

Imperial Biometric Laboratory

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I have worked hard to try to ensure that the arguments in this book are convincing, very broadly comparative and unexpected. There is some risk that the second and third of these efforts may leave my reader bewildered and annoyed, and I think that it is probably wise to explain exactly what I am trying to do here. That is what I normally ask of my own students and, as they may be the first readers of this text, I should probably follow my own advice. I have, then, three main aims for this introduction: to identify and explain the main ideas that run through this book, to highlight the key arguments and to explain why the South African history of biometric government is internationally important and distinctive.

In a little more detail, this is a book about a society that has been profoundly shaped by the global project of biometric registration. I want to spend some time explaining the meaning and politics of the idea of biometrics, to show that the desire for mimetic power has been a constant motivation behind the effort to make biometric government work, and to explain why it is that this has only been possible in the societies of the former European empires. I also want to elaborate on some of the key characteristics of the biometric state, especially those which mark it off as an important departure from the very long history of documentary state building. The three major explanatory arguments – which help to account for both the general history of biometric government around the world and its specific form in South Africa – that run through the book are: first, that the key agents in the emergence of biometric government in the early 20th century were important members of the global reform movement of Progressivism; second, that biometrics was first developed, and remained focused throughout its history, on escaping the political indeterminacy of writing; and, thirdly, that the interest in biometric registration was both a necessary cause and the result of the very limited infrastructure of government that developed in the empire. My final object is to sketch out the history that encourages me to claim that 20th century South Africa has served as an imperial biometric laboratory.

Mimetic tool of empire

Over the last decade the newly created US Secretariat of Homeland Security has been a powerful advocate of global biometric identification. It was Michael Chertoff who occupied this post in the second term of the Bush Administration. In early May, 2007, he addressed an audience of students at the Johns Hopkins School for Advanced International Studies on the subject of “Addressing Transnational Threats in the 21st Century.” It is worth noting that SAIS is one of the key sites for the training of professional diplomats and that the students can fairly be described as experts in international relations and government. Chertoff’s speech, unlike many others on the subject of the war on terror, was a statement of what the Bush Administration believed was wise and practical. And it demonstrated that,

long after the initial drama of the attacks of 9/11, global biometric registration remained key to US domestic security policy.

Chertoff spoke eloquently of the confounding effects of globalization on the US government's efforts to identify and combat its current enemies; invoking the Cold War doctrine of defence-in-depth he argued that the most important policy goal was "extending the protection of the perimeter." Information, he argued, is the 21st century equivalent of the massive radar systems that guarded the borders of the continental US during the Cold War, because it will allow "us to isolate the individual who is a threat from the great mass of people coming in who are innocent." In this struggle over the terrain of information the US will exploit its technological ascendancy through the deployment of biometric identification systems like US-Visit, the programme that collects biometrics from visa applicants, which he claimed allowed for the matching of fingerprints at the points of entry against existing criminal and terrorist databases.

But the plans for biometric registration extend well beyond immigration control to a global system of fingerprint gathering. "We're moving to 10-print collection overseas and at our ports of entry, which will allow us one day in the very near future to check a visitor's or a potential visitor's fingerprints against latent fingerprints that we collect in battlefields and safehouses all around the world." Anticipating the obvious question of whether such a system could ever be made to work Chertoff explained that a vigilant INS agent at O'Hare Airport had recently refused entry to a suspect visitor, sending him "back to where he came from" after recording his fingerprints. "We did ultimately run across those fingerprints again," he explained to the students, "at least parts of the fingerprints, because a couple years later we found them on the steering wheel of a suicide truck bomb that had been detonated in Iraq."¹

There are some odd things about this speech. Chertoff was massively overstating the speed and power of biometric databases. Rapid integrated searching of large databases was not possible at that time, although it is now. As late as March 2006 the National Institute of Standards and Technology (NIST), under pressure from the US Congress, was battling to define a single standard that would allow the different commercial systems owned by the FBI and the Department of State to interact accurately and efficiently.² Just months before Chertoff's speech NIST noted that even the most carefully compiled ten-print systems were incapable of fully automated matching, requiring the intervention of a human fingerprint expert. Heavy Federal Government investment in interoperability over the next five years did make it possible to compare carefully taken, ten-print records between the FBI and Immigration and Military systems.³ But for single, or latent, fingerprint matching, almost all of the important work has, still, to be done by human experts with obvious devastating effects on the possibility of using biometric identification to process millions of travelers against a

¹ Michael Chertoff, "Remarks by Secretary Michael Chertoff to the Johns Hopkins University Paul H. Nitze School of Advanced International Studies," *Department of Homeland Security*, May 3, 2007, http://www.dhs.gov/xnews/speeches/sp_1178288606838.shtm.

² National Institute of Standards and Technology, "Minutiae Interoperability Exchange Test 2004", March 21, 2006, <http://fingerprint.nist.gov/minex04/>.

³ Subcommittee on Biometrics, *The National Biometrics Challenge* (Washington DC: National Science and Technology Council, September 15, 2011), 7 – 8, <http://www.biometrics.gov/NSTC/Publications.aspx>.

collection of latent prints gathered from “battlefields and safehouses.”⁴ Chertoff, like every biometric enthusiast before him, was also deliberately blurring the boundary between the statistically clear identification by ten rolled fingerprints and the murky and treacherous waters of latent print similarity. Here identity can only be proven by a court-sanctioned expert, and there is currently no scientific case for unique identification by latent prints. The nasty truth – in a world of massively expanding fingerprint databases – is that the likelihood of false matches is proportional to the size of print populations and the level of political pressure on the examiners.⁵

Nor is this simply a matter of exaggeration; Chertoff was making claims for biometric registration that exist only in the domain of magic. He is invoking a mimetic power that has often captivated the advocates (and the subjects) of compulsory fingerprint registration. Similarity is one part of what makes this compelling; contact is another. Simon Cole has shown that the power of latent fingerprint identification in the courts “lies in the seemingly magical ability to cause these stereoscopic images to merge in the jury's eyes into one.”⁶ The same desire to close the gap between the fingerprint and the suspect clearly motivates Chertoff's account. He presents latent fingerprint matching as an infallible tool of global surveillance, blithely ignoring the similarity between his anonymous example and the abundantly documented Mayfield fiasco. In this case, Brandon Mayfield, a Muslim lawyer in Seattle, was wrongly arrested and charged with terrorism in Seattle in 2004 on the basis of a latent fingerprint found in Madrid. It is important to note that Mayfield's fingerprints were in the FBI database because he had served eight, honourable, years in the US military.⁷ More than anything his case demonstrated the real, although unlikely, danger to innocent citizens of large scale latent fingerprint searches. Yet this capricious danger is inverted in Chertoff's explanation, which makes what can only be described as fantastic claims for the certainty of latent fingerprint matches.

The magical qualities that Chertoff attributes to biometrics extend to several other areas: like radar, they will act as a hemispheric shield; they will give the US government the power to reach out, beyond the continental perimeter, in to the safe-houses of its enemies; and, most importantly, to seize them by their likeness. This, as Taussig observed some time ago, is what makes mimesis the essence of sympathetic magic.⁸ Francis Galton, writing from the epicentre of the imperial ethnographic project, was very

⁴V N Dvornychenko and Michael D Garris, *Summary of NIST Latent Fingerprint Testing Workshop*, November 2006.

⁵David H Kaye, “Questioning a Courtroom Proof of the Uniqueness of Fingerprints,” *International Statistical Review* 71, no. 3 (December 1, 2003): 521–533; Simon A. Cole, “Is Fingerprint Identification Valid? Rhetorics of Reliability in Fingerprint Proponents' Discourse,” *Law & Policy* 28, no. 1 (January 2006): 109–135.

⁶Simon A. Cole, “Witnessing Identification: Latent Fingerprinting Evidence and Expert Knowledge,” *Social Studies of Science* 28, no. 5/6, Special Issue on Contested Identities: Science, Law and Forensic Practice (1998): 687–712.; For a discussion of the fallability of LFPEs see Simon A. Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Cambridge MA: Harvard University Press, 2001), 281 – 3.

⁷Sarah Kershaw, “Spain and US at Odds on Mistaken Terror Arrest,” *New York Times* (New York, June 5, 2004).

⁸Michael Taussig, *Mimesis and Alterity: A Particular History of the Senses* (New York: Routledge, 1993), 47, 221–223. Taussig acknowledges Pamela Sankar as the source of his insightful discussion of fingerprinting as mimesis.

aware of fingerprinting's mimetic power, simultaneously stressing and dismissing the "abundant instances of the belief that personal contact communicates some mysterious essence from the thing touched to the person who touches it and vice versa."⁹ Galton's invention of fingerprinting, as many scholars have shown, was both a product and tool of the late 19th century demands of imperial government, and Taussig is correct to suggest that "subterranean notions" of the "'magic' of copy and contact" remained powerful elements in the politics of fingerprinting, motivating advocates to expand its powers and constraining those subject to it far beyond its actual reach.¹⁰

The current US Department of Homeland Security and its policy of global biometric surveillance rests heavily on an association with Britain, and the former Empire. An alliance between the National Security Agency in the US and British signals intelligence (and their equivalents in the former white colonies) has long provided the mechanisms for an enormous data-gathering project of communications across international borders.¹¹ There are some surprising and important political links here with the imperial project that produced the South African state. The US National Security Council, which as Hogan shows nurtured the frenzy over the global communist danger and the explosion of Federal military spending after 1950, was modelled on the older (and constitutionally unprecedented) British Imperial War Cabinet. That extra-parliamentary committee was long the primary political goal of the architect of modern South Africa, Lord Alfred Milner. In the decades after the First World War, Milner's acolytes, relying on the resources of the South African gold magnates and relationships carefully nurtured by the Rhodes Trust and its troop of Scholars, fostered the institutional and ideological basis of the Anglo-American alliance.¹² And the links between this Anglo-American world order and South African politics are much more direct than many people realise. The outstanding architect of the 20th century global order, as Mitchell and Mazower have each separately shown in important recent studies of very different global institutions, was Jan Smuts, founder and builder of the South African state.¹³

Chertoff acknowledged the ongoing significance of this close and cooperative alliance with Britain in the new global conflict, in deliberate contrast with "those in Europe who feel that this principle of sharing ought

⁹Francis Galton, *Finger Prints* (London, New York: Macmillan and Co., 1892), 38–40.

