THE CONSTITUTIONALITY OF DNA SAMPLING ON ARREST

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INTRODUCTION

Every state now collects DNA from people convicted of certain offenses.[1] Law enforcement authorities promote offender DNA databanking on the theory that it will clear previously unsolved crimes and identify offenders who commit additional crimes while on probation or parole, or after they have finished serving their sentences. Even relatively small databases have yielded such dividends.[2] As these database searches uncover the perpetrators of rapes, murders, and other offenses, the pressure builds to expand the coverage of the databases.[3] As the databanks grow, so do fears about civil liberties. Editorial writers decry "unfettered government-sponsored bioinvasion"[4] and call for legislation "to ensure that scientific advances in law enforcement do not swamp the privacy rights of ordinary citizens."[5] Professors of law, sociology, and public health describe DNA databanking as part of an insidious "surveil-

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[1] *See* Robin Cheryl Miller, Annotation, *Validity, Construction, and Operation of State DNA Database Statutes*, 76 A.L.R.5th 239 (2000). There are many other sources of DNA samples that law enforcement officials might wish to examine in specific cases. Many samples are held by hospitals, public health authorities, health maintenance organizations, biomedical researchers, and the military. *See, e.g.*, STORED TISSUE SAMPLES: ETHICAL, LEGAL, AND PUBLIC POLICY IMPLICATIONS (Robert A. Weir ed., 1998). Access to the samples in these non-law-enforcement repositories, for the purpose of criminal investigations or prosecutions, is discussed in Edward J. Imwinkelried & D.H. Kaye, *DNA Typing: Emerging or Neglected Issues*, 76 WASH. L. REV. 413 (2001).

[2] *See* D.H. KAYE, SCIENCE IN EVIDENCE 224–26 (1997). For example, in St. Paul, Minnesota, a man wearing a nylon stocking over his face and armed with a knife jumped out from behind bushes and assaulted a woman who was walking by. Semen recovered from the victim's skirt and saliva was analyzed using DNA technology. When the resulting DNA profile was searched against Minnesota's database, a matching profile led police to the rapist. Stephen J. Niezgoda, *CODIS Program Overview*, PROCEEDINGS FROM THE EIGHTH INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION (Promega Corp. ed., 1999). These "cold hits" can stretch back decades to solve "cold cases" —those that the police had given up on. *See, e.g.*, C.J. Chivers, *DNA Match Implicates Inmate in '79 Murder, Officials Say*, N.Y. TIMES, Mar. 13, 2000, at B1.

[3] Most states currently collect samples only from people who are convicted of sex crimes and a few other violent offenses — about eight percent of felons each year. Robbers, kidnappers, burglars and those convicted of attempted crimes usually are not included. Richard Perez-Pena & Jayson Blair, *N.Y. State to Develop Database on Felons' DNA as Investigative Tool*, N.Y. TIMES, Aug. 7, 1999, at A1. But the coverage will grow. New York, for example, adopted a law that will apply to about half the defendants convicted of felonies. The crimes that will put DNA information into the database include murder, manslaughter, assault, sex crimes, drug dealing, robbery, burglary, grand larceny, and the most serious categories of drug possession, attempted murder, arson, kidnapping and attempted burglary. Exempted would be most drug possession crimes, as well as child abuse and drunken driving. *Id.* Eight states — Alabama, Maine, Massachusetts, New Mexico, Tennessee, Vermont, Virginia and Wyoming — already cast their nets even more widely. *Id.*

[4] Paul R. Billings, Op-Ed, *DNA Data Banks Would Taint Justice*, BOSTON GLOBE, Jan. 14, 1999, at A19, *available at* 1999 WL 6043488.

[5] Editorial, *DNA, Crime-fighting and the Right to Privacy*, ROANOKE TIMES & WORLD NEWS, July 12, 1999, at A6, *available at* 1999 WL 8138762.

lance creep"[6] and "the first step toward an Orwellian society"[7] that will make "us a 'nation of suspects,' and radically alters the relationship between the citizen and the government."[8]

Recent proposals call for extending not merely the scope of crimes for which DNA databanking would be used, but also the point at which the samples would be collected. The United Kingdom and most European countries already collect and store DNA from all persons arrested for a wide range of offenses.[9] More than one state in this country has enacted legislation enabling DNA sampling upon arrest.[10] In other states, legislators have introduced bills that would authorize or require

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6 Dorothy Nelkin & Lori Andrews, *DNA Identification and Surveillance Creep*, 29 SOCIOLOGY OF ILLNESS & HEALTH 689 (1999).

7 Jean E. McEwen, *Sherlock Holmes Meets Genetic Fingerprinting*, BOSTON COLL. L. SCH. MAG., Spring 1994, at 44.

8 George Annas, *Privacy Rules for DNA Databanks: Protecting Coded 'Future Diaries,'* 270 JAMA 2346 (1993) (speaking of an highly inclusive databank); Jean E. McEwen, *DNA Databanks*, *in* GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC AGE 231, 236 (Mark Rothstein ed., 1997) ("[A] population-wide DNA data bank could fundamentally alter the relationship between individuals and the state, essentially turning us into a nation of suspects."); Jonathan Kimmelman, *The Promise and Perils of Criminal DNA Databanking*, 18 NATURE BIOTECH. 695, 696 (2000) ("Storing information on otherwise unsuspected individuals . . . expresses an ethos of suspicion."). These pronouncements are relatively mild. Both advocacy organizations and respected academics portray the laws of some states as a violation of the Fourth Amendment and the Nuremberg Code for medical experimentation. *See, e.g.*, Billings, *supra* note 4, at A19; Brief of Amicus Curiae, Institute for Science, Law and Technology, Illinois Institute of Technology [IIT Brief], *Landry v. Harshbarger*, 709 N.E.2d 1085 (Mass. 1999), at 4, 30 (implying that the STR loci used in law enforcement databanking contain disease-related information and complaining that release of anonymized samples without the consent of prisoners violates the Nuremberg Code). For criticism of these claims, see D.H. Kaye, *Bioethics, Bench and Bar: Selected Arguments in* Landry v. Attorney General, 40 JURIMETRICS J. 193 (2000).

9 Address by David Werrett, 18th International Congress on Forensic Haemogenetics, San Francisco, Aug. 19, 1999. In the United Kingdom, the records and samples were destroyed if a conviction did not ensue, *id.*, but the Criminal Justice and Police Act, 2001, c.16 (Eng.), now provides for indefinite retention.

10 *See* 15 LA REV. STAT. § 609(A) (1998) ("A person who is arrested for a felony sex offense or other specified offense on or after September 1, 1999, shall have a DNA sample drawn or taken at the same time he is fingerprinted pursuant to the booking procedure."). Despite the language of the statute, it is reported that the state will delay implementing the requirement for lack of funding and testing facilities. *See* Guy Gugliotta, *A Rush to DNA Sampling; Vital Police Tool? Affront to Liberty? Both?*, WASH. POST, July 7, 1999, at A1, *available at* 1999 WL 17012783.

Another state has abandoned the experiment. A South Dakota statute provided that "[t]he Attorney General shall procure and file for record genetic marker grouping analysis information from any person taken into custody for a violation of the provisions of chapter 22-22." However, in 1997 the law was amended to restrict the collection of samples from convicted offenders. *See* S.D. CODIFIED LAWS § 23-5-14 (Supp. 1999).

A few states have authorized taking DNA after indictment. *See* CAL. PENAL CODE § 207(b)(3) ("For the purposes of this subdivision, 'a suspect' means a person against whom an information or indictment has been filed for one of the crimes listed in subdivision (a) of Section 296. For the purposes of this subdivision, a person shall remain a suspect for two years from the date of the filing of the information or indictment or until the DNA laboratory re-

DNA databanking for arrestees.[11] Calls for DNA sampling upon arrest from the police commissioner and mayor of New York City,[12] have sparked public rallies at City Hall[13] and cries of "unconstitutional!" from the American Civil Liberties Union.[14] Although the backlog of existing DNA samples from convicted offenders awaiting analysis makes these proposals unappealing,[15] the situation will change as more resources are

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ceives notification that the person has been acquitted of the charges or the charges were dismissed.").

Local authorities also might begin to collect samples on arrest without waiting for state legislation or additional funding. In August, 1999, Salt Lake County Sheriff Aaron Kennard announced his office's intention to sample all arrestees' DNA and to seek federal funds for an expansion of forensic laboratory capacity to match the increase in demand for DNA analysis that would ensue. *See* Jennifer Dobner, *DNA Test Sought on All Booked at New Jail*, DESERET NEWS, Aug. 4, 1999, at A1.

[11] A bill introduced early in 1999, in the Connecticut General Assembly would require the collection of DNA from those arrested of any criminal offense. The bill does not require destruction of the sample unless the arrestee is not later "convicted of an offense." 1999 Ct. S.B. 315 (introduced Jan. 15, 1999). A bill introduced in the North Carolina General Assembly would require that DNA samples be taken from all individuals arrested for felonies. N.C. Senate Bill 165 (introduced Feb. 23, 1999). It would allow individuals to petition for expungement of a "DNA record or profile" after "the felony arrest or conviction . . . has been reversed and the case dismissed." *Id.* § 15A-266.10(a). New York Senate Bill 1795, introduced January 30, 2001, would require individuals arrested for a variety of felonies to provide a sample of blood for DNA testing; *cf.* N.Y. Assembly Bill 4486 § 2, introduced February 12, 2001 (providing that the executive branch develop "a statewide strategic plan for requiring any person arrested for an offense for which the fingerprints of the person are required to be taken . . . also be required to provide at the time of arrest, a sample appropriate for DNA testing to determine identification characteristics specific to such person for inclusion in the state DNA identification index").

[12] In December 1998, New York Police Commissioner Howard Safir and Mayor Rudolph Giuliani called on the New York legislature to consider expanding the New York state databanking law to allow DNA collection from every person arrested. *See* John Kifner, *Safir Says DNA Proposal Would Cut Property Crime*, N.Y. TIMES, Dec. 13, 1998, § 1, at 51. The International Association of Police Chiefs soon endorsed the concept. *See* Jayson Blair, *Police Chiefs Join in Call for More DNA Sampling*, N.Y. TIMES, Aug. 16, 1999, at B5. The Republican candidate has made it part of his campaign for Attorney General of Virginia. *See* Laurence Hammack, *Kilgore Wants to Expand DNA Databases to Suspects*, ROANOKE TIMES & WORLD NEWS, Aug. 3, 2001, at A1.

[13] *See* Susan Sachs, *Advocates Joining Forces to Fight Pataki DNA Plan*, N.Y. TIMES, Jan. 10, 1999, § 1, at 21.

[14] *See* Kifner, *supra* note 12 ("Norman Siegel, director of the New York Civil Liberties Union, said he would oppose the plan as violating the Constitution's Fourth Amendment protection against unreasonable search and seizure."); Nat'l Comm'n on the Future of DNA Evidence, Proceedings, Mar. 1, 1999 (statement of Barry Steinhardt, Associate Director, American Civil Liberties Union), *at* http://www.ojp.usdoj.gov/nij/dnamtgtrans4/trans_1.html (visited Sept. 13, 1999) (contending that taking DNA from arrestees cannot be justified under the Fourth Amendment); *cf.* Editorial, *DNA Testing Proposals*, N.Y. TIMES, Dec. 17, 1998, at A32 ("a threat to personal privacy that is unnecessary for fighting crime").

[15] *See, e.g.*, BUREAU OF JUSTICE STATISTICS, U.S. DEP'T OF JUSTICE, SURVEY OF DNA CRIME LABORATORIES 1998 (Feb. 2000) (reporting that as of the end of 1997, 69% of DNA labs had a backlog of 6,800 known and unknown subject cases and 287,000 convicted offender samples); Guy Gugliotta, *A Rush to DNA Sampling; Vital Police Tool? Affront to Liberty? Both?*, WASH. POST, July 7, 1999, at A01, *available at* 1999 WL 17012783 (reporting "esti-

applied to reduce the backlog[16] and the technology for analyzing the samples advances.[17] At that point, the constitutional questions will spill out of the editorial pages and into legislative chambers and courthouses throughout the country.

This article examines the constitutionality of taking, analyzing, and storing DNA samples and data from individuals who are arrested.[18] The

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mates that 500,000 samples taken during the last four years are awaiting analysis and that an additional 1 million to 1.5 million offenders qualify for testing that has not been done").

16 *See* Assoc. Press, *State Police Move to Ease Backlog at Crime Labs by 2003*, ST. LOUIS POST DISPATCH, July 20, 2001, at B1 (reporting on plans in Illinois); Naftali Bendavid, *U.S. Targets DNA Backlog: Agency to Spend $30 Million to Aid State Crime Labs*, CHI. TRIB., Aug. 2, 2001, at 10; Bureau of Justice Statistics, *supra* note 16 (reporting that to alleviate case backlogs 44% of the laboratories had hired additional staff, 34% were using overtime, 13% were contracting with private labs, and 28% were using other methods); Maxine Bernstein, *DNA Crime Lab Scores "Cold Hits,"* PORTLAND OREGONIAN, Apr. 17, 2001, at A01, *available at* 2001 WL 3595398 (reporting that with federal assistance, Oregon's state laboratory has nearly eliminated its backlog).

17 For examples of emerging technologies that may permit rapid analysis of large numbers of DNA samples, *see* J.A. Monforte & C.H. Becker, *High-throughput DNA Analysis by Time-of-flight Mass Spectrometry*, 3 NATURE MEDICINE 360 (1997); D.G. Wang et al., *Large-scale Identification, Mapping, and Genotyping of Single-nucleotide Polymorphisms in the Human Genome*, 280 SCIENCE 1077 (1998) (hybridization chip). Indeed, the prospect of portable devices for squad cars that would determine and transmit a record of identifying DNA types using "chips" that perform capillary electrophoresis is no longer science fiction. *Cf.* NAT'L INST. OF JUSTICE, THE NATIONAL INSTITUTE OF JUSTICE AND ADVANCES IN FORENSIC SCIENCE AND TECHNOLOGY SERIES: NATIONAL LAW ENFORCEMENT AND CORRECTIONS TECHNOLOGY CENTER BULLETIN, Mar. 1998, *available at* http://www.nlectc.org/txtfiles/12575_5.html (visited Sept. 14, 1999):

> NIJ is funding Lockheed Martin Energy Research at Oak Ridge National Laboratory . . . to develop another type of disposable microchip device capable of carrying out all sample processing and analytical steps. Blood or other biological samples could be collected directly into the device, which could then be sealed for transport and analysis, eliminating post-collection handling and exposure of samples. Ultimately, such miniature devices could be used for DNA testing at the crime scene.

See also Kevin Flynn, *Fighting Crime with Ingenuity, 007 Style: Gee-Whiz Police Gadgets Get a Trial Run in New York*, N.Y. TIMES, Mar. 7, 2000, at B1.

18 For a thoughtful, early discussion of offender databases, see Dan L. Burk & Jennifer A. Hess, *Genetic Privacy: Constitutional Considerations in Forensic DNA Testing*, 5 GEO. MASON U. CIV. RTS. L.J. 1 (1994). Additional commentary includes Dan L. Burk, *DNA Identification: Assessing the Threat to Privacy*, 24 U. TOLEDO L. REV. 87 (1992); Jean E. McEwen, *DNA Databanks*, *in* GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC AGE 231, 231 (Mark Rothstein ed., 1997); Jean E. McEwen, *DNA Sampling and Banking: Practices and Procedures in the United States*, *in* HUMAN DNA: LAW AND POLICY 407 (Bartha Maria Knoppers ed., 1997); Jean E. McEwen, *Storing Genes to Solve Crimes: Legal, Ethical, and Public Policy Considerations*, *in* STORED TISSUE SAMPLES: ETHICAL, LEGAL, AND PUBLIC POLICY CONSIDERATIONS 311 (Robert F. Weir ed., 1998); Michelle Hibbert, *DNA Databanks: Law Enforcement's Greatest Surveillance Tool?*, 34 WAKE FOREST L. REV. 767 (1999); Eric T. Juengst, *I-DNA-fication, Personal Privacy, and Social Justice*, 75 CHICAGO-KENT L. REV. 61 (1999); D.H. Kaye, *Bioethical Objections to DNA Databases for Law Enforcement: Questions and Answers*, 31 SETON HALL. L. REV. __ (forthcoming 2001); D.H. Kaye, *Two Fallacies About DNA Databanks for Law Enforcement*, 67 BROOK. L. REV. 181 (forthcoming 2001) [hereinafter cited as *Two Fallacies*]; D.H. Kaye & Michael Smith, *DNA Databases for Law Enforcement: The Coverage Question and the Case for a Population-Wide*

most salient constitutional protections are the Reasonableness and Warrant Clauses of the Fourth Amendment, the Self-incrimination Clause of the Fifth Amendment, and the Due Process Clause of the Fourteenth Amendment.[19] The analysis here shows that these protections do not foreclose a carefully constructed system for compelling individuals subject to custodial arrest to supply samples of their DNA.

Before undertaking this legal analysis, however, we need a precise description of what DNA databanking involves. Part I of this article describes the nature of DNA databanking for law enforcement purposes. It introduces terminology and distinctions that help clarify the range of possible systems for collecting and using DNA data. Part II considers the possibility that forcing individuals to give samples of DNA contravenes

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Database, *in* THE TECHNOLOGY OF JUSTICE: THE USE OF DNA IN THE CRIMINAL JUSTICE SYSTEM (David Lazer ed., forthcoming 2001); Jonathan Kimmelman, *Risking Ethical Insolvency: A Survey of Trends in Criminal DNA Databanking*, 28 J. L., MED. & ETHICS 209 (2000); Kimmelman, *supra* note 8; Sheryl H. Love, *Allowing New Technology to Erode Constitutional Protections: A Fourth Amendment Challenge to Non-Consensual DNA Testing of Prisoners*, Jones v. Murray, 38 VILL. L. REV. 1617 (1993); Mark A. Rothstein & Sandra Carnahan, *Legal and Policy Issues in Expanding the Scope of Law Enforcement DNA Data Banks*, 67 BROOK. L. REV. __ (forthcoming 2001); Barry Scheck, *DNA Data Banking: A Cautionary Tale*, 54 AM. J. HUM. GENETICS 931 (1993); E. Donald Shapiro & Michelle L. Weinberg, *DNA Data Banking: The Dangerous Erosion of Privacy*, 38 CLEV. ST. L. REV. 455 (1990); J. Clay Smith, Jr., *The Precarious Implications of DNA Profiling*, 55 U. PITT. L. REV. 865 (1994); Deborah F. Barfield, Comment, *DNA Fingerprinting Justifying the Special Need for the Fourth Amendment's Intrusion into the Zone of Privacy*, 6 RICH. J.L. & TECH. 27 (2000); Andrea de Gorgey, Note, *The Advent of DNA Databanks: Implications for Individual Privacy*, 16 AM. J.L. & MED. 109 (1988); C. Teddy Li, Note, Boling v. Romer: *Federal Courts Condone Forced Withdrawal of Blood for DNA Data Banks Despite Constitutional Concerns*, 1 J. HEALTH CARE L. & POLICY 421 (1998); Michael J. Markett, Note, *Genetic Diaries: An Analysis of Privacy Protection in DNA Databanks*, 30 SUFFOLK U. L. REV. 185 (1996); Robert W. Schumacher, Note, *Expanding New York's DNA Database: The Future of Law Enforcement*, 26 FORDHAM URB. L.J. 1635 (1999); Aaron P. Stevens, Note, *Arresting Crime: Expanding the Scope of DNA Databases in America*, 79 TEX. L. REV. 921 (2001); Warren R. Webster, Jr., Note, *DNA Database Statutes and Privacy in the Information Age*, 10 HEALTH MATRIX: J. L.-MED. 119 (2000); Yale H. Yee, Note, *Criminal DNA Data Banks: Revolution for Law Enforcement or Threat to Individual Privacy?*, 22 AM. J. CRIM. L. 461 (1995); *cf.* Teresa K. Baumann, Note, *Proxy Consent and a National DNA Databank: An Unethical and Discriminatory Combination*, 86 IOWA L. REV. 667 (2001); Jennifer Sue Deck, Note, *Prelude to a Miss: A Cautionary Note Against Expanding DNA Databanks in the Face of Scientific Uncertainty*, 20 VT. L. REV. 1057 (1996) (arguing that a universal database of DNA samples taken at birth would be constitutional but inadvisable); Rebecca Sasser Peterson, Note, *DNA Databases: When Fear Goes Too Far*, 37 AM. CRIM. L. REV. 1219 (2000) (asserting that a universal database would upset the "delicate balance" between citizen and state); Robert Craig Scherer, Note, *Mandatory Genetic Dogtags and the Fourth Amendment: The Need for a New Post-*Skinner *Test*, 85 GEO. L.J. 2007, 2011 (1997).

