FOREWORD: ACCOUNTING FOR TECHNOLOGICAL CHANGE

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Changing technology presents a recurring problem for lawmakers. Laws are enacted with a background understanding of the facts. When those facts change, the effect of the old legal rules can change along with them. A law created for one world may have a very different impact when applied to the facts of a different era. As a result, changing technology and social practice often trigger a need for legal adaptation. Maintaining the function of old rules can require changing those rules to adapt to the new environment.

Consider an example currently dividing the lower courts. The subject is the Fourth Amendment. Here's the broad issue: When the police lawfully arrest someone, can they search the person arrested? If the officers come across an item found in the arrestee's pocket, can they search that item as well? And here's the specific question that has split the lower courts: What if the item is a cell phone?[1]

The Supreme Court last weighed in on this question in a 1973 case, *United States v. Robinson*.[2] *Robinson* recognized that warrantless searches of a person further two government interests. First, searches can protect the safety of the officer because the officer can search for weapons to disarm the arrestee.[3] Second, searches can preserve evidence of the crime of arrest that the person might be carrying at the time he was brought into police

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1. *Compare* People v. Diaz, 244 P.3d 501 (Cal. 2011) (ruling that warrantless search of a cell phone permitted incident to arrest), *with* State v. Smith, 920 N.E.2d 949 (Ohio 2009) (ruling that warrantless search of a cell phone not permitted incident to arrest).

2. 414 U.S. 218 (1973).

3. *See id.* at 233–34.

custody.[4] The *Robinson* Court that these interests justified a bright-line rule: Thus, "a full search of the person" is always permitted at the time of a lawful arrest.[5] A bright-line rule was appropriate even if the extent to which the search furthered the government's interests might vary in individual cases.[6]

Robinson made sense in its day. In 1973, a search of a person incident to arrest might include a search for a weapon or a search through a person's pockets. Those pockets might contain keys, a wallet, cigarettes, or a small amount of narcotics. But the "full search" contemplated by *Robinson* was necessarily a brief search. People can carry only a limited amount of physical property on their persons. As a result, *Robinson* allowed a full search but also a narrow one. In that context, a bright-line rule avoided litigation over relatively small factual variations. A search incident to arrest was not likely to veer so far from the legitimate interests that justified its scope.

But that is no longer true today. In 2013, most people walking down the street carry a cell phone.[7] More than half of those cell phones are so-called "smart phones," which are multifunctional computers that just happen to have telephone capabilities.[8] Modern cellular phones can carry an extraordinary amount of information. The storage capacity of the popular Apple iPhone 5 ranges from 16GB to 64GB,[9] which is the equivalent of many millions of pages of text and similar to the typical storage capacity of a home computer sold in 2004.[10] Plus, the capacity and speed of cell phones is not fixed. Every

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4. *See id.*

5. *Id.* at 235.

6. *Id.*

7. Indeed, the number of wireless devices such as cell phones in the United States now exceeds the number of people in the United States. This is possible because some people have more than one wireless device. See Cecilia Kang, Number of Cellphones Exceeds U.S. Population: CTIA Trade Group, Wash. Post (Oct. 11, 2011, 7:54 AM) http://www.washingtonpost.com/blogs/post-tech/post/number-of-cell-phones-exceeds-us-population-ctia-trade-group/2011/10/11/gIQARNcEcL_blog.html.

8. *See* Ingrid Lunden, *Nielsen: Smartphones Used By 50.4% Of U.S. Consumers, Android 48.5% Of Them*, TECHCRUNCH, May 7, 2012, http://techcrunch.com/2012/05/07/nielsen-smartphones-used-by-50-4-of-u-s-consumers-android-48-5-of-them/.

9. APPLE STORE, http://store.apple.com/us/browse/home/shop_iphone/family/iphone5 (last visited Feb. 11, 2013).

10. In late 2004, the storage capacity of a typical hard drive sold with a new home personal computer was 40 gigabytes. *See* Orin S. Kerr, *Digital Evidence and the New Criminal Procedure*, 105 COLUM. L. REV. 279, 302 (2005).

year witnesses the introduction of new models with more speed, more capacity, and better features.

Much of the information stored in a person's cellular phone is deeply personal. The information can include photographs, text messages, e-mails, personal notes, records of visited websites, and many other kinds of personal information. The mantra of the smart phone era is that "there's an app for that,"[11] indicating that there is a program to fulfill every need. But "apps" also keep records. Every app means a record of how that app was used. As a result, the cell phones so many of us carry around are not only portals to the rest of the world or sophisticated computers that fit in our pockets. They are also storage devices that contain a remarkable amount of information about who we are, what we know, and what we have done.

Robinson allows the police to conduct a full search of the person incident to any arrest. But now that people regularly carry cell phones, the *Robinson* rule allows a search much more vast that it allowed in 1973. Searching a person no longer means just searching pockets for wallets or cigarettes. It now means searching through computers that can contain millions of pages worth of personal information. Such searches can take days or weeks when conducted in a computer lab by a trained forensic analyst.[12] Thanks to changing technology and its widespread adoption, searching a person meant one thing in 1973 and means something quite different today.