¹⁰Taussig, *Mimesis and Alterity: A Particular History of the Senses*, 221 – 223.

¹¹See James Bamford, *The Puzzle Palace: a Report on America's Most Secret Agency* (London: Penguin, 1983), 309 – 337; David Lyon, *Surveillance After September 11*, Themes for the 21st Century (Malden, Mass.: Polity Press in association with Blackwell Pub. Inc., 2003), 117; As Bamford shows, this massive international surveillance project proved singularly blind leading to the attacks in 2001, which were largely arranged within sight of the NSA's massive headquarters in Maryland. James Bamford, *Body of Secrets: How America's NSA and Britain's GCHQ Eavesdrop on the World* (London: Arrow, 2002), 614–651.

¹²Michael J. Hogan, *A Cross of Iron: Harry S Truman and the Origins of the National Security State* (Cambridge: Cambridge University Press, 1998), 33, 68, 195; Franklyn A. Johnson, "The British Committee of Imperial Defence: Prototype of U.S. Security Organization," *The Journal of Politics* 23, no. 2 (1961): 231–261; On the relationship between the NSC and the new Homeland Security Council, see William W. Newmann, "Reorganizing for National Security and Homeland Security," *Public Administration Review* 62, no. s1 (2002): 126–137; Lionel Curtis was the key figure in the fashioning of this embrace, see D. Lavin, *From Empire to International Commonwealth: A Biography of Lionel Curtis* (Oxford University Press, USA, 1995), 161 – 177.

¹³Mark Mazower, *No Enchanted Palace: The End of Empire and the Ideological Origins of the United Nations*, Lawrence Stone Lectures (Princeton: Princeton University Press, 2009); Timothy Mitchell, *Carbon Democracy: Political Power in the Age of Oil* (Verso, 2011).

not to be extended across the ocean.” Invoking the coordination between the two governments during the August 2006 panic over the possible use of liquids to attack commercial aircraft as a “model of how two countries working together in partnership and trust can share information, bring down and disrupt a plot” Chertoff made repeated references to British support for his Department’s work in the Global War on Terror. His speech concluded by citing Peter Clark, the “head of counterterrorism for Scotland Yard”, as an authority on the unprecedented danger posed by al Qaeda. Using Clark’s authority he reminded his audience, that “this is a global threat of a kind not seen before.”

More recent developments in the technology of biometric surveillance emphasize these close connections between the old Empire and the new world order. Early in 2008, after years of disagreement with the European Union over the content and form of personal data-sharing, the FBI proposed plans for a ‘Server in the Sky’ to share biometric data between the current allies in the War on Terror, the so-called Anglophone members of the British Commonwealth: Australia, Britain, Canada, and New Zealand. This system would allow the IAFIS database owned and controlled by the FBI to interact with IDENT1, the biometric repository controlled by the British National Policing Improvement Agency. One of the reasons that this integration was possible was that both database infrastructures were being supplied by the same company. Northrop Grumman, one of the major suppliers in the field of modern biometrics, was contracted to supply the British police system and the new connections between the FBI and US immigration databases. The Commonwealth countries named in the FBI’s proposal promptly disavowed the FBI’s data-sharing arrangements – under pressure from the same popular worries over privacy that limit the expansion of biometric surveillance on the US mainland – but the infrastructural connections between US cross-border biometric surveillance and the British Empire run deep.¹⁴

Under the Obama administration some of the crudest technological enthusiasm for biometrics has been dampened by a much broader interest in “smart power,” which pays attention to the rule of law, the social causes of radicalisation and looks to use USAID (and social media) as instruments of anti-terrorist policy.¹⁵ Yet, even at the heart of this socially oriented foreign policy, biometric screening remains the most important element of US border security. The Obama administration remains vigorously committed to solving the technical difficulties that prevent real-time biometric sensors from interacting properly with the largest Federal databases. In some

¹⁴ Richard Koman, “Server in the Sky: FBI International Biometric Db Planned,” News, *ZDNet*, January 14, 2008, <http://government.zdnet.com/?p=3605>; Owen Bowcott, “FBI Wants Instant Access to British Identity Data,” *The Guardian*, January 15, 2008, <http://www.guardian.co.uk/uk/2008/jan/15/world.ukcrime>; “Britain’s Police Balk at Plug-in to FBI Database,” *Washington Times*, January 16, 2008, <http://www.washingtontimes.com/news/2008/jan/16/britains-police32balk-at-plug-in32to-fbi-database/>; Lewis Page, “UK.gov Says No Plans for FBI DNA Database Hookup,” *The Register*, January 17, 2008, http://www.theregister.co.uk/2008/01/17/fbi_uk_dna_database_plans_followup/; Mark Russell, “FBI Invites Australia to Join World Crime Database,” *The Age*, January 20, 2008, sec. National, <http://www.theage.com.au/news/national/fbi-invites-australia-to-join-world-crime-database/2008/01/19/1200620280804.html>; Rebecca Palmer, “NZ Police May Join FBI Network,” *Stuff.co.nz*, September 15, 2008, <http://www.stuff.co.nz/4357650a11.html>.

¹⁵ Hilary Clinton, “Smart Power Approach to Counterterrorism” (John Jay School of Criminal Justice, September 9, 2011), <http://www.state.gov/secretary/rm/2011/09/172034.htm>.

respects this effort actually exceeds the goals of the Bush administration, pushing the plans of the Federal government close to the themes of science fiction. Perhaps the most fraught development in the current US biometrics program is the effort to develop “portable rapid DNA machines” that, according to the NTSC's Subcommittee on Biometrics (an organisation that tends to pessimistic assessments) is “poised to provide a new tool for rapid identification outside of the forensic laboratory.”¹⁶ It is important to notice the continuing military and national security emphasis of the US interest in biometrics – which sees soldiers routinely gathering fingerprints from bomb fragments, from civilians in Iraq and Afghanistan and diplomats collecting them from police officials and embassies in Egypt – as it is, also, obvious that the US project now finds itself in the territories formerly occupied by Britain.¹⁷

There are many current and past examples of biometric registration targeted at domestic populations in the US and Europe. These have included surprisingly successful campaigns for voluntary fingerprint registration in the 1930s, the compulsory registration of government employees, of members of the US military, and even the licensing of some professionals.¹⁸ Recently the most widely distributed systems of biometric identification in these countries have been applied to passports, typically involving the use of facial images, sometimes of fingerprints.¹⁹ But it is important to notice that these are hobbled biometrics, carefully restricted to simple one-to-one matches of existing documents of identity. They answer the question, “Is the bearer of this document the Joan Smith who originally applied for it?” And they are very different from the one-to-many, omniscient and omnipotent systems being designed for the criminal justice system, for immigration and for national security. Those systems answer the question, “Who is this?” And they have been specifically developed to strip Joan of any agency in answering the question.

It also true that the US Federal Bureau of Investigation has been the primary custodian of fingerprinting through most of the last century, and of automated fingerprint identification in the last generation.²⁰ And the effects on US society and politics have been important, bearing interesting comparisons with the machine of incarceration that lay at the heart of the Apartheid state. The automation of fingerprint registration over the last thirty years has certainly been an important part of the startling expansion of compulsory and indefinite imprisonment in the US.²¹

¹⁶Subcommittee on Biometrics, *The National Biometrics Challenge*, 14.

¹⁷Subcommittee on Biometrics, *The National Biometrics Challenge*; “US Diplomats Spied on UN Leadership,” *The Guardian*, November 28, 2010, sec. World news, <http://www.guardian.co.uk/world/2010/nov/28/us-embassy-cables-spying-un>; “WikiLeaks Raises Specter Of Biometric Data,” *All Things Considered* (NPR, November 30, 2010), <http://www.npr.org/2010/11/30/131704360/wikileaks-raises-specter-of-biometric-data>.

¹⁸Cole, *Suspect Identities*; P. Sankar, “State Power and Record-keeping: The History of Individualized Surveillance in the United States, 1790-1935” (University of Pennsylvania, 1992).

¹⁹Louise Amoore, “Biometric Borders: Governing Mobilities in the War on Terror,” *Political Geography* 25, no. 3 (March 2006): 336–351; Mark Maguire, “The Birth of Biometric Security,” *Anthropology Today* 25, no. 2 (2009): 9–14.

²⁰Cole, *Suspect Identities*, 248 – 258.

²¹Simon Cole, “Digits -- Automated Fingerprinting and New Biometric Technologies” (Unpublished paper, n.d.), 21; D. Garland, *The Culture of Control: Crime and Social Order in Contemporary Society* (Oxford University Press US, 2001).

Much the same can be said about social welfare. In both the US and Britain the use of fingerprinting for the identification and control of welfare recipients has been long contemplated by reformers and administrators.²² But it was only very recently, with the efficiencies that computerized identification brought to fingerprinting, that large-scale social welfare schemes in these countries have been organised biometrically. It is also important to notice that the application of biometrics to social welfare has coincided with a fierce public assault on the status of welfare recipients as citizens.²³ There is a common pattern here. The largest centralised systems in the criminal justice, social welfare and immigration control systems in the US and Europe have been designed to target individuals and populations that have been significantly stripped of the rights and statuses of citizens. When important administrators have proposed compulsory biometric registration for universal social security entitlements in the US these schemes have conspicuously fallen on deaf ears.²⁴ In this biometric registration in the northern hemisphere is very different from the massive and centralised national population registers of biometric identification that were first developed in South Africa, and which are now being developed throughout what used to be called the Third World. These new instruments of biometric citizenship target all citizens, and they are designed to do the work of civil registration, and, especially, to regulate identification in financial transactions.

Biometric population registration in Europe, the USA and Australia has retreated in the face of widespread popular protest. This raises the question of why biometric registration, busily underway in many of the former colonies, has been so easily defeated in the wealthy liberal democracies.²⁵ Several common features emerge. The first significant difference is that the main organisers of the resistance to biometrics in the West have been engineers and scientists who have a clear understanding of the likelihood, and implications, of system failures.²⁶ These figures have typically worked in

²²Edward Higgs, *Identifying the English: a History of Personal Identification, 1500 to the Present* (London; New York: Continuum, 2011), 145 – 149; June Purcell Guild, "Transients in a New Guise," *Social Forces* 17, no. 3 (1939): 366–372; Myron Falk, "Fingerprints: Black Marks Against the Migrant," *Social Forces* 19, no. 1 (October 1, 1940): 52–56.

