Race as technology and the carceral methodologies of molecular racialization

Brett St Louis
Sociology Department
Goldsmiths, University of London
b.stlouis@gold.ac.uk

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0000-0002-9494-2191

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Abstract

This article counters the view (albeit contested) of race as a natural empirical object with technology as a secondary, external entity applied to it. Instead, I posit race itself as a technology that is inherently discriminatory in motivation, design and function, as evident throughout its brutally effective history. Focusing on the post/genomic era, I consider contemporary forms of molecular racialization as the latest technological iteration of race as a disciplinary device. I characterise this biopolitical racial technology as operant through a carceral methodology in four stages: 1) the *epistemological mutability* of molecular racialization as reiterating the obscurantist claim of modern raciology to constitute a benign description of literal racial difference; 2) the *ontological de-individualization* of certain racial others as aggregated risky populations and legitimate targets of repressive management; 3) a *predictive empiricism* whereby molecular race is seen as indicative of potential behaviours that sanctions oppressive state interventions against specific populations; 4) a normative *bioethical dissembling* whereby state agencies' exploitation of target molecular racialized populations' vulnerabilities result in the debarment of proper ethical consideration and the right to justice. Drawing largely on criminal justice and immigration control examples, the article argues against notions of function creep and asserts that the carceral methodologies of molecular racialization demonstrate race as a repressive technology designed to (re)produce subaltern racial populations and propagate racism.

Keywords

Racial science; racism; racial profiling; DNA phenotyping; molecular photofitting; bioethics

Technology is not only a metaphor for race, but one of the many conduits by which past forms of inequality are upgraded.

Ruha Benjamin (2016: 149)

Introduction

There is a fault line in the science of race. In the aftermath of the Second World War, a distinction was made between valid scientific knowledge about race and erroneous commonsense racial myths. Concerns over the folk myth of race as sowing enmity and conflict were set against the potential for edifying scientific facts to increase human understanding and promote inter-group harmony (UNESCO 1975 [1950]). Such debate over the salience of race as a discrepancy between commonsense myth and scientific fact demonstrates two important notions at work: first, that race exists in realist terms as a prior, stable object separate from the scientific means of its comprehension; and second, that knowledge about race may be used beneficially or malignantly misused. At present, whether 'race-positive' inclusive interventions or 'function creep' and 'default discrimination', science and technology are regarded as applied to race for either progressive or invidious purposes.

This article adopts a different approach crystallised within a question: Instead of considering race as a natural empirical object with science and technology as external entities applied to it, what if race itself were regarded as a technology? Such a view has been proposed in so far as race can be considered a disciplinary technology wielded ideologically to suppress people and institutionalise segregation (Chun 2009; Coleman 2009; Benjamin 2019). After all, modern projects of race-making through legal codes, scriptural interpretations, scientific

taxonomy, statecraft, empire-building and so on served as an incontrovertible means to found natural groups. Once constituted, subject racial populations of 'inferior stock' throughout Africa, the Americas, Asia and Oceania could be justifiably exploited, with their 'white' European 'natural superiors' the rightful beneficiaries of entitlements and privileges.

By approaching race in instrumental as opposed to realist terms, this article problematises the commonsense myth/scientific fact discrepancy outlined above. As a technology itself, race is not fundamental organic matter subject to technology, let alone scientific and technological misuse. I argue below that as a technology, race is a tool, inherently discriminatory in design, its coercive functions are its vital purpose as opposed to aberrant function creep. This article seeks to demonstrate that by constituting race in molecular terms, contemporary post/genomic sciences establish a racial technology architecture that informs a theoretical and practical means to propagate racism. Drawing on Ruha Benjamin (2016), I present this practical-theoretical means as a carceral methodology emergent in four stages: first, in epistemological terms, I posit that contemporary post/genomic sciences *make* race instead of revealing it through a process of molecular racialization that retains the hallmark of typological raciology – including the capacity to create and mark specific groups for particular forms of social treatment; second, I explore the use of molecular racialization to ontologically de-individualize certain persons as members of risky racial populations that can be legitimately targeted for biopolitical management; third, I suggest that molecular race is seen as indicative of future behaviours requiring state interventions against specific racial populations, thus authorizing a predictive empiricism; fourth, regarding bioethics, I show how stigmatised racial populations' vulnerability is exploited, debarring them from proper ethical consideration and the right to justice.

