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COMMENTARY

LESSONS FROM THE PAST FOR THE GENETIC FUTURE*

Simon A. Cole[†]

The aim of this panel, on the occasion of Brooklyn Law School's centennial, is to help us prepare for what might be called "the genetic future" by taking a look at the past to see what lessons history offers us. So I will begin by asking: what was the state of biological identification a century ago? I hope to make the answer to this question more relevant and interesting by putting it into the context of local history, and I will begin with a story that took place right here in New York City.

In 1901, the year of the founding of Brooklyn Law School, the New York newspapers reported a scandal: a man named Mannix claimed that candidates for lucrative civil service jobs in the police and fire departments had paid him to take their civil service examinations in their place.¹ In this manner, Mannix had taken the civil service exam twelve times.² (Interestingly, the scandal came to light only after Mannix sued one his clients for failing to pay him for his services.)³ The City Civil Service Commission charged its newly hired Chief Medical Examiner, Henry P. DeForest (who was

* ©2001 Simon A. Cole. All Rights Reserved.

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¹ Henry P. DeForest, *Evolution of Dactyloscopy in the United States*, in PROCEEDINGS OF THE INTERNATIONAL ASSOCIATION FOR IDENTIFICATION 15 (1930-1931).

² *Id.*

³ *Id.*

then practicing as an obstetrician in Brooklyn), with creating a system to prevent similar scams.⁴

DeForest initially assumed that he would simply implement what was widely regarded as the world's most reliable system of personal identification: the Bertillon system. Devised by the French police official Alphonse Bertillon, the system determined identity using three measures: (1) the lengths of body parts, such as head, finger, and even ear lengths; (2) the careful description of facial features; and (3) meticulous notations of what were called "peculiar marks," such as scars, birthmarks, and tattoos.⁵ In the spring of 1902, however, a newspaper item from Britain caught DeForest's eye. It reported that Scotland Yard had abandoned the Bertillon system a year earlier in favor of a new method of identification by fingerprints and that the Yard's detectives had just used fingerprints to secure the conviction of one Harry Jackson for the theft of some billiard balls.⁶ Since he was already planning to spend his summer bicycling through the British Isles, DeForest decided to add Scotland Yard to his itinerary in order to learn more about this new identification system.⁷ There, DeForest was instructed in the recording and filing of fingerprints by Inspector Charles Collins.⁸

When DeForest returned to New York in the fall, he began taking inked fingerprints from civil service applicants. Using the Yard's new system for filing fingerprint patterns, DeForest could check an applicant's prints against his file to see whether that individual had taken the exam on a previous occasion using another name.⁹ Thus, DeForest created the first fingerprint file in the United States.¹⁰

⁴ *Id.* at 17.

⁵ ALPHONSE BERTILLON, INSTRUCTIONS FOR TAKING DESCRIPTIVES FOR THE IDENTIFICATION OF CRIMINALS AND OTHERS BY THE MEANS OF ANTHROPOMETRIC INDICATIONS (Gallus Muller trans., AMS Press 1977) (1889).

⁶ DeForest, *supra* note 1, at 15-16.

⁷ *Id.*

⁸ *Id.* at 17.

⁹ *Id.*

¹⁰ For more detail on this and other episodes in the history of criminal identification, see SIMON A. COLE, SUSPECT IDENTITIES: A HISTORY OF FINGERPRINTING AND CRIMINAL IDENTIFICATION (2001).

DeForest left the Civil Service Commission within a year and settled into private practice, and the new Commissioner discontinued his fingerprint file.¹¹ The point I want to emphasize here is that in 1901 fingerprinting was not deemed reliable or scientific enough for the delicate task of identifying criminals. For that, it was believed, nothing would do better than the tried-and-tested Bertillon system. Fingerprinting was good enough only for less important tasks, like identifying civil service applicants. Even when the New York State Prison Bureau instituted fingerprinting in 1903, it was used only as a supplement to the Bertillon system for identifying misdemeanants and other petty criminals.¹² Serious felons were still identified using the Bertillon system—and would be until well into the 1920s.¹³ Only gradually did fingerprinting win acceptance and become familiar enough to be entrusted with the delicate task of identifying criminals.

