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Making Sense of Sense-Enhanced Searches

David E. Steinberg*

INTRODUCTION

During the past decade, federal and state law enforcement agencies have conducted "sense-enhanced" searches1 with increasing frequency.2 Such sense-enhanced searches range from


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1. This Article uses the term "sense-enhanced search" to describe any police examination of a person or his property through the use of some method that provides information not available to unaided sensory perceptions. This Article uses the term "physical search" to describe the traditional police search, which relies on unaided sensory perceptions.

Others have referred to sense-enhanced searches as "high technology searches." See, e.g., Gutterman, A Formulation of the Value and Means Models of the Fourth Amendment in the Age of Technologically Enhanced Surveillance, 39 SYRACUSE L. REV. 647, 650 (1988); Comment, Law Enforcement Use of High Technology: Does Closing the Door Matter Anymore?, 24 CAL. W.L. REV. 83, 84 (1988) [hereinafter Comment, Law Enforcement Use of High Technology]. Although sense-enhanced searches may rely on sophisticated technology, this need not be the case. A police officer perched atop a mountain and surveying the surrounding land with a cheap pair of binoculars is engaged in precisely the same type of practice as an officer who views the land from an airplane using highly sophisticated photographic equipment. Compare Dow Chem. Co. v. United States, 476 U.S. 227, 243 (1986) (Powell, J., dissenting) (noting that photographs of a factory complex taken from an airplane revealed equipment as small as one-half inch in diameter) with United States v. Taborda, 635 F.2d 131, 133-34 (2d Cir. 1980) (involving use of high-powered telescope to read labels on containers located in a suspect's apartment, which were suspected to contain cocaine). See also Amsterdam, Perspectives on the Fourth Amendment, 58 MINN. L. REV. 349, 402 (1974) (arguing that the fourth amendment should cover police "snooping activities" unaided by sense-enhancing methods).

familiar methods, such as wiretaps and canine sniffs, to more recently developed techniques, such as “beeper” monitoring and aerial surveillance.¹

Court decisions determining whether a particular type of sense-enhanced search requires a warrant have proven chaotic and unpredictable.³ A wiretap or “bug” that records telephone conversations requires a warrant.⁴ Police, however, may plant a recording device on an undercover agent or an informant and record conversations between that individual and a suspect without a warrant.⁶ Similarly, a “pen register,” which records

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⁴ This confusion to some extent reflects a general lack of coherence in Supreme Court fourth amendment decisions. See generally Bradley, Two Models of the Fourth Amendment, 83 Mich. L. Rev. 1468, 1468-72 (1985) (describing the fourth amendment as “the Supreme Court’s tarbaby: a mass of contradictions and obscurities”); Weinreb, Generalities of the Fourth Amendment, 42 U. Chi. L. Rev. 47, 49-50 (1974) (noting that the Court’s fourth amendment jurisprudence is “a body of doctrine that is unstable and unconvincing”).


The Supreme Court has held that all parties to an intercepted conversation possess fourth amendment standing and may exclude evidence obtained through a warrantless wiretap. Alderman v. United States, 394 U.S. 165, 176-77 (1969). An individual whose residence phone is tapped possesses standing to exclude evidence obtained from a warrantless wiretap, even if the resident is not a party to the intercepted call. Id. Other individuals who are not parties to an intercepted call lack standing to exclude evidence obtained from a warrantless wiretap that violates the fourth amendment. See United States v. Kahn, 415 U.S. 143, 155-58 (1974).

⁶ United States v. White, 401 U.S. 745, 751-54 (1971); Lopez v. United States, 373 U.S. 427, 438-39 (1963). Use of a recorder concealed on an informant to obtain incriminating statements violates an indicted suspect’s sixth amendment right to effective assistance of counsel. Maine v. Moulton, 474 U.S. 159, 176-77 (1985); Massiah v. United States, 377 U.S. 201, 205-06 (1964). This sixth amendment prohibition, however, applies only to a recording obtained after a grand jury has indicted the suspect. The use of a concealed re-
the numbers dialed from a telephone but not the contents of conversations made from that phone, does not require a warrant.\textsuperscript{7}

Monitoring a "beeper," a device that police use to track a suspect's movements, typically does not require a warrant.\textsuperscript{8} Police, however, cannot monitor a beeper without a warrant when the device passes into a constitutionally protected area, such as a suspect's home.\textsuperscript{9} Police may conduct a warrantless aerial search from an airplane or helicopter, even if their search includes a constitutionally protected area.\textsuperscript{10} Police need not obtain a warrant before using a drug-detecting dog to sniff out concealed narcotics.\textsuperscript{11}

Several state court opinions suggest a lack of coherence in these Supreme Court decisions. These state court opinions have rejected the United States Supreme Court's sense-enhanced search conclusions in defining the warrant requirements of state constitutions.\textsuperscript{12}

corder prior to an indictment does not violate the sixth amendment. \textit{Moulton}, 474 U.S. at 179-80.

9. United States v. Karo, 468 U.S. 705, 716-18 (1984). Case law has not yet established whether a warrant is required only when police monitor a beeper located in a residence, or whether this warrant requirement might extend to other protected areas, such as an office. \textit{But see} 1 W. LAFAYE, SEARCH AND SEIZURE: A TREATISE ON THE FOURTH AMENDMENT 530 (2d ed. 1987) (suggesting "that the underlying principal [of the Karo decision] is by no means limited to 'the monitoring of a beeper in a private residence'").
11. United States v. Place, 462 U.S. 696, 706-07 (1983). A number of other Supreme Court decisions have approved, with little discussion, the warrantless use of several types of sense-enhanced searches. \textit{See, e.g.,} United States v. Dunn, 480 U.S. 294, 305 (1987) (holding that the warrantless use of a flashlight does not violate the fourth amendment); United States v. Jacobsen, 466 U.S. 109, 122-26 (1984) (upholding the warrantless use of a chemical test to determine whether a packaged substance was cocaine); Texas v. Brown, 460 U.S. 730, 739-40 (1983) (upholding the warrantless use of a flashlight); United States v. Lee, 274 U.S. 559, 563 (1927) (concluding that the warrantless use of a searchlight to illuminate a ship does not violate the fourth amendment).
12. For example, the United States Supreme Court has held that the fourth amendment does not require police to obtain a warrant before equipping an informant with a concealed recorder, which will tape the informant's conversations with a suspect. United States v. White, 401 U.S. 745, 751-54 (1971); United States v. Lopez, 373 U.S. 427, 438-39 (1963). In contrast, a number of state courts have interpreted state constitutions to require that police obtain a warrant before using a concealed recorder. \textit{See, e.g.,} State v. Glass, 583 P.2d 872, 881-82 (Alaska 1978), \textit{modified}, City of Juneau v. Quinto,
A large number of scholarly pieces discuss fourth amendment issues raised by each specific type of sense-enhanced search. Nevertheless, commentators have made little attempt to assess the general fourth amendment problems raised by all sense-enhanced searches, or the appropriate standards for applying the fourth amendment warrant clause to sense-enhanced searches.

This Article considers when courts should require a warrant prior to the initiation of a sense-enhanced search. Part I


A number of other works discussing various types of sense-enhanced searches are cited throughout this Article.

14. The few attempts to analyze a broad array of sense-enhanced search techniques include, e.g., Gutterman, supra note 1; Note, Police Use of Sense-Enhancing Devices and the Limits of the Fourth Amendment, 1977 U. ILL. L.F. 1167 (1977) [hereinafter Note, Police Use of Sense-Enhancing Devices].

15. This Article considers only whether various types of sense-enhanced searches require a warrant. The Article thus does not consider a number of other aspects of sense-enhanced searches. For example, the Article does not discuss whether police use of certain minimally intrusive sense-enhancing devices falls within the definition of a fourth amendment "search," an issue that has received extensive discussion. See, e.g., Note, Police Use of Sense-Enhancing Devices, supra note 14, passim; Comment, Re-examining the Use of Drug-
isolates fourth amendment concerns associated with sense-enhanced searches. Part II evaluates concepts employed by the Supreme Court and lower courts to determine whether a war-

Detecting Dogs, supra note 13, at 1236-43. For the purposes of this Article, any police use of a sense-enhancing device is presumed to be a fourth amendment "search." See Amsterdam, supra note 1, at 383-84.

This Article also does not consider the proper standard governing police use of sense-enhanced search techniques that do not require a warrant. Just as police must have probable cause to suspect an individual of criminal activity before obtaining a search warrant, police typically must possess probable cause before undertaking a search exempted from the warrant requirement. See, e.g., Arizona v. Hicks, 480 U.S. 321, 326-27 (1987) (finding that the police must possess probable cause to invoke the "plain view" exception to the warrant requirement); Chambers v. Maroney, 399 U.S. 42, 50-52 (1970) (authorizing a warrantless search of an automobile when officers possessed probable cause to suspect criminal conduct); Schmerber v. California, 384 U.S. 757, 768-71 (1966) (ruling that a blood test used to determine a suspect's blood-alcohol level may proceed without a warrant when police possess probable cause to suspect illegal intoxication); see also Note, Police Use of Sense-Enhancing Devices, supra note 14, at 1203 (suggesting that courts should employ a "sliding scale," with various levels of suspicion sufficient to justify a warrantless police use of different types of sense-enhancing devices); cf. New Jersey v. T.L.O., 469 U.S. 325, 341-42 (1985) (concluding that reasonableness, rather than probable cause, is required when school officials conduct a warrantless search of a student).