An extensive body of 'race critical' scholarship (Essed and Goldberg 2002) featuring thinkers such as Angela Davis, Paul Gilroy and Edward Said analyses the (re)production of race and racisms alongside literature and debates within social studies of science examining race. This article brings these two bodies of work together, drawing on insights from the former and engaging with discussions from the latter. Building on this conjunction of ideas on race, I argue that molecular racialization and concomitant carceral methodology of enacting that racial knowledge exemplify a Foucauldian technology of producing, signifying, disciplining and determining race within the context of dominating and governmental rationalities. Thinking of race in this way as a technology instantiated through a 'matrix of practical reason' (Foucault 1988: 18) demonstrates the production of 'natural' racial populations whose very existence, character and behaviours are knowable through scientific investigation, commonly accepted, subject to moral judgment and, where necessary, disciplined by the state.

Determining race in the post/genomic era

As has been extensively rehearsed, scientific understanding of race underwent a momentous shift around the turn of the millennium and subsequent publication of the draft sequence of the human genome in 2000. For some, race had been proven as biologically non-existent (Angier 2000), its intrinsic incoherence unequivocally exposed by the genomic fact of human sameness (Gilroy 2000). But for others, far from being invalidated, race was actually revitalized by (different) genomic truths. Genetic studies of human population structure found statistically significant 'genetic clusters' within 'major geographic regions' thus affirming the existence of continentally distinct populations (Rosenberg et al 2002). Additionally, metanalyses of population genetic studies confirmed the geographical

clustering of populations, allowing for a definition of 'racial groups on the basis of the primary continent of origin' (Risch et al 2002: 3).

Neither position has been able to assert itself as *the* new race orthodoxy; the only certainty is that epistemological divergence over race remains. One definitive outcome, however, is the serious challenge mounted against the late-twentieth century social constructionist orthodoxy which is characterised as ineffectual in its steadfast refusal to acknowledge the biological (Hartigan 2008; Skinner 2007). Prominent examples of this opposition include post/genomic and new materialist assertions of race existing at the molecular level, whether ancestrally and phenotypically discernible (Leroi 2005) or embodied as a 'machine assemblage' (Saldanha 2006). Key within the reproach of social constructionism is the notion that race has been reconstituted as simply matter – the cladistic concept of race, for example, identifies breeding populations emanating from a shared ancestry characterized by objective lineage rather than supposed qualitative attributes such as behavioural traits and intellectual capacity (Andreasen 2004). Moreover, understanding the materiality of race is framed as bringing racism into sharp relief; discarding race-blind medical doctrine in favour of a 'race-positive' approach enables understanding and countering embodied racial disparities in health (Bliss 2012).

On the other hand, this putative shift towards a more neutral formulation and progressive application of race has itself been questioned. The molecularization of race is put forward as a readjustment of the problematic normative view of discrete racial types instead of a thoroughgoing overhaul (Fullwiley 2007). Furthermore, the progressive synergy between race and technology is problematized. DNA phenotyping technologies used to infer ancestry have been subject to 'function creep', extending from well-intentioned medical applications towards usage in criminal justice and immigration control (Duster 2006). Similarly,

information technologies such as predictive policing software touted as enabling efficient policing are indicative of 'default discrimination' (Benjamin 2019). In short, scientific understanding and technological advancements have been used to racialize groups who are then marginalized, criminalized and subjugated.

Epistemological mutability

The advent of a contemporary molecular understanding of race implies that the centuries-old notion of discrete racial types is outmoded and has been superseded. Contemporary race-based genetic research combines biological and environmental considerations, accounts for the agency of self-identification, and centres social and ethical concerns (Malinowski 2009). However, Troy Duster's (2006, 2015) prominent critique of the 'molecular *reinscription* of race' demonstrates that much within the contemporary formulation has been carried over from the typological past. Duster details how the sophisticated measurement of Ancestry Informative Markers (AIMs) within different sampled geographical populations is dependent on the presupposition of historically-established racial groups. Moreover, the molecular reinscription of race is methodologically weak in accepting 'convenient' small-scale sampling as an empirically valid referent for a diverse, large-scale continental population.

There is a simple rejoinder to the molecular reinscription of race critique. That racial typologists speculated on continental racial categories without adequate justification does not necessarily render the categories themselves invalid. Hence, the molecular concept is held to differ significantly from the typological. It is suggested that races cannot reasonably be expected to be genetically identical discrete types; the statistically significant frequency of particular genes should be measured at a wider group level instead of at individual loci (Edwards 2003; Leroi 2005). Continental populations with a broadly shared geographical

ancestry and some genetic differentiation are therefore materially manifest as statistically probabilistic groups that we label as races (Risch et al 2002). If the conceptualisation of race has evolved historically from lineage, to type, to social constructions (Banton 1998), then the contemporary molecular version serves as a refinement and successor concept.