[19] Some state constitutions contain other provisions that may be applicable, and some states interpret their constitutions differently than the Supreme Court interprets the United States Constitution. *See, e.g.*, Norman-Bloodsaw v. Lawrence Berkeley Lab., 135 F.3d 1260, 1270–71 (9th Cir. 1998) (analyzing an employer's genetic testing program under the right to privacy found in Article I, Section 1 of the California Constitution as well as the U.S. Constitution). This article is confined to an analysis of the federal constitution.

the Self-incrimination Clause. It explains why even compulsory DNA sampling does not violate the privilege against self-incrimination. Part III examines the Due Process Clause. It shows that neither the process of collecting DNA nor the storage of it (or the information encoded in it) necessarily deprives individuals of liberty without due process of law. Finally, Part IV analyzes the clauses of the Fourth Amendment pertaining to searches and seizures. It shows that neither the lack of a search warrant nor the absence of probable cause to believe that the suspect has committed the offense to which DNA profiling would pertain is an insuperable obstacle to collecting, analyzing, and storing DNA information from the arrested individual. It argues, however, that the Fourth Amendment's prohibition of "unreasonable searches and seizures" requires any such system to incorporate stringent controls on the scope of the information extracted from the samples and the dissemination of that information.

I. OF DATABANKS AND DATABASES

To construct a law enforcement database, samples of DNA must be collected, the samples analyzed, and the resulting data stored so that it can be accessed efficiently. In the systems now in use, a sample of blood, saliva, or other tissue or fluid is collected, a portion is taken for analysis, and some of the remainder is preserved and stored. A minute portion of the genetic information in the subsample is analyzed. The analysis generally is limited to thirteen locations, or *loci*, that yield patterns, or *genotypes*, that approach the level of unique identification.[20] Despite the connotation of "genotype," the DNA sequences at these loci are not genes; these *alleles* are non-coding, non-regulatory DNA sequences.[21] In themselves, they reveal information that is no more intimate than the particular blood serum enzyme that an individual happens to have, the pattern of blood vessels in the retina of the eye, or the whorls

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[20] The loci are STRs — short tandem repeats. Usually, there are between seven and fifteen STR alleles per locus. Thirteen loci that each have ten STR alleles give rise to $55^{13} = 4.2 \times 10^{22}$ (42 billion, trillion) possible genotypes. *See* David H. Kaye & George Sensabaugh, *Reference Guide to Forensic DNA Evidence*, *in* REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 495 n.40 (Federal Judicial Center ed., 2d ed. 2000). The thirteen loci that the FBI has selected for databanking yield an "average match probability [of] one in 180 trillion." Nat'l Comm'n on the Future of DNA Evidence, Proceedings, May 7, 1999 (statement of James Crow), *available at* http://www.ojp.usdoj.gov/nij/dnamtgtrans5/trans_h.html (visited Sept. 14, 1999).

[21] *See* Kaye, *Two Fallacies*, *supra* note 18. A DNA "allele" is a measurable variation (from person to person) in the structure of the DNA at a given locus. Thus, the collection of the alleles at the 13 STR loci is the person's "genotype." Forensic scientists often refer to such DNA genotypes with the nontechnical term "profiles."

and ridges in a fingerprint. They disclose nothing about the individual's susceptibility to diseases, bodily structure, or mental functioning.[22]

These genotypes, expressed as a set of numbers, are entered into state or local databases.[23] From the state level,[24] they can be entered into a national database known as NDIS — the National DNA Index System — maintained by the FBI.[25] Police looking for the person who might have left blood, semen, or other biological trace evidence at crime scenes or on victims[26] can search individual state databases or the national database to learn whether a known offender might be the source of the crime-scene DNA. The multilevel system of local, state, and national databases constitutes CODIS — the Combined DNA Index System.[27]

In short, there are the *databases* that contain the numerically coded, identifying genotypes, and *databanks* that simply store the original samples taken from offenders.[28] All the genotypes from the *databank samples* that comprise the database can be searched by computer to determine whether any match the genotypes from the *trace evidence samples* associated with the crime or the victim. If a match is found, further police work is required to establish a case against the suspect. If the full investigation suggests guilt and the case goes to trial, the prose-

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22 *See id.* *Contra* Rothstein & Carnahan, *supra* note 18; Shapiro & Weinberg, *supra* note 18, at 470 (asserting that this "is not scientifically possible"). Some states expressly prohibit the use of more informative loci. *E.g.*, 20 VT. STAT. ANN. § 1937(b) (1998) ("Analysis . . . is not authorized for identification of any medical or genetic disorder.").

23 Typically, the Local DNA Index System (LDIS), is installed at crime laboratories operated by police departments or sheriff's offices. FBI, *What's the Difference Between NDIS and CODIS?*, Oct. 8, 1998, *at* http://hope-dna.com/docs/difference_codis.htm (visited Apr. 29, 1999).

24 Each state participating in the national program may have a single State DNA Index System (SDIS) that pools data from laboratories within the state and that is the pathway to the national system. *Id.*

25 The FBI began implementing NDIS in October 1998, by combining the eight state DNA offender databanks in California, Florida, Illinois, Minnesota, North Carolina, Oregon, Utah and Virginia. *See* Nicholas Wade, *F.B.I. Set to Open Its DNA Database for Fighting Crime*, N.Y. TIMES, Oct. 12, 1998, at A1. In addition to the "convicted offender index," NDIS contains a "forensic index" of crime scene profiles permitting case-to-case matches (*see supra* note 20), an "unidentified persons index," a "victims index," and a population database of anonymous DNA genotypes that can be used to estimate the probability that a DNA sample picked at random from the population would match a crime scene sample. Stephen J. Niezgoda & Barry Brown, *The FBI Laboratory's Combined DNA Index System Program, in* PROCEEDINGS FROM THE SIXTH INTERNATIONAL SYMPOSIUM ON HUMAN IDENTIFICATION 1995 149–52 (Promega Corp. ed., 1996).

26 Authorities also use databanks of DNA genotypes of crime scene samples to link crimes committed by serial offenders. Erin Hallissy & Charlie Goodyear, *DNA Links '70s Rapes to Serial Slaying Cases / Unknown Southern California Killer was "East Area Rapist,"* S.F. CHRON., Apr. 4, 2001, at A1, *available at* 2001 WL 3399810; Niezgoda & Brown, *supra* note 25, at 149.

27 FBI, *supra* note 23.

28 State statutes often observe this distinction. *E.g.*, 20 VT. STAT. ANN. § 1932(10) & (11) (1998); W. VA. CODE § 15-28-3(e) & (f) (1999).

cution should not rely on the database search to link the defendant to the crime. Rather, defendant's genotypes should come from the analysis of a new *confirmatory sample* of the suspect's DNA.[29] If this sample matches the trace evidence DNA, then there is no need to introduce evidence of the database search, which would imply (possibly in violation of the rules of evidence[30]) that the defendant has a criminal record.

In these terms, the question that must be answered is whether any system of DNA databanks or databases is consistent with the protections the Constitution affords individuals. To answer this question, we must attend to all phases of the system — collecting DNA samples, analyzing them, storing them, recording the genotypes in them, and using that biometric information.

II. SELF INCRIMINATION

The Fifth Amendment to the Constitution provides that no person shall "be compelled in any criminal case to be a witness against himself . . . ."[31] Despite vigorous dissents,[32] the Supreme Court has held time and again that the privilege against self-incrimination reaches no farther than communications that are "testimonial."[33] Revealing mere physical or behavior characteristics is not "testimonial."[34] Thus, the privilege

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29 Indeed, Maryland law goes so far as to specify that "[a]ny match obtained between an evidence sample and a data base entry may only be used as probable cause to obtain a blood sample from the subject and is not admissible at trial unless confirmed by additional testing." MD. CODE art. 88B § 12A(l) (1998).

30 *See, e.g.*, FED. R. EVID. 404.

31 U.S. CONST., art. V.

32 *See, e.g.*, United States v. Mara, 410 U.S. 19, 32–38 (1973) (Marshall, J., dissenting); Schmerber v. California, 384 U.S. 757, 778 (1966) (Douglas, J., dissenting); *Schmerber*, 384 U.S. at 779 (Fortas, J., dissenting).

33 *See* Holt v. United States, 218 U.S. 245, 252 (1910). In *Holt*, Mr. Justice Holmes dismissed as an "extravagant extension of the Fifth Amendment" the argument that it violated the privilege to require a defendant to put on a blouse for identification purposes. He explained that "the prohibition of compelling a man in a criminal court to be witness against himself is a prohibition of the use of physical or moral compulsion to extort communications from him, not an exclusion of his body as evidence when it may be material." *Id.* at 252–53. *See also* Downs v. Swann, 73 A. 653 (Md. 1909) (reasoning that police may photograph and make bodily measurements to identify an arrestee without infringing the general liberty interest or the privilege against self-incrimination).

More recently, the Court has stated that "to be testimonial, an accused's communication must itself, explicitly or implicitly, relate a factual assertion or disclose information." Doe v. United States, 487 U.S. 201, 210 (1988). Accordingly, the Fifth Amendment did not extend to a consent form waiving a privacy interest in foreign bank records because the consent form spoke in the hypothetical and did not identify any particular banks, accounts, or private records; it neither "communicate[d] any factual assertions, implicit or explicit, [n]or convey[ed] any information to the Government." *Id.* at 215.

34 *See, e.g.*, United States v. Dionisio, 410 U.S. 1, 7 (1973) (suspects could be compelled to read a transcript to provide a voice exemplar because the "voice recordings were to be used solely to measure the physical properties of the witnesses' voices, not for the testimonial or communicative content of what was to be said"); United States v. Wade, 388 U.S. 218 (1967)

does not protect an individual from government compulsion to provide blood or other biological samples. For example, in *Schmerber v. California*,[35] a man was arrested at a hospital while receiving treatment for injuries suffered in an accident involving the automobile that he had apparently been driving. At the direction of a police officer, a physician at the hospital withdrew a blood sample over the suspect's objection. Chemical analysis indicated a high blood alcohol level, and the man was convicted for driving while intoxicated. Although he insisted that the forced extraction of his blood compelled him to be a witness against himself, the Supreme Court affirmed the conviction. The majority explained that:

> Not even a shadow of testimonial compulsion upon or enforced communication by the accused was involved either in the extraction or in the chemical analysis. Petitioner's testimonial capacities were in no way implicated; indeed, his participation, except as a donor, was irrelevant to the results of the test, which depend on chemical analysis and on that alone. Since the blood test evidence, although an incriminating product of compulsion, was neither petitioner's testimony nor evidence relating to some communicative act or writing by the petitioner, it was not inadmissible on privilege grounds.[36]

In light of this doctrine, the Court of Appeals for the Tenth Circuit made short shrift of a Fifth Amendment argument against DNA databanking for convicted offenders. In *Boling v. Romer*,[37] the court simply stated that the claim that "requiring DNA samples from inmates amounts to compulsory self-incrimination fails because DNA samples

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(a suspect could be compelled to participate in a lineup and to repeat a phrase provided by the police so that witnesses could view him and listen to his voice); Gilbert v. California, 388 U.S. 263, 266–67 (1967) (a suspect could be compelled to provide a handwriting exemplar because "in contrast to the content of what is written, like the voice or body itself, is an identifying physical characteristic outside [the privilege's] protection").

35 384 U.S. 757 (1966).

36 *Id.* at 765 (footnote omitted).

37 101 F.3d 1336, 1340 (10th Cir. 1996).

are not testimonial in nature."[38] The same result follows inescapably with respect to DNA samples from arrestees.[39]

III. DUE PROCESS

The Fifth and Fourteenth Amendments provide that no person "shall be deprived of life, liberty, or property, without due process of law . . . ."[40] This Due Process Clause requires that the government adopt fair procedures before invading personal liberty or property interests, and that, at a minimum, the invasion rationally can be said to advance some legitimate governmental purpose. DNA databanking, it can be argued, implicates two aspects of personal liberty — bodily integrity and the privacy of personal information. We consider each in turn.

A. BODILY INTEGRITY

Although the removal of a person's cells plainly infringes a liberty interest in bodily integrity,[41] it is well settled that the safe and relatively painless removal of blood does not offend due process.[42] In *Breithaupt*

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38 *See also* United States v. Hubbell, 167 F.3d 552, 573–74 (D.C. Cir. 1999) (dictum). A contrary view is expressed in Janet C. Hoeffel, Note, *The Dark Side of DNA Profiling: Unreliable Scientific Evidence Meets the Criminal Defendant*, 42 STAN. L. REV. 465 (1990), which claims that "the unique autobiographical nature" of DNA identification evidence should place it the category of testimonial evidence." *Id.* at 533. For criticism of this view, see Burk & Hess, *supra* note 18, at 18 (concluding that "there is no reason to believe that DNA evidence will be or should be treated any differently than any other type of physical evidence").

39 In addition, even if the extraction of biological material somehow could be construed as testimonial, the implications of the privilege against self-incrimination are not entirely clear. Under *Pennsylvania v. Muniz*, 496 U.S. 582 (1990), it appears that arrestees might not need to be advised that the privilege entitles them to decline to give a DNA sample. In *Muniz*, a plurality opinion for four Justices written by Justice Brennan reasoned that "questions regarding [a suspect's] name, address, height, weight, eye color, date of birth, and current age . . . fall within a 'routine booking question' exception which exempts from *Miranda*'s coverage questions to secure the 'biographical data necessary to complete booking or pretrial services.'" *Id.* at 601 (some internal quotation marks and citations omitted). Another four Justices, in an opinion by Chief Justice Rehnquist, took the position that the questions "were not testimonial and do not warrant application of the privilege," making "it . . . unnecessary to determine whether the questions fall within the 'routine booking question' exception to *Miranda* Justice Brennan recognizes." *Id.* at 608. Only Justice Marshall took issue with the proposed "routine booking exception" to the application of *Miranda v. Arizona*, 384 U.S. 436 (1966). *Id.* at 608–09.

40 U.S. CONST., art. V, XIV.

41 *Cf.* Cruzan v. Director, Missouri Dep't of Health, 497 U.S. 261, 269 (1990) (stating that "[e]very human being of adult years and sound mind has a right to determine what shall be done with his own body.").

42 *Id.* at 172. Indeed, it is questionable whether today's Court even would apply a due process analysis. *See* County of Sacramento v. Lewis, 523 U.S. 833, 849 n.9 (1998) (Souter, J., noting that "*Rochin*, of course, was decided long before *Graham v. Connor* (and *Mapp v. Ohio*, 367 U.S. 643 (1961)), and today would be treated under the Fourth Amendment, albeit with the same result."). In *Rochin v. California*, 342 U.S. 165 (1952), to which Justice Souter refers, police broke into a suspect's room, attempted to extract narcotics capsules he had put

v. Abram,[43] for instance, a pickup truck collided with a car in New Mexico. Three occupants of the car were killed, and the driver of the truck was seriously injured. A pint whiskey bottle, almost empty, was found in the glove compartment of the pickup truck. The driver was taken to a hospital, where he lay unconscious in the emergency room with the smell of liquor on his breath. A state patrolman asked an attending physician to take a blood sample. Laboratory analysis showed this blood to contain about .17% alcohol, and this blood alcohol evidence was used to convict the driver of involuntary manslaughter. The driver later challenged his imprisonment on the ground that the conduct of the police in seizing the blood from his unconscious body was so offensive as to deprive him of due process of law.

The Supreme Court rejected this argument, weighing the severity of the infringement on personal liberty against the public interest in preventing automobile accidents and in adjudicating complaints for drunken driving accurately. The majority first observed that "certainly the test as administered here would not be considered offensive by even the most delicate."[44] The Court then concluded that "so slight an intrusion" of "the right of an individual that his person be held inviolable" could not prevail as against "the interests of society in the scientific determination of intoxication, one of the great causes of the mortal hazards of the road. And the more so since the test likewise may establish innocence, thus affording protection against the treachery of judgment based on one or more of the senses."[45]

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into his mouth, took him to a hospital, and directed that an emetic be administered to induce vomiting. This course of conduct, the Court wrote, "shocks the conscience" in that:

> Illegally breaking into the privacy of the petitioner, the struggle to open his mouth and remove what was there, the forcible extraction of his stomach's contents—this course of proceeding by agents of government to obtain evidence is bound to offend even hardened sensibilities. They are methods too close to the rack and the screw to permit of constitutional differentiation.

[43] 352 U.S. 432 (1957).

[44] *Id.* at 436. The Court added that:

> Furthermore, due process is not measured by the yardstick of personal reaction or the sphygmogram of the most sensitive person, but by that whole community sense of "decency and fairness" that has been woven by common experience into the fabric of acceptable conduct. It is on this bedrock that this Court has established the concept of due process. The blood test procedure has become routine in our everyday life. It is a ritual for those going into the military service as well as those applying for marriage licenses. Many colleges require such tests before permitting entrance and literally millions of us have voluntarily gone through the same, though a longer, routine in becoming blood donors. Likewise, we note that a majority of our States have either enacted statutes in some form authorizing tests of this nature or permit findings so obtained to be admitted in evidence. We therefore conclude that a blood test taken by a skilled technician is not such "conduct that shocks the conscience," nor such a method of obtaining evidence that it offends a "sense of justice."

See id. at 436–37 (citations and footnote omitted).

[45] *Id.* at 439.