In some circumstances, when either a criminal act or danger to a police officer is likely, police may undertake a limited search if they possess a "reasonable fear" of such danger. Terry v. Ohio, 392 U.S. 1, 30 (1968) (upholding a warrantless search of the person of a suspect who apparently had planned to burglarize a store). Finally, police practices that do not constitute a "search or seizure" are in no way limited by the fourth amendment. See United States v. Place, 462 U.S. 696, 706-07 (1983) (holding that a sniff of luggage by a drug-detecting dog does not constitute a "search" limited by the fourth amendment); Smith v. Maryland, 442 U.S. 735, 745-46 (1979) (finding that the use of a pen register to record all telephone numbers dialed from or received by a telephone does not constitute a fourth amendment search).

The approach suggested in this Article also does not apply to those cases in which police have used a sense-enhanced search as part of a significant intrusion of a suspect's body. See Skinner v. Railway Labor Executives' Ass'n, 109 S. Ct. 1402, 1415-16 (1989) (upholding warrantless breath, blood, and urine testing of railroad employees for alcohol or drug abuse); Cupp v. Murphy, 412 U.S. 291, 294-96 (1973) (upholding the warrantless scraping of a substance under the defendant's fingernails, which subsequent tests suggested was a murder victim's blood); Schmerber, 384 U.S. at 766-72 (concluding that police could extract a suspect's blood without a warrant to measure the suspect's blood-alcohol level); cf. Rochin v. California, 342 U.S. 165, 172 (1952) (forcing a suspect to vomit evidence that he had swallowed "shocks the conscience" and violates the due process clause of the fourteenth amendment). As noted by the Supreme Court in a case involving an intrusion of a suspect's body: "Limitations on the kinds of property which may be seized under warrant, as distinct from procedures for search and the permissible scope of search, are not instructive in this context." Schmerber, 384 U.S. at 768. Accordingly, cases involving such an intrusion of a suspect's body are beyond the scope of this Article.
rant is required when police use various types of sense-enhanced searches. This Part concludes that the current Supreme Court approach does not address important fourth amendment concerns, and will continue to produce an internally inconsistent body of law.

Part III suggests three factors that could be used to determine whether police must obtain a warrant before conducting a specific type of sense-enhanced search. Applying these criteria, the Article concludes that some decisions authorizing warrantless sense-enhanced searches are incorrect.

I. FOURTH AMENDMENT CONCERNS RAISED BY SENSE-ENHANCED SEARCHES

In reviewing sense-enhanced searches, the Supreme Court usually has proceeded from the premise that such searches are less intrusive than traditional physical searches. The Court has reached this conclusion by noting that sense-enhanced searches, such as the use of a beeper or the viewing of property from an airplane, do not require the disruption of events or destruction of property that occurs when police tear apart a residence in search of evidence.\(^{16}\) In other words, the typical absence of any physical trespass or handling of property assertedly makes a sense-enhanced search less of an invasion of privacy, and thus raises less serious fourth amendment concerns than a traditional physical search.\(^{17}\)

\(^{16}\) See California v. Ciraolo, 476 U.S. 207, 213 (1986) (upholding a warrantless aerial search that “took place within public navigable airspace in a physically nonintrusive manner” (citation omitted)); United States v. Place, 462 U.S. 696, 707 (1983) (commenting that a canine sniff “is much less intrusive than a typical search,” in part because the canine sniff does not involve “an officer’s rummaging through the contents of the [suspect’s] luggage”).

\(^{17}\) See, e.g., United States v. Knotts, 460 U.S. 276, 284-85 (1983); cf. Granholm, Video Surveillance on Public Streets: The Constitutionality of Invisible Citizen Searches, 64 U. Det. L. Rev. 687, 701-02 (1987) (noting that, with respect to video surveillance, authorities argue that physical intrusion is “so minuscule that there can be no constitutional violation”).

Lower courts considering the constitutionality of warrantless aerial searches have reached the same conclusion. These courts have held warrantless aerial searches unconstitutional only when the noise and wind caused by low-flying airplanes or helicopters has disturbed residents. See National Org. for Reform of Marijuana Laws (NORML) v. Mullen, 608 F. Supp. 945, 957-58 (N.D. Cal. 1985); Commonwealth v. Ogilivito, 547 A.2d 387, 388 (Pa. Super. 1988), appeal granted, 557 A.2d 722 (1989); see also State v. Ainsworth, 95 Or. App. 240, 246, 770 P.2d 58, 61 (en banc) (holding that warrantless aerial search, conducted at a low altitude, violated state constitutional provisions), review granted, 308 Or. 158, 776 P.2d 859 (1989).
The Court's view of sense-enhanced searches as typically less intrusive than physical searches is incorrect. This section contends that the secrecy of a sense-enhanced search may both chill free expression and encourage improper police activities. This section then examines the similarities between a sense-enhanced search and the general warrant, a colonial writ that authorized police to undertake an unrestricted search of a suspect's property. Finally, this section notes that sense-enhanced searches allow for a dangerous amount of police discretion, because these searches eviscerate the traditional requirement that police identify a particular suspect prior to initiating a search.

A. SECRECY

A certain amount of secrecy is inherent in any police investigation. Law enforcement officers cannot immediately publish to the world their suspicion that a certain individual possesses incriminating evidence, because the suspect would destroy the evidence, or flee the jurisdiction upon hearing the announcement.

Traditionally, an individual learns that he is suspected of criminal activity when police arrive at the door and present a search warrant. Even if the suspect is not in attendance when police undertake a search of his property, he learns of the physical search when he returns home and finds his possessions out of place.

Although a discovery that police have searched his residence no doubt will prove disconcerting to a suspect, this discovery should provide a certain amount of comfort to other members of the community. These other residents will realize that they are not under investigation, and that they may continue to conduct their affairs without worrying about how their

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18. See United States v. Knotts, 460 U.S. 276, 288 (1983) (Stevens, J., concurring); see also Note, Tracking Katz, Beepers, Privacy, and the Fourth Amendment, 86 YALE L.J. 1461, 1463, 1505 (1971) (hereinafter Note, Tracking Katz] (arguing that physical attachment of a beeper "brings electronic tracking within the Fourth Amendment . . . and may intrude on protected rights of privacy").

19. As a general rule, police must provide residents with notice before entering a dwelling to effect a search or arrest. See Miller v. United States, 357 U.S. 301, 306-14 (1958) (stating that arrest effected in the suspect's home was unconstitutional when police did not provide the suspect with notice prior to entering); 18 U.S.C. § 3109 (1988) (requiring a federal officer to give "notice of his authority and purpose" before entering a house); 2 W. LAFAVE, supra note 9, at 270-73 (discussing sources and purposes of notice requirement).
activities are perceived by law enforcement authorities.\textsuperscript{20}

In the case of a sense-enhanced search, however, the suspect typically receives no notice that police have commenced an investigation.\textsuperscript{21} For example, an individual has no way of knowing whether police have placed a wiretap on his phone line in a phone company office.\textsuperscript{22} Nor can an individual discern whether an airplane flying overhead is engaged in a typical private flight, or is engaged in police surveillance of his property.\textsuperscript{23}

The secrecy of sense-enhanced searches is part of their attractiveness to law enforcement officials. Police can investigate unlawful conduct without alerting the suspect and causing him to destroy evidence. Police also can gather evidence without resorting to a time-consuming and potentially dangerous entry of a suspect’s property.\textsuperscript{24}

The secrecy accompanying a sense-enhanced search also involves high costs.\textsuperscript{25} Specifically, an individual will not know if he is under investigation. Accordingly, all members of the community, law-abiding citizens as well as criminals, may constantly fear ongoing law enforcement surveillance.\textsuperscript{26}

The Supreme Court has recognized the concerns raised by secret search techniques, noting that such undisclosed searches


\textsuperscript{21} See, e.g., A. Westin, supra note 3, at 69-89; Comment, Re-examining the Use of Drug-Detecting Dogs, supra note 13, at 1244.


\textsuperscript{23} Similar problems are raised by the relatively recent development of physical searches undertaken pursuant to a “covert” search warrant. The covert warrant authorizes officers to secretly enter and observe conditions at a specified location. See Note, Covert Searches, 39 STAN. L. REV. 545, 546-49 (1987) [hereinafter Note, Covert Searches].