As neither the molecular iteration nor reinscription of race viewpoints emerge triumphant, the result is a 'dead-end debate' that constitutes a 'binary trap' (Ossorio and Duster 2005) where the non/existence of race becomes an insoluble impasse. However, this 'trap' is a constituent feature of race instead of a contingent effect. Both versions of race, historical typological and contemporary molecular, depend on conjoining corporeal human diversity and race as classification. This racial realist conflation might be critically regarded, in Roy Bhaskar's terms, as an 'epistemic fallacy' whereby 'statements about being can be reduced to or analysed in terms of statements about knowledge' (1978: 36). Nevertheless, such fallacious conflation of human diversity (real or perceived) and race is not merely an epistemological error but a characteristic conceptual malleability. Racial theories have always employed differing, and sometimes opposed, guiding epistemological frameworks – for example, monogenism and polygenism.[1] And like its typological antecedent, the contemporary molecular variant of race is markedly amorphous. Instead of a positivist affirmation there are numerous equivocations: race is, variously, a 'rough proxy' (Jones 2001), 'shorthand' (Leroi 2005), a 'probabilistic marker' (Kennedy 2001). Defining race through statistical significance and probability measures and the use of analogous descriptors are human determinations thus constituting race as a syncretic category and concept. The ostensibly realist assertion of molecular race is notably circumspect and unscientific, again in Bhaskar's (1979) terms, as it indexes what the scientist produces instead of reflecting an intransient material fact.

Still, these assorted epistemological frameworks and indistinct descriptions each contribute to the edifice of race – the logical incoherence and negligible bio-materiality of race has not stymied its conventional meaning or functionality. Therefore, a central question arising from regarding race as a technology is not what race *is*, but what does race *do*? (Chun 2009). Simply put, race is made to meet divergent objectives. As the field of postgenomics is notably pluralistic, characterized by established and innovative methods, hegemonic and oppositional political objectives, with varied scientific and public policy agendas ranging from conservative to liberal (Benjamin 2015; Fullwiley 2014), molecular race is framed in relation to varied social concerns. For example, while questions of racial health disparities within the genomic era emerged against a colourblind doxa, the subsequent postgenomic era features a race-conscious, health justice agenda for rectifying inequalities (Bliss 2015). In extension, a more strident critique sees 'racial genomics' as the most recent iteration of iniquitous racial science and 'a response to current threats to the racial hierarchy and white privilege' (Fitzgerald 2014: 51). As 'an object and technology of scientific inquiry' applied politically and culturally within a neoliberal private marketplace (Abu El-Haj 2007: 294), molecular race has varied meanings and serves different purposes.

The 'practical reason' of this molecular racial epistemological mutability as informing a disciplining technology becomes clearer within the three spheres of post/genomic racialization: 'health', 'self and identity', and 'rights within the law' (Fullwiley 2014). While these three domains can be understood in terms of human benefits, they are also characterised in terms of 'risk' which is central to both postgenomic medicine and notions of citizenship within neoliberal economies (Abu El-Haj 2007). Risk can be understood and consequently addressed in various ways. Epidemiologically, there are at-risk populations whose exposure to risk is mitigated by rational subject-citizens' responsible self-care (Abu El-Haj 2007;

Novas and Rose 2000) as well as the race-positive promotion of minorities' right to treatment (Bliss 2012). Politically, irresponsible people are punitively viewed as akin to a self-selecting anti-social underclass who have forfeited public entitlements (Mounk 2017). This constitutive process of over-determining the irresponsible as political-moral scapegoats is repeated on a racialized subset of social undesirables including 'super predators', 'muggers', 'gangs', deceitful 'economic migrants' and 'radical Islamists' as a dishonest and/or criminal, risky population. These two risk populations, the at-risk and risky, are characterised differentially. The at-risk population is *subject to* risk, facing adverse health outcomes either unavoidable or unintended – this population is implicitly unfortunate, worthy of sympathy and deserves protection. On the other hand, the 'deviant' racialized population *poses* a risk to others; this group is a hostile 'enemy within' that must be policed and the polity protected against.