Much the same analysis has been applied to uphold taking DNA samples from prison inmates. In *Kruger v. Erickson*,[46] the District Court for the District of Minnesota observed that "the procedures . . . are performed" by "trained laboratory technician[s]" "according to medically acceptable protocols."[47] The court therefore held that the extraction of an inmate's blood for DNA databanking "does not 'shock the conscience,' or 'offend the sense of justice.'"[48]

Removing cells for DNA profiling from arrestees might not involve a physician as in *Breithaupt*, or even a technician as in *Kruger*. DNA can be extracted from many sources, including not just white blood cells, but also buccal cells lining the cheek, saliva, and probably skin scrapings.[49] A police officer might be trained to take a buccal swab, to collect a saliva sample, or to remove epidermal cells with a sticky pad. Because such procedures are even less intrusive and less dangerous than removing blood with a hypodermic needle — the procedure employed in *Breithaupt* — the use of trained non-medical personnel is not so shocking or offensive as to violate the Due Process Clause.

B. INFORMATIONAL PRIVACY

Freedom from bodily intrusion is one species of "privacy" that the Due Process Clause surely protects. A distinct strand of privacy is the right to keep highly personal information confidential.[50] At the outset, however, it is not clear that the "liberty" or "property" that the clause protects includes such a right to informational privacy. Moreover, even if this form of privacy is a "liberty" or "property" interest, a system of DNA databanking that includes reasonable safeguards for preventing improper disclosure of the information satisfies the Due Process Clause.

These conclusions follow from the Supreme Court's opinion in *Whalen v. Roe*.[51] New York adopted a law requiring physicians to file copies of prescriptions for certain dangerous drugs with the state Department of Health. The information, including the name and address of the patient, was entered into a computerized data base. The forms themselves were stored in a vault and destroyed after five years. Access to

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46 875 F. Supp. 583 (D. Minn. 1995).

47 *Id.* at 587.

48 *Id.*

49 Indeed, one company markets a product, designed to be used by police, life insurance agents, and others, that collects oral fluid containing DNA. *See* http://www.prnewswire.com/cgi_bin/stories.pl?ACCT=105&STORY=/www/story/1_9_98/391342 (visited Sept. 13, 1999).

50 On the types of privacy, see, for example, Anita L. Allen, *Genetic Privacy: Emerging Concepts and Values*, *in* GENETIC SECRETS: PROTECTING PRIVACY AND CONFIDENTIALITY IN THE GENETIC ERA 31 (1997). Professor Lawrence Gostin provides a useful summary of the literature on theories of privacy, particularly as they pertain to medical information, in Lawrence O. Gostin, *Health Information Privacy*, 80 CORNELL L. REV. 451 (1995).

51 429 U.S. 589 (1977).

the data was restricted, and public disclosure of the identity of patients was prohibited by the statute and by a Department of Health regulation.[52] Twenty months after the effective date of the Act, the computerized data had only been used in two investigations involving alleged overuse of drugs by specific patients.

A group of patients and physicians challenged the constitutionality of the statute. A three-judge district court held that "the doctor-patient relationship intrudes on one of the zones of privacy accorded constitutional protection" and that the patient-identification provisions of the Act invaded this privacy with "a needlessly broad sweep."[53] It enjoined enforcement of the provisions of the Act that dealt with the reporting of patients' names and addresses.

The Supreme Court unanimously reversed. Justice Stevens' opinion for the Court first observed that the New York law was "the product of an orderly and rational legislative decision,"[54] that "could reasonably be expected to have a deterrent effect on potential violators as well as to aid in the detection or investigation of specific instances of apparent abuse."[55] Therefore, even though the number of instances in which the data base was used was small, "the patient-identification requirement was a reasonable exercise of New York's broad police powers."[56]

This portion of the opinion applies the traditional "rational basis" test. Under this standard, the Court will not invalidate legislation under the Due Process Clause merely because it is unwise or apparently unnecessary; rather, there must be no rational basis for concluding that the law furthers a legitimate government interest. A much more demanding standard applies to legislation that infringes fundamental rights such as freedom of expression or procreative liberty. An invasion of such a right requires the state to show a compelling interest rather than mere rationality.[57]

That the *Whalen* Court chose to apply the rational basis test thus suggests that it did not see the statute as implicating a constitutional right to privacy. Indeed, Part II of the Court's opinion explicitly rejects the argument that the record-keeping system invaded a protected "zone of privacy."[58] Plaintiffs maintained that the system infringed two distinct

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52 Willful violation of these prohibitions was punishable by up to one year in prison and a $2,000 fine.

53 *Id.* at 596.

54 *Id.* at 597.

55 *Id.* at 598.

56 *Id.*

57 *See, e.g.*, Roe v. Wade, 410 U.S. 113, 155 (1973) ("Where certain 'fundamental rights' are involved, the Court has held that regulation limiting these rights may be justified only by a 'compelling state interest,' . . . and that legislative enactments must be narrowly drawn to express only the legitimate state interests at stake.").

58 429 U.S. at 598.

privacy interests — one "in avoiding disclosure of personal matters," and another "in independence in making certain kinds of important decisions."[59] The Court implicitly assumed that the Due Process Clause protects these interests, but it did little to confirm or deny this premise. Instead, it merely concluded that "neither the immediate nor the threatened impact of the patient-identification requirements in the New York . . . Act . . . on either the reputation or the independence of patients for whom Schedule II drugs are medically indicated is sufficient to constitute an invasion of any right or liberty protected by the Fourteenth Amendment."[60] Indeed, in the concluding portion of its opinion, the Court stated that it had "not decided" whether "unwarranted disclosure" of "personal information in computerized data banks or other massive government files" might violate the Constitution.[61]

In contrast to the Court's opinion, the concurring opinions squarely address whether a constitutional right to privacy necessitated more demanding review. Justice Brennan agreed that "limited reporting requirements in the medical field are familiar . . . and are not generally regarded as an invasion of privacy."[62] He suggested, however, that "[b]road dissemination by state officials of such information . . . would clearly implicate constitutionally protected privacy rights, and would presumably be justified only by compelling state interests."[63] Furthermore, he worried that "[t]he central storage and easy accessibility of computerized data vastly increase the potential for abuse of that information, and [was] not

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59 *Id.* at 599–600.

60 *Id.* at 603–04. *Whalen* rejected the Fourth Amendment as the basis for either of these rights. *See id.* at 604 n.32 ("The *Roe* appellees also claim that a constitutional privacy right emanates from the Fourth Amendment, citing language in *Terry v. Ohio*, 392 U.S. 1, 9, at a point where it quotes from *Katz v. United States*, 389 U.S. 347. But those cases involve affirmative, unannounced, narrowly focused intrusions into individual privacy during the course of criminal investigations. We have never carried the Fourth Amendment's interest in privacy as far as the *Roe* appellees would have us. We decline to do so now.").

61 *Id.* at 605:

> A final word about issues we have not decided. We are not unaware of the threat to privacy implicit in the accumulation of vast amounts of personal information in computerized data banks or other massive government files. The collection of taxes, the distribution of welfare and social security benefits, the supervision of public health, the direction of our Armed Forces, and the enforcement of the criminal laws all require the orderly preservation of great quantities of information, much of which is personal in character and potentially embarrassing or harmful if disclosed. The right to collect and use such data for public purposes is typically accompanied by a concomitant statutory or regulatory duty to avoid unwarranted disclosures. Recognizing that in some circumstances that duty arguably has its roots in the Constitution, nevertheless New York's statutory scheme, and its implementing administrative procedures, evidence a proper concern with, and protection of, the individual's interest in privacy. We therefore need not, and do not, decide any question which might be presented by the unwarranted disclosure.

62 *Id.* at 606.

63 *Id.*

prepared to say that future developments will not demonstrate the necessity of some curb on such technology."[64] Nevertheless, he concluded that strict scrutiny was not required unless and until there was some showing that the system would result of unauthorized dissemination.[65] Justice Stewart sharply disputed Justice Brennan's claim that broad dissemination "would clearly implicate constitutionally protected privacy rights." His concurring opinion demonstrates that the Supreme Court has never recognized such a privacy right.[66]

Whalen does not reveal whether government collection of personal DNA information implicates a privacy right that is an aspect of the liberty protected under the Fifth and Fourteenth Amendments. Instead, the case deals with the acquisition and storage of privately generated medical data. There are intimations that the state is constitutionally required to maintain the confidentiality of this information, but even this is unclear.

Nevertheless, some lower courts have recognized a privacy right to nondisclosure of stigmatizing personal information. For example, in *In re* Doe,[67] the Court of Appeals for the Second Circuit held that New York City's Commission on Human Rights may have violated the right to privacy by issuing a press release that identified the plaintiff as HIV seropositive.[68] In *Powell v. Schriver*,[69] the same court extended *Doe* to brand the gratuitous disclosure to prison inmates that a prisoner was an HIV positive transsexual as an invasion of the prisoner's right to privacy and to allow recovery of damages under the civil rights laws. In *Norman-Bloodsaw v. Lawrence Berkeley Laboratory*,[70] the Ninth Circuit Court of Appeals extended *Doe* and related cases to medical tests for pregnancy, syphilis, and the allele for sickle cell anemia.[71]

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64 *Id.* at 607.

65 "In this case, as the Court's opinion makes clear, the State's carefully designed program includes numerous safeguards intended to forestall the danger of indiscriminate disclosure. Given this serious and, so far as the record shows, successful effort to prevent abuse and limit access to the personal information at issue, I cannot say that the statute's provisions for computer storage, on their face, amount to a deprivation of constitutionally protected privacy interests, any more than the more traditional reporting provisions." *Id.*

66 *Id.* at 607.

67 15 F.3d 264 (2d Cir. 1994).

68 Plaintiff had entered into a conciliation agreement under which Delta Airlines hired him as a customer services agent. Notwithstanding the *Whalen* Court's explicit disclaimer of any decision regarding the constitutional basis of a right to nondisclosure of medical information, the Second Circuit wrote that *Whalen* "recognized" such a right. 15 F.3d at 267. Departing from Justice Brennan's view that the right to nondisclosure could be overcome only by a compelling state interest, the Court of Appeals remanded for further findings under an intermediate level of constitutional scrutiny that required only a substantial state interest to overcome the privacy right.

69 175 F.3d 107 (2d Cir. 1999).

70 135 F.3d 1260 (9th Cir. 1998).

71 Administrative and clerical employees at a national laboratory operated by state and federal authorities alleged that the laboratory tested their blood and urine for these conditions

These cases rest on a remarkably generous reading of *Whalen*,[72] and other courts have expressed "grave doubts" about the existence of a constitutional right to nondisclosure of "personal" information.[73] Nevertheless, assuming *arguendo* that *Doe*, *Powell*, and *Norman-Bloodsaw* are correctly decided, they do not invalidate arrestee DNA databanking. The purely identifying features of DNA are not in the same stigmatizing category as having tested positive for HIV or syphilis, having undergone a sex change operation, having used narcotics, or being pregnant. And, even if DNA data were the type of information to which the privacy right attaches, the unmistakable lesson of *Whalen v. Roe* is that collecting and storing the information do not infringe the right to privacy as long as the government provides effective safeguards to ensure the confidentiality of the DNA samples and data.[74]

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without their knowledge or consent. This testing, they contended, violated Title VII of the Civil Rights Act of 1964, the Americans with Disabilities Act (ADA), and their right to privacy as guaranteed by the constitutions of California and the United States. The district court granted the defendants' motions for dismissal, judgment on the pleadings, and summary judgment on all these claims. The Ninth Circuit affirmed as to the ADA claims, but reversed as to the Title VII and state and federal privacy claims. The court of appeals recognized that cases like *Doe*, "defining the privacy interest in medical information[,] have typically involved its disclosure to 'third' parties, rather than the collection of information by illicit means," but thought "it goes without saying that the most basic violation possible involves the performance of unauthorized tests — that is, the non-consensual retrieval of previously unrevealed medical information that may be unknown even to plaintiffs." *Id.* at 1269. Having discerned a liberty right under the Due Process Clause, however, the Ninth Circuit proceeded to analyze that right solely in Fourth Amendment terms, balancing the government's interest in collecting the information against the nature of the invasion of privacy. *Id.* The court reasoned that while the government had no legitimate interest in conducting the tests as alleged, the invasion was profound because it involved especially sensitive information about the health or genetic status of the employees. *Id.* at 1269–70.

72 *See supra* note 51. Another case sometimes cited in this context is *Nixon v. Administrator of General Services*, 433 U.S. 425 (1977). *E.g.*, Burk & Hess, *supra* note 18, at 34–35. *Nixon* recognizes that government inspection of family and financial records implicates an interest cognizable under the Due Process Clause.

73 *See* American Fed'n of Gov't Employees, AFL-CIO v. Dep't of Hous. & Urban Dev., 118 F.3d 786, 788 (D.C. Cir. 1997) (reviewing and analyzing the division among the circuits); Jarvis v. Wellman, 52 F.3d 125, 126 (6th Cir. 1995) (holding that no constitutionally protected privacy interest exists in medical records). The Fourth Circuit avoided the question in *Ferguson v. City of Charleston*, 186 F.3d 469 (4th Cir. 1999), *rev'd*, 121 S.Ct. 1281 (2001), when it upheld a policy instituted by the Medical University of South Carolina under which urine samples from maternity patients suspected of using cocaine were tested for cocaine and patients who tested positive were given a choice between being arrested and receiving drug counseling. The court of appeals reasoned that the arguable due process right yielded to the state's interest in protecting the fetus. On a writ of certiorari, the Supreme Court did not consider whether the collection of the information about the urine sample or the transmission of that information from the hospital to the police implicates a liberty interest under the Due Process Clause. Instead, it limited its analysis to the "special needs" exception to the warrant requirement of the Fourth Amendment. *See infra* Part IV.B.3.

74 This qualification should not be overlooked. *See infra* Part IV.B.4.

IV. SEARCH AND SEIZURE

Objections grounded in the Fourth Amendment are not so easily surmounted. That Amendment provides that:

> The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrant shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Thus, compulsory DNA sampling upon arrest would violate this right if (1) it constitutes a "search or seizure" that (2) is "unreasonable." The DNA data gathering system would be unreasonable (a) if the police lack a judicial warrant to take DNA, and a warrant is essential; (b) they lack adequate information to believe that the DNA will help to prove that the suspect is guilty of the crime for which the arrest is made, and such information is necessary; or (c) the system of collecting or using the samples unjustifiably invades personal privacy in other ways.

This section suggests that the threshold question of whether there is a search should be answered in the affirmative but that a carefully designed and very limited system of arrestee databanking should be deemed reasonable under the balancing test that the Supreme Court has applied to Fourth Amendment claims in recent years. Part A considers whether collecting DNA on arrest is a search. Part B discusses the standards or tests that might be used to determine reasonableness under the Fourth Amendment and how these apply to DNA databanking.

A. DNA SAMPLING AS A SEARCH OR SEIZURE

A threshold question in considering the constitutionality under the Fourth Amendment of DNA sampling is whether the acquisition of the sample is a search or seizure. If DNA sampling is not a search or seizure, then the Fourth Amendment is no barrier. As shown below, whether the collection of a biological sample is a search or seizure depends on the method of collection and the disposition of the sample. If sampling involves a physical intrusion into the body, the procedure is a search or seizure for Fourth Amendment purposes. But if it is merely an inspection of material on the surface of the body, it is arguable that there is a search or seizure only if subsequent analysis can reveal sensitive, personal information. Unless the process for DNA sampling upon arrest is highly circumscribed, it can reveal such information and therefore should be treated as a search.

1. *The* Katz *Standard*

A great deal of modern Fourth Amendment law is built on *Katz v. United States*.[75] In *Katz*, the government acquired key evidence to convict the defendant of interstate gambling by attaching an electronic listening and recording device to the outside of a public telephone booth. The government argued that the interception was not a search because there was no physical trespass and the telephone booth was a public place. The Supreme Court held that neither entry onto private property nor inspection of tangible items is an essential feature of a search, for "the Fourth Amendment protects people, not places."[76] It protected the defendant, the Court explained, because "a person in a telephone booth . . . who occupies it, shuts the door behind him, and pays the toll that permits him to place a call is surely entitled to assume that the words he utters into the mouthpiece will not be broadcast to the world."[77] Because the federal agents had no warrant authorizing the interception, the majority held that the search violated the Fourth Amendment.

In a concurring opinion, Justice Harlan elaborated on the majority's remarks. In perhaps the most famous passage in the opinions, he wrote: "[T]here is a twofold requirement, first that a person have exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as 'reasonable.'"[78] Applying this standard, he explained that "[t]he point is not that the booth is 'accessible to the public' at other times, but that it is a temporarily private place whose momentary occupants' expectations of freedom from intrusion are recognized as reasonable."[79]

Under *Katz*, the crucial threshold question for DNA sampling is whether society should recognize as reasonable the expectation that the sample is not "up for grabs" by the government. As applied to samples of biological material, several factors affect this determination. These include (1) the extent to which the material is displayed to the public, (2) the extent of the bodily invasion caused by the sampling procedure, and (3) the nature of the information that can be extracted from the sample. We now consider these in turn.

2. *Public Exposure and Knowledge*

Public exposure of a bodily characteristic is highly significant in determining whether forcing the individual to reveal that characteristic to the government is a Fourth Amendment search. In *Katz*, the notion of

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75 389 U.S. 347 (1967).
76 *Id.* at 351.
77 *Id.* at 352.
78 *Id.* at 361 (Harlan, J., concurring).
79 *Id.* at 361.

public exposure was pivotal.[80] The later case of *United States v. Dionisio*[81] also turns on this consideration. In *Dionisio*, federal agents had obtained a recording of a conversation showing illegal gambling operations. A grand jury ordered twenty people to read the transcript of the conversation aloud so that agents could record their voices. When Dionisio refused, the government obtained a court order compelling him to furnish the voice sample. Dionisio persisted, arguing that the order violated his rights to be free from self-incrimination and unreasonable searches and seizures. The district court held him in civil contempt and ordered him to be imprisoned until he complied or until the grand jury expired. The Court of Appeals for the Seventh Circuit reversed. It rejected the self-incrimination claim, but concluded that to force Dionisio to give a voice sample without having probable cause to believe that his voice was on the recording violated the Fourth Amendment.

The Supreme Court disagreed. It held that neither the grand jury subpoenas nor the recording process constituted a search or seizure. On historical grounds and because a grand jury subpoena does not itself physically confine anyone, the Court held that there was no "seizure" of the person. As for the taking of the voice sample, the Court again concluded that there was no action that fell within the scope of the Fourth Amendment. As the Court explained it:

> The physical characteristics of a person's voice, its tone and manner, as opposed to the content of a specific conversation, are constantly exposed to the public. Like a man's facial characteristics, or handwriting, his voice is repeatedly produced for others to hear. No person can have a reasonable expectation that others will not know the sound of his voice, any more than he can reasonably expect that his face will be a mystery to the world.[82]

The exposed-to-the-public principle, however, is ambiguous. In *Dionisio*, it was described in terms of features that are casually and constantly observed in public.[83] As to these characteristics, the approach

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[80] *See id.* at 351 ("What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection . . . . But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.").

[81] 410 U.S. 1 (1973).

[82] *Id.* at 14.

