; Eysenck,

1971; Gillborn & Youdell, 2000; Kamin, 1974; Rushton & Jenson, 2005). Despite the frequency with which the term *heritability* is used, however, it is necessary to begin this part of the paper by contrasting its precise meaning as a calculation, as set out within the published articles and books, as opposed to its presentation in wider popular debates. The hereditarians frequently argue that they are misunderstood and misrepresented but, as I show here, it is a misrepresentation in which they are complicit.

Heritability in media and popular discussions

Popular discussion of heritability usually embodies a hugely erroneous understanding of the concept. The precise meaning of the term in heritability calculations is not at all the meaning that most people assume and which shapes current media discussions:

> Genetics, not your school, is biggest factor in exam success: DNA twice as significant as environmental factors, *Daily Mail* (Spencer, 2013)
>
> GCSE results 'influenced by children's genes, not teaching', *Daily Telegraph* (Paton, 2013)[18]
>
> Revealed: how exam results owe more to genes than teaching, *The Spectator* (Wakefield, 2013)
>
> Nature trumps nurture in exam success: GCSE results 'mainly determined by genes,' says landmark study of twins, *The Independent* (Garner, 2013)

These headlines, from UK national press coverage of Robert Plomin's research, capture the erroneous understandings at the heart of current debates. In popular discussion heritability is assumed to mean the proportion of educational achievement that can be credited to fixed genetic (as opposed to variable environmental) influence. Put simply, it is an argument that children's achievement is largely a matter of genetics or, as the headline above and the following newspaper story put it; *nature trumps nurture:*

> *Success DOES depend on your parents' intelligence: Exam results are influenced by genes, not teaching*

> Some pupils are naturally brighter than others, a study of twins suggests.
> The research shows inherited intelligence accounts for almost two thirds of marks in GCSE [exam]s, while the amount of work done in class accounts for the rest.
> This suggests raising the standard of teaching in schools may have a limited impact on children's academic achievement when compared with the genes they are born with.
> Or, put more simply, nature trumps nurture. (Levy, 2013, original emphasis)

In fact, this is not what heritability calculations mean at all and the conclusion – that teaching has a limited impact – is entirely spurious. I explore the methods (and assumptions) behind the calculations in the following section, here the important point is that both hereditarians and their critics agree that the calculations:

- claim to describe a *proportion of differences* in performance (variation) within a group;
- they do not relate to the *overall* level of performance (achievement),
- nor do they explain *individual* differences.

As the geneticist Steve Jones has argued:

> Heritability is, crucially, a statement about populations, not individuals. It certainly does not mean that [a heritability of 70% indicates that] seven tenths of every child's talents reside in the double helix, and that teachers hence become irrelevant. If anything, it means the opposite (Jones, 2012)

Here is how the concept is explained, first by Sternberg and his colleagues (in an attack on the hereditarian position), and then by Rushton and Jenson (when advocating the position):

> heritability is itself a troubled concept (…) Heritability (also referred to as h^2) is the ratio of genetic variation to total variation in an attribute *within* a population. Thus, the coefficient of heritability tells us nothing about sources of between-population variation. Moreover, the coefficient of heritability does *not* tell us the proportion of a

> trait that is genetic in absolute terms, but rather the proportion of variation in a trait that is attributable to genetic variation within a specific population. (Sternberg et al, 2005, p. 53 original emphasis)
>
> It is also important to define and interpret *heritability* correctly. Heritability refers to the genetic contribution to the *individual differences* (variance) in a particular group, not to the phenotype of a single individual. Heritability is not a constant that holds for all groups or in all environments. … Heritability estimates are true only for particular populations at particular times. They can vary in different populations or at different times. (Rushton & Jensen, 2005, pp. 238 & 239, original emphasis)

Of course, hereditarians and their critics differ considerably in numerous ways (including the significance that can be attributed to heritability calculations and, in particular, the assumptions that can be made on the basis of group comparisons). But it should be clear from the above that, regardless of the position that authors take on the wider question of race and ability, *heritability calculations do not show the proportion of overall achievement that is due to genetics.* The interpretations shaping popular debate in the UK – such as 'inherited intelligence accounts for almost two thirds of marks in GCSEs' (Levy, 2013) and 'exam results owe more to genes than teaching' (Wakefield, 2013) – are, therefore, entirely wrong.