And note that the two rationales for allowing searches incident to arrest don't justify routine computer searches. The first rationale is plainly inapplicable. No one thinks that an electronic search through a cell phone might reveal a dangerous weapon. The second rationale also won't apply in most cases. True, a cell phone might contain evidence relating to the crime of arrest in some cases. A person charged with making a threat by telephone might have records of the threat on his phone. But that is not the case for many—if not most—arrests. A person arrested for drunk driving probably has no evidence of the drunk driving on his cell phone. A person ar-

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11. The phrase comes from a memorable commercial for the iPhone 3 in 2009. Apple, "There's an App For That," YOUTUBE (Feb. 4, 2009), http://www.youtube.com/watch?v=szrsfeyLzyg.

12. *See* Orin S. Kerr, *Searches and Seizures in a Digital World*, 119 HARV. L. REV. 531, 537-38 (2005).

rested for possessing marijuana probably has no evidence relating to the drugs stored there. And the fear of losing evidence is less pressing when evidence is stored in electronic form on a phone. The phone can be taken from the arrestee and searched at another time. Plus, some of the information may exist elsewhere.[13]

The difference between searches of a person in 1973 and searches of a person today points to the need for a new rule. When the police search physical evidence, the *Robinson* rule should still apply. The facts of physical searches remain the same as they have been. But when officers want to search digital storage devices such as cell phones, they should have to follow a different rule that limits their power to engage in invasive computer searches.

In my view, sensible guidance for new rules governing the search of digital storage devices incident to arrest is provided by existing doctrine on searching automobiles in those circumstances. Like cell phones, cars are mobile. And like cell phones, cars can store a great deal of personal information. As the Court recognized in *Arizona v. Gant*,[14] allowing a complete search of a car as a routine matter whenever the driver has been arrested permits a search far beyond the rationales of the exception.[15] Under *Gant*, officers can search the car only in two circumstances: first, "when the arrestee is unsecured and within reaching distance of the passenger compartment at the time of the search,"[16] and second, when "it is reasonable to believe evidence relevant to the crime of arrest might be found in the vehicle."[17]

A similar rule should apply for searching digital storage devices. Because cell phones are easily secured, the first prong of *Gant* may be unnecessary. But the second prong of *Gant* can be easily adapted for computers stored on a person. Such a device should be searched pursuant to the search-incident-to-arrest exception only when "it is reasonable to believe evi-

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13. For example, copies of e-mails found on a smart phone will exist on the e-mail server that provides service to that user.

14. 556 U.S. 332 (2009).

15. *Id.* at 343.

16. *Id.*

17. *Id.* (quoting Thornton v. United States, 541 U.S. 615, 632 (2004) (Scalia, J., concurring)).

dence relevant to the crime of arrest might be found"[18] in the device. Given the invasiveness and scope of computer searches, searches of computers incident to arrest should be allowed only when justified by the evidence-preserving rationale justifying the exception.

The reader may object that adopting a computer-specific rule seems like a strange path to take. How can we justify one rule for physical evidence and another rule for digital evidence? I have two answers. The first is that technology-specific rules can be appropriate when technologies create recurring facts. Within Fourth Amendment law, the automobile provides the obvious example. A large chunk of Fourth Amendment doctrine concerns automobile-specific rules. Examples include the automobile exception to the warrant requirement,[19] rules on when automobiles can be stopped,[20] when passengers can be ordered out of the car,[21] and when cars can be searched incident to a driver's arrest.[22] The computer will be to the 21st century Fourth Amendment what the automobile was to the 20th century Fourth Amendment. In both cases, transformative technologies justify technology-specific rules.

Second, whether technology-specific rules appear natural or awkward depends on when along the technology timeline you look. In the 1990s, a computer-specific rule would have seemed exceedingly strange. At that time, encountering an electronic device during an arrest probably meant discovering a drug dealer's pager that only stored five telephone numbers. The analogy between physical and digital devices was obvious, and a court could apply the traditional doctrine to an electronic device quite naturally.[23] Twenty years later, that analogy is much harder to draw. But what is a hard issue today will become easy in time. Imagine how computer technologies will work in five, ten, or fifty years. Over time, advancing technology will cause the digital to seem more and more different from the

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18. *Id.*

19. *See* Carroll v. United States, 267 U.S. 132, 151 (1925).

20. *See* Whren v. United States, 517 U.S. 806, 819 (1996) (holding that probable cause to believe a traffic violation has occurred justifies a stop).

21. Maryland v. Wilson, 519 U.S. 408, 410 (1997) (holding that officer can order passengers out of car during a lawful stop).

22. *See* Arizona v. Gant, 556 U.S. 332, 343 (2009).

23. *See, e.g.*, United States v. Ortiz, 84 F.3d 977, 984 (7th Cir. 1996).

physical. The need for different rules governing digital devices eventually will seem obvious.

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All of the Articles in this symposium issue grapple with similar questions regarding how the law should account for technological change. Each Article considers how to maintain the enduring values of the law in a world of new technological facts. Each offers interesting and thoughtful answers to those questions. We are indebted to the editors of the *Harvard Journal of Law and Public Policy* for providing a forum for these contributions, and I thank them for inviting me to author the Foreword that precedes them.