[83] *Id.* The opinion quoted with approval the observation in *United States v. Doe* (Schwartz), 457 F.2d 895, 898–99 (2d Cir. 1972), that:

> There is no basis for constructing a wall of privacy against the grand jury which does not exist in casual contacts with strangers. Hence no intrusion into an individual's privacy results from compelled execution of handwriting or voice exemplars; nothing is being exposed to the grand jury that has not previously been exposed to the public at large.

can be summarized as a public-knowledge rather than a mere public-exposure standard, and in this form it is relatively unproblematic. If the information about the person's body that the state seeks is known to people in the course of everyday life, and if authorities have secured the individual's presence consistently with the Fourth Amendment, then compelling the person to expose that information is not a further search or seizure.

But what about features that are less widely known or not known at all by casual observers? Courts have extended the notion of "exposed to the public" well beyond the range of that which is constantly exposed and easily observed. For example, fingerprints are deposited in public places, but their detailed structure is not common knowledge. Nevertheless, some courts have used the public-exposure principle to justify excluding compulsory fingerprinting from Fourth Amendment constraints.[84] In *Palmer v. State*,[85] for instance, the Indiana Supreme Court reasoned that the warrantless acquisition of defendant's fingerprints during his trial did not constitute a seizure forbidden by the Fourth Amendment because "fingerprints are an identifying factor readily available to the world at large."[86] Other courts, citing *Dionisio*, have held that shining an ultraviolet lamp on an arrestee's skin to expose chemicals transferred from stolen money is not a search because the flourescent

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[84] In *Dionisio* itself, the Court observed that fingerprinting "involves none of the probing into an individual's private life and thoughts that marks an interrogation or search." 410 U.S. at 15 (quoting *Davis v. Mississippi*, 394 U.S. 721, 727 (1969)). However, *Davis* did not hold that fingerprinting was not subject to the Fourth Amendment. Rather, the *Davis* Court suggested in dictum that "[i]t is arguable, however, that, because of the unique nature of the fingerprinting process, such detentions might, under narrowly defined circumstances, be found to comply with the Fourth Amendment even though there is no probable cause in the traditional sense." 394 U.S. at 727. Even so, the implication is that the detention to take fingerprints is a seizure of the person, but "the fingerprinting process itself" is not a search.

Likewise, in *Cardwell v. Lewis*, 417 U.S. 583 (1974), a plurality implied that scraping paint from the exterior of a suspect's car and examining it in the laboratory did not rise to the level of a search. *Id.* at 591–92 ("With the 'search' limited to the examination of the tire on the wheel and the taking of paint scrapings from the exterior of the vehicle left in the public parking lot, we fail to comprehend what expectation of privacy was infringed. Stated simply, the invasion of privacy, 'if it can be said to exist, is abstract and theoretical.'") (plurality opinion, footnote and citation omitted). *But see id.* at 592 ("Under circumstances such as these, *where probable cause exists*, a warrantless examination of the exterior of a car is not unreasonable under the Fourth and Fourteenth Amendments.") (emphasis added).

[85] 679 N.E.2d 887, 891 (Ind. 1997).

[86] *See also* State v. Inman, 301 A.2d 348, 355–56 (Me. 1973) ("By the very reason of their nature it cannot be considered that there is a constitutionally protected expectation of privacy as to the characteristics of the fingerprint pattern of one validly in police custody any more than it can be said there is a constitutionally protected expectation of privacy as to any other outward physical characteristic of one whose person has been validly seized."); Doe v. Poritz, 662 A.2d 367, 381 n.8 (N.J. 1995) ("because plaintiff has no reasonable expectation of privacy in his fingerprints, photograph or matters of public record, the requirement to provide such information as part of the registration process [for convicted sex offenders] does not constitute a search").

material "may be compared to a physical characteristic, such as a fingerprint or one's voice, which 'is constantly exposed to the public.'"[87]

Likewise, it might be argued that DNA is constantly exposed to the public. Many people shed hairs, cough or sneeze, expectorate, and even leave fingerprints that can contain cells. At best, however, the fact of such exposure is a relevant consideration in deciding whether the Fourth Amendment applies. *Dionisio* and cases extending it involve no intrusion into or touching of private areas of the body[88] and no discovery of information about the individual beyond the identifying characteristics. Accordingly, even if one takes the dubious position that DNA is constantly exposed to the public in a meaningful way, we must consider whether these additional factors create a reasonable expectation of privacy.

3. *Invasion of the Body*

An inspection or extraction that penetrates the body or enters its cavities usually is regarded as infringing a reasonable expectation of privacy and hence falling within the zone of the Fourth Amendment. DNA can be extracted from many sources, including white blood cells, buccal cells inside the cheek, saliva, and (probably) skin scrapings.[89] As explained below, the manner of extraction and the site of the materials extracted indicate that the former two procedures are searches, but these factors are not dispositive of how the latter two should be treated.

a. Blood Samples

Removing blood from the circulatory system invades bodily integrity, and as such, constitutes a search. The leading case is *Schmerber v. California*,[90] which involved taking blood from a man being treated in a hospital for injuries received in an automobile accident.[91] The Supreme

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87 State v. Holzapfel, 748 P.2d 953 (Mont. 1988) (quoting *Commonwealth v. DeWitt*, 314 A.2d 27, 30–31 (Pa. Super. Ct. 1973). *See also* United States v. Richardson, 388 F.2d 842, 845 (6th Cir. 1968) ("We do not regard the examination of appellant's hands under the ultraviolet light as a search within the meaning of the Fourth Amendment."). A minority of jurisdictions reject this view. *See, e.g.*, People v. Santistevan, 715 P.2d 792 (Colo. 1986).

88 *Cf.* McClain v. State, 410 N.E.2d 1297 (Ind. 1980) (penile emission sample to test for gonorrhea is a search subject to Fourth Amendment).

89 DNA also can be extracted from hair samples that include cells from the roots. Courts are divided on the question of whether taking a hair sample rises to the level of a Fourth Amendment search or seizure. *See, e.g.*, United States v. DeParias, 805 F.2d 1447, 1456–57 (11th Cir.1986); United States v. Anderson, 739 F.2d 1254, 1256–57 (7th Cir. 1984). In *In re Grand Jury Proceedings (Mills)*, 686 F.2d 135 (3d Cir. 1982), a divided panel held that because hair was visible to the public, *Dionisio* governed as to removing hairs by cutting, but noted that extracting the portion below the skin might make the result in *Cupp v. Murphy*, 412 U.S. 291 (1973) (*see infra* text accompanying notes 94–97) applicable.

90 384 U.S. 757 (1966).

91 *See supra* Part I.

Court held that the warrantless seizure of the blood at the direction of the police met the Fourth Amendment's reasonableness standard, and it described the applicability of that amendment in no uncertain terms:

> It could not reasonably be argued, and indeed respondent does not argue, that the administration of the blood test in this case was free of the constraints of the Fourth Amendment. Such testing procedures plainly constitute searches of 'persons,' and depend antecedently upon seizures of 'persons,' within the meaning of that Amendment.[92]

Schmerber was decided in 1966, however; today, it is possible to withdraw blood from a fingertip with a device that leaves almost no trace and produces virtually no sensation. This advance in technology makes blood sampling less disturbing than using a hypodermic needle and syringe or even pricking a fingertip and squeezing, but it does not overcome the fact that tissue in a portion of the body that is not voluntarily exposed to the world is being extracted. Consequently, even if blood could be "teleported" from the inside of the body to an external container, the "person" would be searched.

b. Buccal Swabs and Oral Sampling

Swabbing the inside of the cheek can provide cells for DNA analysis, as can other devices placed inside the mouth.[93] These procedures are less invasive than removing blood by conventional means, but they too exceed an inspection of the surface of the body presented to the public at large. Consequently, buccal swabbing and the like should trigger Fourth Amendment protection. This conclusion seems confirmed by *Cupp v. Murphy*.[94] In *Cupp*, the defendant was suspected of strangling his wife. Police took fingernail scrapings from him over his objections. The scrapings contained "traces of skin and blood cells, and fabric from the victim's nightgown,"[95] and defendant was convicted of murder. The case

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92 *Id.* at 767.

93 An oral sampling device that has proved effective for HIV screening consists of a specially treated pad that is placed between the lower cheek and the gum for two minutes. This pad is designed to collect oral mucosal transudate rather than saliva. The collection pad, attached to a plastic handle, is then placed in a vial of preservative, and the fluid extracted for later analysis. *See Update on OraSure: A New HIV Antibody Test*, *at* http://web1.tch.harvard.edu/adolescent/happens/newsletter/volume3/number2/article8.html (visited Mar. 8, 2000). The device can be used for forensic DNA testing. Moses S. Schanfield et al., Abstract, *A New Oral Sampling Device for the Collection of Human DNA*, Ninth Annual Symposium on Human Identification (1998), *available at* http://www.promega.com/geneticidproc/ussymp9proc/abstracts.html (visited Mar. 8, 2000); Product Information, *at* http://www.orasure.com/applications.htm (visited Mar. 8, 2000).

94 412 U.S. 291 (1973).

95 *Id.* at 292.

came to Supreme Court on a petition for a writ of habeas corpus. The Court reasoned that the removal of the sample was a search:

> Unlike the fingerprinting in *Davis*, the voice exemplar obtained in *United States v. Dionisio*, . . . or the handwriting exemplar obtained in *United States v. Mara*,[96] the search of the respondent's fingernails went beyond mere 'physical characteristics . . . constantly exposed to the public,' . . . and constituted the type of 'severe, though brief, intrusion upon cherished personal security' that is subject to constitutional scrutiny.[97]

If scraping or cutting a fingernail to remove dried blood or other debris is a search, then so is scraping the inside of a cheek.

c. Saliva Samples

Saliva sampling resembles the voice sample found to lie outside the zone of the Fourth Amendment in *Dionisio*. A voice sample travels from the larynx to locations outside the body — nothing is inserted into the body or a body cavity to extract the sound. Likewise, a saliva sample can be acquired without any intrusion. However, the situation differs from *Dionisio* in that saliva, unlike voice, is not routinely presented to the public.

Cases dealing with breath sampling seem to blur these considerations together. The Supreme Court spoke to the classification of breath sampling in *Skinner v. Railway Labor Executives' Association*.[98] In that case, the Federal Railroad Administration had promulgated regulations that mandated blood and urine tests of employees involved in certain train accidents and that authorized railroads to administer breath and urine tests to employees who violate certain safety rules. Some provisions authorized breath and urine tests on a "reasonable suspicion" of drug or alcohol impairment, but others did not require any showing of individualized suspicion. Railway employees alleged that this system violated their Fourth Amendment rights. The Court of Appeals for the Ninth Circuit invalidated the regulations, holding that the drug-testing required reasonable suspicion.

The Supreme Court reversed, but it did not dispute that taking breath samples is a search. To the contrary, the Court apparently perceived no distinction between taking blood by puncturing a blood vessel and having a person expel air from the mouth. The majority wrote as follows:

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[96] 410 U.S. 19 (1973).

[97] *Id.* at 295.

[98] 489 U.S. 602 (1989).

> We have long recognized that a 'compelled intrusio[n] into the body for blood to be analyzed for alcohol content' must be deemed a Fourth Amendment search. See *Schmerber v. California*, 384 U.S. 757, 767–768 (1966). See also *Winston v. Lee*, 470 U.S. 753, 760 (1985).[99] In light of our society's concern for the security of one's person, see, *e.g.*, *Terry v. Ohio*, 392 U.S. 1, 9 (1968),[100] it is obvious that this physical intrusion, penetrating beneath the skin, infringes an expectation of privacy that society is prepared to recognize as reasonable. The ensuing chemical analysis of the sample to obtain physiological data is a further invasion of the tested employee's privacy interests. Cf. *Arizona v. Hicks*, 480 U.S. 321, 324-325 (1987). Much the same is true of the breath-testing procedures . . . . Subjecting a person to a breathalyzer test, which generally requires the production of alveolar or 'deep lung' breath for chemical analysis, . . . implicates similar concerns about bodily integrity and, like the blood-alcohol test we considered in *Schmerber*, should also be deemed a search
> . . . .
> Apparently, the location of the air — in the alveoli — rather than innocuous method of collecting it, was crucial to the *Skinner* Court.[101]

This single-minded focus on location leads one to ask whether material from the mouth rather than the lungs should be treated any differently.[102] It is difficult to see why, but the cursory analysis in *Skinner*

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99 *Winston* held that a court-approved removal of a bullet lodged just below the skin of a suspect done under a local anesthetic was an unreasonable search, given the availability of other evidence against the suspect and conflicting medical testimony on the risks of the operation.

100 *Terry* held the Fourth Amendment applicable to "stop and frisks." Balancing the extent of the invasion against the value to law enforcement, however, the court held that investigative stops and "pat-downs" merely required "reasonable suspicion"; neither a warrant nor probable cause was necessary.

101 489 U.S. at 616–17 (some citations omitted).

102 Technically, *Skinner* leaves open the question whether taking air from the mouth instead of the alveoli would be sufficiently less intrusive to avoid the "search" classification. After all, that air is, in some sense, more exposed to the outside world than the "deep lung" air that *Skinner* protects. The tenuousness of such distinctions points up the limitations of *Skinner*'s emphasis on location. The question of what investigations of the body or its contents should be considered a search involves a richer set of considerations, some of which are discussed at other points in *Skinner*.

leaves open the argument that saliva sampling is not a search because it involves no penetration of the body or its cavities.[103]

d. Skin Scrapings

Collecting DNA from exfoliating epidermal cells would be even less invasive than saliva sampling. These cells are on the outside of the body, where they are "visible" to the world in much the same sense that fingerprints are exposed to the world. If an adequate number could be obtained by a procedure that is no more disturbing than fingerprinting, then both the site from which they are taken and the method of collection would suggest that this form of DNA sampling is not a search.

In sum, although taking blood or buccal cells is likely to be considered a search subject to the Fourth Amendment because of the method of extraction and location of the cells, it is possible that taking saliva or epidermal cells will not be considered a search on the basis of these factors alone. However, the lines being drawn in the cases on bodily intrusions or inspections seem rather faint, and the logic behind them gives too much weight to what is technically but not functionally exposed to the public.[104] The better view is that all the forms of DNA sampling

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[103] Most lower courts have held that compelling a person to produce a saliva sample is a search. *See* United States v. Nicolosi, 885 F. Supp. 50, 56 (E.D.N.Y. 1995); Henry v. Ryan, 775 F. Supp. 247, 253 (N.D. Ill. 1991); State v. Ostroski, 518 A.2d 915 (Conn. 1986); State v. Reeves, 671 P.2d 553 (Kan. 1983). *But see* People v. Wealer, 636 N.E.2d 1129, 1132 (Ill. Ct. App. 1994) (although the state conceded that taking and analyzing saliva is a search, "the level of intrusion necessary to obtain a saliva sample would on its face appear lower than that required for extracting blood"); State v. Zuniga, 357 S.E.2d 898 (N.C. 1987) (taking of saliva is unintrusive and therefore not a search).

[104] One might have hoped that the Supreme Court's latest encounter with defining a "search" in *Kyllo v. United States*, 121 S.Ct. 2038 (2001), would have clarified the viability of the "public exposure" theory. In *Kyllo*, a federal agent used an infrared detector to find that "the roof over the garage and a side wall of petitioner's home were relatively hot compared to the rest of the home and substantially warmer than neighboring homes in the triplex." *Id.* at 2041. "Based on tips from informants, utility bills, and the thermal imaging, a federal magistrate judge issued a warrant authorizing a search of [Kyllo's] home, and the agents found an indoor growing operation involving more than 100 plants." *Id.* Before trial, Kyllo moved to suppress the evidence on the ground that the thermal imaging required a warrant. When the motion was denied, he entered a conditional guilty plea and appealed. The Ninth Circuit Court of Appeals ultimately affirmed, reasoning that defendant had neither a subjective nor an objectively reasonable expectation that "amorphous 'hot spots' on the roof and exterior wall" would go unobserved. *Id.* In other words, according to the Court of Appeals, there was no "search."

A sharply divided Supreme Court reversed. At first blush, this reversal seems to undermine the view that inspecting materials on the surface of the body is not a search. After all, if the use of an instrument to capture infrared rays coming from the surface of a house is a search, it might seem that so is the use an instrument to capture and analyze DNA on the surface of the body. However, the rationale of *Kyllo* is quite limited. Justice Scalia's opinion for a majority of five Justices looks to the historically recognized zone of privacy in which government surveillance is prohibited. Apparently assuming that Eighteenth Century constables would have had to enter the house to detect heat sources — a trespass that is the very paradigm of a search — the majority announced that the infrared scan also was a search. As

considered here should be denominated searches for the purpose of the Fourth Amendment. Furthermore, this conclusion is fortified by consideration of a third factor — the nature of the information derived from the cells.

4. *Nature of the Information*

Thus far, we have focused on the extent to which the material to be collected is exposed to the public and the manner in which it is collected. The final consideration in determining whether removal or inspection of bodily material constitutes a search is the nature of the information that can be derived from it. In bringing this factor to the foreground, *Skinner* makes a useful contribution. The majority opinion recognizes that "[u]nlike the blood-testing procedure at issue in *Schmerber*, the procedures prescribed by the . . . regulations for collecting and testing urine samples do not entail a surgical intrusion into the body."[105] Nonetheless, the opinion concludes that urine sampling followed by urinalysis is a search for the following reasons:

> It is not disputed, however, that chemical analysis of urine, like that of blood, can reveal a host of private medical facts about an employee, including whether he or she is epileptic, pregnant, or diabetic. Nor can it be disputed that the process of collecting the sample to be tested, which may in some cases involve visual or aural monitoring of the act of urination, itself implicates privacy interests.[106]

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the Court put it, "obtaining by sense-enhancing technology any information regarding the interior of the home that could not otherwise have been obtained without physical 'intrusion into a constitutionally protected area,' constitutes a search — at least where (as here) the technology in question is not in general public use." *Id.* at 2043. In other words, *Kyllo* establishes no more than that the use of technology that is functionally equivalent to trespassing into a home to acquire information is a search. This result, the Court suggested, was necessary for "the preservation of that degree of privacy against government that existed when the Fourth Amendment was adopted." *Id.* To hold otherwise, the majority insisted, would "permit police technology to erode the privacy [originally] guaranteed by the Fourth Amendment." *Id.*

In contrast, the Fourth Amendment's protections against searches (as opposed to seizures) of the person lack "roots deep in the common law . . . ." *Id.* As the *Schmerber* Court observed, in "dealing with intrusions into the human body rather than with state interferences with property relationships or private papers — 'houses, papers, and effects' — we write on a clean slate." 384 U.S. at 767–78. Therefore, *Kyllo*'s functional equivalence test does not dictate the conclusion that it is a "search" to take from the surface of a person's skin cells that are constantly being shed and to analyze the DNA they contain. Unlike infrared scanning that, in effect, places the police in the interior of a house, DNA sampling and analysis is not functionally equivalent to any Eighteenth Century practice proscribed by the Fourth Amendment.

105 489 U.S. at 617.