Heritability is neither fixed nor inevitable

In addition to the misunderstandings about what 'heritability' calculations actually mean, there is another vital point that contradicts the assumptions that are reproduced in popular debates about genetics and intelligence, i.e. *heredity is variable*. In fact, it is difficult to overestimate the specificity of heritability calculations. In the quotation above Rushton & Jensen concede that 'Heritability estimates are true only for particular populations at particular times' (2005, p. 239) and they go on to note that:

> 'Equalizing environments … produces the counterintuitive result of increasing heritability because any individual differences that remain must be due to genetic differences' (2005, p. 239)

The same point is made in Plomin's co-authored academic paper on the heredity of GCSE scores, i.e. the research that generated so many misleading newspaper headlines:

> '…heritability of 100% means that inequalities of educational opportunity do not exist. In this counter-intuitive sense, heritability can be considered as an index of equality.' (Shakeshaft et al, 2013, p. 9)

The reason that these statements are counter-intuitive is that people tend to assume that if something is genetically heritable it is fixed and inevitable - as symbolized in the press coverage (above). Plomin made the same point to a confused Education Select Committee:

> 'A lot of good things you do for schools will actually increase genetic influence. If we are successful at making educational opportunity equal for children, many of our goals will actually end up creating more heritability and greater genetic differences' (House of Commons Education Committee, 2013, p. 31)

The very notion of *creating* 'more heritability and greater genetic differences' runs entirely counter to how these debates play out in the media and politics, where heritability and genetic difference are assumed to be fixed or, in a term beloved of commentators, '*hard-wired'*. Part of the reason for the confusion is that at the same time that the hereditarians include small-print warnings about misunderstanding the concept of heredity, they also make headline-grabbing claims, about the significance of genetics, that seem to encourage an altogether different reading. Dominic Cummings, for example, includes a definition of heritability (on page 196 of his 237 page essay) but has, by that point, already written at length about the significance of genetic influences and the need for educators to take them on board. Ultimately he argues for a shift in the nature of school-based education itself:

> Instead of thinking about education as *instruo* (build in) we should think of it as *educatio* (draw out). (Cummings, 2013, p. 203)

Similarly, Plomin's attempted explanation of heritability to the Select Committee (above) came after he had exhorted them to recognize the power of genetics:

> It is completely the elephant in the classroom. Nobody in education wants to take on the fact that genetics accounts for more variance than everything else put together. Now, you can say, "It does not tell me exactly what to do right now", but to ignore

> that seems to me to be incredible.' (House of Commons Education Committee, 2013, p. 30)

In a further example, Plomin's co-authored paper on the heritability of GCSE achievement was accompanied by a press release quoting the first-named author as stating:

> Children differ in how easily they learn at school. Our research shows that differences in students' educational achievement owe more to nature than nurture (Nicholas Shakeshaft quoted in Kings College London, 2013)

This final example shows how easily there is a slide from a specific technical term (heritability as a measure of *variation* within a group) to a commonsense – incorrect and highly dangerous – understanding of differences in *achievement* that is entirely wrong. The press release is headed *'Differences in students' GCSE scores owe more to genetics than environment* (Kings College London, 2013). And so it is that '*variation'* slides into '*differences'* and then into exam '*scores'* and *achievement*. Ultimately the process finds expression in news stories that proclaim the supremacy of nature over nurture (Garner, 2013; Paton, 2013; Spencer, 2013; Wakefield, 2013). For the sake of clarity, Table 1 summarizes the differences between the mythic presentations of heritability (in popular media and political debate) and the reality (as hidden in the technical small-print).

TABLE 1 about here

Twin Studies: natural experiment or anachronism?

Classic heritability calculations are derived from studies using sets of twins, comparing differences in performance between identical (monozygotic - MZ) twins and non-identical (dizygotic - DZ) twins. Hereditarians hail twin studies as a wonderful natural experiment, whereas critics cast doubt on the foundational assumptions behind the approach and question whether it has any useful application in the contemporary world. In this section I consider the basic thinking behind the Twin Study methodology and then review the numerous problems with the approach.