\textsuperscript{24} Particularly in drug cases, police conducting a physical search must increasingly contend with a chilling assortment of snares and booby traps. See, e.g., United States v. Bernard, 757 F.2d 1439, 1441 (4th Cir. 1985) (describing marijuana cultivation protected by “ankle and neck-high trip wires, barbed wire stretched across paths at eye level, pit-falls, steel traps, electric fences, and guard dogs, such as Doberman Pinschers”); Carter v. United States, 729 F.2d 935, 937 (8th Cir. 1984) (noting that outside of a marijuana garden, officers “located two shotguns . . . with wires affixed to the triggers”).

\textsuperscript{25} See Weinreb, supra note 4, at 83.

\textsuperscript{26} United States v. Karo, 468 U.S. 705, 735 (1984) (Stevens, J., dissenting); Note, Tying Privacy in Knotts, supra note 13, at 318.
may have a "chilling effect"\textsuperscript{27} on first amendment rights.\textsuperscript{28} Secret searches indeed may reduce an individual's willingness to express her thoughts.\textsuperscript{29} For example, a political radical may hesitate to state her views in a phone conversation if she believes that law enforcement officials are listening through a wiretap. Similarly, a dissatisfied citizen may decline to attend a political rally if she fears police will be taking attendance from an airplane flying overhead.\textsuperscript{30}

Secret police investigatory techniques, however, do not solely raise a first amendment problem.\textsuperscript{31} The notice accompa-

\begin{itemize}
\item \textsuperscript{27} As the Supreme Court has written: "[C]onstitutional violations may arise from the deterrent, or 'chilling,' effect of governmental regulations that fail short of a direct prohibition against the exercise of First Amendment rights." Laird v. Tatum, 408 U.S. 1, 11 (1972). \textit{See also} Philadelphia Newspapers, Inc. v. Hepps, 475 U.S. 767, 777 (1986) (stating that "it has long been established that the government cannot limit speech protected by the First Amendment without bearing the burden of showing the restriction is justified"); Zwicker v. Kwota, 389 U.S. 241, 252 (1967) (holding that application of the abstention doctrine to a first amendment claim challenging a state statute might itself chill the first amendment right); Keyshinian v. Board of Regents, 385 U.S. 589, 601-04 (1967) (discussing potential chilling effect of state teacher loyalty laws and regulations); L. Tribe, AMERICAN CONSTITUTIONAL LAW § 12-26, at 1010 (2d ed. 1988) (discussing tension between governmental access regulation in media and the first amendment).
\item \textsuperscript{28} United States v. United States Dist. Court, 407 U.S. 297, 313-14 (1972); \textit{see also} Smith v. Maryland, 442 U.S. 735, 751 (1979) (Marshall, J., dissenting) (suggesting that "[p]ermittig governmental access to records on less than probable cause may thus impede certain forms of political affiliation and journalistic endeavor that are the hallmark of a truly free society"); United States v. White, 401 U.S. 745, 787 (1971) (Harlan, J., dissenting) (concluding that "[a]uthority is hardly required to support the proposition that words would be measured a good deal more carefully and communication inhibited if one suspected his conversations were being transmitted and transcribed").
\item \textsuperscript{29} Tomkovicz, \textit{Beyond Secrecy for Secrecy's Sake: Toward an Expanded Vision of the Fourth Amendment Privacy Province}, 36 HASTINGS L.J. 645, 720 (1985) (asserting that "[a] lack of informational privacy and the resultant knowledge that authorities have unrestricted access can only yield inhibition, self-censorship of behavior, and a corresponding diminution of the ability to enjoy the benefits of ownership or possession").
\item \textsuperscript{30} \textit{See} Florida v. Riley, 109 S. Ct. 693, 702-03 (1989) (Brennan, J., dissenting); \textit{Note, Electronic Visual Surveillance and the Fourth Amendment}, supra note 3, at 297-98 (commenting that "[w]ith the advent of electronic snooping, a person wishing to assure the privacy of his actions from visual observation will have no absolute protection").
\item \textsuperscript{31} \textit{See} Illinois v. Andreas, 463 U.S. 765, 775 (1983) (Brennan, J., dissenting) (stating that "[t]he Fourth Amendment, however, does not protect only information. It also protects, in its own sometimes-forgotten words, '[t]he right of the people to be secure in their persons, houses, papers, and effects . . .'") (emphasis added); Hufstedler, \textit{Invisible Searches for Intangible Things: Regulation of Governmental Information Gathering}, 127 U. PA. L. REV. 1483, 1521 (1979) (stating that "[w]e do not need a sophisticated study or a carefully
ning a traditional physical search is consistent with a number of requirements designed to ensure the publicity of criminal investigations. Such procedures include the general rule that police officers must state their basis for a search in a formal and reviewable warrant application,\textsuperscript{32} the requirement that the state specify any criminal charges in a published indictment,\textsuperscript{33} and the maxim that a judge may not bar the public from a criminal trial.\textsuperscript{34}

This requirement of publicity contrasts with the secret police operations of the stereotypical totalitarian state, in which an individual may be arrested at the whim of the police; tried on unsupported, vague, or incomprehensible charges; and convicted in complete secrecy.\textsuperscript{35} Limiting the use of secret search techniques thus ensures more than just freedom of expression. The public knowledge accompanying a traditional physical search helps prevent arbitrary government action.\textsuperscript{36}

calibrated scale to tell us that acceptance of invisible searches of our homes is too high a price for the innocent to pay to seek out the guilty. A common burglar is bad enough, but an invisible governmental burglar is intolerable."); Note, A Reconsideration of the Katz Expectation of Privacy Test, 76 Mich. L. Rev. 154, 155 (1977) [hereinafter Note, A Reconsideration of Katz].

32. See 2 W. LaFave, supra note 9, at 167-84, 206-07.
33. U.S. Const. amend. V.
34. Although the press is the most frequent challenger of orders barring the public from a trial, a criminal defendant also possesses a sixth amendment right to an open trial. See, e.g., Waller v. Georgia, 467 U.S. 39, 44-47 (1984).
36. The Court and commentators have agreed that simply relying on law enforcement departments to respect constitutional rights will not adequately deter unconstitutional police action. “The historical judgment, which the Fourth Amendment accepts, is that unreviewed executive discretion may yield too readily to pressures to obtain incriminating evidence and overlook potential invasions of privacy and protected speech.” United States v. United States Dist. Court, 407 U.S. 297, 317 (1972); see also Katz v. United States, 389 U.S. 347, 356-57 (1967) (noting that the Supreme Court “has never sustained a search upon the sole ground that officers reasonably expected to find evidence of a particular crime and voluntarily confined their activities to the least intrusive means consistent with that end”); Giordenello v. United States, 357 U.S. 480, 485-86 (1958) (noting that the purpose of a complaint with respect to an arrest warrant is to allow a magistrate to determine whether probable cause exists); Johnson v. United States, 333 U.S. 10, 14 (1948) (noting fourth amendment requirement that inferences from evidence be drawn by “neutral and detached” magistrate rather than by officer engaged in “ferreting out crime”); Amsterdam, supra note 1, at 415 (discussing “pervasiveness and discontrol of police discretion”); Schroeder, Deterring Fourth Amendment Violations: Alternatives to the Exclusionary Rule, 69 Geo. L.J. 1361, 1399-1401 (1981) (dis-
In the most general sense, the accountability that accompanies a physical search limits police discretion. If a community learns of too many mistakes or unjustified searches by the police, the community probably will find other police officers to handle its law enforcement duties. Police have an incentive to possess a sound basis for suspecting criminal activity before they undertake a traditional physical search.

Such police accountability, however, is absent when the community never learns of unjustified or errant police searches, as in the case of secret sense-enhanced searches. Police may prove far less hesitant to engage in questionable, arbitrary, or inappropriate sense-enhanced searches than to undertake an improper physical search.

Civil damages suits brought by innocent victims of unjustified searches also may help to ensure police restraint. In discussing non-judicial means of controlling police conduct; Note, Tying Privacy in Knotts, supra note 13, at 327 (suggesting that “self-restraint is inadequate to control police conduct amounting to a search”).

See Amsterdam, supra note 1, at 427.

See United States v. United States Dist. Court, 407 U.S. 297, 317-18 (1972) (holding that “[t]he independent check upon executive discretion is not satisfied, as the Government argues, by ‘extremely-limited’ post-surveillance judicial review. Indeed, post-surveillance review would never reach the surveillances which failed to result in prosecutions.”).


The deterrent effect of a possible civil damages suit on improper searches should not be overstated. In fact, a number of factors reduce a victim’s chance of success in a fourth amendment civil damages suit. Among these factors: 1) The victim may be unaware that she possesses a civil action; 2) Even if the victim is aware of her right to sue for damages, she may fear police reprisals and decline to bring suit; 3) The victim may be unable to retain an attorney to prosecute her action; 4) Police officers may be able to defeat the action by asserting a good faith belief in the legality of their search as a defense; 5) Police
Recent suspects may bring such civil suits, however, only if they are aware of police misconduct. When police inappropriately use a secret sense-enhanced search, such as a wiretap or a beeper, a civil suit is not a real possibility. At some point, police simply will discontinue the search, and the suspect will never know that police unjustifiably observed his conduct.

