

# Forgone, Not Forgotten: “DNA Fingerprinting,” Migration Control and Britain’s DNA Profiling Pilot Project

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## Abstract

DNA profiling has become a culturally ubiquitous technology. Its use, whether in forensic investigations, genetic databases, biomedical research, international border-making, or popular genealogy, has been familiarized through political debates, media and cultural representations and commercialization. DNA profiling has also attracted considerable scholarly attention across this terrain. However, scant attention has been paid to the key role played by legal migration in driving DNA profiling’s initial translation from lab bench discovery to “truth machine” and identity token. Here, I discuss the first state-sponsored use of DNA profiling as a tool for establishing kinship relations among legal but racialized migrants on Britain’s borders in the mid-1980s. I argue that this early “experiment” conditioned the commercialization and future uses of the technology at and beyond

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border zones. Reinstating migration as the origin context for DNA profiling, and retracing the postcolonial routes by which it entered the biopolitical sphere, sheds light on the conjoined naturalization and racialization of genetic technologies of identity and identification, whether at or beyond national borders.

**Keywords**

DNA profiling, biometric borders, migration, racialization, family reunification, translation

In 2009-2010, the United Kingdom's Border Agency (UKBA) launched the Human Provenance Pilot Project (HPPP). The HPPP was an experimental scheme intended to test the potential of new genomic and isotope screening methods for establishing and fixing the national origins of individuals applying for asylum in Britain. When the HPPP was exposed to public scrutiny, researchers from a range of genetic and genomic disciplines immediately protested on both scientific and ethical grounds. Initially paused by the UKBA, then reinvented as a smaller scale anonymized trial project, and finally cancelled in 2011, the HPPP has become a useful example for scholars in science and technology, migration, and border studies seeking to understand and challenge the technobordering regimes of "Fortress Europe." Scholars including Tutton et al. (2014) have argued that the HPPP demonstrates a deeply flawed search for purportedly objective tools that would allow states to read—or to "diagnose," as Benjamin (2015, 139) has aptly put it—social identities from human biological substrates and to privilege them over subjective narratives and corruptible cultural artifacts like identity documentation or interview transcripts. Like other biometric border surveillance regimes (Aas 2011; Scheel 2019), HPPP also sought to inscribe those identities, and the human bodies from which they were extracted, with the fixed and unalterable meanings commonly assumed to inhere in physical substances.

The incorporation of genetics and genomics into the suite of biometric border controls is commonly understood as a response to the asylum crises of the 1990s, and especially of the post-9/11 "war on terror" (Amoore 2006). It certainly exemplifies the intersections between cultures of suspicion and technophilic quests for control that have shaped border zones in this period. However, the HPPP was not Britain's first foray into diagnosing identity genetically. Nor was the prompt for DNA's translation from

laboratory discovery to applied technology at the UK's expansive borderlands (internal and external, domestic and foreign) either terrorism or asylum seeking. In fact Britain, the first state to successfully deploy genetic evidence in the appellate and criminal courtrooms, applied genetic profiling to postcolonial migrants even before the technique was used forensically (Aronson 2005). In the postwar period, "immigration" in Britain (as in much of Europe) became virtually synonymous with the inward movement of "racial" Others (Erel et al. 2016; Garner 2007). Thus, "DNA fingerprinting" (strategically so named by inventor Dr. Alex Jeffreys) as a technology of identification was effectively racialized before it was criminalized. The acceptance of DNA technology as a tool for disciplining racialized migrants and validating their identities in turn smoothed the way for its use on criminals and citizens, legally, culturally, and commercially.

Here, I scrutinize the UK Home Office's (HO) DNA Profiling Pilot Trial (DNAPPT), conceived in 1985 and delivered in 1987, to explore what an underused archive documenting the inception of one pluripotent technology (genetic profiling) can tell us about the complicated intersection between state and migrant agencies, criminal and familial identities, technology, and (im)mobility. I discuss, too, what the DNAPPT reveals about the history and historiography of DNA profiling itself. Plans for the trial were forged within months of the first publication to position DNA profiling as a tool for individual human identification and generated significant national and international media coverage. By examining how the further scientific, commercial, and operational development of DNA profiling was shaped by its early use to screen migrant families seeking reunification, I will argue that this trial and its reception conditioned enduring public and bureaucratic expectations about the translation and implementation of new genetic and genomic technologies of identification and screening at the UK's borders and beyond.

This raises interesting questions about why the DNAPPT has been largely ignored by scholars of the DNA "truth machine" (Lynch et al. 2008). Research has documented the criminological roots of biosurveillance technologies and the racialized forensic circuits that have powered their adoption by national and supranational border agencies (Aas 2006; Skinner 2012, 54). Along with wider cultural discourses that depict migrants and asylum seekers as suspect, the choice of these particular tools to manage migration demonstrate the subjection of migrants' identities to a "hermeneutic of suspicion" (Tutton et al. 2014, 739). Biometric border technologies, researchers agree, not only reflect the criminalization of certain kinds of human movement (Kubal 2014) but criminalize the very

identities they produce, tainting even those whom they vindicated. And certainly they are “carceral” (Benjamin 2016a, 145) in their impacts, effectively immobilizing migrants, or compelling them to grant the state both powers and personal information which less vulnerable populations can reserve to themselves.