> The theory is that identical (monozygotic, MZ) twins have 100 per cent of their genes in common; non-identical (dizygotic, DZ) twins, like any other siblings in a family,

> share only 50 per cent of their genes. Any differences between MZ twins must therefore be environmental, whereas differences between DZ twins result from both genes and environment. So, comparing the difference in a trait – for instance, IQ – between pairs of MZ twins and pairs of DZ twins enables the genetic contribution to be teased out. This is expressed as a percentage figure and is called heritability. (Rose, 2014, p. 28)

Rose's explanation of the Twin Study methodology (above) neatly captures the essentials of the approach and echoes the explanations offered by hereditarians (cf. Asbury & Plomin, 2013, p. 16). Markedly different views emerge, however, when considering the *validity* and *usefulness* of the approach. Asbury and Plomin, for example, proclaim that 'Twins are a unique and important natural experiment' that shine a penetrating scientific light on virtually any topic:

> By measuring whether MZ twins are more similar than DZ twins on any human behavioral trait we can estimate the degree to which that trait is influenced by genes. We use twins to estimate how much of the difference between people on traits ranging from obesity to psychopathy to academic achievement is due to genetic influence (Asbury & Plomin, 2013, p. 15-16)

In contrast, Rose notes that the heritability estimate was originally designed for agricultural analysis of crop yields and not for application to human beings (2014, p. 29). In addition, very serious questions arise when we examine the assumptions that provide the foundations for the approach, where the complexity of human social behaviour in the real world contrasts with the idealized and over-simplified version at the heart of heritability calculations. First, it is important to recognize that, as a means of calculating the heritability of particular traits, the twin study methodology is designed to deliver the *maximum* possible indication of heredity (GeneWatch UK, nd). The approach compares the similarity between MZ pairs with that between DZs and assumes any difference is entirely due to genetics; hence the method builds-in a tendency to over-state any possible genetic component. A second reason to doubt the usefulness of such studies is that they rest on what is called the 'equal environments assumption':

> The twin method requires that the environments of MZ pairs are no more similar than environments of DZ pairs, on average; otherwise, those variations could partly or entirely explain the correlation differences. As it happens, the assumption is flatly contradicted by numerous studies. (Richardson, 2011)

The idea that identical twins are treated in *no way* differently to non-identical twins simply does not accord with the real world. Identical twins are more likely to share friends, dress alike, be brought up as a single unit, and have 'an extremely strong level of closeness' (Richardson, 2011). Once again, therefore, the academic small-print of the hereditarian perspective emerges as a significant problem and the scientific façade of the work fails to withstand critical scrutiny.

IQ Tests and Their Manipulation

Like the notion of heritability, IQ (Intelligence Quotient) tests enjoy a mystique in popular debates that far exceeds their real significance. Others have provided detailed commentaries on the history and mis/uses of IQ tests (see Gould, 1981; Kamin, 1974; Rose et al., 1984; Stobart, 2008) but, in discussions with students and policy-makers, I have found that two little-known facts are often greeted with disbelief. In view of the renewed level of debate about intelligence and education policy, it is worth stating these facts clearly at this point.

First, it is widely known that the average IQ is a score of 100. Less well known is that overall performance in IQ tests has been rising for decades and that the tests are periodically re-normed to ensure that the average score remains at 100. Known as the 'Flynn Effect', after James Flynn the author who first brought this to widespread attention, it has been estimated that there is roughly a 3 point improvement every decade (Stobart, 2008, p. 40). This completely contradicts the received view of IQ tests. The following quotation, from a then-Schools Minister, illustrates the prevailing view in English education policy:

> I'm not saying that young people are getting *cleverer*, that would be an *absurd* thing to say – that somehow the IQ distribution has improved from one generation to the next. What I *am* saying is that schools are getting better at realising the potential, helping young people realise their potential.
> David Miliband MP (19 August 2004, original emphasis)[19]