As Jennifer Mnookin points out, it is now pretty clear that this acceptance was not based on any sort of scientific research or studies, but, rather, because fingerprinting looked like science to judges.¹⁴ Professor Mnookin convincingly argues that judges were anxious to employ what they viewed as cutting edge sciences to ensure that the courts appeared scientifically up-to-date.¹⁵ There is a nice example of this in one of the earliest fingerprint trials in which the judge rebukes the defense attorney for his attempts to dispute the fingerprint evidence against his client by intoning: “Mr. Moore, this is a new science. In our country our law cannot be like a pool, permitted to become stagnant. It has to become flexible and we have to advance in accordance with the times.”¹⁶

¹¹ DeForest, *supra* note 1, at 18.

¹² 1903 N.Y. PRISON DEP'T ANN. REP. 11-12.

¹³ Clara L. Parsons, Bertillon Measurements Discontinued Oct. 1, 1931 (1931) (manuscript in historical records of the New York State Division of Criminal Justice Services, Bureau of Identification).

¹⁴ Jennifer L. Mnookin, *Fingerprint Evidence in an Age of DNA Profiling*, 67 BROOK. L. REV. 13 (2001).

¹⁵ Jennifer L. Mnookin, *Images of Truth: Evidence, Expertise, and Technologies of Knowledge in the American Courtroom* (1999) (unpublished Ph.D. dissertation, Massachusetts Institute of Technology) (on file with author).

¹⁶ Trial transcript at 152, *People v. Crispi*, (1911) (available in Special Collections, Lloyd G. Sealy Library, John Jay College, City University of New York).

Mnookin shows that fingerprinting fit an emerging late nineteenth/early twentieth century conception of scientific evidence as something that ought to be both more certain and less subject to dispute than other types of evidence. Judges were frustrated by the realization that scientific evidence, much like eyewitness and character evidence, ended up with "dueling witnesses" reaching opposite conclusions.¹⁷ Fingerprint examiners, with their emphasis on consensus among experts and their predilection for couching their conclusions in terms of absolute certainty, fit this idealized model of science very well.¹⁸ Indeed, I would argue that fingerprint examiners, consciously or unconsciously, shaped their discipline and its knowledge claims in order to fit this ideal. Fingerprint identification, in contrast to many of the other disciplines that are used as scientific evidence, was forged in the courtroom and evolved to fit the needs of courtroom testimony. Professor Mnookin discusses more fully elsewhere the notion of the courtroom as an "epistemological public space"—that is, an alternative forum in which a discipline could establish its scientific legitimacy.¹⁹

One hundred years after the era when fingerprinting was not reliable or scientific enough to use on real criminals, I would suggest that we may be witnessing a similar techno-scientific shift in criminal identification. I am talking, of course, about the topic of this conference: DNA. Only a few short years ago, I would not have believed that DNA would ever displace fingerprint identification. Fingerprinting seemed to have some decisive advantages: principally lower cost and greater public trust. But in the last decade or so something quite extraordinary has happened. Fingerprinting and DNA appear to have almost reversed positions with regard to their credibility. When DNA typing first came on the scene its proponents frequently tried to compare it to fingerprinting—essentially in order to draft behind the enormous public and legal credibility that fingerprinting had built up over nearly a century—even to the point of adopting its name: "DNA

¹⁷ Mnookin, *supra* note 15, at 173-92.

¹⁸ See Simon A. Cole, *Witnessing Identification: Latent Fingerprint Evidence and Expert Knowledge*, 28 SOC. STUD. OF SCI. 687 (1998).

¹⁹ Mnookin, *supra* note 15, at 192-200.

fingerprinting.”²⁰ Opponents of DNA, meanwhile, tried to disassociate it from fingerprinting, reminding juries and judges that DNA provided only probabilistic matches, not the certain identifications that fingerprinting could provide.²¹

Today, in contrast, most commentators have declared the “DNA wars” over—although there are many who still contend there are problems with DNA evidence. Meanwhile, fingerprinting is being challenged under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,²² and its progeny.²³ Much of the argument against fingerprinting is based on an explicit comparison to DNA. In contrast to the thoroughly debated statistics attached to DNA matches, fingerprint matches are still presented in court without any statistical probabilities whatsoever. The protocols for DNA typing have been vigorously debated; those for fingerprinting, to the extent they exist, are vague and poorly articulated.