106 *Id.*

The concern with "private medical facts" arises with any samples that can be subjected to DNA analysis. Arguably, *Skinner* is distinguishable in that urinalysis involves both the possible revelation of private information *and* interference with what might be called, for want of a better phrase, "excretory privacy." DNA sampling is closer to voice sampling in that it can be done noninvasively, but it is closer to urinalysis in that subsequent biochemical testing can reveal "private medical facts." To this extent, it cannot be said that DNA sampling, like the fingerprinting in *Davis*, "involves none of the probing into an individual's private life and thoughts that marks an interrogation or search."[107] Certain parts of one's genome — those related to otherwise nonobvious disease states or behavioral characteristics — are as much, if not more, a part of "an individual's private life" as are the hormones or other chemicals found in one's urine.

Perhaps the conclusion that DNA sampling is a search because of the nature of the information in the sample could be avoided by a procedure that made it virtually impossible to extract sensitive information. If the DNA is obtained in a noninvasive manner and if information related to identification and nothing else could be obtained from it, the analogy to fingerprinting would be complete. Suppose, for instance, that police were equipped with miniaturized DNA chips that could probe only nonfunctional STR loci and that would destroy the DNA once it has been analyzed and the alleles recorded. This system might not rise to the level of a search. As currently practiced, however, DNA sampling should be considered a search within the meaning of the Fourth Amendment.[108]

This conclusion does not imply that DNA sampling is impermissible — only that it must be subjected to serious Fourth Amendment analysis. As the *Skinner* Court observed, "[t]o hold that the Fourth Amendment is applicable to the . . . testing . . . is only to begin the inquiry into the standards governing such intrusions."[109] It is time to articulate these standards for ascertaining the "reasonableness" of searches and to apply them to DNA sampling upon arrest.

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[107] Davis v. Mississippi, 394 U.S. 721, 727 (1969).

[108] The lower courts invariably deem blood sampling for DNA analysis to constitute a search or seizure, but their reasoning often is cursory. They rarely consider the nature of the extraction or the informational-privacy aspect of the subsequent analysis. *But see* People v. Wealer, 636 N.E.2d 1129, 1132 (Ill. App. Ct. 1994) ("conducting additional analysis on the sample further implicates Fourth Amendment interests").

[109] 489 U.S. at 618–19.

B. THE REASONABLENESS OF DNA SAMPLING UPON ARREST

1. *The Framework for Analysis: Categorizing versus Balancing*

The reasonableness of a search can depend on many factors: the presence of a warrant, or, in the absence of a warrant, the feasibility or value of securing one; the extent and nature of the invasion of privacy; the purpose of the search; and the likelihood that it will achieve its goal. In theory, courts could inquire into the totality of the circumstances in each case.[110] In practice, however, the courts usually determine reasonableness by invoking a general rule that searches require warrants,[111] then looking through a pragmatic collection of categorical exceptions to this stringent demand.[112] For instance, in *Cupp v. Murphy*,[113] the nail scraping case, the Court held that the search was reasonable, but only because it fell into a previously accepted category of warrantless searches. Namely, the search was "incident to a valid arrest"[114] in the sense that

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110 *See* Bell v. Wolfish, 441 U.S. 520, 559 (1979) ("The test of reasonableness under the Fourth Amendment is not capable of precise definition or mechanical application. In each case it requires a balancing of the need for the particular search against the invasion of personal rights that the search entails. Courts must consider the scope of the particular intrusion, the manner in which it is conducted, the justification for initiating it, and the place in which it is conducted. *E.g.*, United States v. Ramsey, 431 U.S. 606 (1977); United States v. Martinez-Fuerte, 428 U.S. 543 (1976); United States v. Brignoni-Ponce, 422 U.S. 873 (1975); Terry v. Ohio, 392 U.S. 1, 8–31 (1968); Katz v. United States, 389 U.S. 347, 348–59 (1967); Schmerber v. California, 384 U.S. 757, 766–72 (1966).").

111 *See, e.g.*, Mincey v. Arizona, 437 U.S. 385, 390 (1978) (asserting that "[t]he Fourth Amendment proscribes all unreasonable searches and seizures, and it is a cardinal principle that 'searches conducted outside the judicial process, without prior approval by judge or magistrate, are per se unreasonable under the Fourth Amendment — subject only to a few specifically established and well-delineated exceptions,'" quoting *Katz v. United States*, 389 U.S. 347, 357 (1967) (footnotes omitted), and citing *South Dakota v. Opperman*, 428 U.S. 364, 381 (1976) (Powell, J., concurring); *Coolidge v. New Hampshire*, 403 U.S. 443, 481 (1971); *Vale v. Louisiana*, 399 U.S. 30, 34 (1970); *Terry v. Ohio*, 392 U.S. 1, 20 (1968); and *Trupiano v. United States*, 334 U.S. 699, 705 (1948)). The foundation for the general rule is less than clear. The first clause of the Fourth Amendment bars unreasonable searches and seizures, while the second clause requires that warrants be based on probable cause and meet certain other requirements. But the amendment is silent on how the Reasonableness Clause and the Warrant Clause interact, and the historical record does not suggest that the former encompasses the latter. *See* AKHIL REED AMAR, THE CONSTITUTION AND CRIMINAL PROCEDURE (1997).

112 At times, the Court has articulated a different vision of the amendment in which the Warrant Clause simply states the elements of a valid warrant (probable cause, particularity, and oath), should the state decide to seek one. Under this view, the absence of a warrant is merely one factor among many to consider in evaluating the reasonableness of a search. As the Court stated in *Terry v. Ohio*, 392 U.S. 1 (1968), which upheld warrantless, investigatory "stop-and-frisks" on less than probable cause, "the central inquiry [is] the reasonableness in all the circumstances of the particular governmental invasion of a citizen's personal security." *Id.* at 19. This view of the amendment is developed more fully in AMAR, *supra* note 111, at 1–45.

113 412 U.S. 291 (1973).

114 *Id.* at 295 ("We believe this search was constitutionally permissible under the principles of *Chimel v. California*, 395 U.S. 752. *Chimel* stands in a long line of cases recognizing an exception to the warrant requirement when a search is incident to a valid arrest.").

the police needed to act immediately to preserve the sample.[115] There was probable cause, and the exigent circumstances justified the police in acting before seeking a warrant. Rules like these reflect, to varying degrees of accuracy, a balancing of the broad considerations listed above.

Applying these rules to collecting and storing DNA information on arrestees suggests that a highly circumscribed system of sampling and typing would be constitutionally acceptable. The constitutional analysis must attend to the following possible objections to DNA databanking: (a) there is no warrant and no probable cause (let alone reasonable suspicion) that the search will produce evidence of the offense for which the arrest is made; and (b) the sampling infringes bodily integrity and informational privacy. In several other situations where these objections have been raised, however, the Supreme Court has held that the government could undertake searches or seizures without a warrant and without individualized suspicion.[116] If DNA databanking falls into one of the categories that these cases have established, it satisfies the Fourth Amendment. If it does not, we must ask whether a new exception should be created—an inquiry that requires balancing the seriousness of the invasion of privacy against the governmental interests in the search.[117]

This approach of defining and applying categorical exceptions can be contrasted to case-by-case balancing. In recent years, the Court, speaking through Justice Scalia, has interpreted the Fourth Amendment as requiring ad hoc balancing for searches as to which no clear historical precedent exists.[118] In *Vernonia School District 47J v. Acton*,[119] a case upholding mandatory random drug-testing of high school athletes, Justice Scalia declared that:

> At least in a case such as this, where there was no clear practice, either approving or disapproving the type of search at issue, at the time the constitutional provision was enacted, whether a particular search meets the rea-

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115 Before the police intervened, defendant had placed his hands behind his back, then into his pockets, and a metallic sound, such as keys or change rattling, was heard. "The rationale of *Chimel*, in these circumstances, justified the police in subjecting him to the very limited search necessary to preserve the highly evanescent evidence they found under his fingernails." *Id.* at 296. (Taking an arrestee's DNA cannot be justified on the basis of the "incident to arrest" exception. This well established exception permits warrantless searches tailored to protecting the arresting officers from attack or potential evidence from destruction. *See* Chimel v. California, 395 U.S. 752 (1969). It does not justify routine searches unrelated to the offense for which the arrest is made.)

116 *See infra* Part IV.B.3.

117 *See infra* Part IV.B.4.

118 For criticism of Justice Scalia's theory of "constitutionalized common law," see David A. Sklansky, *The Fourth Amendment and Common Law*, 100 COLUM. L. REV. 1739, 1808 (2000).

119 515 U.S. 646 (1995).

> sonableness standard "is judged by balancing its intrusion on the individual's Fourth Amendment interests against its promotion of legitimate governmental interests."[120]

As applied to DNA databanking, the choice between categorical analysis and direct balancing does not seem crucial.[121] It is open to the courts to create new exceptions, and the same factors that operate in direct balancing will come into play. It will suffice to consider whether DNA databanking fits the established categories and whether the case for a new category is strong.

2. *The "True Identity" Exception*

The courts have long recognized the importance of accurately identifying individuals who are arrested. One century ago, in *State ex rel. Bruns v. Clausmeier*,[122] an arrestee sought damages from a sheriff for taking plaintiff's picture and including it in the local "Rogues' Gallery." The Indiana Supreme Court held that the sheriff was acting within his lawful authority:

> It would seem, therefore, if, in the discretion of the sheriff, he should deem it necessary to the safe-keeping of a prisoner and to prevent his escape, or to enable him the more readily to retake the prisoner if he should escape, to take his photograph, and a measurement of his height, and ascertain his weight, name, residence, place of birth,

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120 *Id.* at 652–53 (citing *Skinner*, at 619; footnote and internal quotation marks omitted). Similar language appears in *Wyoming v. Houghton*, 119 S.Ct. 1297, 1300 (1999):

> In determining whether a particular governmental action violates this provision, we inquire first whether the action was regarded as an unlawful search or seizure under the common law when the Amendment was framed. See *Wilson v. Arkansas*, 514 U.S. 927, 931 (1995); *California v. Hodari D.*, 499 U.S. 621, 624 (1991). Where that inquiry yields no answer, we must evaluate the search or seizure under traditional standards of reasonableness by assessing, on the one hand, the degree to which it intrudes upon an individual's privacy and, on the other, the degree to which it is needed for the promotion of legitimate governmental interests. See, *e.g., Vernonia Sch. Dist. 47J v. Acton*, 515 U.S. 646, 652–653 (1995).

Justice Breyer preferred to place less emphasis on history, commenting that "I join the Court's opinion with the understanding that history is meant to inform, but not automatically to determine, the answer to a Fourth Amendment question." *Houghton*, 119 S.Ct. at 1304 (concurring opinion).

121 *But see* Akhil Reed Amar, *Foreword: The Document and the Doctrine*, 114 HARV. L. REV. 26, 126 (2000) (suggesting that a universal DNA database would be permissible under a reasonableness inquiry "as defined by the values of the rest of the Constitution" but that "it is far from clear that current doctrine would allow this scheme, because it contemplates intrusions for criminal law-enforcement purposes in the absence of . . . individualized suspicion . . . a category of search that doctrine strongly disfavors").

122 57 N.E. 541 (Ind. 1900).

> occupation, and the color of his eyes, hair, and beard, as was done in this case, he could lawfully do so.[123]

In 1932, in *United States v. Kelly*,[124] a distinguished panel of the Second Circuit,[125] dismissed a petition alleging that federal agents violated the Constitution in taking the fingerprints of a man arrested for selling a quart of gin. Judge Augustus Hand observed that fingerprinting had become "a method of identifying persons charged with crime [that is] widely known and frequently practiced both in jurisdictions where there are statutory provisions regulating it and where it has no sanction other than the common law."[126] The court allowed that "[a]ny restraint of the person may be burdensome,"[127] but reasoned that:

> Such means for the identification of prisoners so that they may be apprehended in the event of escape, so that second offenders may be detected for purposes of proper sentence where conviction is had, and so that the government may be able to ascertain, as required by . . . the National Prohibition Act, whether the defendant has been previously convicted, are most important adjuncts of the enforcement of the criminal laws . . . . The slight interference with the person involved in finger printing seems to us one which must be borne in the common interest.[128]

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123 *Id.* at 542.

124 55 F.2d 67 (2d Cir. 1932).

125 *Id.* (The panel consisted of Learned Hand, Thomas Swan, and Augustus Hand).

126 *Id.* at 70. The Second Circuit summarized the pertinent cases as follows:

> The Maryland Court of Appeals held that it was lawful, though before conviction, to photograph and measure under the Bertillon system a person arrested on a felony charge. Downs v. Swann, 111 Md. 53, 73 A. 653 . . . . In Maryland no statute existed authorizing such means of identification. The Supreme Court of Indiana reached a similar conclusion in State ex rel. Bruns v. Clausmeier, 154 Ind. 599, 57 N.E. 541 . . . and O'Brien v. State, 125 Ind. 38, 25 N.E. 137 . . . and so did the Supreme Court of Arkansas in Mabry v. Kettering, 92 Ark. 81, 122 S.W. 115. The Court of Appeals of the District of Columbia is in accord. Shaffer v. U.S., 24 App. D.C. 417. The Court of Chancery of New Jersey in Bartletta v. McFeeley, 107 N.J. Eq. 141, 152 A. 17, held only a year ago, and in the absence of a statute, that a prisoner who had been arrested for possessing papers pertaining to a lottery was lawfully subjected to photographing, finger printing, and measurement under the Bertillon system. To the same effect is the opinion of the New York Court of General Sessions in People v. Sallow, 100 Misc.Rep. 447, 165 N.Y.S. 915, and of the Supreme Court of the District of Columbia in United States v. Cross, 9 Mackey (20 D.C.) at page 382.

Id. at 69.

127 *Id.* at 68.

128 *Id.* The court placed little emphasis on the value of fingerprints to prove prior convictions under the National Prohibition Act, writing "[w]e prefer, however, to rest our decision upon the general right of the authorities charged with the enforcement of the criminal law to

Indeed, in most jurisdictions escape from arrest is a separate criminal offense.[129] Once lawfully arrested, a person has an obligation to remain in custody until the police complete the necessary administrative processing, sometimes culminating in pretrial release and sometimes in pretrial incarceration. Making a record of identifying characteristics of every arrestee facilitates the enforcement of the statutes criminalizing escape from arrest.

Thus, although the Supreme Court has yet to bestow its formal blessing on routine fingerprinting or other identification procedures on arrest, it has intimated that inquiries that merely identify arrestees are valid,[130] and today most courts take the propriety of fingerprinting arrestees for granted.[131] The procedure is a kind of inventory search, providing an unequivocal record of just who has been arrested, that is considered appropriate when the state takes an individual into custody.[132]

Of course, recording biometric data that help establish the identity of those charged with crimes could serve another function. Once the data have been justifiably obtained as part of the "inventory" of the arrested individual, they might be used to solve crimes unrelated to the one for which the arrest was made, on the ground that the further use does not amount to an independent invasion of privacy.[133] For example, "mug shots" can be shown to a victim of a robbery in the hope that the victim will be able to identify the perpetrator or to exclude innocent suspects.[134] Some courts have turned this investigative practice into a neologistic ra-

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employ finger printing as an appropriate means to identify criminals and detect crime." *Id.* at 70.

129 *See, e.g.*, ALA. CODE § 13A-10-33 (1975); MODEL PENAL CODE § 242.6.

130 *See* Illinois v. LaFayette, 462 U.S. 640, 646 (1983) (plurality opinion offering the fact that "inspection of an arrestee's personal property may assist the police in ascertaining or verifying his identity" as one ground for allowing a warrantless, inventory search of the shoulder bag of an incarcerated arrestee); *cf.* Pennsylvania v. Muniz, 496 U.S. 582 (1990) (plurality opinion treating procedures to identify an arrestee as exempt from the strictures of *Miranda v. Arizona*, 384 U.S. 436 (1966), discussed *supra* note 39).

131 *E.g.*, Napolitano v. United States, 340 F.2d 313, 314 (1st Cir. 1965) ("Taking of fingerprints [prior to bail] is universally standard procedure, and no violation of constitutional rights."); Smith v. United States, 324 F.2d 879, 882 (D.C. Cir. 1963) ("[I]t is elementary that a person in lawful custody may be required to submit to photographing . . . and fingerprinting . . . as part of routine identification processes.").

132 For cases approving of inventory searches of possessions or automobiles following an arrest, see, e.g., Illinois v. LaFayette, 462 U.S. 640 (1983); South Dakota v. Opperman, 428 U.S. 364 (1976).

133 The general principle, reflected in a variety of Fourth Amendment cases, is that evidence legitimately acquired for one purpose can used for another purpose, at least if the additional use entails no further search or seizure of the person. *See* Imwinkelried & Kaye, *supra* note 1, at 418 n.24 (2001). Under this principle, once the authorities have acquired a suspect's genotype legally, they are permitted to compare it to genotypes from unrelated, unsolved crime-scene stains. *Id.* at 418 n.23 (collecting cases).

134 Of course, acquiring pictures of lawfully detained individuals also is permissible under the theory that ordinary photography is not a search or seizure. *Cf.* United States v. Dionisio,

tionale for fingerprinting. In *Jones v. Murray*,[135] the first federal appellate case to address the constitutionality of DNA databanking for convicted offenders, the Fourth Circuit pointed to "universal approbation of 'booking' procedures that are followed for every suspect arrested for a felony, whether or not the proof of a particular suspect's crime will involve the use of fingerprint identification."[136] In articulating "the government's interest in preserving a permanent identification record of convicted felons,"[137] however, the *Jones* court lost sight of the original rationale for fingerprinting and spoke only of "resolving past and future crimes"[138] in that "[i]t is a well recognized aspect of criminal conduct that the perpetrator will take unusual steps to conceal not only his conduct, but also his identity."[139] Emphasizing that "[d]isguises used while committing a crime may be supplemented or replaced by changed names, and even changed physical features,"[140] the court concluded that collecting DNA genotypes, like taking fingerprints, is justified to link an offender to a crime.[141]

These observations of the *Jones* court may well be correct — the power of DNA typing to forge links between suspects and criminal activity cannot be denied. However, this investigatory use of biometric data is not what underlies the "identification exception." The analysis in *Jones* posits a government interest that is distinct from the traditional justification for recording biometric data. This investigatory interest is more appropriately analyzed under the "special needs" exception or under a newly created exception as discussed in the next two sections. The normal "identification exception" might be better denominated a "true identity" exception, since it merely relates to the government's need to know precisely who it has arrested.

Although the "identity exception" seems well established, whether DNA typing can be subsumed within it is less clear. On the one hand, fingerprints already provide an unequivocal, and in some respects, a better record of personal identity than forensic DNA typing. Monozygotic

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410 U.S. 1 (1973) (voice exemplar); United States v. Mara, 410 U.S. 19 (1973) (handwriting exemplar).

135 962 F.2d 302 (4th Cir. 1992).

136 *Id.* at 306.

137 *Id.* at 307.