I argue elsewhere (Bivins 2023) that the use of biosurveillant techniques on postcolonial migrants was swiftly naturalized in the UK precisely because colonial spaces and colonized people had long served as experimental spaces and subjects for British (and other) imperial science. This is certainly true about efforts to fix individual identities to particular bodies as witnessed by the imperial history of fingerprinting in India (Sengoopta 2003; Anderson 2004). But migrant populations, especially those framed as the “phenotypic other” (M’charek, Schramm, and Skinner 2014, 471), have consistently proven susceptible to experimental technologies of categorization and control. In the United States, for example, the arrival of large numbers of migrants from China prompted a trial of fingerprints as marks of identity in the 1880s (Cole 2002, 121-27). Immigration drove a sense of urgency that militated for the adoption of a “simple,” even if not fully tested, technology to meet the demand for mass identification and surveillance. In fact, in moving from civil to criminal law at the end of the twentieth century, DNA fingerprinting neatly follows the innovation/diffusion pathway followed by its namesake, fingerprinting, at the century’s beginning.

So why does the literature on DNA profiling so rarely integrate analysis of its use in border zones with its use in other zones of control, whether carceral or medical? I suggest that the naturalization of biometric and biosurveillant regimes of all kinds at national borders has led to a scholarly blind spot. Because we are accustomed to seeing migrant bodies excluded or disciplined by “science at the borders” (Fairchild 2003), we have been inattentive to the distinctive role played by migration in the early use and marketing of DNA “fingerprinting” as a commercial technology and as a source of probative truth.

The existence of the DNAPPT is not unknown. Alec Jeffreys’s archive of the pilot trial has only recently become available (c. 2018), but he has given numerous interviews about this work to journalists and interested scholars beginning in the late 1980s. Parliamentary, journalistic, and scientific coverage of the pilot was substantial at the time and remains readily accessible through digitization. The official report of the pilot has been cited regularly in the literature on applications of genetics since the 1980s. The British state’s archives documenting uptake of the technique began to open in 2005,

culminating in 2017 with the release of the pilot trial documents themselves. Britain's DNA fingerprinting pilot program has correspondingly been mentioned in several influential studies of genetic profiling. Yet these extended accounts of forensic science, popular genealogy, and legal wrangling (Cole 2002; Aronson 2007; Lynch 2004) forgo analysis of the DNAPPT's impact. Similarly, studies of how patient groups have leveraged shared genetics to imagine and configure new counter-hegemonic communities of "genetic citizenship" have forgone consideration of the precedent set by DNA profiling in generating or erasing legal citizenship at and beyond the UK's borders (e.g., Heath et al 2007; however, see Weiss 2011, 13-15). Only legal scholars (e.g., White and Greenwood 1988; Kritzman-Amir 2021), and more recently researchers in migration studies (e.g., Weiss 2011; Heinemann et al. 2013; Hélen 2014), have engaged seriously with this literal genetic citizenship; neither group has yet explored the ways in which DNAPPT structured and continues to inform later "bordering" applications of genetics.

Instead, researchers interested in genetics and genomics have been drawn to criminal DNA, and captured by the implications of genetic technologies for "our" families, fellow citizens, and the medicolegal systems in which we are ourselves enmeshed. Some of this work has valuably explored the role of (presumed or possible) ethnic differences in genetic profile between populations in the context of legal challenges to statistical frequency calculations, in undermining the applicability and representativeness of criminal genetic databases, and in structuring such databases on a reified model of biological race (M'charek 2000; Gannett 2004). But neglecting the imperial, liminal, and racialized roots of DNA profiling (even to explore DNA's racializing effects in forensic settings) limits the analytical traction available for understanding the technique's pervasiveness and the persistence with which states' uses of DNA become entangled with assumptions about "race." This gap in the scholarship also illustrates the power of our own exposure to global media: whether we accept or dispute it, we struggle not to reflect the culturally selective, commercially curated vision of the present that focuses our perceptions of what *matters* in the everyday. In relation to genetic profiling, the media has overwhelmingly shown us the forensic use of DNA in domestic crime and international terrorism, the apparent ability of genetic genealogy to recover "true" personal pasts, and genetic "medical miracles." It is unsurprising, then, that these uses have also been foregrounded in the literature as what matters about DNA profiling.

## “Complex and Often Ambiguous”: Migration Matters and Border Relations

In the 1970s and 1980s, migration certainly mattered in Britain’s everyday. However, the border crossings that prompted deepest concern were neither illegal nor irregular, but *uncontrollably* legal: the historically entitled movement of former imperial subjects between former territories of empire, and the newly entitled movement of European workers around the expanding European Economic Community (EEC). British reactions to both groups exposed a complicated, politicized, and mediatized reenvisioning of national identity and citizenship. As politics and economics drew Britain ever-closer to continental Europe, older ties to its former colonies in the Global South weakened. A global economic slowdown and the rapid decline of its manufacturing base reduced the UK’s need for imported industrial workers—though not its demand for laborers and professional employees to staff the welfare, food production, and service sectors (Ruhs and Anderson 2010).

The UK’s admission to the EEC in 1973 transformed the citizens of all EEC member states from excludable aliens to “belongers” entitled to migrate freely for work. It is no coincidence that the restrictive and ethnically discriminatory 1971 Immigration Act (IA71) came into effect the same year. IA71 was intended to halt primary migration to the UK from African, Caribbean, and South Asian Commonwealth nations without explicitly establishing a color bar or alienating the white descendants of recent British emigrants to Canada, Australia, and New Zealand. From 1973, IA71 restricted the automatic right of abode in the UK to those who could claim “patriality”: a direct connection to the British Isles through parental or grandparental ancestry or legal settlement. As recession deepened and unemployment rose through the 1970s, Margaret Thatcher’s election victory in 1979 legitimated and amplified popular anti-immigrationism, supported by her government’s ideological commitments to individualism, self-help, and the retrenchment of the state (Taylor 2021).