Managing populations and risk in reference to molecular race is presented as pursued through a non-aligned, disinterested bioscience. Encapsulating Weber's classic assertion that 'An empirical science cannot tell anyone what he *should* do – but rather what he *can* do' (1949: 54, original emphasis), molecular race is presented as founded on the social authority of science including its value-free ethos and bioethical sensitivities (Benjamin 2015). Nevertheless, molecular racialization is an opaque and malleable process. Race can be purposed in alternate ways: for example, an 'absence-presence' within immigration contexts – officially denied but manifest – and openly recognised within forensic genetics but as value-free science, and so non-racist (Skinner 2020). Continued focus on the insoluble contestation of *what* molecular race is has two key effects: first, it centres race ontologically and provides the conceptual and categorical means to identify populations; and second, the incessant noise of the 'dead-end debate' can help conceal the invidious work that molecular race *does* in relation to the 'dangerous' population (Fullwiley 2014). As we will see below,

when uncovered, poor practice is explained as a contingent operational issue or aberrant deviation from the norm. 'Function creep' is therefore an exception to the munificent rule, the moment when positive intent somehow becomes malevolent. However, understanding race as technology deepens this account of the slippage from beneficial aims to harmful misappropriation. Attempts to explain away examples of discriminatory design within informational technologies as individual human programming error elide the ingrained structural racism at its base (Benjamin 2019) as well as the foundational discriminatory epistemological mutability of molecular race. The binary trap of race is not the juxtaposition of opposing statements that invoke enervating stasis, but a positive technological instrumentality (Chun 2009). Race as technology is founded on an opaque and malleable ideal for confecting racial populations as well as inducing and disguising productive actions.

Ontological de-individualization

Traditional racial taxonomy is regarded as focused on 'splitting' as opposed to 'grouping', thereby fixated on establishing distinctions between racial groups (Gould 1984). Although this view is broadly apt, racial theory unevenly undertakes both grouping and splitting. Some races remain grouped through aggregation at the continental level while other racial groups are subject to further splitting through national disaggregation. Africans and Native Americans, for example, tended to be viewed as homogeneous racial types. Europeans, on the other hand, were regarded both in singular racial and diverse ethno-national terms such as Saxon, Gaul, Teuton, Slav, Celt and so on (Knox 1850; Painter 2010). Moreover, European ethno-national diversity was further disaggregated by differences in personal aptitude. Europeans could be ennobled or destitute, common criminals or workers, all with the appropriate attendant moral, attitudinal and behavioural predilections. In short, while

racialized others such as Africans and Amerindians were common types, Europeans, or the Caucasian, were both a race as well as a heterogenous grouping populated by individuals.

The group/individual dicothemy is significant in so far as the emergent biosocial subject is a key figure within the post/genomic era. This new era focused on the organism not the population features personalized genomics issuing two key modes of 'individuation' in terms of health and ancestry; as consumers, individuals are able to undergo tests providing information about their disease risk and embark on 'recreational genealogy' (Rose 2007, 2008). However, traditional racial typology contrasting European ethno-racial heterogeneity and individuality with the group homogeneity of racial others is arguably recast within the contemporary post/genomic context. For example, biotechnology 'racial patents' filed in pharmaceutical research and development typically refer to race in order to describe a departure from the 'norm'; the terms 'individual' or 'human' within patents implicitly denote white/Caucasian, while others tend to be characterised broadly as 'non-Caucasian' or through appropriate modifiers of noteworthy descent, such as Asian (Kahn 2008). Within the biometric realm, the human norm populated by individuals can be characterised by 'prototypical whiteness' (Browne 2009) – facial recognition technologies, for example, are calibrated to recognize, and thus privilege, whiteness (Maguire 2012). Alternately, numerous examples show race as a particularity set aside from the universality of humanity and often signified through non-white difference. Those same facial recognition systems can encounter problems properly detecting darker skin (Benjamin 2019; Maguire 2012).

As a result, racialization, whether typological or molecular, can feature the de-humanization and de-individualization of non-European, non-white others. Contemporary policing offers an illustrative example of such molecular racialization and de-individualization. While criminal

investigative uses of DNA have usually involved DNA typing, that is matching an individual to a crime scene sample, new developments in DNA phenotyping attempt to predict an unknown suspect's racial identity (Sankar 2010). Typically, DNA phenotyping entails two practices: first, using ancestry profiling to predict the suspect's race; and second, the even newer technique of 'molecular photofitting' to infer the suspect's externally visible characteristics (EVCs), such as skin, hair and eye colour (M'charek, Hagendijk and de Vries 2013; Skinner 2020).