138 *Id.*

139 *Id.*

140 *Id.*

141 *Id.* ("Even a suspect with altered physical features cannot escape the match that his DNA might make with a sample contained in a DNA bank, or left at the scene of a crime within samples of blood, skin, semen or hair follicles. The governmental justification for this form of identification, therefore, relies on no argument different in kind from that traditionally advanced for taking fingerprints and photographs, but with additional force because of the potentially greater precision of DNA sampling and matching methods.").

twins can be distinguished by their fingerprints, but not by their genotypes.[142] In addition, with current technology, fingerprints can be obtained more easily and more cheaply than DNA profiles. On the other hand, fingerprint patterns cannot be converted into numerical data that can be searched as efficiently as DNA data.[143] Also, an arrestee might be carrying false identification, and searching a database of DNA prints of individuals with outstanding warrants might reveal that the arrestee is a fugitive. Unless the Fourth Amendment creates a constitutional straightjacket that fits but one biometric identifier, the narrow, "true identity" exception should pertain to DNA genotyping as much as it does to fingerprinting.

3. *The "Special Needs" Exception*

A relatively recent and somewhat amorphous category of searches that do not require a warrant or individualized suspicion goes under the rubric of "special needs."[144] As discussed below, these cases involve searches undertaken for some purpose other than, or in addition to, the interception of contraband or the discovery of evidence of crime. Usually, but not always, these searches are not undertaken by the police. The category is described in *National Treasury Employees Union v. Von Raab*,[145] as follows:

> While we have often emphasized, and reiterate today, that a search must be supported, as a general matter, by a warrant issued upon probable cause, . . . our decision in *Railway Labor Executives* reaffirms the longstanding principle that neither a warrant nor probable cause, nor, indeed, any measure of individualized suspicion, is an indispensable component of reasonableness in every circumstance. . . . [O]ur cases establish that where a Fourth Amendment intrusion serves special governmental needs, beyond the normal need for law enforcement, it is necessary to balance the individual's privacy expectations against the Government's interests to determine whether it is impractical to require a warrant or

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142 *See* C.H. Lin et al., *Fingerprint Comparison. I: Similarity of Fingerprints*, 27 J. FORENSIC SCI. 290 (1982).

143 *See* Eric Scigliano, *The Tide of Prints*, TECHNOLOGY REV., Jan.–Feb. 1999, at 63.

144 For a short summary of federal appellate cases, see Douglas K. Yatter et al., *Twenty-Ninth Annual Review of Criminal Procedure: Warrantless Searches and Seizures*, 88 GEO. L.J. 912, 985–88 (2000).

145 489 U.S. 656 (1989).

> some level of individualized suspicion in the particular context.[146]

The "special needs" cases began with *Camara v. Municipal Court*.[147] Charged with violating the San Francisco Housing Code by refusing to permit an annual inspection of his residence in an apartment house, Camara argued that the inspection could not proceed without a warrant based on probable cause to believe that there was an infraction of the city's housing code. The Court, however, distinguished between "typical Fourth Amendment cases"[148] and inspections intended to uncover "conditions which are hazardous to public health and safety."[149] It rejected the argument that "warrants should issue only when the inspector possesses probable cause to believe that a particular dwelling contains violations of the minimum standards prescribed by the code being enforced."[150] Instead, the Court held that warrants to search for housing code violations in entire areas could be issued on the basis of area-wide standards that do not require a showing of individualized suspicion that there is a violation at a particular dwelling.[151]

Later cases have upheld warrantless, suspicionless searches of many types — administrative inspections in "closely regulated" businesses;[152] stops for questioning or observation at a fixed Border Patrol checkpoint[153] or at a sobriety checkpoint;[154] routine or random blood testing

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146 *Id.* at 665–66 (citations omitted). It should be clear from this excerpt that *Von Raab* uses the phrase "beyond the normal need for law enforcement" not to define every circumstance in which balancing should be used, but merely to label a set of cases in which balancing has been used.

147 387 U.S. 523 (1967).

148 *Id.* at 534.

149 *Id.* at 535.

150 *Id.* at 534.

151 *See id.* at 538 (speaking of "reasonable legislative or administrative standards for conducting an area inspection" — "standards, which will vary with the municipal program being enforced, may be based upon the passage of time, the nature of the building (*e.g.*, a multifamily apartment house), or the condition of the entire area, but they will not necessarily depend upon specific knowledge of the condition of the particular dwelling").

152 New York v. Burger, 482 U.S. 691 (1987) (warrantless search by police of automobile parts junkyard to find evidence of stolen cars under a state statute regulating automobile dismantlers); Donovan v. Dewey, 452 U.S. 594, 598–99 (1981) (warrantless inspection of stone quarry pursuant to the Federal Mine Safety and Health Act of 1977); United States v. Biswell, 406 U.S. 311 (1972) (warrantless inspection of the premises of a pawnshop operator who was federally licensed to sell sporting weapons).

153 United States v. Martinez-Fuerte, 428 U.S. 543, 545–50, 566–67 (1976).

154 Michigan Dep't of State Police v. Sitz, 496 U.S. 444, 447, 455 (1990); *cf.* Delaware v. Prouse, 440 U.S. 648, 663 (1979) (suggesting in dictum that a roadblock with the purpose of verifying drivers' licenses and vehicle registrations would be permissible). *But cf.* City of Indianapolis v. Edmond, 121 S.Ct. 447, 454 (2000) (striking down a program of stops (of automobiles) and sniffs (by police dogs) "[b]ecause the primary purpose of the Indianapolis narcotics checkpoint program is to uncover evidence of ordinary criminal wrongdoing").

and urinalysis of certain employees[155] and student athletes[156] (but not candidates for public office);[157] inspections and seizures for the purpose of inventorying and preserving an arrestee's possessions;[158] random "shakedown" searches of prison cells;[159] and even visual anal or vaginal examinations of pretrial detainees.[160] In each case, the Court referred to "special needs" to justify a balancing test to ascertain the reasonableness of the type of search in question. In performing the balancing in all these cases, the Court considered the importance of the government's interest, the practicality and value of securing a warrant and requiring individual suspicion, and the gravity of the privacy invasion.[161]

Judges have disagreed as to the applicability of the "special needs" exception to convicted-offender DNA databanking.[162] Determining

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155 Nat'l Treasury Employees Union v. Von Raab, 489 U.S. 656 (1989); Skinner v. Ry. Labor Executives' Ass'n, 489 U.S. 602 (1989).

156 Vernonia Sch. Dist. 47J v. Acton, 515 U.S. 646 (1995).

157 Chandler v. Miller, 520 U.S. 305 (1997) (striking down a Georgia statute that demanded that every candidate for any of fourteen state offices present a certificate from a state-approved laboratory reporting that the candidate passed a urinalysis drug test).

158 Illinois v. LaFayette, 462 U.S. 640, 644 (1983) ("A so-called inventory search is . . . an incidental administrative step following arrest and preceding incarceration. To determine whether the search of respondent's shoulder bag was unreasonable we must 'balanc[e] its intrusion on the individual's Fourth Amendment interests against its promotion of legitimate governmental interests.'") (plurality opinion, citation omitted); United States v. Edwards, 415 U.S. 800, 804 (1974) ("With or without probable cause, the authorities were entitled [at the stationhouse] not only to search [the arrestee's] clothing but also to take it from him and keep it in official custody.").

159 Hudson v. Palmer, 468 U.S. 517 (1984).

160 Bell v. Wolfish, 441 U.S. 520 (1979); *cf.* Griffin v. Wisconsin, 483 U.S. 868 (1987) (warrantless search of probationer's home was valid because special needs of the probation system made a warrant requirement impracticable and justified replacement of standard of probable cause by "reasonable grounds").

161 Whether the Court has given proper weight to these factors and correctly applied them in each case is doubtful. *See, e.g.*, New York v. Burger, 482 U.S. 691, 718 (1987) (dissenting opinion).

162 *Compare* Roe v. Marcotte, 193 F.3d 72, 79 (2d Cir. 1999) ("a reasoned interpretation of the 'special needs' doctrine supports the constitutionality of the DNA statute"); Shelton v. Gudmanson, 934 F. Supp. 1048, 1051 (W.D. Wis. 1996) ("Although the state's DNA testing of inmates is ultimately for a law enforcement goal, it seems to fit within the special-needs analysis the Court has developed for drug testing and searches of probationers' homes, since it is not undertaken for the investigation of a specific crime."), *with* Rise v. Oregon, 59 F.3d 1556, 1564, 1568 (9th Cir. 1995) (dissenting opinion asserting that "[t]he majority relies on the traditional law enforcement analysis [to uphold a convicted offender DNA databanking statute] because there is no basis for asserting such a special need here."); People v. Wealer, 636 N.E.2d 1129, 1135 (Ill. Ct. App. 1994) ("in the absence of a clearly articulated administrative justification independent of a law enforcement purpose, we are reluctant to extend the special needs line of cases to the present statute, which has an ostensible law enforcement purpose."); Landry v. Attorney General, 709 N.E.2d 1085 (Mass. 1999) (avoiding special-needs analysis in favor of a broad identification rationale); State v. Olivas, 856 P.2d 1076, 1089 (Wash. 1993) (concurring opinion arguing that "the 'special needs' analysis relied upon by the majority was not designed for application to searches and seizures in the context of ordinary law enforcement," but that the same balancing should be done under the test for law enforcement searches

whether the exception applies to DNA searches of either convicts or arrestees demands a theory that unifies the variegated "special needs" cases. Although the Court has only hinted at such a theory, the basic idea is implicit in the word "special" and its antonym, "normal." The "normal" situation addressed by the warrant-and-probable-cause clause of the Fourth Amendment involves two competing sets of interests — the government's interests in enforcing the criminal law, and the individual's interests in being free from searches and seizures. To construe the Fourth Amendment as stating that a judicial warrant supported by probable cause is an essential feature of reasonableness for traditional searches or seizures[163] is to read the Amendment as announcing a judgment that the balance between these two sets of interests tips in favor of the individual in this class of cases. Thus, in enforcing the criminal code, the government cannot rely on the fact that it searched only a small portion of a suspect's house or that the crime under investigation is especially heinous to circumvent the warrant requirement. However, when the government has a rationale above and beyond "the normal need for law enforcement," one cannot simply assume that the outcome prescribed in the Amendment applies, for an additional interest lies on the governmental side of the balance. Therefore, in the "special needs" cases, the Court undertakes a contemporary balancing of public needs and private interests to enforce the reasonableness requirement.

This theory of the special-needs exception is less than a diatessaron, but it explains most of the cases in which the Court has invoked the exception.[164] An immediate threat to public safety (such as that posed by drunken drivers[165]), to the health or safety of workers,[166] or to another interest distinct from solving crimes and recovering stolen goods or con-

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that are minimally invasive). This disagreement pertains to the rationale, not the result. No appellate court has struck down a law that compels convicted offenders to submit to DNA testing for law enforcement databanks and databases.

163 For suggestions that this reading may be unjustified, see, for example, Edmond v. Goldsmith, 183 F.3d 659, 662 (7th Cir. 1999) ("read literally, the text requires only that searches and seizures be 'reasonable' and confines the requirement of 'probable cause' to searches or seizures made pursuant to warrant"), *aff'd sub nom.* City of Indianapolis v. Edmond, 121 S.Ct. 447 (2000); *supra* note 154.

164 It also harmonizes cases like *Terry v. Ohio*, 392 U.S. 1 (1968), in which the intrusion on the individual is less extensive than the traditional search or seizure. When the government engages in a nontraditional, less intrusive search or seizure, the balance struck in the amendment (as it is conventionally understood) may not apply. As a result, it is open to the courts to tailor the reasonableness requirement to the practice in question. I pursue this approach *infra* in Part IV.B.4.

165 *See* Michigan Dep't of State Police v. Sitz, 496 U.S. 444 (1990); City of Indianapolis v. Edmond, 121 S.Ct. 447, 453 (2000) (describing the roadblocks in *Sitz* as "clearly aimed at reducing the immediate hazard posed by the presence of drunk drivers on the highways").

166 *See* Donovan v. Dewey, 452 U.S. 594 (1981) (unannounced federal inspections of mines).

traband[167] (such as maintaining the integrity of the border[168] or supervising probationers[169]) usually motivates the practice that curtails individual liberty or privacy.[170] Thus, in *City of Indianapolis v. Edmond*,[171] the Court declined to apply the special-needs exception to a program in which police used dogs to sniff for drugs in vehicles pulled over in groups at fixed roadblocks. Distinguishing sharply between "highway safety interests and the general interest in crime control,"[172] the majority reasoned that "[b]ecause the primary purpose of the Indianapolis narcotics checkpoint program is to uncover evidence of ordinary criminal wrongdoing, the program contravenes the Fourth Amendment."[173] Like-

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167 *See* Edmond v. Goldsmith, 183 F.3d 659, 664 (7th Cir. 1999) ("the concern which lies behind the randomized or comprehensive systems of inspections or searches that have survived challenge under the Fourth Amendment is not primarily with catching crooks, but rather with securing the safety or efficiency of the activity in which the people who are searched are engaged"), *aff'd sub nom.* City of Indianapolis v. Edmond, 121 S.Ct. 447 (2000).

168 *See* United States v. Martinez-Fuerte, 428 U.S. 543 (1976).

169 *See* Griffin v. Wisconsin, 483 U.S. 868 (1987).

170 The most glaring exception is *New York v. Burger*, 482 U.S. 691 (1987). There, the Court upheld warrantless searches by police of junkyards as part of a registration and record-keeping system instituted to detect trafficking in stolen automobile parts. The majority insisted that automobile junkyards were "a closely regulated business." *Id.* at 702. It then reasoned that because

> the owner or operator of commercial premises in a "closely regulated" industry has a reduced expectation of privacy, the warrant and probable-cause requirements, which fulfill the traditional Fourth Amendment standard of reasonableness for a government search . . . have lessened application . . . . [A]s in other situations of "special need," . . . where the privacy interests of the owner are weakened and the government interests in regulating particular businesses are concomitantly heightened, a warrantless inspection of commercial premises may well be reasonable within the meaning of the Fourth Amendment.

Id. However, emphasis on the "expectation of privacy" is unfortunate. Under *Katz v. United States*, 389 U.S. 347 (1967), this expectation bears on the initial question of whether a novel method of gathering information is a Fourth Amendment search, not on whether the government can dispense with warrants and individualized showings in conducting a search. Only if the reduced expectation reflects the fact that the individual interests invaded by the investigatory practice are diminished would there be a reason to consider departing from the balance struck in the Fourth Amendment for traditional searches. Furthermore, a "weakened" individual interest does not necessarily correspond to a "heightened" government interest. Thus, the "regulated industries" cases should be seen as a distinct exception to the warrant requirement rather than as a subcategory of "special needs" cases.

171 121 S.Ct. 447 (2000).

172 *Id.* at 453.

173 *Id.* at 454. Six Justices subscribed to this view. Justice O'Connor wrote the majority opinion. Chief Justice Rehnquist's dissenting opinion, which was joined, in part, by Justices Scalia and Thomas, argues against "a new non-law-enforcement primary purpose test lifted from a distinct area of Fourth Amendment jurisprudence relating to the searches of homes and businesses." Justice Thomas also wrote a two-paragraph dissent signaling that he might be willing to reach the same result as the majority by overruling the Court's special-needs cases allowing suspicionless roadblocks in any circumstances. His explanation is terse: "I rather doubt that the Framers of the Fourth Amendment would have considered 'reasonable' a program of indiscriminate stops of individuals not suspected of wrongdoing." *Id.* at 462.

wise, in *Ferguson v. City of Charleston*,[174] the Court invalidated a program in which a state university hospital tested urine samples from pregnant women for cocaine and reported positive results to the police so that those women would be willing to participate in substance-abuse counseling in lieu of criminal prosecution. Again, the majority of the Court emphasized "the relevant primary purpose" — which was said to be "the arrest and prosecution of drug-abusing mothers."[175]

On this understanding of the "special needs" cases, one must ask whether there are purposes for typing DNA from an offender or an arrestee that are distinct from the usual investigative function. One, considered in the previous section, is the administrative purpose of recording identifying characteristics in the event that the individual escapes and disguises his identity. Another, which would apply if the arrestee data were retained indefinitely, is to assist in identifying missing persons or victims of disasters. And, there are other reasons that the state might want to know the true identity of a pretrial detainee — contacting relatives in the event of serious illness, for example. To this extent, the special-needs exception comes into play.

Assuming for the moment that special-needs balancing would allow acquisition and retention of genotypes for these limited purposes,[176] the analysis provides an alternative route to the more traditional "true identity" exception. If that exception did not already exist, we might have to invent it, and the special-needs jurisprudence supplies the modern framework for doing so. But do the special-needs cases do anything more than mark another trail to the historically established "true identity" exception? Do they permit the state to collect biometric information not merely to obtain personal identifiers for individuals placed in custody, but also to solve crimes in which DNA has been left?

It is tempting to argue that they do, on the theory that the state is free to make subsequent use of information that it has legitimately obtained.[177] After all, if the subsequent use is not a new search or seizure, then the Fourth Amendment demands no additional warrant or showing.[178] Furthermore, it seems odd to maintain that the balance of interests permits dispensing with warrants or individualized suspicion when

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174 121 S.Ct. 1281 (2001).

175 *Id.* at 1290 (internal quotation marks omitted).

176 *See infra* Part IV.B.4.

177 Some courts have relied on another theory — that because inclusion in the database deters potential offenders, "its purpose is not for 'normal' law enforcement." State v. Olivas, 856 P.2d 1076, 1085 (Wash. 1993). However, this theory takes the "special" out of "special needs," for any practice that increases the probability of apprehension deters potential offenders. For instance, better detective work might enhance deterrence, but this fact would not remove the detective's job from the ambit of "normal law enforcement."

178 For instance, once police, proceeding within the scope of a valid search warrant, learn that a suspect has a pair of size 12 Bruno Magli shoes in his closet, they may use this fact to tie

non-law-enforcement interests alone are pursued, but not when both law enforcement and non-law enforcement interests reinforce each other.

However, under *Edmond* and *Ferguson*, the additional-use doctrine applies more subtly at the level of adopting a multifaceted program. Presumably, in *Edmond*, the Indianapolis police could have employed roadblocks to check for intoxicated drivers. While conducting this check, they could have brought a drug-sniffing dog near the driver's vehicle; after all, the use of a dog to detect the odor of narcotics is not a search.[179] Therefore, the dissent argued, "[t]he State's use of a drug-sniffing dog, according to the Court's holding, annuls what is otherwise plainly constitutional . . . ."[180] To which the majority responded: "the constitutional defect of the program is that its primary purpose is to advance the general interest in crime control."[181] Discerning the primacy of the general crime-control purpose in *Edmond* was trivial, for this was the *only* purpose the city proffered.[182]

Ferguson is slightly more complex in that the state hospital adopted a program that relied on the criminal law not to punish women, but to induce them to comply with drug abuse programs. Nevertheless, the state hospital established the cocaine testing program in consultation with the police department for the express purpose of obtaining evidence for criminal cases.[183] Consequently, the Court was able to say that the sole immediate purpose of the program was to generate evidence against cocaine users for criminal prosecutions, and a program that has as its only immediate goal subjecting individuals to the criminal law involves no "special needs."[184]

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the suspect to later crimes in which size 12 Bruno Magli shoeprints are discovered. *See supra* text accompanying note 28.