To summarize, the secrecy of sense-enhanced searches raises serious fourth amendment problems. Such secrecy not only may chill free expression, but also may encourage arbitrary and inappropriate police conduct.

B. GENERAL WARRANTS

The general warrant was a British document authorizing law enforcement officials to conduct an unlimited search of a suspect’s property. Under a general warrant, colonial officials could use an alleged minor violation as a pretext for ransacking a citizen’s entire home.

Counts are likely to appear as more credible witnesses before a trier of fact than the victim of an improper search, particularly if this victim can be linked to criminal activity; and 6) The victim of an improper search may be unable to prove that she suffered any compensable damages as a result of an improper search. See Schroeder, supra note 36, at 1386-90; see also G. M. Leasing Corp. v. United States, 429 U.S. 338, 359-60 (1977) (addressing remedies sought for fourth amendment violation); Amsterdam, supra note 1, at 360 (asserting that fourth amendment civil actions “are seldom maintained, nor are they, as a practical matter, maintainable”).

41. See infra text accompanying notes 101-14.
43. As Justice Douglas put it:
[D]ue to the clandestine nature of electronic eavesdropping, the need is acute for placing on the Government the heavy burden to show that ‘exigencies of the situation [make its] course imperative.’ Other abuses, such as the search incident to arrest, have been partly deterred by the threat of damage actions against offending officers, the risk of adverse publicity, or the possibility of reform through the political process. These latter safeguards, however, are ineffective against lawless wiretapping and ‘bugging’ of which their victims are totally unaware.

45. In colonial America, the most common form of general warrant was the writ of assistance. When colonial officials suspected that an individual had failed to pay customs duties, the writ of assistance authorized these officials to search anywhere in the individual’s residence or place of business. See, e.g., United States v. United States Dist. Court, 407 U.S. 297, 328 n.6 (1972) (Doug-


The Court and commentators have agreed that prohibition of general warrants was one of the central purposes of the fourth amendment. This disfavor of general warrants is expressed in the fourth amendment mandate that no warrant shall issue except those “particularly describing the place . . . and the persons or things to be seized.” In other words, police searching for a gun used in a murder cannot rummage through a suspect’s tax returns or personal address book. The police may search only those places where the gun might be found.

Reading this particularity requirement as a fourth amendment concern extending beyond the warrant clause, the Supreme Court has proscribed types of warrantless physical searches. For example, the Court held in United States v. Ross, 456 U.S. 798, 824 (1982), that "just as probable cause to believe that a stolen lawnmower may be found in a garage will not support a warrant to search an upstairs bedroom, probable cause to believe that undocumented aliens are being transported in a van will not justify a warrantless search of a suitcase."
searches that approach a general search. The Court, however, has proven more reluctant to apply the limitations of the particularity requirement to sense-enhanced searches.

Sense-enhanced searches approximate general searches because most sense-enhancing devices cannot be confined in the same manner as a physical search. For example, officers conducting an aerial search for a marijuana field cannot focus their vision solely on the suspected marijuana patch. They will see anyone who happens to be outdoors on the suspect’s land, any items of property the suspect has placed outside, and will have an unrestricted view of adjacent lands. If the officers possess sophisticated photographic and enlarging equipment, which investigators may use in an aerial search without a warrant, the police probably will see a good deal more.

50. See, e.g., Michigan v. Clifford, 464 U.S. 287, 296-99 (1984) (limiting the breadth of a warrantless post-fire search); Mincey v. Arizona, 437 U.S. 385, 395 (1978) (finding that “murder scene” exception to the warrant requirement violates the fourth amendment); cf. Skinner v. Railway Labor Executives’ Ass’n, 109 S. Ct. 1402, 1417 (1989) (upholding the warrantless use of breath analyzing tests that “can be used only to ascertain the presence of alcohol or controlled substances in the bloodstream”).

51. See Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 281; Note, Tying Privacy in Knotts, supra note 13, at 326.

52. See People v. Mayoff, 42 Cal. 3d 1302, 1330, 729 P.2d 166, 184, 233 Cal. Rptr. 2, 19-20 (1986) (Bird, C.J., dissenting) (stating that “[e]ven if the officers wanted to ‘focus’ their attention only on open fields, it should be obvious that any such attempt would be futile in a program of systematic, indiscriminate surveillance of private lands from the air”).

53. A federal district court granted a preliminary injunction against various unconstitutional law enforcement activities purportedly used in attempts to discover marijuana cultivation, including the inappropriate use of helicopter surveillance. National Org. for Reform of Marijuana Laws (NORML) v. Mullen, 608 F. Supp. 945 (N.D. Cal. 1985). In NORML, several Humboldt County, California, residents filed affidavits complaining that helicopters, authorized to search for marijuana patches in the open fields, flew to within 100 feet of their homes, with airborne officers gazing through windows at the residents. Id. at 955-56. Another resident complained that she was frequently “buzzed” by low-flying helicopters while she bathed in her outdoor shower. Id. at 956.

In light of these practices, the NORML district court issued a preliminary injunction ordering, among other things: “Defendants are enjoined from using helicopters for general surveillance purposes, except over the open fields.” Id. at 966. In light of subsequent Supreme Court decisions upholding warrantless aerial surveillance, see Dow Chem. Co. v. United States, 476 U.S. 227 (1986), California v. Ciraolo, 476 U.S. 207 (1986), the Ninth Circuit remanded the NORML preliminary injunction for reconsideration by the district court. National Org. for Reform of Marijuana Laws (NORML) v. Mullen, 756 F.2d 276 (9th Cir. 1986); see also United States v. Bernard, 757 F.2d 1438, 1440-41 (4th Cir. 1985) (discussing broad aerial sweeps in search of marijuana cultivation conducted in Monroe County, West Virginia).

Consider the use of a pen register, a device that compiles a list of all calls dialed from a particular telephone. Police may use the pen register for the purpose of learning if an individual has talked to suspected drug dealers, or if a suspect has dialed the residences of potential burglary victims to discover if a home is empty. The pen register, however, cannot be limited to provide information only about phone numbers that may relate to criminal activity. Police will learn of all calls dialed by the suspect, and thus will discover if the suspect has talked to the girl next door, the local Alcoholics Anonymous hotline, or the national Communist Party headquarters.

In short, sense-enhanced searches normally cannot be as focused as traditional physical searches. The breadth of information disclosed by a sense-enhanced search thus raises a serious fourth amendment concern.

C. GUILT BY ASSOCIATION

A sense-enhanced search, like a general warrant, provides police with broad and unfocused information about the particular suspect being searched. A related problem is that sense-enhanced searches give police information about third-parties not previously suspected of a crime. Sense-enhanced searches thus cannot be as focused as traditional physical searches.

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56. In addition, police often will use a pen register for the more mundane task of tracing obscene phone calls. See Smith v. Maryland, 442 U.S. 736, 742-43 (1979).
57. A majority of the Court rejected the argument that such a police compilation would raise serious privacy concerns. Noting that some telephone directories discussed the use of pen registers to deter obscene telephone calls, the Court wrote: "Although subjective expectations cannot be scientifically gauged, it is too much to believe that telephone subscribers, under these circumstances, harbor any general expectation that the numbers they dial will remain secret." Smith v. Maryland, 442 U.S. 736, 743 (1979); cf. id. at 748 (Stewart, J., dissenting) (stating that most individuals would object to a pen register compilation listing the telephone numbers that they had dialed, "because it easily could reveal the identities of the persons and the places called, and thus reveal the most intimate details of a person's life"). See also 1 W. LAFAVE, supra note 9, at 507 (criticizing the Court's decisions upholding warrantless use of pen registers); Bacigal, supra note 35, at 538 (explaining the scenario for admissibility of evidence revealing intimate personal details); Note, Tying Privacy in Knotts, supra note 13, at 322 (suggesting that constant surveillance would reveal individual's "secrets" and "associational tendencies").
58. A possible exception to this general rule is the use of a drug-detecting dog. See United States v. Place, 462 U.S. 696, 706-07 (1983); see also infra text accompanying notes 263-66 (discussing limited focus of canine sniffs and asserting correctness of Place).
depart from the requirement that police possess some objective basis for suspecting an individual of criminal activity before conducting a search of that individual’s person or possessions. Sense-enhanced searches invite police to conduct arbitrary and inappropriate investigations into the affairs of individuals, even though police initially may have no basis for suspecting that these individuals have committed a crime.