²³Anna Marie Smith, *Welfare Reform and Sexual Regulation* (Cambridge University Press, 2007); Shoshana Magnet, "Bio-Benefits: Technologies of Criminalization, Biometrics and the Welfare System," in *Surveillance and Social Problems*, 2008, <http://www.magnetopia.org/biometrics%20and%20welfare.doc>; Harry Murray, "Deniable Degradation: The Finger-Imaging of Welfare Recipients," *Sociological Forum* 15, no. 1 (March 1, 2000): 39–63.

²⁴Doris Meissner and James Ziglar, "The Winning Card," *The New York Times*, April 16, 2007, sec. Opinion, <http://www.nytimes.com/2007/04/16/opinion/16meissner.html?scp=103&sq=biometric&st=cse>.

²⁵Pierre Piazza and Laurent Laniel, "The INES Biometric Card and the Politics of National Identity Assignment in France," in *Playing the Identity Card: Surveillance, Security and Identification in Global Perspective*, ed. David Lyon and Colin Bennett (London; New York: Routledge, 2008), 93 – 111; Dean Wilson, "The Politics of Australia's 'Access Card'," in *Playing the Identity Card: Surveillance, Security and Identification in Global Perspective*, ed. David Lyon and Colin Bennett (London; New York: Routledge, 2008), 180 – 197; Kelly Gates, "The United States Real ID Act and the Securitization of Identity," in *Playing the Identity Card: Surveillance, Security and Identification in Global Perspective*, ed. David Lyon and Colin Bennett (London; New York: Routledge, 2008), 218–232; "Last Rites for ID Cards Read by Johnson," *The Independent*, July 1, 2009, sec. Home News, <http://www.independent.co.uk/news/uk/home-news/last-rites-for-id-cards-read-by-johnson-1726187.html>.

²⁶Ross Anderson, et al., *Database State* (York: Joseph Rowntree Reform Trust, 2009); Whither Biometrics Committee, National Research Council, *Biometric Recognition: Challenges and Opportunities*, ed. Joseph N. Pato and Lynette I Millett (Washington, D.C.: The National Academies Press, 2010).

close alliance with individuals in the media who write for a public with a well-honed contempt for bureaucratic hubris, and a lively interest in the sordid – and often very amusing – details of official administrative bungling. And at the core of this public skepticism of the state's will to know its subjects lies the disorganised, contradictory but (as Solove shows) nonetheless very powerful theory of the right to privacy.²⁷ This is a field of government and law that has grown dramatically in authority and scope over the last three decades in the northern hemisphere.²⁸ The same cannot be said of the South, where the right to privacy is routinely presented as an unsustainable casualty of the project of survival. That no similar body of law or regulation exists in the former colonies has much to do with the debased place of native privacy under imperial government.

The combination of scientific criticisms with an entrenched two-party democracy is also important. On both sides of the Atlantic the opponents of biometric registration have drawn allies from both the left and the right, making it very difficult for social engineers to sustain the political power required to drive through large-scale registration projects. These democratic limits work in part because of the mobilizing fear of an assault on established privacy rights, in part because both the right and the left fear the surveillance implications of biometrics, and in part because compulsory finger-printing cannot shed its particular sentimental and ideological history. "All words," Bakhtin wrote, "have the 'taste' of a profession, a genre, a tendency, a party, a particular person, a generation, an age group, the day an hour."²⁹ And fingerprinting, as Karl Pearson lamented in 1930, has long been "tainted in the popular mind by a criminal atmosphere."³⁰ Imperial subjection has been another key part of the taste of fingerprint identification.

In his recent history of identification in England, Eddy Higgs shows how written forms of identification very gradually became markers of respectability as literacy spread from the 14th century.³¹ By the 19th century written forms of identification and written contracts had become key signs of English respectability. These forms of identification built on the long history and practically universal networks of written civil-registration in the parishes.³² "Identification through the body," Higgs writes, "was associated with the nonrespectable, the deviant, the foreign and the alien."³³ Yet in the first half of the 19th century identification in the empire relied heavily on the marking of the body itself. Branding, mutilation and tattooing were important weapons in the arsenal of policing and imprisonment in India well into the 1840s, and they were remembered nostalgically for decades

²⁷Daniel J. Solove, "'I've Got Nothing to Hide' and Other Misunderstandings of Privacy," *San Diego Law Review* 44 (2007): 745–772.

²⁸Colin J. Bennett and Charles D. Raab, *The Governance of Privacy: Policy Instruments in Global Perspective* (Aldershot: Ashgate, 2003); Fred H. Cate, *Privacy in the Information Age* (Washington DC: Brookings Institution Press, 1997).

²⁹M. M. Bakhtin, *Dialogic Imagination: Four Essays* (Austin: Texas University Press: Austin: Texas University Press, 1981), 293.

³⁰Karl Pearson, *The Life, Letters and Labours of Francis Galton: Correlation, Personal Identification and Eugenics*, vol. 3A (Cambridge: Cambridge University Press, 1930), 159.

³¹Higgs, *Identifying the English*, 60–72.

³²Simon Szreter, "Registration of Identities in Early Modern English Parishes and Amongst the English Overseas," in *Registration and Recognition: Documenting the Person in World History*, Proceedings of the British Academy 182 (London: Oxford University Press, 2012), 67–92.

³³Higgs, *Identifying the English*, 77.

afterwards.³⁴ And it was from these techniques of marking the body, themselves mimetic in a brutal way, that the early forms of fingerprinting developed in India.³⁵ As Higgs points out, the rejection of fingerprinting in England after 1920 stemmed in part from the fact that both officials and the public remembered the brutal history, and subjection, of fingerprinting in South Africa.³⁶ Citizenship mediated by writing remains the norm for most people in the liberal democracies, while a mimetic state has begun to develop in the old colonies.

A new kind of state

The documentary state is old. Its key elements – the registration of property, of tax and military recruitment liabilities and the recording of personal and family names – have existed for thousands of years in the rice-growing societies of Asia.³⁷ In Europe these familiar features were formed a little more recently, mainly between the 11th and the 14th centuries. Over three hundred years, as Clanchy has particularly shown for England, writing, blessed by its association with an ascendant church, fitfully usurped the status and claims of oral and iconic forms of authority and power. In practice this meant that parchment documents (often forged by church officials) replaced spoken claims as guarantors of property and propriety; writing became the basis of law, and the main instrument of state extractions like taxation and recruitment; a new class of literate officials leaked from the church in to the Royal chanceries and then spread out to the parishes in the countryside.³⁸ Over the next half-millennium written record making and keeping became a massive and dense field of culture, acting to preserve and simplify property and to discipline the poor. This may have been pre-eminently the case in England, as Corrigan and Sayer have suggested, but historians have traced the administrative powers of writing in very similar processes throughout Europe, the Americas and parts of Asia.³⁹ It is no

³⁴Radhika Singha, "Settle, Mobilize, Verify: Identification Practices in Colonial India," *Studies in History* 16, no. 2 (2000): 151–198; Clare Anderson, *Legible Bodies: Race, Criminality, and Colonialism in South Asia* (Oxford; New York, NY Berg, 2004), 42, <http://www.loc.gov/catdir/description/hol053/2004003083.html> <http://www.loc.gov/catdir/toc/ecip0415/2004003083.html> <http://www.loc.gov/catdir/enhancements/fy0623/2004003083-b.html>.

³⁵Chandak Sengoopta, *Imprint of the Raj: How Fingerprinting Was Born in Colonial India* (London: Macmillan, 2003), 73 – 75.

³⁶Edward Higgs, "Fingerprints and Citizenship: The British State and the Identification of Pensioners in the Interwar Period," *History Workshop Journal* 69 (2010): 62.

³⁷Richard von Glahn, "Household Registration, Property Rights, and Social Obligations in Imperial China: Principles and Practices," in *Registration and Recognition: Documenting the Person in World History*, ed. Keith Breckenridge and Simon Szreter, Proceedings of the British Academy 182 (London: Oxford University Press, 2012), 39 – 66; James C Scott, *The Art of Not Being Governed: An Anarchist History of Upland Southeast Asia* (Yale Univ Pr, 2009); Alexander Woodside, *Lost Modernities: China, Vietnam, Korea, and the Hazards of World History* (Cambridge MA: Harvard University Press, 2006); On the Ancient Near East see Jack Goody, *The Logic of Writing and the Organization of Society* (Oxford: Oxford University Press, 1986).

³⁸M. T Clanchy, *From Memory to Written Record, England 1066-1307* (London: Edward Arnold, 1979); For similar process in Europe, see Valentin Groebner, *Who Are You?: Identification, Deception, and Surveillance in Early Modern Europe* (New York: Zone Books, 2007); On the persistence of spoken and communal forms of respectability in Spain and Spanish America, see T. Herzog, *Defining Nations: Immigrants and Citizens in Early Modern Spain and Spanish America* (New Haven: Yale University Press, 2003).

³⁹Jane Caplan, "'This or That Particular Person': Protocols of Identification in Nineteenth-Century Europe," in *Documenting Individual Identity: The Development of State Practices in the Modern World*, ed. Jane Caplan and John Torpey (Princeton: Princeton University Press, 2001), 49–66; Philip

wonder then that the powers of documentary government rest (typically undisturbed by rude empirical enquiry) at the heart of the most influential theories of state power produced between Max Weber and James Scott.⁴⁰

In our own time a transformation very like the one that Clanchy described seems to be under way. Since the early 1970s, a globally networked, digital order – in which the most important information processing systems are outsourced to, or owned by, one of a small group of international corporations – has come to dominate most of the planet. There is no novelty in this claim; many important writers have pointed to elements of the process over the last two decades. Twenty years ago Sassen showed that a global city had emerged from the real-time trading in financial markets in London, New York and Tokyo. The citizens of this global city continue to live mostly detached from the levelling constraints of local states (even after they have been rescued from bankruptcy by taxpayer bailouts). In a similar vein, Castells followed the influence of transnational firms, multilateral institutions and tightly organized global economies in the fashioning of a 21st century network state. In the richest countries Lyon has traced a new kind of surveillance state emerging from the twin imperatives of controlling integrated welfare services and global national security.