A salutary example of molecular racialization and de-individualization is evident in the Metropolitan Police Service (MPS) Operation Minstead, established in 1999 to investigate a serial attacker who had committed a number of burglaries, assaults and rapes in south east London and neighbouring environs. Witness and victim statements describing a 'light-skinned black man', around 5'11" tall, aged between 30-40 formed the basis for the mass screening of black men within the area with previous convictions for burglary. Black men matching the broad physical description of the attacker were also subject to racial profiling in the form of street stops by police officers. The investigation also used DNA phenotyping; DNA samples taken from crime scenes were processed by DNA Print Genomics in Florida for ancestral forensic analysis, with results predicting the attacker was likely of Windward Islands descent.[2]

Operation Minstead provides an example of what Amade M'charek (2008a) terms a 'technology of inclusion' whereby the suspect is identified as part of a population. Instead of the 'technology of exclusion' using DNA typing to separate the individual perpetrator from the mass, DNA phenotyping enfolds the racialized suspect into a target population whereby 'a whole population is made into a *suspect population*' (M'charek 2008a: 402, original

emphasis). Operation Minstead investigators drawing up an initial list of 'persons of interest' arguably demonstrates a technology of exclusion, in identifying appropriate individuals (burglars) as separate from the general population. Nonetheless, the racial classification of these burglars provided the basis for conflating the individual attacker sought – *the* person of interest – with a suspect population of black *people* of interest.

Nathaniel Braithwaite, a black MPS CID officer working on Operation Minstead, expressed his unease at escalating racial profiling as police officers were advised to take DNA swabs from black men who had been arrested that 'may not fit the profile' but 'give you concern' (Qureshi 2005). Consequently, a suspect is not only an individual with particular characteristics comparable to the attacker's profile, but a racialized suspect reducible to racial characteristics not meeting the specific profile but deserving of nebulous suspicion nonetheless. Molecular race therefore served as a technology to de-individualise numerous black men into an entire suspect population. The significance of AIMs as marking *collective* instead of individual genetic characteristics means that DNA phenotyping, 'will not produce a particular suspect, but a class or population of suspects' (Ossorio 2006: 284), resulting in the diminution of the person (M'charek 2008b). Moreover, the rationale for ontological de-individualisation is reinforced by the notion that targeting a numerical minority population is practically efficient (Ossorio 2006). And so, the use of DNA phenotyping to predict a suspect's ancestry can result in the criminalisation of groups as suspicious populations with their members de-individualised as racialized suspects.

After Braithwaite raised this issue of racial profiling and DNA trawling as problematic, his senior colleagues responded by asking him to provide a DNA sample. Notably, requests that police officers provide voluntary DNA samples for an elimination database to guard against

crime scene contamination compromising investigations had already proven controversial, with the Police Federation supporting officers' right of refusal.[3] The exceptional request made of Braithwaite demonstrates the importance of understanding DNA phenotyping as operationalised within a mutually dependent laboratory closed system and institutional ('canteen') culture. Claims to race as an objective molecular entity could justifiably be used to fix Braithwaite racially and, in so doing, elide charges of discrimination; the defensible request is made of a de-individualised black man, knowable in molecular terms, and not an individual black detective who has taken issue with racist investigative procedure. Understanding the technology of race fleshes out the practical reason used over time to crudely aggregate diverse populations of individuals for purposes of stigmatization, victimization and subjugation.

Predictive empiricism

Race as technology creates and disciplines risky populations. As we have seen, the epistemologically mutable process of molecular racialization enables the use of DNA phenotyping to infer collective characteristics and therefore constitute racial groups. In addition, the resulting ontological de-individualisation of risky populations can lead to their being targeted through specific social practices, such as racial profiling. But how, exactly, does this progression occur? By what means does the transition from constituting race to prescribing social practices against racial groups take place? In addressing these questions, the disciplinary function and carceral methodology of race as technology comes into sharp relief. Within the context of social risks such as crime, *forecasts* of racial ontology and behaviour can serve as an adequate basis for subjecting risky populations to specific disciplinary practices via a form of predictive empiricism: the predicted behaviour of

apparent groups assumes the status of a practical reality requiring pre-emptive planning and exigent action.