Ten years after the implementation of patriality, the British Nationality Act of 1981 (BNA81) finally created an exclusively geographical British citizenship, converting the existing (partial) right of abode into *jus sanguinis* citizenship. However, BNA81 did not strip key rights from Commonwealth migrants who had gained legal settled status in Britain before 1973. Politically, in a period of intercommunal racial tensions and rising sensitivity to institutional racism (Peplow 2019), the government simply could not do so. Chief among these was the settlers’ right—granted and preserved

on humanitarian grounds and to improve “integration”—to sponsor close family members’ migration to the UK. A feature of UK im/migration law since the 1962 Commonwealth Immigration Act, the right to family reunification enabled continued migration from the Global South to the UK despite increasingly exclusionary legislation and immigration rules. This “uncontrolled” migration was routinely depicted in UK politics and the media as medically suspect and peculiarly prone to fraud and subversion (Smith and Marmo 2014; Bivins 2015).

From the 1960s, the UK’s borders operated internally, geographically, and externally. Both domestic borders were generated and enforced by the work of HO immigration officials and, to a lesser degree, by Department of Health and Social Security (DHSS) medical inspectors and local health departments. Britain’s external borders were produced and policed by the UK Foreign and Commonwealth Office’s (FCO) diplomatic outposts across the Global South. By the late 1970s, Pakistan and Bangladesh were the most common countries of origin for relatives applying for reunification. Thus, they were the groups most severely affected by Britain’s increasingly restrictive combination of immigration laws, rules, medical and documentary inspection regimes, and ideological climate after 1971. Despite their legal entitlement to join settled family members in the UK, by 1985, some 30,000 Bangladeshi children and their mothers had been denied visas because they were unable to persuade immigration authorities that they were “related as claimed.” Though excluded migrants could appeal their refusals or reapply for entry clearance, the “queues” in which both appellants and reapplicants awaited reconsideration could be years long, and any new evidence they produced faced deeply suspicious official scrutiny informed by overt racial/ethnic bias (Ihenacho 1991, 7-20; Wray 2016). Here, I am using “queues” to refer to the literal process by which reapplications were chronologically ordered by HO and FCO staff (as one in a suite of delaying tactics).

Yet migrants did not silently accept UK migration policy and practices that deprived them of legally enshrined rights. Instead, settlers formed high-profile groups like the Bangladesh Divided Families Campaign. They also worked with established pro-migration organizations, legislators, clerics, journalists, and the growing Community Law Centre movement to actively challenge both the structural bias of the UK’s immigration procedures and their own individual outcomes. In contesting immigration decisions normally taken unilaterally and in obscurity, migrants and their supporters rendered previously hidden practices of exclusion at the UK’s externalized and local borders visible and even scandalous (Bivins 2021; Smith and Marmo 2014).

## **“Fingerprinting” Families: The HO DNA Fingerprinting Pilot Program**

Besieged by bad publicity and legal challenges, overstretched and overspent in resisting persistently high demand for entry visas<sup>1</sup> and battered by the fickle winds of British politics, the two Whitehall departments charged with managing migration and policing the UK’s borders were eager for “simple” technological solutions to automate and neutralize the process of exclusion.

In March 1985, exactly such a solution appeared on the horizon. British genetics researchers Alec Jeffreys, Victoria Wilson, and Swee Lay Thein (1985, 67, 71) claimed in the prestigious journal *Nature* that they had developed a technique for providing “individual-specific DNA ‘fingerprint[s]’” and complete family “pedigrees.” Less than a week later, the left-leaning *Guardian* newspaper put the technique on its front page, specifically linking it to migration and to unravelling the fused biological and social reproductivity of families of South Asian communities (Veitch 1985). In May, civil servants within the HO eagerly discussed the possibilities presented by the technique for “resolving” family reunification cases.<sup>2</sup> By June, migrants themselves were already leveraging DNA profiling to preserve their legal mobility and right to reunification. At the request of lawyer Sheona York of the Hammersmith and Fulham Community Law Centre, Jeffreys prepared and submitted a series of “genetic fingerprints” to an immigration appeals tribunal in 1985 on behalf of a family of African heritage. The profiles showed that Andrew Gyimah, a thirteen-year-old boy under threat of deportation, was incontrovertibly the biological son of his legally settled Ghanaian mother and thus a British citizen from birth. While the novel DNA evidence didn’t determine the outcome of the appeal, it did prompt the HO to withdraw its case to avoid a precedent-setting defeat.<sup>3</sup>

Subsequently, the HO, FCO, Jeffreys, and his institutional partners enthusiastically planned an “experimental” pilot test of DNA fingerprinting to be based in the then-epicenter of reunification migration: Dhaka, Bangladesh. They intended to enroll forty families, all with active immigration applications, as (voluntary) test subjects and donors of clinical material. The samples would be taken under the watchful gaze of FCO staff in Dhaka and sent by diplomatic pouch to Jeffreys’s laboratory at the University of Leicester, where they would be joined by samples taken from the sponsoring family member taken by approved NHS hematologists. Jeffreys would sequence the sampled DNA, calculate its meaning for kinship probabilistically, and report his findings to the HO. So far, so imperial: these procedures replicated the familiar practices of colonial science



almost exactly, a fact that perhaps explains how this model for the trial was so swiftly and smoothly agreed by all on Whitehall. The HO encouraged Jeffreys to hire additional researchers to increase his lab's screening capacity, and Tim Eggars, a junior FCO minister, blithely announced the proposed experiment as a *fait accompli* during a press conference at Dhaka Airport in January 1986.