Ironically these grand informational ambitions seem actually to have weakened the old surveillance and managerial powers of the documentary state. Agar, following the administrative and information handling capacity of the British state in detail over the 20th century, has shown that the contradictory imperatives to manage almost universal welfare benefits and reduce costs through the deployment of large-scale computer systems after the 1970s has produced a much weakened and hollowed-out state, one in which officials have only the vaguest idea how the work of information processing is actually done.⁴¹ The network state lies in the hands of a cluster of overlapping information technology companies. Some, like IBM, have a

Richard D. Corrigan and Derek Sayer, *The Great Arch: English State Formation as Cultural Revolution* (Oxford: Blackwell, 1985); John Torpey, *The Invention of the Passport: Surveillance, Citizenship and the State* (Cambridge: Cambridge University Press, 2000); Philip S. Gorski, "The Protestant Ethic Revisited: Disciplinary Revolution and State Formation in Holland and Prussia," *The American Journal of Sociology* 99, no. 2 (1993): 265–316; Jill Lepore, *The Name of War: King Philip's War and the Origins of American Identity* (New York: Knopf: New York: Knopf, 1998); Walter D. Mignolo, *Darker Side of the Renaissance: Literacy, Territoriality and Colonization* (Ann Arbor: University of Michigan, 1995); Geoffrey Parker, *The Grand Strategy of Philip II* (New Haven: Yale University Press: New Haven: Yale University Press, 1998); Sankar, "State Power and Record-keeping"; Michael Warner, *The Letters of the Republic: Publication and the Public Sphere in Eighteenth Century America* (Cambridge MA: Harvard University Press, 1990).

⁴⁰Max Weber, *Economy and Society*, ed. Guenther Roth and Claus Wittich, vol. 2 (Berkeley: University of California Press, 1978), 957 – 994; Michel Foucault, *Discipline and Punish: The Birth of the Prison* (London, Penguin: London, Penguin, 1977), especially 184 – 196; A. Giddens, *The Nation-state and Violence*, vol. Two, *A Contemporary Critique of Historical Materialism* (University of California Press, 1985), 174 – 196; Michael Mann, *The Sources of Social Power: The Rise of Classes and Nation-states, 1760-1914*, vol. 2 (Cambridge: Cambridge University Press, 1993), 40 – 42, 282 – 285 stresses communication and education; The current interest in the politics of legibility is from James C Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998), which is briefly explained on 78 – 9.

⁴¹Saskia Sassen, *The Global City: New York, London, Tokyo* (Princeton: Princeton University Press, 1991); Manuel Castells, *The Rise of the Network Society*, *The Information Age: Economy, Society, and Culture* (Oxford: Blackwell, 1996), 88–102; Manuel Castells, *The Power of Identity*, vol. 2, 2nd ed., *The Information Age: Economy, Society, and Culture* (Oxford: Wiley Blackwell, 2010), 303 – 366; D. Lyon, *The Electronic Eye: The Rise of Surveillance Society* (Univ Of Minnesota Press, 1994), 83–118; Jon Agar, *The Government Machine: a Revolutionary History of the Computer*, *History of Computing* (Cambridge, Mass.: MIT Press, 2003), 369–377.

history of supporting the information processing requirements of the documentary state that date back a century, but a shifting host of intrinsically global firms provide database and transactional services that are well beyond the capacities of even the most skilled officials.⁴² This new state is geographically and institutionally very different from the documentary order that Clanchy described, and it is also very unlike the expert (and omnipotent) bureaucracy that Weber saw as the revolutionary agent of rationalization.

In this study my interest is in the global development of a special form of the network society – one which seems to mark its apogee: the biometric state. In countries around the world new biometric registration systems are being used to build centralised population databases, voters' rolls, welfare benefit and credit transaction systems, identity documents, immigration and access controls. A new type of state is being built around these biometric transactions, where the old one was built out of letters. The second part of this claim may be very familiar. Letter writing and reading as skills, as technologies of analysis, have become so ubiquitous in the last millenium that our social science has become very familiar with Geertz's famous observation that "the culture of a people is an ensemble of texts."⁴³

But what do we mean when we use the word biometric? As it happens, two very different but closely related things. For most of the 20th century biometrics referred to the statistical science of biological data analysis, and particularly to the mathematical methods – the correlation coefficient, regression, the goodness of fit test and many other techniques – that equipped statistics with the analytical and predictive powers that have prompted its current supremacy in biology, economics, finance and many fields of medicine. Remarkably, between 1900 and the middle of the 1960s, the epicentre of this enormous statistical revolution was the little Galton Laboratory at the University College London, an institution that was itself the combination of two earlier centres founded by Francis Galton: the Eugenics and Biometrics Laboratories. Throughout this period the science of biometrics retained an intimate and increasingly fraught relationship with the eugenics movement.⁴⁴ It was only at very end of the last century that the statistical science of biometrics began to face an identity crisis of its own.

At the 1998 meeting of the International Biometrics Society, held in South Africa, the President of the society announced that the IBS had registered the word biometrics as a trademark, in an effort to resist its use in the "popular media" as a description of the new "techniques being developed for identification of individuals."⁴⁵ In the years since, commercial interest in technologies of identification has almost drowned out the older scientific meanings of the word; the IBS's trademark, for example, is overwhelmed by nearly two hundred variations on the term biometrics and thousands that include some element of biometric identification in their descriptions.

⁴²Paul N. Edwards, *The Closed World: Computers and the Politics of Discourse in Cold War America* (Cambridge, MA: MIT Press, 1996).

⁴³Clifford Geertz, *The Interpretation of Cultures: Selected Essays* (Basic Books, 1973), 452.

⁴⁴D. A. MacKenzie, *Statistics in Britain, 1865-1930: The Social Construction of Scientific Knowledge* (Edinburgh: Edinburgh University Press, 1981), 101–149; D. J. Kevles, *In the Name of Eugenics: Genetics and the Uses of Human Heredity* (Cambridge, MA: Harvard University Press, 1995), 222.

⁴⁵Susan R. Wilson, "Evolution and Biometry," *Biometrics* 55, no. 2 (June 1999): 334.

The new, but now very popular, idea of biometric identification refers to the automated recognition of individuals based on precisely measured features of the body. It first came in to use only in the late 1970s.⁴⁶ The proliferation of computers, of optical scanners, and of the networks that connect them, has been integral to the appropriation and popularisation of the word. Biometrics, in this sense, can perhaps best be described as the identification of people by machines. The roots of these technologies unmistakably lie in anthropometry – the meticulous systems of measurement of the body that were developed by the French police in the 19th century. Computerised biometric systems – like face recognition and hand geometry – have adopted, quite directly, many of the older mechanical tools of measurement that were developed by Alphonse Bertillon in the 1880s.⁴⁷ But it has been fingerprinting, more than any other bodily measurement, that has nurtured the development of automated identification. The formalisation of the technology of fingerprinting, as many people know, was Francis Galton's work, and the focus of his considerable energies between 1889 and 1901.

It is important to remember Galton's interest in fingerprinting predated the formal definition of biometric statistics as a field of knowledge. And that his work on fingerprinting was certainly integral to his developing statistics; it formed part of his effort to highlight the dangers of "co-relation" in Bertillon's mathematics of identification. Galton showed that Bertillon's use of the measurement of body parts as randomly selected numbers to generate large numerical claims to uniqueness was mistaken, and in the process he invented the idea of correlation, one of the key methods of modern statistics. But Galton was always very interested in the practical, what we might call the technological, benefits of fingerprinting, and particularly (as I show in the chapters below) in its imperial application.

There is, then, some historical justice in the fact that, over the last decade, the technology of fingerprinting has usurped the rights of the science of biological statistics to their common name. But it is also important to see that the political relationship between these two siblings – one science, the other technology – is not an amicable one. When the scholars at the US National Research Council recently noted "the curiosity that two fields so linked in Galton's work should a century later have few points of contact", they worried that the separation was motivated by the fact that the biometric identification "is scientifically less basic." But the reason for the separation may be more banal: throughout the 20th century Galton's biometric identification remained preoccupied with the often brutal practical tasks of policing, which, as Cole has shown, allowed little space for scholarly skepticism and the implications of probabilistic uncertainties. This, as I explain in the chapters below, was especially the case in the territories of the former empire where Galton's technologies developed unhindered by a liberal legal order.⁴⁸

⁴⁶Andrew Pollack, "Recognizing the Real You," *The New York Times*, September 24, 1981; Louis Katz, "Biometric Measuring Device" (New York, May 15, 1979).

⁴⁷Allan Sekula, "The Body and the Archive," *October* 39 (1986): 3–64; Carlo Ginzburg, "Clues: Roots of an Evidential Paradigm," in *Clues, Myths and the Historical Method*, 1989; Sankar, "State Power and Record-keeping," 155 – 189; Cole, *Suspect Identities*, 15 – 81.

⁴⁸Whither Biometrics Committee, National Research Council, *Biometric Recognition*, 17; Cole, *Suspect Identities*, 199–216.

Biometrics, in both scientific and technological forms, are intrinsically mathematical entities. This seems odd because we are accustomed to thinking of them as printed products of the body. Galton (like many other biometric advocates) was fond of describing fingerprinting as a mimetic text, as “self-signatures” where “the hand of the accused person prints its own impression.”⁴⁹ He liked to compare fingerprints with words. “A set of finger prints,” he wrote, “may be so described by a few letters, that it can be easily searched for and found in any large collection, just as the name of a person is found in a directory.” And it is true that one of the key features of fingerprints is that they are retained in the archives (like letters and photographs) long after they have done the original work of identification.⁵⁰

These administrative biometrics are numerical representations of patterns on the human body. They may, initially, be derived from images -- usually of fingerprints, sometimes of irises or faces -- but they are always transformed through the extraction of patterns and minutiae points in to a very large number that will support a claim for uniqueness in the human population. Although the work is usually done by computer sensors, the method for extracting the distinguishing numbers for biometrics has changed remarkably little since Francis Galton first described it in 1891.⁵⁴

Biometric government marks a significant break with the long-term trajectory of the documentary state. Indeed, for much of its century-long history biometric administration has been self-consciously antithetical to documentary government. This is a departure from the theoretical work of some of the most important studies of fingerprinting, and it will require careful development in the chapters that follow.⁵⁵ It might be useful to sketch out the basic steps here. From the first plans for the introduction of fingerprinting that were drawn up by Galton, biometric administration was motivated by a desire to capture the illiterate subjects of Britain's imperial possessions.⁵⁶ Remarkably this project is still the *raison d'être* of the current round of large-scale biometric systems, both in the former colonies and at the gates of the Imperial capitals.