Reflexive deliberation on the causal determinants of (potential) hazards is a key means of managing risk (Beck 1992). However, the socio-political environment and rationale for assessing risk is crucial. Protecting the at-risk and managing the risky arguably takes place within two shifts in policing and asylum procedures: firstly 'from a criminal justice paradigm… to a crime management paradigm' and secondly, 'from a humanitarian paradigm… to a border control paradigm' (Tutton, Hauskeller and Sturdy 2014: 749). Novel forms of crime management exemplify this shift as a form of predictive empiricism. For example, PredPol, a private US company and eponymous predictive technology uses data on reported crime to model 'the times and locations where specific crimes are most likely to occur'[4] thus enabling peremptory policing. Another noteworthy example is the MPS 'gangs violence matrix' (GVM), a database designed to 'identify and risk-assess gang members across London who are involved in gang violence'[5] through the allocation of scores based on evidence and intelligence. This predictive empiricism is driven by a simple practical rationality: the at-risk population is worthy of protection and the risky require discipline. The stated appeal of PredPol and GVM lie, in part, in their goal of maintaining public safety and reducing crime, violence and victimization – put differently, protecting the at-risk through managing the risky.

As an empirical entity, the targeted risky population is not an ideal-typical model but real, observable, and subject to social action. Within the crime management and border control paradigms, forecasting crime 'hotspots' and deceitful migration anticipates extant populations of offenders and false asylum seekers. In some strands of biosocial criminology,

for example, it is held that a definitive, global pattern shows the highest rates of crime, especially violent crime, as attributable to blacks, followed by whites and then Asians (Walsh and Yun 2011; Wright 2008). This pattern is then explained by a racially-specific evolutionary 'maladaptation,' whereby blacks' heritable 'brain-related phenotype' impacts adversely on their cognitive function and social behaviour leading to criminality (Walsh 2008). Therefore, set against social constructionist dogma, molecular race is an 'inconvenient truth' (Walsh 2008). Relatedly, within border control, 'selective doubt' over migrants' personal narratives and the official documents issued by certain nations drive emergent 'supplementary technologies' displaying an 'investment in the body as a means of resolving uncertainty about identity and biography' (Skinner 2020: 85). Indeed, as we will see in the next section, ancestry prediction through DNA phenotyping has been used as a means to infer asylum seekers' nationality and assess the validity of their claim. As such, risky populations are subject to a predictive empiricism where their molecular racialized bodies are forecast to internalise traits that determine and prove their deviant and dishonest behaviours. These perceived threats are then deemed immanent and assuredly countered by pre-emptive strategies within the crime management and border control paradigms.

A pertinent example of predictive empiricism as part of a disciplinary apparatus is evident in the emergent technology of molecular photofitting that attempts to offer an enhanced form of DNA phenotyping. 'By determining how genetic information translates into physical appearance', the Virginia-based DNA technology company Parabon NanoLabs claim that 'it is possible to "reverse-engineer" DNA into a physical profile. Snapshot reads tens of thousands of genetic variants ("genotypes") from a DNA sample and uses this information to predict what an unknown person looks like.'[6] Of the small number of companies developing molecular photofitting, Parabon NanoLabs' Snapshot™ technology notably produces

‘composite profiles’, visual images of a human face predicted from DNA analysis. Critical scientific reception of Snapshot™ has focused largely on methodological and ethical issues, with some social scientists voicing concerns over the dangers of misapplied racialized forensic genetics alongside institutionalised discriminatory policing (Wienroth 2020). However, even if molecular photofitting technology were to be refined, the facial images would remain predictions serving as a guide to identifying actual people of a ‘similar’ appearance. Existing Snapshot™ images can be said to have a human-like resemblance but, as composite renditions, also have an indistinct quality. Thus, the composite profile is a digitised approximation of an unknown person instead of a reliable likeness of a specific individual. Nevertheless, the composite profile can justify law enforcement stopping a wide range of people with a perceived likeness to its notional facsimile. Predicted appearance is a secure basis for practical action.

Parabon’s claim to ‘“*reverse-engineer*” DNA into a physical profile’ belies the technological carceral function of race in so far as the ‘reverse engineering’ is disciplinary as well as scientific. Molecular photofitting research and development is market-driven and promoted as aiding police departments’ investigative and financial efficiency. However, as Duana Fullwiley points out, ‘molecular photofitting is now being developed largely with black people’s samples’ (2014: 813). This oversampling of black people demonstrates the link between touted police efficiencies and the management of target racialized populations. As a viable commodity, molecular photofitting must be fit for policing purposes and given that crime is heavily racialized and certain racial groups are criminalised (Jiwani 2002), the oversampling and disciplining of black people is a constituent technological feature not a glitch. This racialized overdetermination of molecular photofitting reflects the issue of ‘prosecution bias’ where police forces view forensic scientists’ role as helping secure a