179 Every Justice accepted this proposition. *See* Edmond, 121 S.Ct. at 453 ("[T]hat officers walk a narcotics-detection dog around the exterior of each car at the Indianapolis checkpoints does not transform the seizure into a search. *See* United States v. Place, 462 U.S. 696, 707 (1983).") (majority opinion); *id.* at 460 ("[A] 'sniff test' by a trained narcotics dog is not a 'search' within the meaning of the Fourth Amendment because it does not require physical intrusion of the object being sniffed and it does not expose anything other than the contraband items. United States v. Place, 462 U.S. 696, 706–707 (1983).") (dissenting opinion).

180 *Id.* at 458 (Rehnquist, C.J., dissenting).

181 *Id.* at 456 n.1 (O'Connor, J.).

182 *See id.* at 457 n.2 ("Because petitioners concede that the primary purpose of the Indianapolis checkpoints is narcotics detection, we need not decide whether the State may establish a checkpoint program with the primary purpose of checking licenses or driver sobriety and a secondary purpose of interdicting narcotics. Specifically, we express no view on the question whether police may expand the scope of a license or sobriety checkpoint seizure in order to detect the presence of drugs in a stopped car.").

183 *Ferguson*, 121 S.Ct. at 1290–91.

184 The majority wrote that:

> While the ultimate goal of the program may well have been to get the women in question into substance abuse treatment and off of drugs, the immediate objective of the searches was to generate evidence for law enforcement purposes in order to

Significantly, however, neither *Edmond* nor *Ferguson* reaches the more vexing question of what evidence can be used to infer purpose when the government contends that its immediate purpose in instituting an investigative practice is something other than (or in addition to) pure crime control.[185] The validity of mixed-motive programs will be more difficult to ascertain.

For example, if a state adopts an identification program that it concedes was instituted for the sole purpose of obtaining a personal identifier to check against trace evidence from crimes, then *Edmond* and *Ferguson* close the door to the special-needs exception. Specifically, it could be argued that (1) just as it would have been permissible to stop cars to check for inebriated drivers, it is permissible to acquire and retain the DNA genotypes of custodial arrestees for the limited, administrative purpose of securing an unambiguous personal identifier; (2) just as the use of a dog to sniff out crime is not itself unconstitutional, using the DNA records to link arrestees to other crimes is constitutional; but (3) because the program was adopted to implement its second component rather than the first, it has as its "primary purpose" the "general interest in crime control." This characterization of the program would preclude the balancing that might excuse the lack of individualized suspicion for special-needs searches.

> reach that goal. The threat of law enforcement may ultimately have been intended as a means to an end, but the direct and primary purpose of MUSC's policy was to ensure the use of those means. In our opinion, this distinction is critical.

Id. at 1291 (footnotes omitted).

185 The analysis of purpose in constitutional adjudication is notoriously slippery. If the government asserts that the purpose of a law is the suppression of ideas, the law is likely to be invalidated under the First Amendment. *See, e.g.*, Texas v. Johnson, 491 U.S. 397, 414 (1989) ("If there is a bedrock principle underlying the First Amendment, it is that the government may not prohibit the expression of an idea simply because society finds the idea itself offensive or disagreeable."); Police Dep't v. Mosley, 408 U.S. 92, 95 (1972) ("[T]he First Amendment means that government has no power to restrict expression because of its message, its ideas, its subject matter, or its content."). But if the legislation recites content-neutral purposes, the Court will not rely on statements of the actual motivation of the law's supporters to establish that its primary purpose is to suppress certain speech. *See, e.g.*, United States v. O'Brien, 391 U.S. 367 (1968) (draft-card burning). On the other hand, when the issue is whether a law may have been enacted to burden one race, the Court looks to actual purpose regardless of the official explanation. *See, e.g.*, Griffin v. County Sch. Bd. of Prince Edward County, 377 U.S. 218, 231 (1964) ("Whatever nonracial grounds might support a State's allowing a county to abandon public schools, the object must be a constitutional one, and grounds of race and opposition to desegregation do not qualify as constitutional."). The same searching inquiry may be used to decide whether the primary purpose of a law is to advance religion. *See, e.g.*, Church of the Lukumi Babalu Aye, Inc. v. City of Hialeah, 508 U.S. 520, 533 (1993) ("[I]f the object of a law is to infringe upon or restrict practices because of their religious motivation, the law is not neutral, and it is invalid unless it is justified by a compelling interest and is narrowly tailored to advance that interest."). These and other domains in which the Court considers whether legislation is motivated by an impermissible purpose are catalogued in Richard H. Fallon, Jr., *Foreword: Implementing the Constitution*, 111 HARV. L. REV. 56 (1997).

But even if a state does not concede that its biometric identifier program was adopted to look for matches with crime-scene samples, the result may be the same. Consider the practice of fingerprinting arrestees, which began in some jurisdictions before latent fingerprints were used in solving crimes.[186] In those jurisdictions, the practice originally served only the administrative functions for having an unambiguous, permanent, personal identifier of individuals who have been arrested. The primary purpose test surely is satisfied, and special-needs balancing is permissible.

Now suppose that such a jurisdiction adopts the practice of checking these fingerprints against those lifted from crime scenes. If the neoteric database-query practice is itself a program, then it must confront *Edmond*'s dictum that "programmatic purposes may be relevant to the validity of Fourth Amendment intrusions undertaken pursuant to a general scheme without individualized suspicion."[187] The only purpose for searching a database of crime-scene fingerprints (or for creating a database of arrestee fingerprints to search against new crime-scene prints as they emerge) is the "general interest in crime control." Hence, the new practice cannot be upheld under the special-needs balancing.

But if the new practice is treated as part of an integrated system, then *Edmond* and *Ferguson* appear to ask which function the system as a whole has as its primary purpose — the administrative one of having an accurate, permanent record of who has been incarcerated, or the general crime-control one of solving cases. Neither answer is particularly satisfying. One could argue that the crime-control component, which came as an afterthought, is secondary; but the system as ultimately implemented clearly serves both functions.

Now consider the same system with both components adopted simultaneously. The situation seems even more complex, for now we must guess whether the state would have adopted the administrative record-keeping component even without the crime-control database-query component.[188] Assume that it would have, but that it also would have adopted the database-query component without the record-keeping component. In these circumstances, neither component is primary in the "but

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186 Some courts have held or implied that taking fingerprints is not itself a search (so that only the detention of the person need be justified under the Fourth Amendment). *See supra* note 84 and accompanying text. For the purpose of exploring the implications of *Edmond* for personal identification systems that are treated as searches, this section assumes that fingerprinting is a search of the person.

187 121 S.Ct. at 456.

188 *See* Edmond v. Goldsmith, 183 F.3d 659, 666, 667 (7th Cir. 1999) (Easterbrook, J., dissenting) (criticizing the inquiry into purpose or motive), *aff'd sub nom.* City of Indianapolis v. Edmond, 121 S.Ct. 447 (2000).

for" sense. If actual as opposed to announced motives are decisive,[189] however, the legislative history or other sources might be consulted to decide which motive predominates.

This effort to describe the "primary purpose" test for identification systems for arrestees could be prolonged, but it seems clear that there is no general answer to whether a particular system of DNA identification that goes beyond administrative record-keeping to encompass general crime-control features will be eligible for balancing under the special-needs line of cases. The outcomes of but-for tests and mixed-motive inquiries inevitably depend on particular circumstances, and there is room for states intent on including arrestees in their DNA databases to engage in strategic manipulation.

Fortunately, there is a better alternative to the special-needs exception. It is a candid effort to create a new exception to the general rule that a warrant and probable cause (or other individualized suspicion) is essential to the reasonableness of searches and seizures. A system of nonintrusive DNA sampling, limited analysis of the DNA, and secure records of DNA genotypes differs from traditional searches and seizures. The law should not overlook these differences just because the practice aids criminal investigations and hence is not classified as a "special need." The next section therefore considers whether an exception for acquiring and compiling biological trace information should be created in response to the value of DNA evidence in enforcing the criminal laws.

4. *The Trace Evidence Database Exception*

DNA databases help solve crimes, and they help avoid false convictions. That is what has led the federal government to promote convicted offender databases in the states and to earmark funds for reducing the backlog of unanalyzed DNA samples from crime-scenes and victims.[190] The difficulties of constitutional inquiries into "primary purpose" notwithstanding, the stark truth is that DNA typing of arrestees appeals to some politicians, law enforcement officials, and victims of crimes because it promises more efficient identification of criminals and more effective deterrence of crimes. Yet, in an effort to fit DNA databases into existing categories, the analysis thus far has largely ignored this most powerful reason for establishing databases. We have seen that the Fourth Amendment permits the acquisition, for administrative purposes, of DNA records on individuals placed in custody, but that existing exceptions to the warrant requirement may not extend beyond such recordkeeping.

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189 *See supra* note 162.

190 *See supra* note 25.

Nevertheless, the existing exceptions to the warrant requirement are not ancient specimens of an extinct species frozen in amber. They are living creations whose structures continue to evolve and whose number is not fixed. Although new exceptions are not created lightly,[191] there are powerful crime-control reasons for a state to establish DNA databases for convicted offenders or arrestees, the databases can be structured to respect most individual privacy interests, they can be administered fairly, and they can be accommodated with a specific and limited exception to the warrant requirement. Consequently, it is neither heretical nor Quixotic to pose the question whether such an exception should be recognized. The answer turns on the same type of balancing that the Court performs in special-needs cases. The pivotal factors are the gravity of the privacy invasion, the practicality and value of securing a warrant and requiring individual suspicion, and the importance of the government's interest.[192]

The attenuated privacy interest. As discussed in Part IV.A, the physical intrusion is minimal, especially if the surface of the skin is not penetrated. Certainly, it is far less offensive than the body cavity searches of arrestees upheld in *Bell v. Wolfish.*[193] Furthermore, if there is adequate assurance that genotyping of only "vacuous" loci can take place, no additional privacy interests are implicated.[194] Finally, there is

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191 *See, e.g.*, Mincey v. Arizona, 437 U.S. 385, 390 (1978).

192 *See supra* Part IV.B.3.

193 441 U.S. 520 (1979).

194 Indefinite retention of pure biometric data that are legitimately gathered does not infringe any constitutionally recognized privacy interest. For example, states may provide for the expungement of fingerprints or other information related to an arrest or conviction, but it is not obvious that the Fourth Amendment necessitates such expungement. *Cf.* Hodge v. Jones, 31 F.3d 157 (4th Cir. 1994) (holding that, given the state's interest in maintaining a computerized database of investigations of child abuse, the constitution does not require the files of parents who had been investigated and cleared of child abuse charges to be removed from the database); James M. Diehm, *Federal Expungement: A Concept in Need of a Definition*, 66 ST. JOHN'S L. REV. 73 (1992) (describing the circumstances under which courts grant expungement of arrest records under their power to do equity). There is extensive variation in state legislation providing for expungement or sealing of criminal records. Some statutes provide for destruction of DNA records; others specify that it shall be retained. *See, e.g.*, ARK. CODE ANN. § 16-90-906 (Michie 1997) ("Any individual who has been charged and arrested for any criminal offense and the charges are subsequently nolle prossed or dismissed, or the individual is acquitted at trial is eligible to have all arrest records, petitions, orders, docket sheets, and any other documents relating to the case expunged . . . ."); CAL. PENAL CODE § 851.8(a) (Michie 1998) (arrestee who is found to be "factually innocent" can petition to have law enforcement agencies seal their records of the arrest for three years from the date of the arrest, and then destroy their records); CAL PENAL CODE § 299(a) (Michie 1998) (sex offender "whose DNA profile has been included in the data bank . . . shall have his or her information and materials expunged from the data bank when the underlying conviction or disposition . . . has been reversed and the case dismissed, the defendant has been found factually innocent of the underlying offense . . . , the defendant has been found not guilty, or the defendant has been acquitted of the underlying offense."); FLA. ST. ANN. § 943.0585(1) (West 1999) ("The court may only order expunction of a criminal history record pertaining to one arrest or one incident of alleged

no unjustified detention of the person or entry into the home or other property. In sum, if the collection and storage of the genetic information is properly structured, the effect on the security of "persons, houses, papers, and effects" is *de minimis*.[195]

The point of a warrant. The second consideration in ascertaining whether a DNA database exception is sound involves two aspects of the warrant process: the extent to which a judicial warrant would protect against unwarranted invasions of privacy, and the extent to which the process would interfere with the attainment of the benefits promised by the system of searches. As the Court explained in *Skinner v. Railway Labor Executives' Association*:[196]

> An essential purpose of a warrant requirement is to protect privacy interests by assuring citizens subject to a search or seizure that such intrusions are not the random or arbitrary acts of government agents. A warrant assures the citizen that the intrusion is authorized by law, and that it is narrowly limited in its objectives and scope . . . . A warrant also provides the detached scrutiny of a

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criminal activity . . . ," but "[t]his section does not confer any right to the expunction of any criminal history record . . . ."); FLA. ST. ANN. § 943.0585(4) (West 1999) ("Any criminal history record of a minor or an adult which is ordered expunged by a court of competent jurisdiction . . . must be physically destroyed or obliterated by any criminal justice agency having custody of such record; except that any criminal history record in the custody of the department must be retained . . . ."); IOWA CODE ANN. § 692.17 (West 1999) ("Criminal history data in a computer data storage system shall not include arrest or disposition data or custody or adjudication data after the person has been acquitted or the charges dismissed . . . ."); 15 LA. REV. STAT. § 614(A) (1999) ("A person whose DNA record or profile has been included in the data base or data bank . . . may request that his record or profile be removed . . . [if the] arrest . . . does not result in a conviction"); 15 LA. REV. STAT. § 614(B) (1999) ("The state police shall remove all records and identifiable information in the data base or data bank pertaining to the person and destroy all samples from the person upon receipt of a written request for the removal of the record and a certified court order of expungement . . . ."); MINN. STAT. ANN. § 609A.03 (West 1998) (a convicted offender may file a petition for expungement, which is "an extraordinary remedy to be granted only upon clear and convincing evidence that it would yield a benefit to the petitioner commensurate with the disadvantages to the public and public safety"; the record may be sealed, but "shall not be destroyed or returned," and "[u]pon issuance of an expungement order related to a charge supported by probable cause, the DNA samples and DNA records held by the bureau of criminal apprehension shall not be sealed, returned, or destroyed.").

195 The conditions described in the text make the collection of a DNA sample and creation and retention of a biometric record from it no more troubling than collecting fingerprints. The Supreme Court has intimated that the process of fingerprinting constitutes "a much less serious intrusion upon personal security than other types of police searches and detentions." Davis v. Mississippi, 394 U.S. 721, 727 (1969). DNA typing, like fingerprinting, "involves none of the probing into an individual's private life and thoughts that marks an interrogation or search." *Id.* Like fingerprinting, DNA analysis "is an inherently more reliable and effective crime-solving tool than eyewitness identifications or confessions and is not subject to such abuses as the improper line-up and the 'third degree.'" *Id.*

196 489 U.S. 602 (1989).

> neutral magistrate, and thus ensures an objective determination whether an intrusion is justified in any given case. . . .[197]

Because police officers have considerable discretion to make warrantless arrests, and subjective factors come into play, some risk of arbitrary or bad faith decisionmaking is present with arrest-based DNA sampling. Nevertheless, if DNA sampling is a standard part of the booking procedure and if the additional invasion of privacy due to genotyping is negligible, the discretion that exists at the time of an arrest is not substantially more troublesome than it is in arrests not followed by DNA sampling.[198] Indeed, if an officer lacks probable cause to arrest, evidence that results from collecting DNA and finding a match in the database of DNA from unsolved crimes is subject to exclusion. Furthermore, there are many other avenues open to police who are determined to obtain a DNA sample from a specific individual.[199] In general, then, the risk of pretextual arrests intended solely to secure a suspect's DNA profile is limited.

In short, in a system of routine collection of DNA on arrest, judicial warrants do not greatly advance privacy interests. But requiring warrants based on probable cause (or a lesser quantum of proof) relating to offenses other than the one that triggers the arrest would defeat the purpose of DNA databases. These databases are an intelligence tool rather than a "one-to-one" investigative device for linking a single, known suspect with a specific, known offense.

The government interests. To be balanced against the individual interest in the security of the person or informational privacy are the government's interests. As with the degree of the intrusion on personal privacy, these depend on the nature of the DNA databanking system. In addition to the administrative reasons to record biometric data that show a person's true identity,[200] DNA sampling upon arrest can help reduce

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197 *Id.* at 621–22 (citations omitted). *See also* Delaware v. Prouse, 440 U.S. 648, 661 (1979) (invalidating a system of automobile stops that involved the "kind of standardless and unconstrained discretion [which] is the evil the Court has discerned when in previous cases it has insisted that the discretion of the official in the field be circumscribed, at least to some extent."). Another concern underlying the warrant requirement is "to prevent hindsight from coloring the evaluation of the reasonableness of a search or seizure." United States v. Martinez-Fuerte, 428 U.S. 543, 565 (1976).

198 A warrant for routine DNA sampling would serve no meaningful purpose. *See* Nat'l Treasury Employees Union v. Von Raab, 489 U.S. 656 , 667 (1989) (because the Customs Service tests all employees applying for particular positions, it "does not make a discretionary determination to search based on a judgment that certain conditions are present, [and] there are simply 'no special facts for a neutral magistrate to evaluate.'") (quoting *South Dakota v. Opperman*, 428 U.S. 364, 383 (1976) (Powell, J., concurring)).

199 *See* Imwinkelried & Kaye, *supra* note 1.

200 *See supra* Part IV.B.3.

serious crime in two ways. First, if a database of trace evidence DNA genotypes from unsolved crimes is in place, a new arrestee's genotype can be compared to those genotypes. This can be called a one-to-many database query in that one arrestee's DNA record is compared to the many records in the database of trace evidence. A "hit" could result in continued pretrial detention, prosecution, and conviction for the unsolved crime. Second, even if no unsolved-crime database exists, the arrestee's genotype can be included in a database of DNA records of arrestees.[201] DNA found at a crime scene or on a victim in an unsolved case could be analyzed and compared to all the potential offender records. This can be called a many-to-one query in that the many arrestee records are compared to the one trace evidence genotype. A "hit" in the arrestee database could help solve the new case. This enhancement in crime-fighting is the major interest that courts have invoked to uphold convicted-offender databanking.[202] As we have just seen, it runs in two directions. An arrestee who commits crimes after being booked might be linked to those crimes, and an arrestee who has committed other crimes before being arrested might be linked to those past crimes.

But the very fact that there are convicted-offender databases in place diminishes the need for arrestee databases.[203] Many of the people who are arrested already have convictions and should be in a convicted-offender database. Arrestee databanking offers no new information about these individuals. Of the remaining arrestees without previous convictions, many will be convicted of the crime for which they were arrested. Even without arrestee databanking, their genotypes would be added to the convicted-offender database, albeit at a later time. Of these, many will not be released pending trial in any event. Of those who are

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201 The most useful system would retain the identifying data on all arrestees, even those not convicted of any crimes. This would produce the largest database of potential offender DNA records.