The fourth amendment not only limits the breadth of information that police may seek in a search, but also limits the number of individuals whom police may search during their investigation of a particular crime.60 In other words, police must have an independent basis for searching any particular person, and cannot search an individual simply because they find him in the company of others independently suspected of wrongdoing.60

The principle that police only may search a specific individual suspected of wrongdoing is illustrated by a 1979 Supreme Court decision, Ybarra v. Illinois.61 Based on an informant’s tip, police obtained a warrant to search for heroin allegedly possessed by “Greg,” a bartender at the Aurora Tap Tavern. When the officers entered the bar in the afternoon, “Greg” apparently was not present. Nonetheless, police conducted a “pat down” search of the about ten customers in the bar. The search of Ventura Ybarra, one of the bar patrons, revealed six foil packets containing heroin. The Illinois Supreme Court subsequently convicted Ybarra of possession of heroin.62

The Supreme Court reversed the conviction, holding that the search of Ybarra violated the fourth amendment.63 The Court reached this result because the investigating officers ob-

59. See J. LANDYNSKI, supra note 39, at 46.

Even when conducting a warrantless search, police typically must possess some basis for suspecting criminal activity before they may search an individual or his possessions. See supra note 15. When conducting a search that requires a warrant, police typically must demonstrate the existence of probable cause to believe that the individual has some connection with unlawful activity. U.S. CONST. amend. IV (declaring that “no warrants shall issue, but upon probable cause”). But see Camara v. Municipal Court, 387 U.S. 523, 534-40 (1967) (holding that an administrative warrant, authorizing a search of area structures for building code violations, may be issued without a showing of probable cause); See v. City of Seattle, 387 U.S. 541, 545-46 (1967) (same).
62. Id. at 89.
63. Id. at 96.
tained a warrant only to search the bartender "Greg," and not bar patrons such as Ybarra. Police must demonstrate probable cause "particularized with respect to that person," not just guilt by association with another person or place.

The Court reaffirmed this holding that police may search only the person or property of the particular suspect specified in a warrant in Steagald v. United States. In Steagald, an informant told police that they could find Ricky Lyons, a federal fugitive wanted on drug charges, at the residence of Gary Steagald. Police obtained a warrant for the arrest of Lyons, but did not obtain a search warrant applying to Steagald's house, presumably because they lacked evidence that Steagald himself was involved in unlawful activity. Police did not find Lyons at Steagald's residence, but the officers nonetheless searched the premises. The search uncovered forty-three pounds of cocaine. Steagald subsequently was convicted on drug possession charges.

As in Ybarra, the Steagald Court reversed the conviction, holding that the search of Steagald's residence on the basis of the warrant for the arrest of Lyons violated the fourth amendment. The Court was concerned that upholding the conviction "would create a significant potential for abuse" by police. An officer with a valid warrant for one person could "search all the homes of that individual's friends and acquaintances."

Ybarra and Steagald stand for the proposition that police cannot search an individual's person or property solely because

64. Id. at 91.  
66. Id. at 207.  
67. Id. at 213-14.  
68. Id. at 215.  
69. Id. See also Skinner v. Railway Labor Executives' Ass'n, 109 S. Ct. 1402, 1416-17 (1989) (recognizing that "[o]ur cases indicate that even a search that may be performed without a warrant must be based, as a general matter, on probable cause to believe that the person to be searched has violated the law"); O'Connor v. Ortega, 480 U.S. 709, 726 (1987) (holding that reasonable grounds for expecting discovery of evidence of misconduct is required to justify public employer's search of employee's office); Camara v. Municipal Court, 387 U.S. 523, 535 (1967) (noting that "in a criminal investigation, the police may undertake to recover specific stolen or contraband goods," but the "public interest would hardly justify a sweeping search of an entire city conducted in the hope that these goods might be found"); Agnello v. United States, 269 U.S. 20, 30-31 (1925) (holding that right to conduct warrantless search both of persons lawfully arrested while committing a crime and of site of arrest does not extend to remote locations).
that individual has associated with suspected criminals.\textsuperscript{70} The fact that police found Ventura Ybarra in the bar tended by drug-dealing “Greg” did not provide a basis for a search of Ybarra’s person. Similarly, Gary Steagald’s residence in a building that the fugitive Ricky Lyons also may have inhabited or visited did not give police a basis for searching Steagald’s residence.\textsuperscript{71}

This rule limiting the scope of police searches not only protects privacy interests, but also helps to confine police discretion. Police first must articulate some basis for suspecting a particular person of criminal activity before conducting a search.\textsuperscript{72} Under a contrary rule, police working in a high crime area too easily could justify any search by finding some suspected criminal who had associated with the subject of the search.\textsuperscript{73} To demonstrate that such an abuse was not simply a hypothetical concern, the \textit{Steagald} Court cited a lower court decision, \textit{Lankford v. Gelston},\textsuperscript{74} in which the Fourth Circuit enjoined a search of more than 300 residences for two fugitives not residing in any of these homes.\textsuperscript{75}

\textsuperscript{70} The holdings in these cases are consistent with first amendment decisions that have invalidated laws restricting an individual’s freedom of association. \textit{See, e.g.}, \textit{Citizens Against Rent Control v. City of Berkeley}, 454 U.S. 290, 295-300 (1981) (holding that city’s imposition of limits on contributions to a political committee, while imposing no spending limits on individuals acting alone, contravenes constitutional rights of free association and free speech); \textit{NAACP v. Claiborne Hardware Co.}, 458 U.S. 886, 918-26 (1982) (holding that a state court could not impose civil liability on a black organization and its members for an alleged use of violence during a boycott when most organization members did not engage in violence); \textit{NAACP v. Button}, 371 U.S. 415, 428-29 (1963) (finding that state’s enforcement of anti-solicitation laws preventing attorneys from aiding a group in political and legal attempts to prevent racial discrimination violated first and fourteenth amendments).

Just as individuals do not receive any less first amendment protection when they organize in groups or associations, an individual should not receive any less fourth amendment protection simply because he has associated with suspected or actual criminals.

\textsuperscript{71} \textit{See} \textit{Granholm, supra} note 17, at 701.
\textsuperscript{72} \textit{See} \textit{Loewy, supra} note 42, at 1239-40.
\textsuperscript{73} \textit{See} \textit{Amsterdam, supra} note 1, at 438.
\textsuperscript{74} 364 F.2d 197, 198 (4th Cir. 1966).
\textsuperscript{75} \textit{Steagald v. United States}, 451 U.S. 204, 215 (1981); \textit{see also} \textit{Loya v. INS}, 583 F.2d 1110, 1111 (9th Cir. 1979) (suit alleging that Immigration and Naturalization Service officers “had used illegal ‘dragnet’ tactics and had stopped and detained over 11,000 persons solely on the basis of ‘Latin-American’ appearance”); \textit{Sullivan v. Murphy}, 478 F.2d 938, 942-43, 967 (D.C. Cir.) (finding that plaintiffs may bring a class action alleging that more than 10,000 arrests, made in connection with an anti-war demonstration, violated the fourth amendment), \textit{cert. denied}, 414 U.S. 880 (1973); \textit{Spring Garden United Neighbors, Inc. v. City of Philadelphia}, 614 F. Supp. 1350, 1351-52 (E.D. Pa.)
The breadth of information revealed by sense-enhanced searches inevitably will result in police examination of third-parties not independently suspected of any wrongdoing. For example, police listening to a wiretap not only will learn about the suspect whose telephone lines they are monitoring, but also will discover information about anyone talking to the suspect on the telephone, including individuals whom police previously may not have associated with criminal activity.

Similarly, police surveying a suspect's property from an airplane not only will learn whether this particular suspect is cultivating marijuana, but also cannot help but observe whether illegal activities are taking place on adjacent land.

In fact, police might even use sense-enhanced surveillance to "leapfrog" from one suspect to another. For example, consider Matt, a suspected drug dealer. To confirm their suspicions of Matt's unlawful activities, police wiretap Matt's

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76. See Granholm, supra note 17, at 699-700 (discussing the use of surveillance cameras on public streets); Note, Tracking Katz, supra note 18, at 1505-06 (stating that "[w]here the property to which the beeper is attached . . . is likely to change hands or is subject to use by persons other than those under investigation, the danger of unwarranted intrusions into the privacy of third parties may be too great to permit a warrant"); Note, Tying Privacy in Knotts, supra note 13, at 311-12 (discussing use of beeper surveillance to monitor suspect's automobile travels).

77. See United States v. United States Dist. Court, 407 U.S. 297, 313 n.14 (1972) (noting that the average wiretap in 1970 "involved 44 people and 655 conversations"); Hufstedler, supra note 31, at 1513 (asserting that "unless the person subjected to scrutiny is addicted to soliloquy and telephonic monologues, conversations of others unknown in advance will be captured as well. Recording can be selective, but interception cannot. The choice is necessarily left to the interceptor, and not to the court.").

78. See National Org. for Reform of Marijuana Laws (NORML) v. Mullen, 608 F. Supp. 945, 955-56 (N.D. Cal. 1985) (discussing the virtually unrestricted surveillance by government helicopters purportedly employed in search of marijuana cultivation); see also State v. Bridges, 513 A.2d 1365 (Me. 1986). In Bridges, Maine undercover agents had arranged to purchase marijuana from Nelson and Henry Geel. Prior to the purchase, police flying in an airplane followed Nelson Geel’s pickup truck to a farm where Defendant Edmund Bridges was working. The airborne police then watched Bridges and Nelson Geel drive to defendant Horace Moore’s residence, where Nelson Geel, Bridges, and Moore loaded "objects" into Nelson Geel’s pickup truck. Id. at 1366.