DNA testing is getting cheaper fast, so much so that it may soon undermine fingerprinting’s claim to lower cost.²⁴ We are rapidly approaching the point at which usable DNA samples can be recovered from the biological material in a latent fingerprint itself, thus erasing fingerprinting’s final advantage.²⁵ For all these reasons, it now seems conceivable to me—I am not saying it is certain—that we will eventually speak about fingerprinting in the past tense.

²⁰ Interview by Michael Ruth McNally and Patrick Daly Lynch with Alec Jeffreys, Leicester, UK. (July 24, 1996) (transcript in O.J. Simpson Murder Trial, DNA Archive, Department of Science and Technology Studies, Cornell University).

²¹ Anne Joseph & Alison Winter, *Making the Match: Human Traces, Forensic Experts and the Public Imagination*, in CULTURAL BABBAGE: TECHNOLOGY, TIME AND INVENTION 196, 208 (Francis Spufford & Jenny Uglow eds., 1996).

²² 509 U.S. 579 (1993).

²³ See *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136 (1997).

²⁴ David H. Kaye, DNA Data Bases for Law Enforcement: The Coverage Question and the Case for a Population-Wide Data Base, Address at the Conference on DNA and the Criminal Justice System (Nov. 21, 2000); see also David H. Kaye, *Two Fallacies About DNA Data Banks for Law Enforcement*, 67 BROOK. L. REV. 179 (2001).

²⁵ See Ashira Zamir et al., *Fingerprints and DNA: STR Typing of DNA Extracted from Adhesive Tape after Processing for Fingerprints*, 45 J. FORENSIC SCI. 687-88 (2000).

In making this suggestion, I want to refer back to one of Professor Mnookin's lessons: that " 'culture' cannot be extricated from determinations of expertise and reliability"²⁶ and that we tend to favor "form[s] of evidence [that] conform[] to cultural expectations."²⁷ It is not that DNA is more or less scientific than fingerprinting. Rather, it is that DNA, with its statistics and its laboratory protocols and its roots in molecular biology, looks more like science to our modern sensibilities. We are, after all, living in the genetic age.

If we are indeed embarking upon the genetic age, what lessons might the past century of fingerprinting offer us? I have already alluded to one: no matter how scientific something looks to use, no forensic evidence should be placed above scrutiny. But, although Professor Mnookin's focus has been on forensic evidence, I want to discuss briefly some other important issues raised by the record-keeping application of fingerprinting—fingerprint data bases—which was, after all, its primary use.

My first point concerns eugenics (and here I risk overstepping my mandate and commenting on the Article by our other panelist, Nicole Rafter²⁸). The rise of genetic identification has, of course, raised concerns about privacy and eugenics, and you will hear about these elsewhere throughout the Symposium. Briefly, the argument is this: the genetic information used for criminal or civil identification is potentially dangerous information. In addition to identifying the individual, it also contains information about that individual's race, heritage, disease propensities, and possibly even behavioral propensities—such as a tendency toward homosexuality or aggression.²⁹ In this, DNA data bases are supposed to be fundamentally different from fingerprint data bases because fingerprints just identify—they do not contain racial, hereditary, medical, or behavioral information.³⁰ It is

²⁶ Mnookin, *supra* note 14, at 69.

²⁷ *Id.*

²⁸ Nicole Hahn Rafter, *Seeing and Believing: Images of Heredity in Biological Theories of Crime*, 67 BROOK. L. REV. 71 (2001).

²⁹ Barry Steinhardt, ACLU Presentation on Privacy and Forensic DNA Data Banks, Address at Conference on DNA and the Criminal Justice System, Cambridge, Mass. (Nov. 21, 2000).