conviction ahead of evaluating evidence (Evett 2015). However, viewing race as technology propagated through predictive empiricism, problematises the notion that prosecution bias – like function creep – typifies the socio-political corruption of scientific value-freedom. In correspondence with race as technology, predictive technologies for policing have been designed as biopolitical instruments to manage subject populations. This objective is manifest in the ways in which PredPol and the GVM reproduce institutionalised discriminatory practices, such as the profiling and over-policing of specific communities (Amnesty International 2018; Liberty/Couchman 2019; Shapiro 2019), thus maintaining the stratified 'racial order' that contains minoritised groups (Byfield 2019). Overall, molecular racialization helps establish categories of criminal and migrant, forecasting attendant illegal and fraudulent behaviours that must then be pre-empted and managed through criminal justice and border control measures. As a technology, molecular race is deployed to forecast the identity and actions of risky populations with the confidence of a scientific seer that amounts to a predictive empiricism.

Bioethical dissembling

In 2009, the UK Border Agency (UKBA) launched the Human Provenance Pilot Project (HPPP) in part to determine whether suspected cases of 'nationality swapping' could be scientifically proven. Concerned that Kenyan economic migrants posed as Somali asylum seekers, UKBA sought a method of 'identity management' that would distinguish a 'biogeographical population' and 'fix people's identities at the earliest point practicable' (Home Office, 2007: 3). Asylum seekers were voluntarily recruited as HPPP participants to provide mouth swabs and tissue samples for DNA phenotyping and isotope analysis. In 2013 and 2015, Afghan nationals seeking to resettle in the UK under a scheme for former UK government employees and adult dependants of British army Gurkha soldiers were

respectively required to undergo mandatory DNA tests to establish familial relationships. And in 2016, the Home Office began Operation Fugal to address suspected immigration fraud by requiring selected migrants to submit DNA evidence in support of their application.

Each of these cases evaluating and mandating DNA samples/evidence targeted specific populations, arguably attributable to institutional 'chronic mistrust' of migrants and asylum seekers and the belief that their identities could not be safely established through standard means (Skinner 2020). In his apology before parliament for the failures of 2013 onwards, the Home Secretary Sajid Javid stated: 'no-one should have faced a demand to supply DNA evidence and no-one should have been penalised for not providing it.'[7] The fact that no-one *should* have either been required to provide DNA evidence or been punished for non-compliance did not prevent its occurrence. Indeed, given that at least 1,351 'main applicants/family units' were instructed to submit DNA evidence (Singh 2019) this mandating was not a limited oversight. These examples of wilful neglect can be understood to demonstrate the permissive iniquities of molecular racialization through ethical dissembling.

Bioethical discussions of dignity and bodily integrity are key to forensic genetics. However, while the rights of the human/whole being are balanced against the public interest and safety, it is debated whether individual privacy rights are applicable to EVCs as information within the public domain (Williams and Wienroth 2017). The characterisation of external appearance as regarded and thus meaningful from outside the body reiterates the dialectic of autonomous/dependent being evident throughout the history of race-thinking; the racial other is dependent on recognition from their superior, but that acknowledgment is always a distorted misrecognition without reciprocity (Fanon 1967). Separating the subaltern racial

other from an autonomous subject possessing a right to ethical consideration and dutiful care is practically manifest. Asylum seekers were recruited as HPPP research participants under conditions of informed consent with a right to refuse participation, but 'told that a refusal would be recorded, and would be made known to the UKBA officers and appeal judges responsible for the final decision' (Tutton, Hauskeller and Sturdy 2014: 748). Similarly, during Operation Minstead, black men who refused to voluntarily provide a DNA sample received a letter from a senior MPS investigator stating:

> Consider that the suspect is likely to refuse to provide a voluntary sample; catching him will be far easier if he is the only one…. I will be reviewing the circumstances around your refusal and will notify you of my decision. In the meantime I would ask you to reconsider the request.[8]

It is difficult not to characterise these notices issued by UKBA and the MPS as calculated coercion, especially as both bodies were not unaware of ethical concerns. The UK Human Genetics Commission 'raised a series of objections to HPPP regarding issues of ethics and informed consent raised by individual elements of the project and with respect to the entire HPP Project.'[9] And in a written question to parliament on Operation Minstead, the Liberal Democrat MP and Metropolitan Police Authority member Lynne Featherstone asked for the Home Secretary's view on 'the techniques used… by the Metropolitan Police to obtain voluntary DNA samples from black men in south London.'[10] In response, Home Office minister Hazel Blears summarised the terrible crimes being investigated by Operation Minstead before circumventing the issue as 'an operational policing matter.'[11]