Other officers arrested Nelson and Henry Geel when they delivered three boxes of hashish to the undercover agents. Bridges and Moore subsequently were indicted for participating in a conspiracy to distribute hashish. Id. at 1367. The Bridges court upheld the constitutionality of the warrantless aerial surveillance that had led police to the previously unknown conspirators Bridges and Moore. Id. at 1367-68.
telephone. From the recorded conversations, officers learn of information that implicates Bob, a regular caller, in the sale of parts from stolen cars. Based on this information, police wiretap Bob's telephone to learn who buys the stolen auto parts from Bob. From the new wiretap, police learn that Bob's girlfriend Melinda may be cheating on her taxes, and so on. Under such reasoning, police might use information from a single wiretap as an eventual justification for tapping almost any telephone line. 79

In short, law enforcement officers may employ sense-enhanced searches to uncover information about third parties not previously suspected of criminal activity. Supreme Court decisions holding that police may conduct physical searches only of specific, previously identified individuals support limitations on the use of sense-enhanced searches.

D. SUMMARY

The preceding discussion asserts that sense-enhanced searches raise at least three distinct fourth amendment concerns. First, the secrecy of a sense-enhanced search may both chill free expression and facilitate police abuses. Second, sense-enhanced searches reveal broad and unfocused information about a suspect, contrary to the fourth amendment's particularity clause, which authorizes police to conduct only narrow searches for predetermined types of evidence. Third, sense-enhanced searches allow police to conduct surveillance of previ-

79. United States v. United States Dist. Court, 407 U.S. 297, 326 (1972) (Douglas, J., concurring) (noting that "[e]ven the most innocent and random caller who uses or telephones into a tapped line can become a flagged number in the Government's data bank"); see also Halperin v. Kissinger, 606 F.2d 1192, 1198 (D.C. Cir. 1979) (discussing FBI wiretap of private telephone line purportedly to investigate suspected "leaks" of classified information, but which also provided valuable political information unrelated to the investigation), aff'd in part, cert. dismissed in part, 452 U.S. 713 (1981).

This same reasoning would apply to most other types of sense-enhanced searches. Assume police fly over Matt's land in hopes of spotting marijuana cultivation. The officers see no evidence of such cultivation, but they do see some indications of marijuana growing on Bob's property 50 miles away. A few days later, the officers fly over Bob's property. Their suspicions about the illegal crop on Bob's property were wrong, but now they see evidence of marijuana growing on Melinda's property, 25 miles away. See Izzard v. State, 10 Ark. App. 265, 267-69, 663 S.W.2d 192, 193-94 (1984) (upholding warrantless aerial search that revealed the defendants' marijuana field, discovered during an unrelated search for an airplane); Goehring v. State, 627 S.W.2d 159, 160, 162 (Tex. Crim. App. 1982) (upholding a warrantless aerial search undertaken by police attempting to locate two suspects, which resulted in the inadvertent discovery of a marijuana field).
ously unidentified third-parties, in contrast with the traditional fourth amendment requirement that police must possess some objective basis to suspect an individual of wrongdoing before initiating a search. Although all sense-enhanced searches raise these concerns, different types of sense-enhanced searches may implicate each concern to a different extent. For example, a wiretap, which records all conversations passing over a telephone line, provides officers with more extensive information about a suspect than a pen register, which merely records the numbers dialed from a particular telephone.

Unfortunately, the Supreme Court has not focused on these three different fourth amendment concerns in determining whether a particular type of sense-enhanced search should require a warrant. Instead, the Court has relied on a variety of distinctions and analogies in applying the warrant clause to sense-enhanced searches. As discussed in the next section, the Court's approach has resulted in irreconcilable precedents and conflicting lower court decisions.

II. SUPREME COURT ANALYSIS OF SENSE-ENHANCED SEARCHES

A. THE SUPREME COURT'S SENSE-ENHANCED SEARCH ANALYSIS

Since the Supreme Court's seminal decision in *Katz v. United States*, analysis of fourth amendment issues assertedly has focused on whether a particular search violated a suspect's reasonable expectation of privacy. At least in applying the warrant clause to sense-enhanced searches, however, the Supreme Court has found the "reasonable expectation of privacy" concept too ephemeral to provide a workable framework. The Court instead has relied on four more tangible

82. See *Smith v. Maryland*, 442 U.S. 735, 740 n.5 (1979) (discussing limits on the usefulness of the *Katz* test); *see also* *Bacigal*, *supra* note 35, at 539-40 (discussing ambiguity in application of *Katz* approach to governmental activities not constituting physical trespass); *Note, A Reconsideration of Katz*, *supra* note 31, at 157 (noting Court's recognition of the possibility that under *Katz*, government could vitiate the right to privacy simply by eliminating expectations of privacy); *infra* text accompanying notes 85-90 (discussing the evolution of fourth amendment jurisprudence in theory and in practice). *Compare* *California v. Greenwood*, 108 S. Ct. 1625, 1628-30 (1988) (holding that defendants possessed no reasonable expectation of privacy in trash left outdoors in
This section concludes that these concepts neither provide a consistent method for analyzing sense-enhanced searches, nor address the fourth amendment concerns raised by such searches. The section also notes the confusion faced by lower courts in sense-enhanced search cases, and discusses lower court opinions that have considered two types of warrantless sense-enhanced searches not yet evaluated by the Supreme Court. This section concludes that the limited viability of the concepts employed by the Supreme Court, together with the Court's varying reliance on each of these concepts, has resulted in unpredictable and inconsistent decisions.

1. Physical Trespass

Prior to the seminal decision in *Katz v. United States*, the Supreme Court embraced the rule that only a search involving a physical trespass into a constitutionally protected area required a warrant. In *Katz*, the Court wrote explicitly that it no longer would decide fourth amendment cases on the basis of physical trespass. In his *Katz* concurring opinion, Justice John Harlan added a test that subsequent decisions have cited as the touchstone for determining whether a particular search requires a warrant. Under Justice Harlan's formulation, police must obtain a warrant prior to a search if two requirements are met: “[F]irst that a person have exhibited an actual (subject-to-physical trespass) with id. at 1632-34 (Brennan, J., dissenting) (arguing that a resident's expectation of privacy with respect to the contents of her trash is reasonable and deserves fourth amendment protection).

83. See infra text accompanying notes 84-191.
84. 389 U.S. 347 (1967).
85. Olmstead v. United States, 277 U.S. 438, 466 (1928) (upholding the warrantless use of wiretaps, because such searches did not involve a physical trespass); Hester v. United States, 265 U.S. 57, 59 (1924); Amsterdam, supra note 1, at 357; Note, Police Use of Sense-Enhancing Devices, supra note 14, at 1169; Note, Tracking Katz, supra note 18, at 1469.
86. “[O]nce it is recognized that the Fourth Amendment protects people — and not simply ‘areas’ — against unreasonable searches and seizures, it becomes clear that the reach of that Amendment cannot turn upon the presence or absence of a physical intrusion into any given enclosure.” *Katz*, 389 U.S. at 353; see also Florida v. Riley, 109 S. Ct. 693, 701 (1989) (Brennan, J., dissenting) (discussing *Katz*); United States v. United States Dist. Court, 407 U.S. 297, 313 (1972) (noting *Katz* Court's refusal to limit fourth amendment protection to physical trespass); Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics, 403 U.S. 388, 393-94 (1971) (same).
tive) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as ‘reasonable.’”

Perhaps the Katz Court should be faulted for an excessively ambitious attempt to revise fourth amendment law, but for whatever reason, courts remain likely to invalidate only those warrantless searches that involve a physical trespass into a constitutionally protected area. For example, the presence


89. A number of commentators have criticized the Katz test as ambiguous, suspect to result-oriented manipulation, and providing only ephemeral protection for fourth amendment rights. See, e.g., Gutterman, supra note 1, at 665-7; Note, Police Use of Sense-Enhancing Devices, supra note 14, at 1171; Note, A Reconsideration of Katz, supra note 31, at 171-72; Note, Tracking Katz, supra note 18, at 1473-77.

90. The importance of physical trespass in determining whether police must obtain a search warrant is illustrated most clearly by the Court's holding that searches conducted in “the open fields” do not require a warrant. Oliver v. United States, 466 U.S. 170, 181 (1984). In Oliver, the Court upheld a warrantless search of a suspect's farmland, on which he was cultivating marijuana. Id. at 173, 181. The suspect's regular posting of “No Trespassing” signs, and construction of a locked gate at the main entrance to the farm did not alter the Court's conclusion that the suspect lacked any “reasonable expectation of privacy” on his farmland. Id. at 173-74.