Another difference is material. While the roots of fingerprinting, as Cole has shown, lie in the 19th century effort to create a “link between an individual body and a paper record,” biometrics are not documents and the databases that retain them are not archives in any meaningful sense of that word.⁵⁷ These modern biometric identifiers typically exist only intangibly, stored in a database or written in to the memory of an integrated-circuit chip on a smart-card. Now, to be clear, biometric tools have sometimes served to supplement the existing systems of documentary government. But they have also, and much more commonly, been used to curtail or obliterate an existing (and often inadequate) system of documentary government. An

⁴⁹Galton, *Finger Prints*, 168; Pearson, *The Life, Letters and Labours of Francis Galton: Correlation, Personal Identification and Eugenics*, 3A:154.

⁵⁰Cole, *Suspect Identities*, 87; Sekula, “The Body and the Archive,” 15 – 6.

⁵⁴Francis Galton, “Identification by Finger Tips,” *Nineteenth Century* 30 (August 1891): 307.

⁵⁵Cole, *Suspect Identities*; Sankar, “State Power and Record-keeping”; Sekula, “The Body and the Archive”; Cole, *Suspect Identities*; But I agree with Higgs, that the roots of biometrics lie in a deeply entrenched status distinction in English history between identification by paper and the marking of the body, see Higgs, “Fingerprints and Citizenship.”

⁵⁶Francis Galton, “Identification Offices in India and Egypt,” *Nineteenth Century* 48 (1900): 118–126; Galton, *Finger Prints*, 27, 149–50.

⁵⁷Cole, *Suspect Identities*, 4, 14 – 82 on the emergence of fingerprint classification.

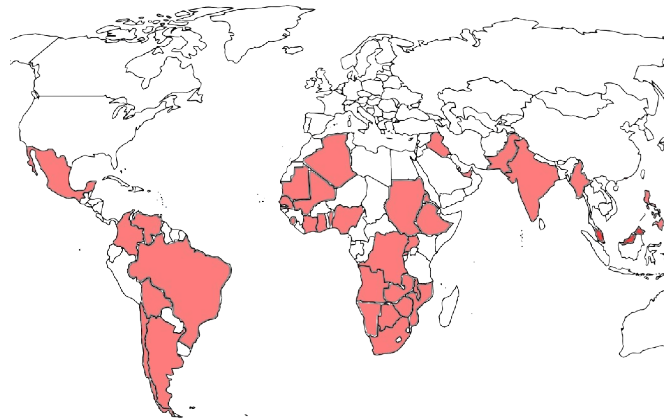


Illustration 1: Biometric Civil, Voting, Tax or Banking Registers

effort to escape the limits of the old paper state – of slow, susceptible or unreliable bureaucratic processing, of forgery, deception and translation in the preparation of documents – lies at the core of the effort to develop biometric identification technologies. And this political imperative – to sweep away the slow and messy and unreliable paper-based systems of government – remains a key part of the appeal of these systems.

In this book I want to draw attention to the peculiar geography of the new biometric state. But it is probably worth pointing out, first, that universal biometric registration can fairly be described as the *bête noir* of both scholarly and popular cultural fears of the overweening surveillance state, fears that have been eloquently captured in Andrew Niccol's 1997 popular dystopian film *Gattaca* and in Giorgio Agamben's bitter denunciation of biometrics as the apex of an intrinsically genocidal liberal order.⁵⁸

Biometric systems are under development in many regions and institutions around the world. The new passport documents in Europe, North America and Australia all make use of biometrics, but they have very limited surveillance capacities because – under the bright light of popular anxiety about bureaucratic invasions of privacy – they have been deliberated and carefully hobbled. In stark contrast, foreign migrants in these same countries have been subjected to much more powerful ten finger print and iris capturing systems that are centrally gathered, and shared amongst all of the signatories of the Treaty of Schengen.⁵⁹ There are some obvious imperial legacies in the identification, and policing, of these target populations. But it is still surprising and incongruous, in the light of the wider scholarship on the new surveillance state, that the most powerful biometric surveillance systems are being developed in the poorest countries, the former colonies of the European empires.⁶⁰

⁵⁸ Giorgio Agamben, *State of Exception* (Chicago: University of Chicago Press, 2005); Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life* (Berkeley: University of California Press, 1998); Malcolm Bull, "States Don't Really Mind Their Citizens Dying (provided They Don't All Do It at Once): They Just Don't Like Anyone Else to Kill Them," *London Review of Books* 26, no. 24 (December 16, 2004): 3–6.

⁵⁹ J. P. Aus, *Decision-making Under Pressure: The Negotiation of the Biometric Passports Regulation in the Council* (ARENA Working Paper, 11, 2006); J. P. Aus, "Eurodac: A Solution Looking for a Problem?," *European Integration Online Papers (EIoP)* 10, no. 6 (2006).

⁶⁰ The northern emphasis in the scholarship of the surveillance state is implicit in Lyon, *Surveillance After September 11*; and explicit in Bennett and Raab, *The Governance of Privacy: Policy Instruments in Global Perspective*; These biometric states closely resemble the territory Castells'

Imperial Progressivism

It is easy to view the recent expansion of the American state's global surveillance ambitions as an unprecedented consequence of the attacks on the Twin Towers. This idea – that the state was jolted from an easy-going cosmopolitan rest by the New York attacks – is one of the organizing claims of the so-called Global War on Terror. Yet in accepting this view we can lose sight of some intriguing features of American government. The idea that biometric registration can work to protect the mainland from foreign enemies is one of these older practices, central to the protestant, middle-class nativism that Hofstadter complained about fifty years ago.⁶¹ Perhaps the best example of this obsession dates from the middle of the last century. It was under the terms of the Smith Act of 1940 – the infamous law that equipped J Edgar Hoover and Joseph McCarthy with the legal tools for the national anti-communist witch-hunt of the 1950s – that all foreigners entering the United States were first required to register their fingerprints.⁶² This stipulation applied – much to the horror of British Members of Parliament – to all tourists, including those from the United Kingdom. It was only in October 1957 that foreigners staying in the US for less than a year were forgiven the requirement to provide their fingerprints.⁶³

Fingerprint registration has long been an important part of the plans of the intellectual movement historians now call Atlantic Progressivism. Dating from the last decade of the 19th century to the last years of the 1920s, progressivism has been the subject of an enormous historiography (especially in the US) that was elegantly synthesized by Daniel Rodgers in a seminal study of the intellectual debates that shaped Atlantic societies in this period.⁶⁴ Rodgers shows that progressivism “was English before it was American, born in the heated municipal politics of 1890s London before crossing to the United States in the first decade of the new century” and that it set the foundations of the 20th century state in many countries on the Atlantic basin.

Much more than Foucault's very general (and historically obscure) account of statistically-driven governmentality, physiologically motivated biopower, and even more than Scott's authoritarian high modernism, early 20th century progressivism set the foundations and ambitions of the modern

described as falling outside of the global information economy. Castells, *The Rise of the Network Society*, 133–6, 359; see especially Manuel Castells, *End of Millenium*, vol. 3, *Information Age: Economy, Society and Culture*. (Oxford: Blackwell, 1998), 82–128 The South African technological inheritance for the continent is much less liberating than he may have anticipated.

⁶¹Richard Hofstadter, *The Age of Reform: From Bryan to FDR* (New York: Alfred A Knopf, 1956).

⁶²Ellen Schrecker, *Many Are the Crimes: McCarthyism in America* (Boston: Little Brown and Company, 1998), 97; Richard Gid Powers, *Secrecy and Power: The Life of J Edgar Hoover* (London: Hutchinson & Co, 1987), 238.

⁶³“UNITED STATES VISA REGULATIONS” (Hansard, UK, March 23, 1954), http://hansard.millbanksystems.com/lords/1954/mar/23/united-states-visa-regulations#S5LV0186P0_19540323_HOL_13; “VISA FORMALITIES (FINGER PRINTS)” (Hansard, UK, March 8, 1954), http://hansard.millbanksystems.com/commons/1954/mar/08/visa-formalities-finger-prints#S5CV0524P0_19540308_HOC_94; van Schalkwyk, Minister, South Africa House to Secretary for External Affairs, “Parliamentary Question: Fingerprinting of British Subjects Applying for Visas”, December 4, 1957, BNS 1/1/328, 42/74 Fingerprints and Photographs on Permits Etcetera Issued to Indians. General Questions. Part 2. 1928 – 1957., SAB.

⁶⁴D. T. Rodgers, *Atlantic Crossings: Social Politics in a Progressive Age* (Cambridge MA: Harvard University Press, 2000); Before Rodgers the foundational studies of Progressivism were: Hofstadter, *Age of Reform*; Robert H. Wiebe, *The Search for Order, 1877-1920, The Making of America* (New York: Hill and Wang, 1967); C. Vann Woodward, *The Strange Career of Jim Crow* (New York: Oxford University Press, 1966).

state.⁶⁵ It was Beatrice Webb – perhaps the most prolific of the progressives – who coined the term we now associate with state-planning run amuck. Commenting in 1918 on the likely reception of the new book she and Sidney Webb had completed on *A Constitution for the Socialist Commonwealth of Great Britain* she observed that “we shall offend all sides and sections with some of our proposals, but someone must begin to think things out, and our task in life is to be pioneers in social engineering.”⁶⁶ It was certainly progressivism that motivated the very real and very energetic engineers of the early 20th century, the system builders that fashioned the new corporations and municipal governments of the early 20th century. And it was these figures, especially the American mining engineers like Herbert Hoover, that helped carry the doctrines of Progressive reform out to the outposts of the British empire.