The Government of Bangladesh and a significant portion of the Bangladeshi public reacted angrily to the proposed use of their fellow citizens as "guinea pigs" for a trial that presumed their marriages and children were "bogus" and in which blood samples would be taken and interpreted entirely without local control or scrutiny.<sup>4</sup> It took more than a year of negotiations and compromises before the pilot trial was finally approved by all sides. Screening in Bangladesh, Pakistan, and the UK began in March 1987. The final report, based on tests of thirty-seven families, was released only in July 1988 (HO 1988). It assessed not only the biological kinship of individual families but the accuracy of DNA profiling itself as compared to conventional (and much cheaper) blood group screening. The report also discussed the practicality of transnational arrangements for securing, sharing, and screening DNA samples as a tool for identification and border control.

The trial brings an additional aspect of the use of DNA profiling under the microscope: the practicality, viability, and cost of outsourcing state-sponsored DNA testing to a commercial entity. By the time the DNAPPT began, Jeffreys had been providing ad hoc screening for desperate migrants and their sponsors for more than eighteen months, in cases that sometimes achieved wide publicity. Jeffreys and his funding body, the Lister Institute (patent holders for his DNA fingerprinting technique), had also established a commercial relationship with Imperial Chemical Industries (ICI).<sup>5</sup> ICI and its subsidiary, Cellmark, held exclusive rights to use the technique and probes Jeffreys had developed in immigration and "affiliation" (paternity) cases, as well as mass public screenings related to unsolved crimes.<sup>6</sup>

## **Marketing Genetic Meaning: Implications of the DNAPPT**

Even with the delays which plagued delivery of the DNAPPT, the broader translation of this particular piece of bleeding-edge science into a proto-truth machine and its incorporation into normally glacial UK legal and governmental procedures happened with blinding speed. Indeed, this haste attracted comments from Jeffreys's scientific contemporaries.

Reviewing a draft of Jeffreys's subsequent *Nature* article covering the Gyimah case, one peer remarked: "it has usually proved to be a long battle to get new markers accepted by the courts, so the mention that this very experimental type of evidence has already been accepted by the Immigration service—though apparently informally—might provoke some comment."<sup>7</sup> The wider literature on the history of forensic DNA profiling (Aronson 2005, 2007; Lynch et al. 2008) confirms that the use of DNA evidence in criminal law was contested particularly in the United States, with acceptance emerging slowly in comparison to civil and appellate law (Mnookin 2001).

Yet there has been little critical exploration of the UK's divergence from the normally cautious patterns of technological translation and adoption in UK and US domestic law. Scholars who have considered why DNA evidence gained rapid acceptance in the UK have written it off as a result of "the drama of two early cases" (Aronson 2005, 130) or uncritical acceptance of its inventor's bold claims for its accuracy (Lynch et al. 2008, 50-51). Such accounts do not fully appreciate a UK context in which the historical entitlement of the racialized subjects of its former empire to migrate freely and legally to Britain came to depend on specific kinship claims. These were persistently contested by a hostile state, raising the stakes of familial certainty for both sides. Inattention to such postcolonial specificities is further demonstrated by a tendency to conflate the earliest cases—all tests of familial relationships for immigration appeals—with paternity testing. In fact, the famous Gyimah case pivoted on a state challenge to maternity. Other cases in the South Asian community looked at wider familial relationships, since the HO was particularly suspicious that Pakistani and Bangladeshi traditions of first cousin marriage encouraged fraudulent efforts to pass off nieces and nephews as daughters and sons. In this section, I will argue that closer scrutiny of this developmental context for "DNA fingerprinting" as a tool for the restriction or enablement of legal but controversial postcolonial migration offers greater traction on the UK's rapid and thoroughgoing uptake of DNA identification technologies—and on DNA profiling's commercial and operational development more generally.

Alec Jeffreys developed "genetic fingerprinting" at the University of Leicester, a research university located at the heart of a city that had become home to a large and diverse population of South Asian origin or heritage in the postwar period. Importantly, by the 1980s, the majority of Leicester's South Asian population were relatively recent arrivals: refugees from the Africanization of Kenya and Uganda in the late 1960s and early 1970s; and

Pakistani and Bangladeshi migrants migrating for work or to escape the disruption that surrounded the emergence of an independent Bangladesh in 1971. The latter mainly followed the traditional pattern of chain migration: single or married men came first, established homes, and then sought to reunite their families. Before the 1971 Commonwealth Immigrants Act came into effect in 1973, men (and only later women) who had gained legal settlement had an absolute right to bring their fiancé(e)s, spouses, and minor children to join them. Those who gained settled status after 1973 shared that right, but only if they could meet restrictive economic criteria ostensibly designed to ensure that they could support their families without recourse to public funds. Both groups faced a structurally hostile migration management system that prevented or delayed family reunification often for years (Ihenacho 1991). As a result, Leicester was an early hub for activism about the issue of divided families. Migrant campaigning attracted significant attention in the city, and when Alec Jeffreys went home after a session of brainstorming uses for “DNA fingerprints” with his research team, Sue Jeffreys immediately added migration disputes to her spouse’s list of potential applications (Jeffreys 2005).