This statement was made by a Labour Party Minister as he sought to explain, in a radio interview, that improvements in student achievement did not evidence a lowering of standards (so called 'dumbing down') but neither – of course – was he suggesting that people are getting smarter. In fact, far from being 'an *absurd* thing to say' most people working in the field do indeed accept that performance in IQ tests 'has improved from one generation to the next'. The Flynn Effect deals a major blow to hereditarian views of intelligence as innate and fixed:

> someone who was at the mid-point of the 1990 distribution (IQ of 100) would have scored in the top 18 per cent (IQ 115) in the 1935 standardising. (Stobart, 2008, pp. 40-1)

> Compared with a mean of 100 in 1992, the mean for the population in 1942 would be almost at a level that [by 1992 standards] indicated mental handicap for the *average* person. (Deary, 2001, p. 109, original emphasis)

This fact, little-known outside the ranks of IQ specialists and psychometricians, raises serious questions for those who would write off low-achievers as inevitable drains on the taxpayer (cf. Johnson, 2013) or as a threat to the continued prosperity of the nation (Herrnstein & Murray, 1994, chapter 15). Because of the periodic re-norming of IQ scores, there will *always* be a group at the bottom, and a group at the top, but their position there tells us nothing about their substantive abilities. Once again, the evidence contradicts the hereditarian rhetoric and popular mythology by highlighting the *constructed* nature of IQ tests and scores:

> the IQ distribution of the population is always the same. If everyone with an IQ of over 100 in the UK suddenly died due to some calamity … then the IQ distribution would remain the same for the surviving population, because that's how it works. Criticising 16% of the population for an IQ of below 85 is like criticising 50% of the population for being 'below average' (Burnett, 2013)

A second relevant fact about IQ scores is that policy-makers have been willing to *manipulate pass levels* for certain populations but not others. In the field of race and intelligence the overwhelming tone of hereditarian authors is that they pursue the truth despite it being uncomfortable. The image is created of science being applied for its own sake and to the

benefit of all. But history shows that some supposed 'truths' are viewed differently than others. For example, in the post-World War II period, when the 'Eleven-plus' exam (essentially a written IQ test) was widely used to sort English children for different kinds of secondary school, it was not revealed 'that the pass rate … had been set higher for girls than for boys, in order to avoid girls outnumbering boys in [high-status] grammar schools' (Land, 2006, p. 48; see also Lowe, 1997). When it was discovered that boys, on average, performed less-well than girls, different pass-rates were set to ensure that boys were not disadvantaged (see Martin, 2012, p. 32). In the case of gender (and specifically, preserving the position of *male* students) the judgement was made to privilege the equal representation of both sexes over the unequal distribution that would result from the adoption of a single pass grade/cut-off point. At the height of academic selection in British state-funded schools, therefore, the application of test results was deliberately manipulated to favour some students over others, revealing a willingness to apply flexibility to the interpretation and use of test-results that is rarely, if ever, present in hereditarian discussions about race, intelligence and social justice.

Scholarly Brinkmanship, aka Having Your Cake and Eating It

> The tremendous attention lavished on the book probably comes less from the science or the policy proposals than from the subliminal messages and attitudes it conveys. (Gardner, 1994)

The statement above was made by Howard Gardner, the leading advocate for the notion of multiple intelligences, in a commentary on *The Bell Curve* (Herrnstein & Murray, 1994). Gardner sets out to de-bunk the various myths and leaps of imagination that the book presents as if they were matters of scientific fact but he also comments at length on the literary style of the book. In particular, he coins the term '*scholarly brinkmanship'* to describe an approach that 'encourages the reader to draw the strongest conclusions, while allowing the authors to disavow this intention'. Another way of thinking about the approach is that it represents the academic version of having one's cake and eating it; i.e. scholarly brinkmanship combines the strongest forms of rhetorical genetic advocacy but laced with statements of technical detail and qualifications. The details do not get in the way of the overall story – the hard sell of geneism – but they can be cited as evidence of balance and restraint whenever the author is challenged.