Like post-modernity, Progressivism defined an epoch and a global intellectual movement; there was nothing approaching a consensus about its political aims at the time, nor has one developed subsequently. It was common to find key progressives – like Woodrow Wilson and Theodore Roosevelt, or Joseph Chamberlain and Beatrice Webb – on opposite sides of the political divide. The movement was, as Rodgers stresses, less concerned with interests than it was with practical problems of social reform. And it was driven in large part by the apparently irresistible flow of legislative reforms from one country to the next. Yet a common set of preoccupations emerged unmistakably. Progressives worried about the moral effects of the new, enormous and squalid cities and the demoralizing forms of work produced by the factories of Toynbee's Industrial Revolution. And they feared the corrupting effects of working class patrimonialism and monopoly power on democracy. They were usually impatient and dismissive of the virtues of individualism, of liberal political economy and, most powerfully, of the reactionary interventions of the courts and the law. In contrast with the utilitarians, the totems of the movement were expert science – especially empirical social science and statistics – an obsessive concern with efficiency, and hard work. And, very often, they used a romantically framed concern for white racial health to justify the key elements of the modern welfare state: reform of the Dickensian poor law, limiting work hours, unemployment insurance, pensions for the aged, support for poor mothers, a national minimum wage, and, eventually, socialised public health.⁶⁸

⁶⁵Peter Burchell, Colin Gordon, and Peter Miller, eds., *The Foucault Effect: Studies in Governmentality with Two Lectures by and an Interview with Michel Foucault* (London: Harvester Wheatsheaf, 1991); For detailed studies of the effects of Progressivism on the 20th century state, see Theda Skocpol, *Protecting Soldiers and Mothers: The Political Origins of Social Policy in the United States* (Harvard University Press, 1992); John W. Cell, *The Highest Stage of White Supremacy: The Origins of Segregation in South Africa and the American* (Cambridge: Cambridge University Press, 1982); Simon Szreter, *Fertility, Class and Gender in Britain, 1860-1940* (Cambridge University Press, 2002); G. S. Jones, *Outcast London: A Study in the Relationship Between the Classes in Victorian Society* (New York: Pantheon, 1971).

⁶⁶Beatrice Potter Webb, *“The Power to Alter Things,” 1905-1924*, ed. Norman Ian MacKenzie and Jeanne MacKenzie (Cambridge, Mass.: Belknap Press of Harvard University Press, 1984), 357.

⁶⁷David F. Noble, *America By Design: Science, Technology and the Rise of Corporate Capitalism* (Oxford: Oxford University Press Oxford: Oxford University Press, 1977); Edwin T. Layton, *The Revolt of the Engineers: Social Responsibility and the American Engineering Profession* (Cleveland: Press of Case Western Reserve University, 1971); On system builders Paul N. Edwards, *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming* (MIT Press, 2010), 9 – 12.

⁶⁸Rodgers, *Atlantic Crossings*; Beatrice Potter Webb, *“Glitter Around and Darkness Within,” 1873-1892*, ed. Jeanne MacKenzie and Norman Ian MacKenzie (Cambridge, Mass.: Belknap Press of

If many of the positive achievements of the modern welfare state can be traced to the progressives, so too can the dark side, and, especially, the 20th century enthusiasm for segregation. On both shores of the Atlantic middle class reformers had begun their efforts with Settlement Houses carefully placed to allow the young activists to observe and correct the behaviour of the poor. This interest in moralising reform developed quite rapidly in to an interest in isolating and sanitizing the population they began to consider the inherently unfit. Typically these were defined racially as immigrant populations. Strategies for identifying and segregating the undeserving poor were proposed on both sides of the Atlantic that stressed coercive and centralised systems of registration, compulsory labour exchanges, and labour colonies. Many of the most important figures of the movement also adopted the biological obsessions of Galton's eugenics but, importantly, not all of them. Yet, like Galton, the Progressives ultimately failed in the effort to impose segregationist institutions on their own citizens, coming, instead, to rely on the compulsory biometric registration of alleged criminals and immigrants.⁶⁹

In Britain the key figures in this effort were Galton and Sir Edward Henry, Commissioner of both the Bengal and the London Metropolitan Police. Both were to play important parts in the South African story, and I will say much more about both of them in the chapters that follow, so here I will confine myself to the other international advocates of biometric identification. In the United States a massive fingerprinting effort was famously the primary responsibility of J Edgar Hoover, Director of the Federal Bureau of Investigation for the half-century after 1924. Hoover's appointment was part of a much broader progressive transformation of the US Federal government fostered by the mining engineer Herbert Hoover.⁷⁰ A carefully crafted monopoly over the records of fingerprinting was the instrument of J Edgar Hoover's transformation of the FBI. It served as the basis of a new set of national standards and statistical returns to position the FBI at the centre of the dispersed and, until that time, very disorganised system of policing that emerged from the cities and states.⁷¹ In his seminal biography of the most influential federal government employee of the 20th century, Richard Powers demonstrated the centrality of progressivism in the making of the FBI and its director: Hoover, whose "education, brains, memory, even his game of golf were all seen as marks of the progressive business manager, who shared with the progressive movement a fascination

Harvard University Press, 1982); Webb, *"The Power to Alter Things," 1905-1924*; G. R. Searle, *The Quest for National Efficiency: A Study in British Politics and Political Thought, 1899-1914* (Oxford: Basil Blackwell, 1971); M. E. McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870-1920* (New York: Free Press, 2003); Jose Harris, *William Beveridge: A Biography*, Rev Ed. (Clarendon Press, 1997).

⁶⁹Michael Freeden, "Eugenics and Progressive Thought: A Study in Ideological Affinity," *Historical Journal* 22, no. 3 (1979): 645–671; MacKenzie, *Statistics in Britain*; G. R. Searle, *Eugenics and Politics in Britain, 1900-1914*, *Science in History*; 3 (Leyden: Noordhoff International Publishing, 1976); Kevles, *In the Name of Eugenics*; Cole, *Suspect Identities*, 155 – 159; On the resistance to Eugenics see, Szreter, *Fertility, Class and Gender in Britain, 1860-1940*, 240 – 266; And the failure of biometric proposals in Britain, Higgs, *Identifying the English*, 145 –150.

⁷⁰James D. Calder, *The Origins and Development of Federal Crime Control Policy: Herbert Hoover's Initiatives* (Westport, Conn.: Praeger, 1993); Joan Hoff Wilson, *Herbert Hoover, Forgotten Progressive*, Library of American Biography. (Boston: Little, Brown, 1975); Noble, *America By Design: Science, Technology and the Rise of Corporate Capitalism*.

⁷¹Powers, *Secrecy and Power*, 155; Sankar, "State Power and Record-keeping," 290 – 300.

with problems of organisation, efficiency and control.”⁷² Indeed, as a free mason with an unshakable confidence that science, efficiency and rigidly maintained racial segregation could stem the tides of immigrant and urban corruption, J Edgar Hoover's resemblance to the archetypal progressives of Richard Hofstadter's *Age of Reform* was, as Powers observed, “uncanny.”⁷³ Hoover's life-work has had obvious effects on the form of the US state, both domestically and internationally. The current American enthusiasm for fingerprinting foreigners, far from being a product of the events of 2001, is part of a continuous effort to control immigration that has institutional and ideological roots in the nativist anxieties of the progressive era. But it is important to note that, like Britain, the fingerprinting effort has mostly faced outwards, targeting legal and illegal immigrants, and focusing domestically on marginal populations of criminals and welfare recipients.

Argentina was another Atlantic society shaped by a determined and enduring interest in the use of fingerprinting to confront the disorder of massive immigration. Like South Africa, Argentina has served as a national incubator of biometric government, and the systems of fingerprinting adopted in many countries in Europe and throughout Latin America can be traced directly to developments there in the 1890s.⁷⁴ Like the US, Britain and South Africa, a racially-inflected progressivism provided the intellectual context and motivation for the adoption of new forms of identity registration and surveillance. Yet in one distinguishing respect Argentina is very different from South Africa, and like the other societies on the Atlantic Basin: the precocious efforts of the advocates of compulsory biometric registration faced determined opposition from the courts, and, more importantly, the legal tradition of assessing claims to citizenship based on reputational negotiations that were judged communally.⁷⁵

In the last quarter of the nineteenth century Argentina experienced mass immigration that tested the basic principal of freedom of movement that, as Herzog shows, had been integral to Spanish law for five hundred years.⁷⁶ Like Johannesburg, by 1914 Buenos Aires became a city of foreigners.⁷⁷ To control what they saw as a crisis of crime and immigration native Argentine reformers turned to the techniques of involuntary and centralised identification that had been developed in France in the previous century. It was Juan Vucetich – a criminologist of Croatian descent – who in 1885 established one of the first police laboratories outside of France that used Bertillon's anthropometric methods of identification in the Argentine capital.⁷⁸ From the start, however, these efforts to use the Bertillon's

⁷²Powers, *Secrecy and Power*, 145; Hofstadter, *Age of Reform*, 144.

⁷³Powers, *Secrecy and Power*, 519, n3.

⁷⁴J. Edgar Hoover, “Criminal Identification,” *The American Journal of Police Science* 2, no. 1 (1931): 16; L. R. Almandos, “Identification in the Argentine Republic,” *Journal of Criminal Law and Criminology* (1931-1951) 24, no. 6 (1934): 1098–1101; Eduardo A. Zimmermann, “Racial Ideas and Social Reform: Argentina, 1890-1916,” *The Hispanic American Historical Review* 72, no. 1 (1992): 23–46; K. Ruggiero, “Fingerprinting and the Argentine Plan for Universal Identification in the Late Nineteenth and Early Twentieth Centuries,” in *Documenting Individual Identity: The Development of State Practices in the Modern World*, ed. Jane Caplan and John Torpey (Princeton: Princeton University Press, 2001), 184–196; Julia Rodriguez, “South Atlantic Crossings: Fingerprints, Science, and the State in Turn-of-the-Century Argentina,” *The American Historical Review* 109, no. 2 (2004): 1–42.

⁷⁵Herzog, *Defining Nations*.

⁷⁶Ibid.

⁷⁷Rodriguez, “South Atlantic Crossings: Fingerprints, Science, and the State in Turn-of-the-Century Argentina.”