³⁰ *Id.*

important to note that this is not entirely true. A century ago, it was widely believed that fingerprints *did* contain racial, hereditary, medical, and behavioral information.³¹ Scientists scrutinized the fingerprint patterns of primates, convicts, mental patients, epileptics, and members of various racial groups seeking to correlate certain pattern types with race, criminality, evolutionary degeneration, epilepsy, insanity, and so on.³² In rare cases, fingerprint patterns were actually used as evidence in paternity cases.³³ In short, the discourse around fingerprints a century ago was strikingly similar to the discourse surrounding DNA today.

In the interest of local history, I will give one example: a fingerprint classification system devised by G. Tyler Mairs, a fingerprint expert who worked at the Gates Avenue courthouse in Brooklyn.³⁴ This system purported to classify fingerprint pattern types according to their true evolutionary order from the least evolved pattern called "alpha," a concentric whorl, to the most evolved pattern, "omega," a plain arch.³⁵ In Mairs's scheme, the whorl was the least evolved because it was the most functional—the whorl functioned as a better tread for a primate that walked on all fours.³⁶ Humans, however, no longer needed treads on their fingertips. Therefore, the pattern evolved into a simple "patternless configuration" in which the ridges cross straight across the bulb of the finger.³⁷ Thus, the simpler the pattern type, the further the evolutionary distance from our primate ancestors. This fit nicely with research findings that showed a greater proportion of arches among Europeans than among other races.³⁸ At the same time, though, there was a rival school of thought that held just the opposite

³¹ COLE, *supra* note 10, at 97-118.

³² *Id.*

³³ HAROLD CUMMINS & CHARLES MIDLO, *FINGER PRINTS, PALMS AND SOLES: AN INTRODUCTION TO DERMATOGLYPHICS* 210-13 (1943).

³⁴ 7 *FINGER PRINT AND IDENTIFICATION MAGAZINE* 7 (Sept. 1925).

³⁵ *Id.* at 16-17.

³⁶ *Id.*

³⁷ *Id.*

³⁸ Kristine Bonnevie, *Studies on Papillary Patterns of Human Fingers*, 15 *J. OF GENETICS* 1, 31 (1924).

theory: that the whorl was the most evolved pattern, because it was most complex, and the simple arch was the least evolved pattern type.³⁹

Now here is where things get tricky: no one has ever proved that fingerprint patterns do *not* correlate with race, heritage, disease, and behavioral propensities. As far as anyone knows, different pattern types do appear with different frequencies among different populations. In fact, identical twins' fingerprint patterns are more similar—whatever that means—than those of non-identical twins.⁴⁰ It is not that the information contained in fingerprint patterns has no meaning. Rather, it is that we eventually ceased to attribute meaning to that information. Fingerprint patterns became only identifying markers. The reason for this was twofold. First, scientists' interest was attracted to other biological markers like the gene, which was re-discovered almost exactly a century ago. Second, the community of people interested in studying fingerprint patterns became increasingly dominated by law enforcement personnel who were more interested in identification and record keeping than in diagnostics or criminology.

The danger of eugenics lies less in technology than in ideology. It is not that one identification technology, fingerprinting, does *not* lend itself to pernicious eugenic interpretations and another identification technology, DNA, does. Rather, the danger primarily lies in attaching exaggerated importance to biological markers—of any kind. I would argue that the best antidote to a resurgence of eugenics in the criminal justice system based on DNA does not lie in banning DNA data bases, a measure that has little chance of success. It lies in refuting the oversimplistic interpretations of genetic information, like the discussion of a putative “crime gene,” that would allow people to draw eugenic conclusions from genetic information.

³⁹ Charles Féré, *Notes sur les Mains et les Empreintes Digitales de Quelques Singes*, 36 JOURNAL DE L'ANATOMIE ET DE LA PHYSIOLOGIE NORMALES ET PATHOLOGIQUES DE L'HOMME ET DES ANIMAUX 255, 260-62 (1900).