Operation Minstead and the HPPP did not face any external oversight or independent procedural evaluation. What Featherstone regarded as the use of 'bullying tactics'[12] to obtain DNA samples was accepted internally within the MPS as an appropriate and justified practice. Such denialism is discussed within bioethical debates on the elision of race. It has been argued that bioethics should encourage sensitivity towards racial identification and awareness of social disparities (Malinowski 2009) and recognise racialized abuse as an experienced collective injury requiring social justice redress beyond abstract principles of equity and provision of individual restitution (Russell 2016). Regarding race as technology, however, yields different insights. Unethical practice is not a dereliction of duty of care, a failure to protect vulnerable racial groups. Rather, ethical dissembling is an intentional strategy to exploit that vulnerability. The endemic suspicion towards Somali asylum seekers and black men in south London trumped their individual right to dignity and absolved the organs of the state of their duty of care.

Following the conclusion of both the HPPP and Operation Minstead, neither the Home Office nor the MPS accepted any complaint of poor ethical practice or recognised any harm caused to vulnerable research participants and the public subject to racial profiling and intimidatory policing. Indeed, while the review of the erroneous mandating of DNA evidence from migrants found that Home Office staff should have acted 'with more appropriate professional curiosity' (Singh 2019: 4), such an open response was constrained by the overarching suspicious UKBA attitude that effectively criminalised asylum seekers (Tutton, Hauskeller and Sturdy 2014). Therefore, the Home Office 'hostile environment' for immigration is not simply the bureaucratic context within which DNA samples are 'mistakenly' mandated. Rather, the political rationale for the 'environment' propelled the development of and deference to a technology of race in order to restrict immigration and reduce asylum claims

with an urgency impervious to ethical norms. That these cases and their grave consequences are numerous and unexceptional is indicative of this ethical dissembling as a normative exploitation of vulnerability consistent with the carceral methodology of molecular racialization.

Conclusion

Debates on the impact of technological developments within criminal justice on inequality feature two main views (Cole 2007). First, a pessimistic view that technologies will facilitate discrimination and social control as well as exacerbating inequality. And second, an optimistic view that technologies can be developed specifically to counter traditional biases within institutional cultures and practices. These two perspectives are mirrored within approaches to race as technology. Beth Coleman (2009) reflects the latter optimistic view, aiming to re-engineer and re-purpose race to pursue human self-affirmation and liberation. This reformation requires work and is not teleological but nonetheless depends on the view that 'tools inevitably change over time' (Coleman 2009: 178).

An alternative critical perspective recognises that race 'cannot be readily re-signified or de-signified' (Gilroy 2000: 12), and while the tool's form has changed in the midst of post/genomic advances its pernicious function remains. For example, the racial metaphysics of criminal congeniality advanced within strands of contemporary biosocial criminology reiterates the fallacious and pernicious tenets of typological racial thinking. This 'inconvenient fact' of criminology is enabled by the epistemological mutability of molecular racialization as well as manifest within discriminatory policing through the ensuing depredations of ontological de-individualization and predictive empiricism. Moreover, the notion that reviews of bioethical non-compliance undertaken by various statutory and non-

statutory bodies attest to robust scientific self-scrutiny and effective institutional checks and balances is complicated by the critique of ethical dissembling. That the numerous principled objections, inquiries and reports are recognisable as continually exercised safeguards suggests that the ethical harms are endemic not episodic. This race critical approach to technology, therefore, engages race as a contingent category in relation to the identification and amelioration of inequalities *and racism*; for example, race is biologically meaningful inasmuch as differential racial health outcomes are embodied, however its social impacts and the pursuit of justice demand attention (Krieger 2004; Pollock 2012). Disclosing race as technology foregrounds racism in so far as race is instantiated in or against racism and not the other way around.

Following its conclusion, the 2011 MPS Report into Operation Minstead states that some officers' failure to properly pursue a line of enquiry in 1999 which 'could and should' have solved the case was the 'single critical error' of the investigation. 'There is no other specific event', the report continues, 'which can be identified as an error.'[13] Had the MPS focused on finding a criminal who happened to be black they may have apprehended the perpetrator sooner and prevented scores of attacks and victims' suffering. Instead, their fetishisation of molecular racialization and DNA phenotyping as well as institutionalized racism led them to profile and target black men *en masse* and fail the victims and survivors by not fulfilling their duty of protection. Uncovering race as technology serves as the *prosecution* of racism in both senses of the word. Racism is understood in part as (re)produced through the active stigmatizing, victimizing and suppression of racial groups constituted for that purpose. And combating racism requires holding the rationale and beneficiaries of racial reproduction to account and decommissioning its pernicious technological means.

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