⁷⁸Ruggiero, “The Argentine Plan for Universal Identification,” 186.

unspeaking *portrait parlé* to record and fix the identities of Argentines faced fierce opposition in the courts.⁷⁹

In the 1890s Vucetich turned his attention to Galton's claims that fingerprinting was more accurate and more practical than the measurements of anthropometry. And he developed his own practical system for large scale print classification, something that eluded Galton until Edward Henry brought one back from Bengal. Vucetich's system of classification was adopted in much of Europe and throughout Latin America, and it became the basis of a fiercely partisan effort to sustain the special achievements of fingerprinting in Argentina. By 1906 Vucetich had persuaded the Argentine police to adopt his system and a few years later the national immigration service began to include fingerprinting in the registration of arrivals. Immigrants were given a book on arrival which included instructions on the duties of citizenship, a description and a fingerprint.⁸⁰

To this point the Argentine fingerprinting effort closely resembled the pattern used in the US after 1937, focusing on immigrants and alleged criminals. But in 1916 Vucetich and his supporters persuaded the provincial legislature to introduce a general register of fingerprint identification, the first of its kind in the world. The courts responded quickly, declaring the new law unconstitutional and ordering the destruction of the fingerprint files that had been collected to that date.⁸¹ Vucetich's disciple, Luis Reyna Almandos, did not give up, and decades later he attempted to develop a "national registry of population for purposes of crime prevention" drawing on existing fingerprint repositories for military recruits and registered voters.⁸² But the actual approval for a centralised population register would have to wait for decades, and it was only finally announced shortly after the 1966 military coup.⁸³ And even this decision had little effect on the basic patterns of civil registration in Argentina. By 2011 the national Citizen Registry contained some 15 million fingerprint records (about the same size of the largest police database) out of a total population of 40 million, and civil registration was still being handled by separate provincial registries organised around municipalities, and without any means of sharing data.⁸⁴ The comparison with the South African state, with its single National Population Register, no role for the municipalities, and universal fingerprint coverage, is marked.

There are important elements common to both histories. The first was the central role played by ideas of social hygiene and racial well-being in the effort to establish compulsory fingerprint registration. Progressivism in both places sought to address the problems of very rapid urban growth by applying the tough medicine of racial science.⁸⁵ And both countries have used the politics of official documentation to deny their indigenous

⁷⁹Cole, *Suspect Identities*, 32 – 67; Ruggiero, "The Argentine Plan for Universal Identification," 186 – 7.

⁸⁰Rodriguez, "South Atlantic Crossings: Fingerprints, Science, and the State in Turn-of-the-Century Argentina," 35.

⁸¹Ruggiero, "The Argentine Plan for Universal Identification," 192; Sengoopta, *Imprint of the Raj*, 192.

⁸²Almandos, "Identification in the Argentine Republic," 1098 – 9.

⁸³Argentina, *Identification, Registration and Classification of National Human Potential*, 1968, www.mininterior.gov.ar/tramites/dni/archivos_normativas/Ley_17671.pdf.

⁸⁴Pedro Janices, "Biometrical Latin America" (Powerpoint presented at the ANSI/NIST-ITL Standard 2011 WORKSHOP, Gaithersburg, MD, March 1, 2011), http://www.nist.gov/itl/iad/ig/ansi_workshop-2011.cfm.

populations the basic rights of citizenship.⁸⁶ Argentina has also served, in the distant and recent past, as an incubator for biometric systems in other Latin American countries.⁸⁷ But the real difference between the two countries lies in the Latin American emphasis on Civil Law, which, like the French *état civil*, places municipal civil registration at the heart of the legal order.⁸⁸ The architecture of municipal civil registration as Rosental shows for 19th century France was profoundly resistant to centralisation.⁸⁹ And the advocates of fingerprinting in Argentina had also to contend with the entrenched conventions of reputational citizenship.

Like several of the recent studies of the global systems of migration control, this book shows that South Africa had a special place as a laboratory for the imperial rules of racial segregation, and what Hannah Arendt called bureaucratic despotism. It was, as these studies show, both a site for the evolution of precocious forms of bureaucratically arranged racial supremacy, and a very important platform of resistance addressed to a global public.⁹⁰ There is also an older, very important historiography that shows the links between the forms of segregation that developed in South Africa with the progressive segregationism in the American South in the 1930s and 1940s.⁹¹ And both Mazower and Mitchell have recently shown that the global politics of the arrangements for segregation in South Africa had very powerful effects on international institutions in the 20th century.⁹² In this book I want to turn again to Arendt's argument (much of which is wrong in fact although right in principle) that South Africa was the "culture-bed of Imperialism" and the fulcrum of racist totalitarianism around the world.⁹³

The South African Laboratory and the structure of this book

In the chapters that remain I will show that for a century the South African state has served as a laboratory for this new form of biometric government, and that the technologies that states across the world have been adopting over the last decade find their fullest development here. It is important to be precise about this. The biometric systems of this new kind of government are complex and confounding, involving international networks of ideas, tools, firms and states – this is as true today as it was a

⁸⁵Rodriguez, "South Atlantic Crossings: Fingerprints, Science, and the State in Turn-of-the-Century Argentina," 21; Zimmermann, "Racial Ideas and Social Reform," 45.

⁸⁶Gaston Gordillo, "The Crucible of Citizenship: ID-paper Fetishism in the Argentinean Chaco," *American Ethnologist* 33, no. 2 (April 21, 2006): 162–176.

⁸⁷Janices, "Biometrical Latin America."

⁸⁸Phanor James Eder, Robert Joseph Kerr, and Joseph Wheless, *The Argentine Civil Code (effective January 1st, 1871): Together with Constitution and Law of Civil Registry* (Boston Book, 1917).

⁸⁹Paul-André Rosental, "Civil Status and Identification in Nineteenth-Century France: A Matter of State Control?," in *Registration and Recognition: Documenting the Person in World History*, ed. Keith Breckenridge and Simon Szreter, Proceedings of the British Academy 182 (Oxford: Oxford University Press, 2012), 137 – 165.

⁹⁰Adam McKeown, *Melancholy Order: Asian Migration and the Globalization of Borders* (New York: Columbia University Press, 2008); M. Lake and H. Reynolds, *Drawing the Global Colour Line: White Men's Countries and the International Challenge of Racial Equality* (Cambridge University Press, 2008).

⁹¹Woodward, *The Strange Career of Jim Crow*; Cell, *The Highest Stage of White Supremacy: The Origins of Segregation in South Africa and the American*; A. Lichtenstein, "Good Roads and Chain Gangs in the Progressive South: The Negro Convict Is a Slave," *The Journal of Southern History* 59, no. 1 (1993): 85–110; Interestingly, the processes that Massey and Denton have famously described as American Apartheid actually bear very little resemblance to practices of urban segregation in South Africa, see: D. S. Massey and N. A. Denton, *American Apartheid* (Harvard Univ. Press, 1994).

⁹²Mazower, *No Enchanted Palace*; Mitchell, *Carbon Democracy*, 72 – 83.

⁹³H. Arendt, *The Origins of Totalitarianism*, vol. 244 (Mariner Books, 1973), 185 – 221.

century ago. Latour's insistence that the technology itself is an actor in these networks— setting constraints, possibilities and failures independently – also applies here.⁹⁵ Biometric administration, as I have tried to show, has been global from its origins with key sites of development in India, Argentina, England and France, and the United States of America. Yet, in each case, the plans of biometric social engineers have been undone before they could approach the scale and embeddedness that has been achieved in South Africa.

I begin the story with an exploration of the significance of the two meanings of the word biometric. The first, and until quite recently, the most important, refers to the very large and influential science of biological statistics, the second to the technology that uses physical characteristics of the body for identification. Both fields trace their origins to the work of Francis Galton. In the different fields that explore the history of statistics and the history of surveillance, Galton is typically treated as a figure of European intellectual history. Standing between Bertillon or Quetelet and Edward Henry or J Edgar Hoover, Galton's political preoccupations have usually been described as metropolitan in focus. In this chapter I show that Galton should more properly be seen as an archetypical imperial intellectual, long before Karl Pearson's announcement in 1900 of the search for a “new anthropology” that could guide the progressive imperial state. Galton was an African, and especially a South African, expert in the half-century before the South African War. Most importantly Galton used the racial insights from his travels in South Africa as the evidence for the emerging statistical science of eugenics. Long before he had any usable evidence from his anthropometric laboratory Galton had derived the key claims about the implications of the normal curve for human descent using his South African evidence. His views on Africa were fiercely derogatory, and, like Carlyle, he publicly and repeatedly rejected the humanitarian critique of slavery, arguing for coercive forms of labour mobilization on the continent because he believed that black people were suited to slavery. These proposals prefigured by a generation the large-scale projects of social engineering that Chamberlain and Milner would implement in South Africa, but the real significance of this period of Galton's work for the later projects of segregation was his development of a new concept of race. By arguing that individuals were trapped in hereditary racial populations that would ineluctably revert to a statistical average, Galton provided the argument that would be used, especially by Lionel Curtis, to build the case for the segregationist state. He was also the first person to recommend the use of large-scale fingerprinting in South Africa.

Joseph Chamberlain sent Edward Henry to South Africa in July 1900 to establish a new Criminal Investigation Department in Johannesburg, and, in the words of the dispatch announcing his appointment, “introduce a scientific system of identification.” It was Henry working alone in Johannesburg, but in close personal correspondence with Milner in Cape Town, who managed the transition from the Boer state's controls of the movement of Africans to the new order. Henry also set up the staffing and regulations of the Transvaal Town Police, many months before the Transvaal

⁹⁵Bruno Latour, *Reassembling the Social: An Introduction to Actor-network-theory* (Oxford University Press, USA, 2005).

was actually safe enough to support a civil police force. He drafted the new manual of police practice – with its special concern for the fact that “natives are known by detachable names”, the Police Act, and personally hired the first group of recruits. Clearly working from the evidence and report of a seminal 1896 Mining Industry Commission dominated by the key American engineers in the Transvaal, Henry set up the characteristic divisions of the South African Police – the Liquor Branch, Gold Branch, and the CID – and he directed the Town Police to enforce the old Republican Pass Law, all to meet the demands of the mining industry. Henry worked industriously between August 1900 and March 1901, when he returned to London to take up a position as heir-apparent in the Metropolitan Police. Many historians have commented on his importance in the development of the 20th century Scotland Yard, but his role in South Africa has gone largely unnoticed.

Wherever Henry went in South Africa fingerprint repositories sprouted like mushrooms; he changed the late 1890s' fledgling interest in Bertillonage to a systematic determination to gather fingerprints, using his classification system, in the Transvaal Town Police, the Native Affairs Department, and individual mines; he founded similar repositories in Natal, the Cape and the Orange River Colony. Some measure of his importance to the new Reconstruction regime can be gathered from the fact that Milner tried, unsuccessfully, to appoint him as the Commissioner of Police. The system of pass controls that Henry built on the Rand during Reconstruction, with funds raised from the wages of hundreds of thousands of mine workers, was more intrusive and more long-lasting than any similar fingerprinting regime on the planet. And in the years after his departure the managers of the different repositories were the key agents of the project, eventually only realised under Verwoerd in the 1950s, to centralise and synchronise the different fingerprint registries.