202 *E.g.*, Boling v. Romer, 101 F.3d 1336, 1340 (10th Cir. 1996) (noting "the legitimate government interest in the investigation and prosecution of unsolved and future criminal acts by the use of DNA in a manner not significantly different from the use of fingerprints."). However, in upholding DNA databanking for convicted offenders, many courts also have relied on the notion that a conviction inherently diminishes the strength of the individual's privacy interest. *See, e.g.*, Rise v. Oregon, 59 F.3d 1556, 1560 (9th Cir. 1995) ("Once a person is convicted of one of the felonies . . . , his identity has become a matter of state interest and he has lost any legitimate expectation of privacy in the identifying information derived from the blood sampling.").

203 In addition, the current backlog of samples to be analyzed and incorporated in the convicted-offender databases indicates that the actual benefit to law enforcement of allowing DNA sampling from arrestees may be limited, at least in the near future. However, this consideration seems to bear more heavily on the wisdom of such legislation than on its constitutionality. If, in principle, arrestee data would be a valuable supplement to (or replacement for) offender data, the Court probably would not invalidate legislation simply because a state is not yet prepared to implement the legislation fully.

released, many will not commit crimes. Consequently, the total impact of taking DNA from arrestees could be small.

In several "special needs" cases, however, the Court has found the balance to favor searches that resulted in very few "hits." In *Michigan Department of State Police v. Sitz*,[204] the Supreme Court validated the state's use of a roadblock to discover drunk drivers despite a resulting arrest rate of only one to 1.5 percent. In *Bell v. Wolfish*,[205] the Court upheld body cavity searches of pretrial detainees despite the fact that there had been only one instance in which an inmate was discovered attempting to smuggle contraband. Indeed, in *Camara*, the fraction of housing inspections that led to findings of code violations probably was quite small.

But in these cases, the numbers of hits may be low precisely because the searches deter the conduct that they target. In *National Treasury Employees Union v. Von Raab*,[206] the Court noted in dictum that this point "is well illustrated also by the Federal Government's practice of requiring the search of all passengers seeking to board commercial airliners, as well as the search of their carry-on luggage, without any basis for suspecting any particular passenger of an untoward motive."[207] Even though only 42,000 inspections of over 10 billion pieces of luggage have detected firearms, the Court reasoned that "[w]hen the Government's interest lies in deterring highly hazardous conduct, a low incidence of such conduct, far from impugning the validity of the scheme for implementing this interest, is more logically viewed as a hallmark of success."[208]

The difficulty with applying this reasoning to arrestee DNA databanking is that it is not obvious that individuals who would otherwise commit murder, rape, or other crimes for which DNA evidence is likely to be useful will be deterred by the possibility of having their DNA analyzed in connection with an arrest for an unrelated offense. Nevertheless, it can be argued that knowing that one's DNA is on file could raise the perceived probability of apprehension and thereby deter some offenses. Even so, if it seems that an arrestee is no more likely than a randomly selected member of the general public to commit or have committed offenses for which DNA trace evidence will be found, courts may be reluctant to conclude that the balance of interests supports DNA sampling.[209] If reliable data were to demonstrate that individuals arrested for

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204 496 U.S. 444 (1990).

205 441 U.S. at 559 (1979).

206 489 U.S. 656 (1989).

207 *Id.* at 675 n.3.

208 *Id.*

209 *See* Rise v. Oregon, 59 F.3d 1556, 1560 (9th Cir. 1995) (emphasizing that Oregon's convicted-offender DNA statute authorizes taking "blood samples not from free persons or

various offenses tend to commit other offenses for which DNA evidence frequently is available, then the argument for allowing DNA sampling upon arrest as a "trace evidence database exception" to the warrant requirement should prevail.[210]

5. *The Importance of Safeguards*

The lack of a warrant or individualized suspicion does not, ipso facto, render DNA sampling upon arrest unconstitutional. The "true identity" exception and the type of balancing that generates the exceptions to the warrant requirement can justify some systems of DNA sampling upon arrest. But "some" does not mean "all," and informational privacy must be respected if DNA sampling is to qualify as a reasonable search and seizure.[211] As David Korn has written:

> [P]rogress in molecular genetics . . . and biomedical research . . . have generated deep social concerns about the acquisition, protection, and use of *genetic information.* That term, freighted with mystique and imperfectly understood by most of the populace, is generally regarded with awe and fear: awe because the information is perceived to be intensely personal private, powerful, pedigree-related, and predictive[,] and fear because the potential misuse of such information can lead to insurance and employment discrimination, disruption of personal and familiar well-being, and stigmatization.[212]

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even mere arrestees, but only from certain classes of convicted felons"); State v. Olivas, 856 P.2d 1076, 1089, 1094 (Wash. 1993) (concurring opinion) ("We would be appalled, I hope, if the State mandated non-consensual blood tests of the public at large for purposes of developing a comprehensive Washington DNA databank.").

210 Experience with DNA databases in several states and in the United Kingdom, as well as statistics on recidivism suggest that this condition might hold. *See* LAWRENCE A. GREENFELD, U.S. DEP'T OF JUSTICE, SEX OFFENSES AND OFFENDERS: AN ANALYSIS OF DATA ON RAPE AND SEXUAL ASSAULT 26 (1997); Richard Willing, *States Adding Burglars to DNA Databases*, USA TODAY, Dec. 7, 1998, at 1A; David Coffman, Address at the Fourth Annual National Conference on the Future of DNA: Implications for the Criminal Justice System, Albuquerque, N.M., May 3, 1999; Address by David Werrett, *supra* note 9. A Committee of the National Academy of Sciences expressed a contrary view that was not supported by any research at the time and that hindsight reveals was shortsighted *See* NAT'L RESEARCH COUNCIL, COMM. ON DNA TECHNOLOGY IN FORENSIC SCIENCE, DNA TECHNOLOGY IN FORENSIC SCIENCE 120 (1992).

211 So must the interest in bodily integrity, but this concern seems easily met. Simple and painless collection of DNA is technologically and economically feasible, and government officials concerned with public support and efficient operation of a system of DNA databanking have ample incentives to use these minimally invasive procedures.

212 David Korn, *Genetic Privacy, Medical Information Privacy, and the Use of Human Tissue Specimens in Research*, *in* GENETIC TESTING AND THE USE OF INFORMATION 16, 16–17 (Clarisa Long ed., 1999) (footnote omitted).

Unfortunately, these fears are easily exaggerated[213] and manipulated.[214] The notion that our destiny is in our genes is as untenable[215] as it is popular.[216] Yet, the fact remains that DNA samples could be analyzed for a number of markers associated with congenital diseases or susceptibility to other diseases.[217] Although health insurers are not especially interested in this information and although a small explosion of state laws ban or restrict its use in insurance and the workplace,[218] the possibility that the government will allow the samples to fall into the wrong hands or will misuse them for its own purposes must not be ignored.[219]

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213 For example, few documented cases of "genetic discrimination" can be found. *See, e.g.*, Philip R. Reilly, *Genetic Discrimination*, *in* GENETIC TESTING AND THE USE OF INFORMATION, *supra* note 212, at 106. The studies that purport to reveal instances of discrimination employ grossly biased sampling methods and ill-defined questions, and they fail to confirm allegations of discrimination. *Id.*

214 Korn, *supra* note 212, at 27 (observing that the public is "susceptible to being stirred up by anything containing the iconic words *gene* or *genetic*").

215 *See, e.g.*, R.C. Lewontin, *The Dream of the Human Genome*, N.Y. REV. OF BOOKS, May 28, 1992, at 31; Hugh Miller, III, *DNA Blueprints, Personhood, and Genetic Privacy*, 8 HEALTH MATRIX 179 (1998).

216 For instance, ACLU President and Professor Nadine Strossen announced that the ACLU opposes DNA databanking because "[w]ho I am, my biological potential, my health situation, my paternity, my race, all of these things that can be revealed through genetic testing," and "you cannot trust government with your most profound personal secrets." *60 Minutes: DNA Data Banks Keep Track of Criminals, Cause Controversy* (CBS television broadcast, Apr. 18, 1999), *available at* 1999 WL 16209028.

217 *E.g.*, Susanna Annunen, *An Allelle of* COL9A2 *Associated with Intevertebral Disc Disease*, 285 SCIENCE 409 (1999). Genetic markers for behavioral traits or psychiatric conditions are harder to discern. *See, e.g.*, Peter Aldhous, *The Promise and Pitfalls of Molecular Genetics*, 257 SCIENCE 164 (1992); John C. Crabbe et al., *Genetics of Mouse Behavior: Interactions with Laboratory Environment*, 284 SCIENCE 1670 (1999); John R. Kelsoe et al., *Re-evaluation of the Linkage Relationship Between Chromosome 11p Loci and the Gene for Bipolar Affective Disorder in the Old Order Amish*, 342 NATURE 238 (1989); Charles C. Mann, *Behavioral Genetics in Transition*, 264 SCIENCE 1686 (1994); George Rice et al., *Male Homosexuality: Absence of Linkage to Microsatellite Markers at Xq28*, 284 SCIENCE 665 (1999). Yet, the belief that many behavioral markers exist (or someday will be found) is offered as a reason to dispose of DNA samples. *E.g.*, Nat'l Comm'n on the Future of DNA Evidence, Proceedings, Mar. 1, 1999 (statement of Barry Steinhardt), *available at* http://www.ojp.usdoj.gov/nij/dnamtgtrans4/trans_h.html (visited Sept. 14, 1999) ("[T]here are many who will claim that there are genetic markers for aggression, for substance abuse, for mental illness, for criminal tendencies, and even sexual orientation.").

218 *See, e.g.*, OR. REV. STAT. § 659.715; Lawrence O. Gostin & James G. Hodge, Jr., *Genetic Privacy and the Law: An End to Genetic Exceptionalism*, 40 JURIMETRICS J. 21 (1999); Korn, *supra* note 212, at 21–22 (concluding that "those efforts have yielded an uncoordinated and often discordant patchwork of uneven scope and effectiveness").

219 In the 1980s, several state police in New York used fingerprints from booking cards to manufacture "evidence" with which to confront suspects. *See* John Caher, *Judge Orders New Trial in Murder Case*, TIMES UNION (ALBANY), Jan. 8, 1997, at B2; John O'Brien & Todd Lightly, *Corrupt Troopers Showed No Fear*, THE POST-STANDARD (SYRACUSE), Feb. 4, 1997, at A3 (an investigation of 62,000 fingerprint cards from 1983–1992 revealed 34 cases of planted evidence among one state police troop). Of course, enterprising police officers seeking an individual's DNA can acquire samples from many sources. *See, e.g.*, *The Crier Report:*

To pass constitutional muster, a system of DNA databanking should include effective provisions to ensure the security of the sensitive information inherent in DNA samples. Two approaches to security are possible — "front-loading" and "back-loading." Front-loading seeks to preserve privacy by curtailing the creation of information.[220] In the context of forensic DNA databanking, it confines the government to collecting and retaining the minimum of information that is needed for identification purposes. A back-loaded system forces the government to keep the information in its own hands and to use it only as authorized.[221]

A heavily front-loaded system would limit authorities to analyzing genotypes that have no more social significance than other identifying features such as skin color, eye color, fingerprint patterns, and blood and tissue types. These genotypes do not expose our "most profound personal secrets,"[222] and they are far less sensitive or revealing than the vast array of nongenetic information that is the traditional subject of privacy protection.[223] The most puissant form of front-loading would be the automatic destruction of the samples once the identifying alleles are recorded. The result would be a database of computer-searchable — but socially trivial—numerically encoded genotypic identifiers. DNA databanking with personal identifiers would not be practiced, although anonymized samples might be retained for quality control or research purposes.[224]

A back-loaded system would tolerate DNA databanks, but it would prevent unauthorized access to and use of the personally identified DNA samples by locking them up and establishing criminal or other penalties for unauthorized access or use. Rather than attempting to stop the collection of information "up front," it strives to curtail the dissemination and

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Mandatory DNA Testing (Fox television broadcast, Mar. 11, 1999), *available at* 1999 WL 18330169 (New York City police obtained DNA from a suspected serial killer and rapist by removing it from a coffee cup that he had used); Dan Kraut, *Baltimore Cop Charged in Bank Robberies*, May 18, 2000, *at* http://dailynews.yahoo.com/h/ao/20000518/cr/baltimore_cop_charged_in_bank_robberies_1.html (visited May 19, 2000) (saliva specimen of suspect "surreptitiously obtained").

220 *See* Gostin & Hodge, *supra* note 218.

221 In the terminology of Gostin and Hodge, this would be an "information management approach." *Id.*

222 *See supra* note 22.

223 Records of credit card purchases, bank transactions, Internet use, and public library borrowing, for example, are much more invasive of personal privacy. *But see* United States v. Miller, 425 U.S. 435, 440 (1976) (reasoning that subpoenas to a bank for checks and deposit slips did not intrude "into any area in which [the defendant] had a protected Fourth Amendment interest" because the defendant had voluntarily relinquished these materials to the bank).

224 *See, e.g.*, DNA Identification Act of 1994, 42 U.S.C. § 14133(b)(2) (permitting samples to be accessed "if personally identifiable information is removed, for a population statistics database, for identification research and protocol development purposes, or for quality control purposes"); IDAHO CODE § 19-5505(2)(d) (1997) (permitting "[a]nonymous DNA records [to be] used for research or quality control").

use of the information. This is the approach currently taken with law enforcement databanks.[225] It cannot assure that misuse never will occur, but the level of security is considerably higher than that sometimes surrounding DNA samples in the private sector.

Of course, no system can reduce the risk of unauthorized disclosure to zero. But the Constitution does not require perfection. Cases like *Whalen v. Roe*[226] indicate that the Court is unwilling to invalidate even those databases containing information that is indisputably "personal in character and potentially embarrassing or harmful"[227] merely because of the unavoidable risk of abuse.[228] In *Whalen*, the Court deemed the combination of (1) a "statutory or regulatory duty to avoid unwarranted disclosures,"[229] (2) physical measures to ensure security, and (3) a history of operation that had not been marked by breaches of confidentiality, adequate to satisfy the interest of patients in the privacy of their prescriptions.[230] No less should be required of a government databank of DNA samples. With sufficient safeguards — but not without them—a system for collecting DNA on arrest, analyzing it for appropriate genotypes, and storing those data for law enforcement purposes should be constitutional.

CONCLUSION

The analytical framework for evaluating the constitutionality of routine DNA sampling of arrestees is complex, and the outcome of the analysis is debatable. Of all the constitutional guarantees, the Fourth

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225 *See, e.g.*, DNA Identification Act of 1994, 42 U.S.C. § 14133(c) (establishing a criminal penalty of up to $100,000 for knowing disclosure of "individually identifiable DNA information indexed in a database created or maintained by any Federal law enforcement agency" or for knowing receipt of "DNA samples or individually identifiable DNA information" in a federal database"); MD. CODE, Art. 88B, § 12A(n) (misdemeanor penalty of up to $1,000 fine and three years imprisonment).

226 429 U.S. 589 (1977).

227 *Id.* at 605.

228 *See supra* Part III.B. Indeed, according to some commentators, "[a]lmost any precaution against unauthorized disclosure seems adequate to allow governmental information-gathering to pass muster." Burk & Hess, *supra* note 18, at 40.

229 429 U.S. at 605.

230 The *Whalen* Court examined the system for maintaining the confidentiality of the prescription records in some detail:

> The receiving room is surrounded by a locked wire fence and protected by an alarm system. The computer tapes containing the prescription data are kept in a locked cabinet. When the tapes are used, the computer is run "off-line," which means that no terminal outside of the computer room can read or record any information. Public disclosure of the identity of patients is expressly prohibited by the statute and by a Department of Health regulation. Willful violation of these prohibitions is a crime punishable by up to one year in prison and a $2,000 fine. At the time of trial there were 17 Department of Health employees with access to the files; in addition, there were 24 investigators with authority to investigate cases of overdispensing which might be identified by the computer.

Id. at 595.

Amendment casts the longest shadow over proposals to take samples from all individuals brought into custody. Although some procedures for obtaining and analyzing the DNA arguably do not even rise to the level of a search, others clearly do. Even so, for all methods of sampling, there is a sharply diminished expectation or invasion of privacy as compared to the traditional search for contraband or instrumentalities of a crime, and the normal reasons for a warrant and individualized suspicion are attenuated. Where the primary purpose of DNA sampling upon arrest is the acquisition of a permanent personal identifier for individuals who are in custody, the traditional "true identity" exception to the warrant requirement for fingerprinting, photographing, and the like, as well as the "special needs" line of cases support the collection of the DNA records.

But DNA databases can do much more than discern an individual's true identity. They can associate individuals with crimes. A database created and used for general law enforcement purposes fits poorly, if at all, into the existing mold of Fourth Amendment exceptions to the warrant requirement. Nonetheless, a cogent argument can be made for a new exception to the warrant requirement for the relatively nonintrusive collection of nonstigmatizing, personally identifying markers that can generate a list of probable perpetrators of serious crimes. The Reasonableness Clause requires a balancing of the nature and extent of the infringement of the individual's privacy against the value of having a database of genotypes. With convicted-offender databases, every court that has undertaken this balancing has concluded that DNA databanking is reasonable. Yet, the very existence of these offender databases, combined with the routine practice of fingerprinting arrestees, weakens the case for the constitutionality of compulsory DNA sampling upon arrest. Which way the balance tips is a close question, but one that should be resolved in favor of a minimally invasive, highly secure system for DNA databanking even at the point of arrest.[231]

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231 Given the fractious nature of proposals to enlarge DNA databanking, it may be useful to make explicit an elementary point: not all that is constitutional is advisable. Resources for enforcing the criminal laws are scarce, and the analysis here does not begin to answer the question of whether acquiring DNA on arrest has sufficient marginal benefits to make it a wise investment. In addition, the system will have a disparate impact on racial minorities. Relative to population size, about five times as many African-Americans as whites are arrested for crimes of murder, rape, robbery, and aggravated assault. *See* THE REAL WAR ON CRIME: THE REPORT OF THE NATIONAL CRIMINAL JUSTICE COMMISSION 107 (Steven R. Donziger ed., 1996). About three times as many African-Americans as whites are arrested for less serious crimes, which make up the bulk of arrests. *Id.* at 107–08. Moreover, the sheer reach of arrest-based databases should make one pause. From studies of the prevalence of arrest in New York, California, and Pennsylvania, as well as nationally, it appears that, by the time they turn 30, at least 25% of males will be included in a database of DNA profiles if DNA is sampled on arrest. *See* Donziger, *id.*, at 36 (reporting that "there are least 30 million individuals in the United States with a criminal record" and that a "conservative" estimate is "that one-fourth of all men in the United States have a criminal record on file with the police"). The figure is

likely to be closer to 50%. It will be much higher in areas aggressively patrolled by police, and it will approach 100% in some African-American neighborhoods. *See* Jerome G. Miller, *From Social Safety Net to Dragnet: African American Males in the Criminal Justice System*, 51 WASH. & LEE L. REV. 479, 485 (1994) (reviewing studies and surmising that "the percentage of nonwhite males [in cities] who could expect to be arrested and at least briefly jailed would [be] 90%").