Jeffreys and the Lister Institute swiftly realized that there was substantial unmet demand for a technique that could establish with virtual certainty exact parentage and kinship relations across extended (even consanguineous) family groups among migrant communities. Implicit in this privileging of the biological were two presumptions: first, that migrants’ testimonies, and even the documents produced by their states were inherently unreliable; second, that “traditional” cultures had not developed the diverse forms of social parentage increasingly recognized in Europe and North America. As early as July 1985, market research commissioned by Lister demonstrated demand for a “DNA Analysis Service.”<sup>8</sup> By August that year, Lister had received “promising requests . . . for collaboration” from US firms LifeCodes Corp. (which would become ICI/Cellmark’s most significant competitor for the vast US market); Roche Biomedical Laboratories, Inc., ICI and Amersham International, too, had entered into talks with the Institute.

Crucially, these discussions reveal that Jeffreys, Lister, and Lister’s eventual industrial partner, ICI, saw familial relationship testing as an area where they could gain a vital commercial advantage precisely because the HO was already “extremely interested” in discussing Jeffreys’s invention in conjunction with border control.<sup>9</sup> The HO’s proposed DNA pilot experiment for would-be migrant reunification gave ICI advanced knowledge and influence over the protocols that would govern DNA profiling for

immigration, and the fees chargeable for such services. And even before its completion, the DNAPPT set the state's imprimatur to the new and untried technique—a benefit ICI recognized and deployed in early advertising.<sup>10</sup> As the HO acknowledged internally, “establishing links with the HO (even informal ones)” offered ICI “a significant advantage” in establishing themselves as “market leaders” before competitors could enter the marketplace.<sup>11</sup> Close reading of the correspondence between Lister, its commercial partners and advisors, and the HO clearly demonstrates that all parties understood the potential commercial advantages of the DNAPPT. If successful, the pilot trail would establish a guaranteed market for ICI's DNA profiling services among a “captive” client population. Desperate families for whom genetic proof of kinship was often the last throw of the dice before deportation, or the final route of appeal against FCO and HO rejections of social evidence of kinship, would absorb the high cost of developing a commercial testing service and maintaining it as other markets at home and abroad matured.

Moreover, both the Gyimah case and Eggar's misstep in Dhaka generated national and international reporting on the technique itself. Later, the FCO and HO deliberately attracted media attention to the benefits of DNA testing for migrants, leveraging the Government of Bangladesh's consent to the DNAPPT by generating demand for the technique among Bangladeshi divided families.<sup>12</sup> By the time the trial results were officially published in 1988, almost a year after ICI/Cellmark had launched their own commercial DNA profiling service, immigration-related testing had become a mainstay of their business, featuring prominently in their advertising materials. Notably, while their brochures represented paternity testing (still only available for “personal” use) through images of a white nuclear family, the images that accompanied descriptions of “human relationships” testing were heavily racialized, showing South Asian women and children, often in generic institutional waiting spaces.<sup>13</sup> ICI/Cellmark confidently predicted that once DNA testing was state-approved as defining “true” familiality they would see “increased demand estimated at 50-60% over projected 1989 business.”<sup>14</sup>

Commercially and legally, selling DNA profiling services to migrants presented a sharp contrast with selling forensic DNA profiling to the state or paternity testing to the family law courts. The HO's Forensic Science Service was entitled to take control of Jeffreys's technique in service of “the public good” without compensation. As early as October 1985, it was evident that the HO was likely to take this action in relation to forensic analysis, to the dismay of the Lister Institute's patent advisors.<sup>15</sup> Jeffreys

and Lister staff recognized the commercial potential of DNA-based paternity testing, given the significant market already served by conventional blood group and HLA testing services. However, in the UK, half of all such blood tests were ordered by the courts and funded by the state.<sup>16</sup> Court-ordered tests could only be provided by state-recognized blood testers, and official recognition was in the gift of the HO, which could withhold it almost indefinitely. ICI/Cellmark would not be recognized to provide court-ordered blood testing until 1988, almost a year after they began to provide DNA profiling on a commercial basis in the UK and entered the US market. They were only granted recognition then because HO officials feared further denial might prompt a legal challenge.<sup>17</sup>

These well-anticipated limitations on the commercial rollout of DNA profiling services only amplify the importance to DNA profiling's early history of the one market that the HO publicly supported—indeed, actively created through its highly adversarial treatment of entitled migrants—but over which they did not attempt to exert market control: family reunification testing. Here, they explicitly recognized and enabled the high cost of commercial DNA profiling to act as an economic barrier to migrants who could not otherwise be lawfully excluded.<sup>18</sup> Consequently, early media and legal attention to “DNA fingerprinting,” like early Cellmark advertising both in the UK and the United States, stressed its value for establishing “true” kinship. Moreover, these first trials of the new technology occurred in a context where it produced clear benefits for users as well as for the (here, British) state that had spoiled their social identities and made them reliant on biological ones (White and Greenwood 1988). The early use of DNA profiling by migrants positioned it not only as the gold standard for defining “true” kinship and ancestry but, as Jeffreys himself observed, as a tool of restorative justice, reuniting cruelly separated families (Aronson 2005, 128; Corbyn 2009). This positive and liberatory narrative helped to establish DNA profiling as an ideal tool for popular genealogy.