⁴⁰ John Berry, *Race Relationships*, 2 FINGERPRINT WHORLD 48, 48-50 (1977); C.H. Lin et al., *Fingerprint Comparison I: Similarity of Fingerprints*, 27 J. OF FORENSIC SCI. 290, 290-304 (1982); E-mail from André Moenssens, Douglas Stripp Professor of Law, Univ. of Missouri at Kansas City, to Dr. Anil Aggrawal and the Forensic Newsgroup (Apr. 4, 2001) (on file with author).

The history of fingerprinting may help define another issue that faces us as we confront the genetic future: the universal data base. Here we return to our old friend Henry DeForest. Whatever happened to him? In 1919, as fingerprinting began to eclipse the Bertillon system as the world's dominant method of criminal identification, he—along with his friend Tyler Mairs, mentioned above, and other like-minded fingerprint enthusiasts—founded the International Society for Personal Identification (“ISPI”).⁴¹ In contrast to the International Association for Identification (“IAI”), a rival association primarily composed of law enforcement personnel who work in fingerprint identification and other areas of forensics which still exists today, the ISPI envisioned a broader role for fingerprinting in society. In particular, ISPI members believed that fingerprinting should not be restricted to criminals. Instead, they advocated what they called “universal identification” of all “law abiding citizens.”⁴²

The universal fingerprinting movement, begun by DeForest and others, gained momentum during the 1930s, when J. Edgar Hoover lent it some added force. Cities conducted enormous fingerprint drives and convinced hundreds of thousands of citizens to voluntarily register their own—and in many cases their children's—fingerprints out of civic duty and fear of amnesia or kidnapping.⁴³

In the end, however, the universal fingerprinting movement fizzled, done in by the “criminal stigma” already attached to fingerprinting. Being fingerprinted made people feel like they were being treated like criminals.⁴⁴ The idea of legally requiring all citizens to register their fingerprints, meanwhile, died for good in 1943 when Congress defeated a bill mandating universal fingerprinting and declined to attach fingerprints to the newly created social security card.⁴⁵

⁴¹ Records of the International Society for Personal Identification, Henry P. DeForest Papers, Collection #3214, Division of Rare and Manuscript Collections, Carl A. Kroch Library, Cornell University, Box 6, Folder 5.

⁴² *Id.*

⁴³ AMERICAN CIVIL LIBERTIES UNION, THUMBS DOWN!: THE FINGER-PRINT MENACE TO CIVIL LIBERTIES (1938).

⁴⁴ INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE, IDENTIFICATION WANTED: DEVELOPMENT OF THE AMERICAN CRIMINAL IDENTIFICATION SYSTEM 1893-1943 at 110 (Donald C. Dilworth ed., 1977).

⁴⁵ *Id.* at 228.

Thus, Americans have once before considered the question of the scope of their criminal identification data base, and they chose to safeguard the privacy of law-abiding citizens, although not that of convicts. We should note that despite the enthusiasm for universal fingerprinting, it probably would have been technically infeasible during the 1930s or 1940s. In the near future, however, we will probably have good reason to consider this question anew: what should be the scope of our criminal identification data base?

History teaches that technological advances in identification tend to broaden the scope of data bases. The Bertillon system was expensive and time-consuming and, therefore, confined to serious felons. Fingerprinting, which was cheaper, extended data bases to those convicted even of petty misdemeanors. Computerized fingerprint data bases, which are cheaper still (or possibly DNA as the cost goes down), have the potential to extend those data bases to all arrestees, or even all citizens. Our main concern, I believe, should be that as data bases expand, they become more sensitive to racial and geographic biases in arrest patterns, policing practices, and the criminal justice system, because the occasion for inputting the individual into the data base has become pettier—and therefore more subject to discretion.⁴⁶ The alternative, of course, would be either to limit DNA data bases to, for example, convicted violent felons, or to consider seriously whether we want a universal identification data base.

The history of fingerprinting will not give us easy answers to these questions, but as we embark on the genetic age we should look not only forward but also backward to understand what the past century of biologically-based identification might have to teach us about the next.

⁴⁶ See Mark A. Rothstein & Sandra Carnahan, *Legal and Policy Issues in Expanding the Scope of Law Enforcement DNA Data Banks*, 67 BROOK. L. REV. 127 (2001).