The story of Gandhi's adoption of the politics of satyagraha in response to Smuts' efforts to impose the “racial taint” of fingerprint registration on all Asian immigrants to the Transvaal is probably the most well-known episode in this story. Inevitably the detail of events in South Africa is more complicated, and paradoxical, than the story presented in the biographies of the Mahatma, or the histories that rely on them. This chapter reviews the segregationist plans, laid by the imperial officials, Milner and Lionel Curtis, for a ruthless system of registration designed to “shut the gate” prevent Indian immigration to the Transvaal. But it also shows that, before Curtis' scheme was developed, Gandhi had himself proposed that fingerprints should be included as one of the requirements of the new law “to regulate the signing of negotiable instruments by Indians” in Natal in 1904. The target of Gandhi's worries about the regulation of fraudulent contracts was the illiterate indentured workers in Natal. Gradually he began to realise that compulsory full-print fingerprinting of all Indians, even the very literate, formed the core of Curtis' segregationist plan. In building popular opposition to registration after 1906, Gandhi articulated a very powerful case that the imposition of fingerprinting represented a violation of the sanctity of the Indian family, and, in particular, of the masculine honour of Indian men. It was this sentimental argument, built in outraged dialogue with the partially internalized criticisms of the white press, that sustained the popular opposition to fingerprinting. But it also made it

impossible for Gandhi to give effect to his startling proposals for mass voluntary registration in January 1908.

In the effort to win back his constituency Gandhi effectively became, in the early months of 1908, an advocate of the scientific and progressive virtues of fingerprinting. He mastered Edward Henry's work, and became an astute critic of the politics of the different systems of fingerprint registration. (Many of his points about the moral and political difference between one-to-one and one-to-many identification techniques, apply to the systems being developed today.) The philosophy of satyagraha and the anti-progressive politics of Hind Swaraj emerged, in part, out of his contradictory involvement in the fingerprinting policy. Gandhi addressed the slight to masculine honour by arguing that Satyagraha required an exalted manhood and extreme forms of courage. His distinctively non-national anticolonialism derived from the argument that Hindus and Muslims (including the peoples of the Middle East) were "sons of the same Mother India." But, in his elaboration of this manly resistance, Gandhi massively overstated its power, particularly the resisters' ability to withdraw their consent at any later time. In fact the biometric registrations of early 1907 could never be withdrawn and the Indians of the Transvaal remained subjected to a comprehensive system of racial control until the end of the 1960s.

In the most important sense Gandhi lost the battle with the Transvaal state, leaving his constituents subject to an invasive biographical archive that regulated their property rights, movement and even the members of their families. But the effect of his struggle were strongly felt for a full generation after 1908. For the first three decades of the new Union of South Africa, mining officials, doctors and policemen argued repeatedly for the introduction of a system of universal fingerprint identification. Often they used the example of the fingerprint register that had been built to control the identification, payment and policing of the 60,000 Chinese labourers that had been brought to South Africa during Milner's government. But these efforts were all resisted by the key decision makers. Some of the efforts at centralisation were undone by technical limits on the amalgamation of fingerprint archives, and some by the parochial interests of local officials. But the most important influence was clearly that officials learned, after Gandhi, to be suspicious of the political effects of the overweening claims of the advocates of fingerprint registration. By the end of the 1930s that lesson had been forgotten, and the state began to turn, once again, to the old project of universal registration.

For many scholars of empire and the modern state it is an article of faith that a will to know - a compelling desire for comprehensive and universal information - has motivated the development of administrative systems, and the relationship between states and society, since the middle of the 19th century. But in South Africa, and in colonial Africa more generally, there is scarcely any evidence of this kind of administrative curiosity. Government in Africa, which scholars have variously described as a gatekeeper state, as decentralised despotism and as hegemony on a shoestring, has been defined much more by the absence of information than its presence. Several scholars have traced the model for the system of indirect rule that dominated much of British Africa to the old colony of Natal. In this chapter I examine the rise and fall of a system of birth registration for

Africans in Natal. The chapter shows that vital registration (recording births and deaths) was implemented by officials seconded to Natal from the Indian Colonial Service in the early years of the 20th century. Over the course of time, key police officials, who were also the most enthusiastic advocates of biometric registration, built a case against the system on the grounds that educated Africans could not be trusted to provide vital information. Under pressure from the advocates of fingerprinting, and from the accountants, the scheme was abandoned in the early 1920s. Over the next three decades, African leaders and public health officials lobbied constantly for the restoration of the system of civil registration. Only in the late 1940s, as the new Apartheid bureaucracy began to take shape did the state turn again to the plan of compulsory rural vital registration. And this time compulsory fingerprinting, which obviated the question of who black citizens thought they were, was key to the project. The new round of registration was intended to bolster the dwindling household authority of African men in the countryside. But the combination of heavy penalties and incentives that were much smaller than those applied a half-century earlier proved utterly inadequate in the weak policing environment of the Bantustan governments.

Hendrik Verwoerd imposed the Bewysburostelsel—a portmanteau word that is best translated as the bureau of proof regime—on South Africa during the 1950s as part of the effort to build a race-based Population Register. The Bewysburostelsel was a grand effort - proposed by English-speaking officials - finally to sweep away the many different, paper-based, systems of control, taxation and identification that had been imposed in piecemeal fashion on the African population of South Africa in the half-century after Milner. Every African man and, for the first time, every woman was issued with a personal identification card attached to a Reference Book (Bewysboek) that maintained a complete history of employment, residence and taxation. The issuing of these Bewysboek coincided with the building of centralized registers of this information, and, critically, the collection of a single centralized collection of fingerprints. Fingerprinting was, by deliberate design, the only mechanism available to the bureaucracy to establish the integrity of the new documents, and by extension the Africans they were intended to regulate. This chapter is a narrative of the administrative catastrophe that followed from the building of this central biometric population register for all Africans, the issuing of identity cards and the effort to classify the huge body of fingerprints that poured in from the countryside. It examines internally generated crises and some of the ways those subjected to the Bewysburo sought to defeat it. By the late 1950s the Bewysburo fingerprinting scheme had spectacularly failed to meet even the most basic goals of its original designers, creating the rationale for Verwoerd's surprising decision to carve up the administrative integrity of the South African state by creating the Bantustans.

This final chapter brings the narrative up to the present, summarizing work on the post-Apartheid period that I have published elsewhere. By the early 1980s fingerprinting had become part of the national security strategy of the militarized government. The decision to extend fingerprinting to white people followed a series of attacks on oil installations by white members of Umkhonto we Sizwe. This new policy coincided with the announcement of the computerised technologies of biometric identification.

Towards the end of the 1980s a very precocious system of biometric pension delivery was developed in the KwaZulu and Kangwane homelands, under pressure from feminist human rights organizations inside the country. It was this system which allowed the democratic state to expand the pool of welfare recipients in 2002, from an original population of some 2 million – mostly pension – recipients the grant receiving population now numbers more than 14 million people, many of them young women. This system is delivered by privately held, financial service providers, and dominated by Net1 UEPS, a firm with a global ambition to displace VISA – Mastercard amongst the world's poor.

The state has also continued the effort to make the universal biometric register work. In 1996, shortly after the birth of the democratic state, the South African Department of Home Affairs issued a tender for the building of an Automated Fingerprint Identification System (AFIS), a database system for the biometric data that would integrate with the existing Population Register, and the issuing of identity cards to the entire population. The HANIS project was conceived as the lynch-pin of a suite of social and security services, including the proposed Basic Income Grant. But HANIS was embroiled in a long-running conflict over the proprietary standards for digital fingerprinting systems that were already in use in South Africa in the Police, Social Welfare, Vehicle Licensing and in the Population Register. This story, and identical efforts under way in the United States, suggest that a biometric panopticon that will allow states to monitor the movements and behaviour of their citizens across the different fields of social life – migration, social welfare, banking, policing – is mostly a figment of the planners' imagination.

But the tempo of biometric government in Africa continues to accelerate. Almost every country on the continent has purchased a large scale system of biometric identification in the last decade. Two of the most elaborate of these systems, the Nigerian and Ghanaian projects, are explicitly modeled on the South African biometric “identification economy.” In Ghana the Central Bank has purchased the world's first biometric money infrastructure from the South African firm Net1 UEPS. This new interbank switch and hundreds of thousands of smartcards encoded using their owners' fingerprints has equipped Ghana with the world's first biometric money supply. This system, which is owned by the Central Bank but designed and run by Net1 UEPS, incorporates extremely fine-grained surveillance of the monetary transactions of all of its users. What distinguishes all of these biometric projects is their explicit goal to provide bureaucratic and financial services to an illiterate population.

What then of conclusions? Some of the most precocious forms of the electronic feedback state (which Norbert Wiener worried about in the 1940s and Habermas wrote about as “electronic steering mechanisms”) are, somewhat ironically, emerging in the space of the old British empire. One reason for this peripheral development was Galton's original proposal for fingerprinting as a technology of imperial government; another is that biometric government is very difficult to implement and fraught with error and inconvenience which is difficult to sustain in a vigorous democracy; yet the most important is that computerized biometric systems, notwithstanding their limits, can remedy many of the special problems of the

state in Africa. In Africa, the South African bureaucratic model has been key to this process (as it was to the old forms of the gatekeeper state). There is an appropriate symmetry in the fact that the success, or failure, of the current Unique ID project in India will determine whether the rest of the world follows the direction of the African states. There is a curious paradox in the fact that the new forms of biometric registration – which, at least, hold out the promise of social citizenship for many poor people in many countries – emerged from the development of the Apartheid state.

Whatever the similarities and connections between biometrics and documentary bureaucracy, it is important to notice that biometrics is fundamentally (indeed ontologically) antithetical to writing. In Africa, perhaps because of the short history of literacy, there is a rich historiography and anthropology of the efforts that ordinary people have made to master the written word. Biometric systems have been designed, from the early years of the 20th century, to defeat those efforts. My hope is that the implications of this project might encourage scholars to reconsider the politics that is frequently attributed to writing and the documentary state. Writing, far from being the instrument that has produced biometric government, is the only meaningful tool available to remedy its shortcomings.