In upholding the constitutionality of warrantless searches in the open fields, the Court wrote that the warrant clause typically applies in three contexts: 1) Searches of a residence and the surrounding “curtilage,” id. at 178; 2) Searches of offices and commercial buildings, id. at 178 n.8; and 3) Searches of a suspect's person, id. at 179 n.10. Cf. Katz v. United States, 389 U.S. 347, 353 (1967) (holding warrantless wiretap of telephone in public telephone booth unconstitutional). See also Oliver, 466 U.S. at 185 (Marshall, J., dissenting) (noting tension between the majority Oliver opinion and Katz); Bacigal, supra note 35, at 538 (noting dicta in Katz recognizing that privacy may be constitutionally protected in public places); Bradley, supra note 4, at 1479 (emphasizing arbitrariness of distinction between Oliver's fenced field and Katz's telephone booth); Gutterman, supra note 1, at 689-90 (comparing Oliver and Katz).

The Court reaffirmed Oliver in United States v. Dunn, 480 U.S. 294 (1987). Dunn held that a barn located within 60 yards of a dwelling fell within the open fields, and that the warrantless search of the barn with a flashlight thus was constitutional. Id. at 301-02, 305; see also United States v. United States Dist. Court, 407 U.S. 297, 313 (1972) (noting that “physical entry of the home is the chief evil against which the wording of the Fourth Amendment is directed”); Hufstedler, supra note 31, at 1504, 1511 (discussing cases holding that fourth amendment protects neither bank records nor mail covers based on property concepts); Tomkovicz, supra note 29, at 659 n.61 (noting that “[i]n many of the cases in which the lack or negligible extent of an intrusion has contributed to rejection of a fourth amendment claim, the courts' references have clearly been to the physical quality of the intrusion. These references have sometimes been explicit.”); id. at 694-95 (noting continuing attachment to property and intrusion notions in post-Katz era); Note, Tracking Katz, supra note 18, at 1478-80 (asserting that the Court developed Katz privacy analysis as a supplement to traditional property analysis); Comment, Reviving Trespass-Based Search Analysis, supra note 45, at 228 (asserting that Dow Chemical ef-
or absence of such a trespass seems to be the only way to reconcile the Supreme Court’s decisions on beeper monitoring. In *United States v. Knotts*, the Court upheld the warrantless monitoring of a beeper that had traveled in the defendant’s car, where he enjoyed less protection than in his residence. Conversely, in *United States v. Karo*, the Court invalidated the warrantless monitoring of a beeper that the defendants had carried into a residence — the core example of a constitutionally protected area. As in *Knotts*, the Court also relied on the absence of a trespass into a constitutionally protected area in upholding the warrantless use of a pen register.

The Court’s reliance on physical trespass as determining the necessity of a warrant has received two general criticisms

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94. *Id.* at 714.
96. *Smith v. Maryland*, 442 U.S. 735, 741 (1979) (reasoning that “[s]ince the pen register was installed . . . at the telephone company’s central offices, petitioner obviously cannot claim that his ‘property’ was invaded or that police intruded into a ‘constitutionally protected area’”); *see also* *Tomkovicz*, *supra* note 29, at 720 (asserting that “if one seeks to enjoy the benefits of property ownership or possession by permitting others onto her land, by not turning her realty into a fortress, the government’s access to information about her life and conduct on such property will be constitutionally uncontrolled”).

Although the Court has viewed the presence of a physical trespass as perhaps the most important factor in determining whether a search requires a warrant, the Justices occasionally have upheld some warrantless searches involving a trespass into a constitutionally-protected area. *See* *United States v. White*, 401 U.S. 745, 747, 753 (1971) (upholding the warrantless use of a radio transmitter concealed on a government informant, even though one of the recorded conversations occurred in the defendant’s home).
— labeled here as the entitlements criticism and the cultural criticism. The entitlements criticism provides that a fourth amendment focus on physical trespass improperly allows a suspect’s wealth to determine the extent of his fourth amendment rights.\textsuperscript{97} While the owner of a spacious, enclosed mansion holds an extensive area that police cannot search without a warrant,\textsuperscript{98} a tenement resident possesses little space protected from a warrantless police search.\textsuperscript{99}

The cultural criticism provides that basing the warrant requirement on the location of a search shows little sensitivity to individuals whose important activities, for cultural or idiosyncratic reasons, take place outside of a constitutionally protected area, such as a home or office. Requiring a warrant prior to a physical trespass of a residence provides relatively broad protection for traditional family interactions. If an individual’s interpersonal relationships occur primarily in street-corner

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\textsuperscript{97} See Amsterdam, \textit{supra} note 1, at 404.
\textsuperscript{98} The fourth amendment protection from unreasonable searches not only applies to the inside of a house, but also to the “curtilage.” United States v. Dunn, 480 U.S. 294, 300 (1987); Oliver v. United States, 466 U.S. 170, 180 (1984). Courts have defined curtilage “as ‘an area of domestic use immediately surrounding a dwelling and usually but not always fenced in with a dwelling.’” United States v. Van Dyke, 643 F.2d 992, 993 n.1 (4th Cir. 1981) (quoting United States v. LaBerge, 267 F. Supp. 685, 692 (D. Md. 1967)).
\textsuperscript{99} Although a warrantless search of a residence is presumptively unconstitutional, a warrantless search of the curtilage apparently sometimes is permissible. \textit{Compare} California v. Ciraolo, 476 U.S. 207, 213-14 (1986) (upholding warrantless surveillance from an airplane of a suspect’s backyard) \textit{with} Van Dyke, 643 F.2d at 994 (holding unconstitutional warrantless physical search conducted in a fenced yard 150 feet from a house).
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\begin{quote}
we have the specter of a fourth amendment which protects any man who retreats into his home to be free from an unreasonable intrusion.

Any man, that is, who is wealthy enough to afford a windowless, soundproof house, built on an extensive area of land, and surrounded by high fences, and a man who is willing to live the life of a hermit, staying inside his house at all times, prepared to take affirmative action to counter any new technological methods of intrusion with which the government might be equipped.

\textit{Id. at 72; see also id. at 89} (asserting that fourth amendment protections are not conditioned on having wealth sufficient to build a “police-proof fortress”).
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Some Supreme Court decisions have declared that an individual’s entitlements cannot affect the exercise of certain constitutional rights. See Harper v. Virginia Bd. of Elections, 383 U.S. 663, 666, 668 (1966) (holding that assessment of a mandatory poll tax of $1.50 on voters violated the equal protection clause).
meetings or at outdoor gatherings and rallies, however, a trespass-based application of the fourth amendment's warrant requirement provides little protection.\textsuperscript{100}

Whatever the validity of limiting the warrant requirement to physical searches that involve a trespass, three additional arguments suggest that the application of the warrant clause to sense-enhanced searches should not turn on whether a trespass has occurred. First, the power of sense-enhanced search devices renders the precise location from which police effectuate a search increasingly irrelevant.\textsuperscript{101} As a practical matter, a suspect will not care how police examine an object located in the suspect's backyard: police may view the object with their unaided vision from one foot away, use a high-powered telescope stationed a mile away, or employ sophisticated photographic equipment from an airplane.\textsuperscript{102} In each case, the police gain the same information about the suspect.\textsuperscript{103} Residents no longer receive significant protection simply because police cannot enter onto their property without a warrant.\textsuperscript{104}

Second, requiring a warrant only for those sense-enhanced

\textsuperscript{100} Oliver v. United States, 466 U.S. 170, 192 (1984) (Marshall, J., dissenting); see also Amsterdam, supra note 1, at 405, 438 (discussing the reduced fourth amendment protection accorded to tenement and ghetto dwellers); Yackle, The Burger Court and the Fourth Amendment, 28 U. KAN. L. REV. 335, 410-11 (1978) (criticizing Supreme Court decisions finding diminished expectation of privacy in automobiles based on the Court's perception of American life).

\textsuperscript{101} Fishman, supra note 13, at 301; Weinreb, supra note 4, at 83-84; Note, Katz and the Fourth Amendment, supra note 99, at 69-72.

\textsuperscript{102} See Dow Chem. Co. v. United States, 476 U.S. 227, 243 (1986) (Powell, J., dissenting); see also United States v. Karo, 468 U.S. 705, 715 (1984) (reasoning that surreptitious police monitoring of beeper carried into a residence is equivalent to surreptitious physical entry into the residence); Oliver v. United States, 466 U.S. 170, 175-77 (1984) (finding no infringement of a reasonable privacy expectation when police trespassed on suspect's property and observed illegal marijuana fields, despite suspect's efforts of concealment).

\textsuperscript{103} Similarly, it makes little difference whether police overhear conversations by placing a glass to a wall outside of an apartment, or by placing a wiretap at telephone company offices located miles away. See Katz v. United States, 389 U.S. 347, 353, 359 (1967); Gutterman, supra note 1, at 686-87.