## **Immigration and the Always-already of Racialization in DNA Profiling**

Above, I have shown that the role of the DNAPPT in the early commercialization of “DNA fingerprinting” exposes the previously unacknowledged impact of postcolonial migration on the marketization and, indeed, privatization (Kritzman-Amir 2021) of genetic “certainty.” In the following section, I argue that presumptions about race, ethnicity, and cultures of kinship became embedded in DNA profiling from the very beginning

because of its early association with a racialized and suspect class of migrants. This is evident both in the UK state's active encouragement of DNA "fingerprinting" for familial migrants while the technique itself was still on trial both in the courts and in the scientific community and in the preconditions set for the analysis of DNAPPT migrants' test results. DNA screening was naturalized for "guinea pig" migrants because suspicion had already silenced their social testimony, while cultural stereotypes rooted in empire reduced Asian women in particular to passive reproductive ciphers.<sup>19</sup> Tellingly, the HO was by no means equally eager to stimulate the use of DNA profiling in paternity cases contested within the majority community.<sup>20</sup>

HO files covering the DNA pilot trial clearly demonstrate an internal culture of hostility and suspicion toward racialized migrants which profoundly shaped the practices and meanings of DNA profiling. For instance, at a seminar arranged in April 1986 by the FCO to attract support for the DNA pilot program, Jeffreys took questions from within the HO and FCO migration management divisions. Their conviction that (routinely exoticized) levels of consanguinity would allow Bangladeshi families to deceive even a genetic test drove a question about whether DNA profiling would work in cases of what they termed "in-breeding." Rejecting both doubts about his technique and the implicit zoomorphism of proposed migrant subjects, Jeffreys noted that, to invalidate the screening, "in-breeding would have to be of a level commensurate with animal in-breeding and all but impossible in human terms."<sup>21</sup>

Later, as DNAPPT results confirming migrants' claimed family relationships began to accumulate, HO official Gabriel Denvir sought to distinguish between interpretations of the DNA results that rested on "social judgment" and those backed by "statistical or scientific" evidence.<sup>22</sup> Jeffreys responded to what he clearly recognized as an artificial distinction by carefully demonstrating the extent to which these categories could not be disentangled, precisely because *both* relied heavily on racialized cultural assumptions. To make his case, Jeffreys used the example of a Bangladeshi family in which DNA clearly demonstrated one child to be the biological offspring of both claimed parents, while an older child's DNA was equally likely to have been inherited from the claimed mother or from a maternal aunt. Jeffreys's analysis of the case for the HO had interpreted these results as indicating a true biological relationship, an assumption that Denvir took to be "social" and thus implicitly suspect. However, as Jeffreys explained, while the test results were "equally compatible" with either relationship in the abstract, the simple realities of family life made one far more probable:

In our probability calculations, we assume that the prior probabilities of each possible relationship . . . are all equal . . . . In practice this assumption is invalid, *and operates against proving genuine relationships*. Suppose, for example, that 99% of families presenting for immigration in Bangladesh were completely genuine. If we now found a family where the “mother” was either the mother or aunt with . . . results equally consistent with either hypothesis, then the true probability ratio would be greater than 100:1 in favour of maternity, since “families” comprised of father, children and the mother’s sister would be rare . . . the fact that many claimed families are genuine *will lead to our probability estimates for genuine relationship being underestimated*.<sup>23</sup>

After working through the specific example in detail, Jeffreys summarized: “in this population, genuine relationships are common . . . whereas mixed families having children by two sisters . . . must be relatively scarce.” Jeffreys’s argument illustrates how the HO’s insistence that all possible relationships between adults and children in these groups be treated statistically as equally likely biased the purportedly objective pilot trial against the migrants *ab initio*. This bias was deeply imbued with familiar cultural and racial assumptions about South Asian migrants—that they were prone to fraud and deception, that their phenotypic similarities made them visually almost indistinguishable, and that their sometimes-consanguineous family relationships violated the normative standards of Britishness (Wilson 1978; Shaw 2009; Smith and Marmo 2014).

Jeffreys’s interim reports to the HO mitigated against the bias embedded in the trial’s assumptions by interpreting the raw statistical data produced through a different cultural lens. He replaced the FCO’s and HO’s presumed “web of deceit” (Waddington 1985, 144) with a presumption that kinship operated in much the same way in African and Asian families as in British ones. Nonetheless, Jeffreys took pains to reassure HO officials that his technique could parse suspect biological relationships between intermarrying cousins and identify any illicit child substitutions within a given cousinage.<sup>24</sup> Subsequent summary reports on each family’s results show repeated clashes and challenges around these conditioning assumptions. These indicate the HO’s reluctance, even faced with DNA evidence that most families were related as claimed, to accept Jeffreys’s preferred assumption that the majority of families in South Asia raised children who were the biological offspring of their declared parents.<sup>25</sup> HO obduracy on this point is particularly ironic given that the HO and FCO elsewhere presumed familial relations on the subcontinent to be frozen in a feudal past of

dominating patriarchy, female virginity at marriage, and complete female sexual fidelity and hyperfertility within it (Smith and Marmo 2014).

The British government's decision to implement DNA profiling first to "control" and ideally to immobilize a racialized population was not coincidental. It was specifically tailored to address assumptions about South Asian (and later African) counter-normative embodiment and habitus. The DNAPPT traded on their position as socially suspect to establish the translational value of DNA fingerprinting. Yet consistent with Scheel's (2019) plea to strip away "control bias," it also shows that the very certainty established by DNA testing initially offered migrants a new channel through which to exercise their autonomy of migration, much to the government's chagrin. Nonetheless, while the DNAPPT disrupted government expectations by conclusively proving most migrants' claims to entitlement, the state was able to retool and reclaim that certainty. They did so through legislation (the 1988 Immigration Act) that replaced kinship testing with means-testing as the barrier to entry for legal familial migrants and through accepting the marketization of familial DNA testing at a price point that rendered its perceived certainty economically unattainable to the least desired migrants (Platt 1988).