Scholarly brinkmanship is powerfully deployed in Asbury and Plomin's *'G is for Genes'* (2013), the book at the heart of contemporary discussions about the genetics of education in the UK. In table 2 I set out some examples from the book showing how the strongest possible versions of geneism (*nature over nurture*) are accompanied within the same text by qualificatory passages that, in isolation, would seem to contradict the dominant reading (*nurture over nature*). The qualificatory sections allow the authors and their advocates, such as Cummings, to present their critics as emotional zealots unaware of the finer points of the argument; meanwhile the master narrative, of genetic influences across education and achievement, remain remarkably unscathed by the apparent contradictions.

TABLE 2 about here

Conclusions

> ...the IQ test has served as an instrument of oppression against the poor - dressed in the trappings of science, rather than politics. The message of science is heard respectfully, particularly when the tidings it carries are soothing to the public conscience. There are few more soothing messages than those historically delivered by the IQ testers. The poor, the foreign-born, and racial minorities were shown to be stupid. They were shown to have been born that way. The under-privileged are today demonstrated to be ineducable, a message as soothing to the public purse as to the public conscience. (Kamin, 1974, pp. 15-16)

Leon Kamin's analysis of the lure of genetic determinism remains painfully accurate more than forty years later. Hereditarian arguments that portray human ability as significantly – sometimes *overwhelmingly* – determined by fixed genetic factors retain enormous political and popular appeal. The view recasts existing inequalities of achievement, no longer to be seen as disgraceful injustices that deny opportunity and rob society of so much talent, but as the inevitable and *fair* outcome of a functioning meritocracy. By this thinking, White people and economic elites are privileged not by the wielding of power, but by nature; their children inherit their privilege in their genes, not through their bank accounts, elite education and enhanced access to closed employment and social circles.

In education the hereditarian analysis breeds fatalism, deficit-thinking and elitism; all neatly summed up by London's Conservative Mayor, Boris Johnson, when he bemoaned the existence of '16 per cent of our species [with] an IQ below 85' and argued that inequality was both natural and a useful driver for progress (Johnson, 2013). As I have pointed out in this paper, the manipulation and re-norming of IQ tests means that there will *always* be a proportion of 'our species' with an IQ below 85 and that score tells us nothing of substance about people's capabilities.

Some Progress, but not Enough

It would be wrong to imagine that the hereditarian tradition has not changed significantly since Kamin's first devastating critique in the 1970s and the furore over *The Bell Curve* in the 1990s. One of the central tenets of Critical Race Theory is that although racism may remain a permanent presence in society, its form and workings can be infinitely complex, fluid and subtle (cf. Bell, 1992 & 1998; Delgado, 1995; López, 2014). The fate of the Nobel prize-winner James Watson is especially important here. In 2007 Watson said in simple and clear terms what writers like Eysenck, Jensen, Lynn, Rushton, and Gottfredson have suggested many times. Watson's subsequent fall from grace was swift, comprehensive and decisive. We live in a world where racist inequities continue to shape life chances (in and out of school) but public discourse on race *has* changed. As Ian Haney López notes in his analysis of contemporary US politics:

> *We fiercely oppose racism and stand prepared to repudiate anyone who dares utter the n-word.* Meanwhile, though, the new racial discourse keeps up a steady drumbeat of subliminal racial grievances and appeals to color-coded solidarity. (2014, p. 3 original emphasis)

The hereditarians have not changed their mind about race and intelligence – they just don't broadcast it anymore. Neither Robert Plomin nor Linda Gottfredson have repudiated their earlier statements of support for *The Bell Curve* and its view of race inequity as reflective of the deeper genetic patterning of intelligence (so proudly set out as 'mainstream science' in the *Wall Street Journal* in 1994). Their more recently produced reader-friendly accounts of intelligence and genetic heritability (Asbury & Plomin, 2013; Gottfredson, 2011) adopt a discourse of *racial inexplicitness* that hints at past controversies but never addresses race directly and portrays their critics as driven by ideology and/or emotion. The racist patterning

of differential educational opportunity and achievement, that is encoded in their views, lies buried in the small-print, hidden from the view of the general reader. The new geneism is no less racially conceived, and no less racist in its likely consequences, than the more familiar explicit scientific racism of *The Bell Curve*; but the colorblind façade repackages centuries old stereotypes in shiny new DNA-patterned bundles. Critical educators must quickly adapt to, and interrupt, this version or else we may find that scientific racism has reshaped our education systems without even mentioning race. And so, what is to be done?