Recent scholarship examining biometric systems of border management and surveillance posits that the convergence of two previously distinct areas of law and governance (immigration enforcement and crime control) is an emergent practice, dependent on the rise of biometrics that either criminalize or certify bodies as the objects of "abject or privileged" civic identities (Aas 2011, 337-41). The history of the DNAPPT presented in this paper shows that both the suspect-ness and the abjection of wholly *legal* migrants were in fact central to the development and state-capture of DNA profiling. Only after DNA's utility had been proven on migrant bodies, and after the new certainty it created had been successfully captured by the state, was DNA profiling adopted (rather uncritically in the UK) for use in the detection of crime and identification of criminals on one hand, and the exploration of citizens' kinship and ancestry on the other.

The UK media swiftly exchanged reports about the impact of DNA profiling on a marginalized and racialized population for those celebrating DNA's power for solving crimes threatening the majority population or its usefulness for identifying "feckless fathers" who undermined the government's responsabilizing vision of traditional nuclear families that economically support their children (Lewis 2002, 137-42). This cultural bias toward the concerns of Agamben's *bios* perhaps explains why the scholarly literature on DNA profiling has not recognized migration and migrants'



deprecated autonomy of mobility as the origin problem, and postcoloniality as the origin context, of state-sponsored DNA profiling. Only since migration again seized the media centerstage in the late 1990s and 2000s have we begun to take the DNA profiling of migrant families as seriously as the profiling of criminals or medicalized citizens. Our collectively intense focus on DNA profiling in forensics (especially as it emerged in the United States) has skewed understandings of the technique. In particular, it has erased the deep colonial roots—roots shared with the original process of fingerprinting on which its inventor capitalized—which fed DNA profiling’s commercial and governmental translation. Moreover, this foregrounding of DNA’s forensic applications has obscured DNA profiling’s initial framing as a tool for liberation, and one used, albeit *in extremis*, by agentic migrants, rather than imposed by a surveillant state, seeing this as arising only later with projects focused on rehabilitating the biocitizenship of the ill or falsely imprisoned. DNAPPT shows us that the use of DNA to build or reaffirm “genetic citizenship” denied by the state emerged before and not after the “DNA wars,” the “Innocence projects” (Lynch et al. 2008), and the activism of medicalized individuals and groups.

This has implications for more than just our scholarship. In fact, looking at the HPPP with which this article opened, it is evident that the British government’s first experiment with genetic profiling as a tool for border truth-making strongly influenced this far less successful HO venture. In the concluding section of this article, I explore what closer attention to the DNAPPT adds to analyses of more recent state-sponsored exercises of genetic identification and enclosure, looking at the failed HPPP “experiment.”

## Revisiting DNA’s History at the Borders

Like most European nations, the UK has a well-established record across the postwar period of seeking to manage and restrict migration on medical grounds and by using emerging medical technologies. From medically screening would-be migrants among the postwar displaced populations encamped across continental Europe, to the construction of airport radiography suites to screen migrants for tuberculosis, to the highly controversial use of gynecological examinations (“virginity testing”), blood group analysis, and x-ray age-determination as tools to in/validate identity at the border, the UK has repeatedly shown itself willing to deploy even scarce and expensive medical resources to restrict inward migration (Smith and Marmo 2014; Bivins 2021). Situating the HPPP in this lineage of

exclusionary bio-inspection valuably balances claims that the use of molecular technologies of identification represents a change in the *nature* of border controls, rather than the *degree* of their penetration into and distortion of socio-legal identity. Closer examination of the HPPP, as documented by Tutton, Hauskeller, and Sturdy (2014) and Benjamin (2016), also reveals the conditioning impact of the DNAPPT on the UK government's model for deploying experimental biotechnologies at its borders.

The migrant groups whose entry triggered Britain's early adoption of disruptive biopolitical technologies shared key features. First, in both cases where UK border authorities planned to experimentally expose migrant groups to novel and untested genetic examination, they assumed that their decision would be uncontested by the migrants' own governments. Clearly imperial assumptions about the universal availability of colonized bodies to biopolitics have not faded since decolonization or even since the DNAPPT. Moreover, as well as being racialized citizens of former UK territories, both the migrants recruited to DNAPPT and those subjected to HPPP were the most toxically visibilized migrants in their period. Both groups included many individuals lacking documentation, and both groups were assumed by immigration authorities and segments of the British press to have been infiltrated by, if not wholly comprised of undeserving fraudsters "trading on" British humanitarianism.

Comparing the Bangladeshi and Pakistani migrants who made up the majority of family reunification cases in the DNAPPT with Somalian and other African migrants targeted for novel genetic analysis by the HPPP (Aspinall and Chinouya 2011; Tutton et al. 2014; Benjamin 2016b), we also see another important commonality. Both groups were in fact entitled under the applicable laws of their day to arrive at the UK's borders if their identities as family members or asylum seekers were as claimed. Thus, their entry could not be "controlled" (i.e., prevented) unless their social identities could be undermined. Indeed, this combination of characteristics appears to be predictive of (at least British) state decisions to ignore or strip away "self-ascription" of familial and national identity, which has been the ethical norm for nonabject groups since at least 2001 (Aspinall and Chinouya 2011, 25-87), and to replace it with observed identities that can be read from the body itself.

Comparing the DNAPPT and the HPPP also enables more accurate mapping and more nuanced interpretation of the rise of the "crimmigrant" model of unwanted human mobility. It is important to recognize the origins of this conflation of mobility and criminality in the Home and Foreign Office's near-obsession with identity falsification as a universal feature

of family reunification migration from the Indian subcontinent. DNA profiling was first used specifically to address this *presumption* of guilt (rather than criminal culpability). Indeed, officials considering the DNAPPT explicitly acknowledged that innocent and legally entitled migrants and birth citizens were not infrequently entangled and disprivileged by suspicion and by collective punishment of reunifying families for the civil and tax code infractions of their settled relatives.