Changing the Terms of Debate

> … it is almost universally agreed that race is a social construct. In 2005, only two years after the sequencing of the human genome, the editors of *Nature Biotechnology* put it like this: 'Pooling people in race silos is akin to zoologists grouping raccoons, tigers, and okapis on the basis that they are all stripey.' Perhaps, then, the better question is: Why do we continue to search for a connection between race and genetics … (Silverstein, 2015)

The aim of this paper has been to analyse and critique the hidden racist threat encoded in the rise of the new geneism. I have examined key examples of the popular presentation of genetics and intelligence and identified the numerous myths and misunderstandings that frequently lie at the heart of contemporary debate. The emergence and popularity of racially inexplicit hereditarianism suggests the need for a more decisive response in future debates.

Researchers working on the genetics of disease have long warned of the dangers of treating race (a social construct that is understood differently in different societies and in different historical periods) as if it were a fact written into people's DNA. Troy Duster's (2003) classic '*Backdoor to Eugenics'* highlighted the threats inherent in drawing sloppy associations between patterns of disease and racial/ethnic labels in a way that ignores structural social inequality and fuels belief in biologically fixed and discrete human races. Subsequent studies in the US have demonstrated that careless treatment of these issues, for example in textbooks and classrooms, can indeed lead to strengthening racist stereotypes among students (Donovan, 2014 & 2015; Phelan, et al., 2013). In view of the wealth of evidence now available on the fictional nature of the labels that we humans call 'races' (see Krimsky & Sloan, 2011), we need to move to a position where all research on human capabilities

(whether involving genetics or not) is predicated on a clear statement that any assertion of fixed and inevitable inequalities in ability/intelligence between racial/ethnic groups is, by its nature, racist. There can be no 'scientific' debate about issues that are so-fundamentally *un*scientific in their conception. As Steven Rose has argued, in the pages of *Nature*, to seek causal links between race and intelligence is not merely futile but also an expression of the power to oppress and separate:

> the categories of intelligence, race and gender are not definable within the framework required for natural scientific research … In a society in which racism and sexism were absent, the questions of whether whites or men are more or less intelligent than blacks or women would not merely be meaningless — they would not even be asked. The problem is not that knowledge of such group intelligence differences is too dangerous, but rather that there is no valid knowledge to be found in this area at all. It's just ideology masquerading as science. (Rose, 2009, pp. 787-8)

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Notes

1. This is a verbatim transcription, by the author, from an interview with Plomin first broadcast on BBC Radio 4 on 20 October 2015 in the series, *The Life Scientifc*. This quotation begins 12 minutes and 11 seconds into the podcast.

2. Vezina (2013) uses the term *gene-ism* to refer to a belief in genetic determinism. The same idea has also been termed 'biologism', i.e. 'the attempt to locate the cause of the existing structure of human society, and of the relationships of individuals within it, in the biological character of the human animal. For biologism … the way that an individual responds to his or her environment is determined by the innate properties

of the DNA molecules to be found in brain or germ cells' (Rose & Rose, 1976, p. 120).

3. Verbatim transcription; quotation begins 25 minutes and 40 seconds into the podcast.

4. By *racist in conception* I mean that their arguments reflect a widely discredited view of human 'races' as relatively discrete biological entities rather than highly complex, changing and contested *social* constructions. By *racist in their consequences* I mean that their arguments promote and legitimate differential and negative treatment of certain minoritized groups, particularly those who identify their ethnic heritage as part of the African Diaspora.

5. Signatories included MPs from two of the three main parties (no Conservatives signed) and included MPs of both genders and some of White, Black and South Asian ethnic heritage.

6. Watson's chosen beneficiaries were elite institutions that 'had nurtured him', including the Universities of Chicago and Cambridge (Hartocollis, 2014).

7. House of Commons, Education Committee (2013) Question 65, p. 27.

8. For a critical examination of the political and media focus on 'White working class' students see Centre for Research in Race & Education (2013) and Gillborn (2010).