Through the DNAPPT of 1986-1987 and its immediate sequelae, we can see an early example of the deliberate but troubled construction of what would become the “administrative objectivity” (Lynch et al. 2008, 136 n.23, 245)—in this racially charged context one could even say the “administrative innocence”—of DNA profiling. This too was evidently the intention of the HPPP. Equally, both show us the persistence and effects of cultural assumptions embedded in empire but enacted on migrants through bodies newly rendered legible and outspoken by genetic technologies. Comparing them also sheds new light on the costs of “certainty” and “objectivity”—not just for the abject possessors of bare life but for those who define the conditions of biopolitical life. Rather than evidencing one side or the other of the dichotomous views of DNA as liberating (for those able to craft or participate in “genomic citizenship”; McGonigle, 2018) or stigmatizing (for “crimmigrants” and others who are surveilled and rendered static by these technologies), the DNAPPT and the HPPP offer clear evidence of both. Perhaps resultantly, neither closure nor control was attained by the British state through genetic screening. Both were only gained socially: through negotiation, legislation, and propaganda that foreclosed the benefits of “certainty” for migrants seeking to access genomic citizenship, replacing it with the more familiar vision of state technovigilance mobilized against intruders. The failure of the HPPP is a mirror reflection of the DNAPPT’s success precisely because the UK government presumed, in mounting the HPPP, that their success in controlling and restricting the certainties created with DNA profiling could be transferred to another genetic technique. Instead, closer examination reveals that the transformation of a novel genetic technology into a widely accepted and publicly acceptable form of identity-production depended on a moment of genetic pluripotency when scientists, industry, agentic migrants, their social allies, and the state could all see value in translating a laboratory discovery into a tool of border *navigation*, not just border control.

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### **Notes**

1. This overstretch was caused by a growing administrative load, as well as legal costs and representation in appeals, the time and financial costs of village visits to test claims made by would-be migrants and their would-be sponsors, the costs of medical staffing at High Commissions, and so on. There were also political costs to constantly defend the indefensible. The applications were onerous for all concerned.
2. Sir Alec Jeffreys Papers, University of Leicester Special Collections and Archives (Jeffreys-Leicester), "First Immigration Case." T. M. Harris to Dad-dow, May 20, 1985.
3. Jeffreys-Leicester, "First Immigration Case and Summary of Results from In-tial Immigration and Paternity Cases Processed in Lab 1985-6."
4. See the National Archives, Kew (TNA). HO894/810.
5. Jeffreys-Leicester. "Lister Institute Fellowship 1982-1991. DNA Commercialisation."
6. TNA LCO68/34 "DNA Testing/Genetic Fingerprinting."
7. Jeffreys-Leicester, "First Immigration Case," Anonymous reviewer to Geoffrey North, c. August 1985.
8. Jeffreys-Leicester, Box 1, "Patent Application II." G. J. Roderick to M. B. Taylor, August 12, 1985.
9. Ibid.
10. See TNA HO 394/848, Jeffreys-Leicester, "Cellmark Diagnostics."
11. TNA HO 394/848, "Meeting with ICI on 14.5.87: Chairman's Brief."
12. For details, TNA HO394/810.
13. Jeffreys-Leicester, "Cellmark Diagnostics."
14. Jeffreys-Leicester, "Cellmark Diagnostics." Meeting Note, February 7, 1989.

15. Jeffreys-Leicester, Box 1, "Patent Application II." G. J. Roderick to Alec Jeffreys, October 21, 1985.
16. TNA LCO68/34 M. T. Cook to G. K. Sandiford, September 29, 1987.
17. See TNA LCO 68/34, especially Colin Miller to David Norgrove, January 15, 1988.
18. TNA 394/848 R. M. Morris to J. W. Fairclough, May 20, 1987.
19. See TNA HO394/810.
20. This aspect of the history of DNA profiling in the UK has yet to be explored in detail, but my current research suggests two strands: the first relates to the relatively simple matter of cost. By 1985, UK courts could order blood tests to exclude paternity altogether or to assess its relative likelihood. In cases where one or both parties in a trial received Legal Aid (state funding to pursue their case), the costs of such cases were paid by the state. However, not only was DNA testing much more expensive than conventional blood tests, but the Home Office and Lord Chancellor's Office feared that the certainty provided by DNA would generate budget-busting levels of demand from all sides, without producing any administrative savings. The other strand is much more complex, and challenging to tease out. The UK courts display a history of ambivalence about whether—either for children or for the state—the potential certainty of biological paternity provided by blood testing equaled or outweighed the value of the legal certainty of social paternity already provided by the assumption of paternity within marriage. Rising rates of birth outside marriage, and state fears about rising welfare costs and the presumed negative effects of single parenting, alongside increasing popular enthusiasm for genetic models of kinship, only gradually shifted this balance toward state support for the use of DNA tests to establish biological parentage.
21. TNA HO394/810 "The DNA Seminar in FCO Friday 11 April."
22. Jeffreys-Leicester, "Home Office Pilot Immigration Study 1987." Denvir to Jeffreys, September 16, 1987.
23. Jeffreys-Leicester, "Home Office Pilot Immigration Study 1987." Jeffreys to Denvir, September 29, 1987. My emphasis.
24. For example, TNA HO394 810 Vivienne Dews to Alec Jeffreys, April 2, 1986.
25. TNA HO394/850 "Pilot Study: Situation Report on Cases at 10 November 1987."

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