9. This quotation begins 26 minutes and 40 seconds into the podcast.

10. This extract begins 28 minutes and 39 seconds into the podcast.

11. Rushton's principal scientific contribution was to propose an evolutionary theory of human differences such that 'people of east Asian ancestry (Mongoloids, orientals) and people of African ancestry (Negroids, blacks) define opposite ends of the spectrum, with people of European ancestry (Caucasoids, whites) falling intermediately' (Rushton, 1997, p. xiii). Rushton claimed that this 'racial matrix' (from 'Asian' to White to Black) can be seen in numerous traits including 'brain size,

intelligence, reproductive behaviour, sex hormones, twinning rate, speed of physical maturation, personality, family stability, law-abidingness, and social organization' (1997, p. xiii).

12. It should be stressed that the *Robert* A. Weinberg quoted by Cummings (Weinberg, 2004) is not the *Richard* A. Weinberg who has critiqued the hereditarian stance on race and intelligence (Waldman, Weinberg & Scarr, 1994).

13. This calculation is based on items listed as 'research projects' on Professor Plomin's website at Kings https://kclpure.kcl.ac.uk/portal/en/persons/robert-plomin(a4d64086-7700-4a2d-a1e3-da40bd9d0074)/projects.html (last accessed 31 July 2014).

14. Robert J. Sternberg (whose work criticizing race/IQ conclusions I have already cited above) *does* feature, once on page 89, but as a witness for the importance of IQ – his misgiving about race/IQ linkages are absent.

15. Because of the newspaper's requirement for timeliness recipients were not given the opportunity to offer amendments or qualifications (Gottfredson, 1997, p. 18-20).

16. This extract begins 11 minutes and 18 seconds into the podcast.

17. This extract begins 27 minutes and 19 seconds into the podcast.

18. GCSE (General Certificate of Secondary Education) examinations take place at the end of compulsory education for most students in the UK and are a vital form of certification in the labour- and further/higher education market place.

19. Verbatim quotation transcribed by the author from *The Today Programme* (BBC Radio 4) broadcast 19 August 2004, http://www.bbc.co.uk/radio4/today/listenagain/zthursday_20040819.shtml (last accessed 27 Aug 2004). No podcast is available.

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TABLE 1: The Small Print: Fact and Fiction about Genetic Heredity

MYTH heritability in popular media and political debate	**REALITY** what heritability calculations really claim
Heritability describes the proportion of educational achievement that is determined by people's genes	Heritability claims to describe the proportion of variation (*differences* in performance *not* overall achievement) that is influenced by genetic factors
Heritability explains individual differences in achievement	Heritability does not relate to individual differences
Heritability is fixed	Heritability is highly variable: • it varies over time, • it varies in different contexts and • it varies for different tasks.
Heritability is genetic and therefore immune to environmental influence	Heritability levels can be made greater and smaller by changes in the environment
Heritability operates independently of schooling and parenting	Heritability calculations are directly affected by inequalities in schooling and parental conditions

TABLE 2:

Scholarly Brinkmanship: Nature and Nurture in Asbury and Plomin (2013) *'G is for Genes'*

NATURE	**versus**	**NURTURE**
'The ability to learn from teachers is, we know, influenced more by genes than by experience.' (p.7)		
		'The truth is that next to nothing is determined by genes, and our environments are hugely powerful.' (p. 96)
'By providing education to all children we create a situation in which their genes are the single biggest influence on how well, relative to others, they do in school.' (pp. 7-8)		
		'…a heritability estimate of 60 to 70% tells the teacher nothing at all about what is possible, or even to be expected, from any particular child' (p. 45)
'…estimates of heritability tend to hover between 60 and 80%. This means that a significant proportion of the differences between individuals in how well they can read can be explained by genetic influence, leaving as little as 20% to be explained by the environment… ' (p. 24)		
		'It is all very well to say that reading ability is 60 or 70 or 80% heritable, but such a statement does not make the pivotal role of teaching apparent. Children with a genetic predisposition to be good at reading would not learn to read if they were not taught to do so..' (p. 30)

All quotations are taken from Asbury and Plomin (2013)