\textsuperscript{104} See also Florida v. Riley, 109 S. Ct. 693, 699 (1989) (O'Connor, J., concurring) (finding unreasonable defendant's expectation that curtilage was protected from naked-eye aerial observation from a helicopter flying at an altitude of 400 feet). See generally J. LANDYNISKI, supra note 39, at 198 (discussing erosion of individual privacy due to modern technological developments, particularly in the area of eavesdropping); A. WESTIN, supra note 3, at 70-78 (discussing various devices and techniques employed in visual and aerial surveillance); Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 263 (discussing impact of sophisticated electronic devices on traditional zone of privacy).
searches that involve a physical trespass could induce police to adopt less focused search techniques.\footnote{105} For example, assume a police officer suspects that a homeowner is cultivating marijuana in a greenhouse attached to the homeowner's residence. Assume also that the officer has two initial choices for confirming his suspicions. The officer may conduct a physical search by entering onto the suspect's property and viewing the greenhouse — an investigation that would require a warrant. Before conducting that type of search, however, the officer must consider all the difficulties of the warrant process, including the tedious preparation of a warrant application, the possibility that a neutral magistrate will deny the application,\footnote{106} and the possi-

\footnote{105. In other words, police will possess an incentive to adopt search techniques that provide officers both with a broad variety of information about a particular suspect, and with information about individuals not previously suspected of criminal activity. See supra text accompanying notes 59-79 (discussing unconstitutionality of basing searches solely on guilt by association).}

\footnote{106. The extent to which the warrant process actually imposes a significant burden on police is highly debatable. Critics of the warrant process assert that the magistrate's or judge's review often amounts to little more than a rubber stamp of any warrant application prepared by police. Reasons cited for the typical willingness of judicial officers to approve warrant applications include: 1) The lack of adversary challenge to warrant applications, 2) The ability of police to "magistrate shop" and seek warrants from those judicial officers least likely to question the application, 3) The large volume of applications presented to each judicial officer, making detailed review of any single application impossible, and 4) The past experience of many magistrates as law enforcement employees, rendering these magistrates highly receptive to police explanations. See, e.g., R. Van Duizend, L. Sutton & C. Carter, The Search Warrant Process: Preconceptions, Perceptions, Practices 46-65, 104-21 (1985); Finer, Gates, Leon, And the Compromise of Adjudicative Fairness (Part II): Of Aggressive Majoritarianism, Willful Deafness, and the New Exception to the Exclusionary Rule, 34 Clev. St. L. Rev. 199, 225-31 (1986) (discussing pervasive willingness of judges and magistrates to approve warrant applications); see also Miller & Tiffany, Prosecutor Dominance of the Warrant Decision: A Study of Current Practices, 1964 Wash. U.L.Q. 1 (discussing issuance of arrest warrants).

Even assuming that magistrates critically reviewed all warrant applications, police officers in many jurisdictions may apply for an oral warrant, issued after a magistrate has spoken with an officer by telephone. See Marek, Telephonic Search Warrants: A New Equation for Exigent Circumstances, 27 Clev. St. L. Rev. 35, 35 (1978); Note, Oral Search Warrants: A New Standard of Warrant Availability, 21 UCLA L. Rev. 691, 694 (1973) [hereinafter Note, Oral Search Warrants]. The preparation and approval of such oral warrants typically takes less than one hour. Id. at 694 n.23; see also Bradley, supra note 4, at 1492-93 & n.11 (endorsing the regular use of oral warrants).

On the other hand, the persistent police practice of conducting warrantless searches suggests that the warrant process does impose some burdens on police. Police often have conducted warrantless searches even when probable cause for the issuance of a warrant appeared clearly established, and when any delay that accompanied the warrant application was unlikely to result in a de-
bility that the subject of the search may attack the propriety of the search either at an ensuing criminal trial or in a civil suit.

On the other hand, the officer may conduct an aerial search of the suspect's property. Such a search would not reconstruc...
quire a warrant and the accompanying procedural steps necessary to obtain the warrant. Nor must the officer compile evidence showing probable cause to conduct the search — evidence that the reviewing magistrate may find insufficient. The officer can make an independent determination of probable cause. If this determination proves wrong, the officer can simply discontinue her investigation of the suspect.

Police thus will have an incentive to pursue investigations through a sense-enhanced search not involving entry onto a suspect's property, rather than a traditional physical search requiring such entry. With this incentive, however, police are encouraged to rely on searches that provide broad rather than specific information. For example, police conducting a physical search that requires an entry onto the hypothetical suspect's property might limit their observations to the suspicious greenhouse. Officers conducting an aerial search will have no means of limiting their view. The aerial search not only subjects all of a suspect's exposed property to law enforcement observation, but also throws open nearby land to police surveillance.

Third, application of the warrant clause only to cases including a physical trespass encourages police to use secretive search techniques. As discussed above, police will have an incentive to use search techniques not requiring a physical trespass, because only searches accompanied by a physical trespass will require a warrant. Searches conducted without any intrusion into the area under surveillance, however, will be the most difficult for a suspect to detect, and such searches thus raise serious fourth amendment concerns. Accordingly, it seems inappropriate to require a warrant only in cases of physical trespass, because such a requirement encourages the use of sense-enhanced searches entirely removed from the location under surveillance.
2. The Visual/Aural Distinction

As a general rule, the Court will not require a warrant when a sense-enhancing search technique expands the range or type of information available to an officer's vision. In contrast, the Court has applied a much stricter fourth amendment review to search techniques that augment an officer's hearing.115

The decision in United States v. United States District Court116 illustrates the Court's general rule requiring a warrant when a search technique enhances an officer's unaided hearing. In United States District Court, the Attorney General had authorized the use of warrantless wiretaps to investigate Lawrence Robert Plamondon, who eventually was charged with the dynamite bombing of a Central Intelligence Agency office in Ann Arbor, Michigan.117 Noting the Court's adoption of a general rule requiring a warrant prior to the use of a wiretap,118 the government argued that a "domestic security" exception justified the warrantless wiretaps used to overhear Plamondon's conversations.119

In rejecting this argument, the United States District Court opinion relied heavily on the ability of the Plamondon wiretaps to reveal verbal conversations, thus implicating first amendment as well as fourth amendment rights.120 Justice Lewis Powell expressed the majority's concerns that aural-enhanced searches, or "official eavesdropping," could "deter vigorous citizen dissent and discussion of Government action in private conversation."121 Consistent with this reasoning, the Supreme Court typically has invalidated the warrantless use of techniques that reproduce conversations, such as wiretapping.122

The Court more favorably views search techniques that

115. See Fishman, supra note 13, at 325.
117. Id. at 299-300.
118. Id. at 308 (citing Katz v. United States, 389 U.S. 347 (1967); Berger v. New York, 388 U.S. 41 (1967)).
119. Id. at 301-03.
120. Id. at 313.
121. Id. at 314.
rely on an enhancement of visual sensations. For example, in *Dow Chemical Co. v. United States* the Court affirmed the warrantless use of sophisticated and sensitive photographic equipment in an aerial search of a 2000 acre industrial complex. In upholding this search for evidence of environmental violations, the Court explicitly noted the Environmental Protection Agency’s use of an aerial search that replicated only visual impressions, rather than aural sensations. The Court concluded that “[a]n electronic device [used] to penetrate walls or windows so as to hear and record confidential discussions of chemical formulae or other trade secrets would raise very different and far more serious questions.”

As a practical matter, the visual/aural distinction is of limited analytic value because only a relatively small number of sense-enhanced searches fall within the category of either a vision-enhancing or aural-enhancing search. For example, a “beeper,” through which police trace the movements of suspects, does not actually replicate either visual or aural sensations. In upholding the warrantless beeper monitoring employed in *United States v. Knotts*, the Supreme Court concluded that unenhanced visual surveillance could have revealed the location of a container of chemicals, used to manufacture illegal amphetamines, which police instead had tracked by moni-

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125. *Id.* at 239.

126. The Court stated: “Here, [the Environmental Protection Agency] was not employing some unique sensory device that, for example, could penetrate the walls of buildings and record conversations in Dow’s plants, offices, or laboratories, but rather a conventional, albeit precise, commercial camera commonly used in mapmaking.” *Id.* at 238.

127. *Id.* at 239.


The defendant in Knotts used public roads and the Court asserted that "he voluntarily conveyed [his course of travel] to anyone who wanted to look." Justice William Rehnquist's conclusion in Knotts that traditional police visual surveillance could have provided the same information that the police collected from monitoring the beeper is simply wrong. After obtaining the chemical container in which police had installed the beeper, one of the defendants in Knotts drove to a co-defendant's house where he transferred the container and beeper to the co-defendant's car. The defendants then drove the auto carrying the container to a secluded cabin. Even if officers had followed the defendant who purchased the chemicals for every mile of his journey, traditional visual surveillance would not have revealed where the suggestive chemical container came to rest: in the purchasing defendant's car, in the co-defendant's house, in the co-defendant's car, or in the cabin. The beeper did not simply enhance visual police surveillance, but instead provided a qualitatively different type of information than would have been available through the use of any unaided sense impression.

The visual/aural distinction also is of limited utility when applied to other types of sense-enhanced searches. Neither a canine sniff nor the monitoring of telephone lines with a pen register constitutes a visual or aural investigatory tech-

130. Knotts, 460 U.S. at 282; see Note, Telescopes, Binoculars, and the Fourth Amendment, supra note 123, at 389.
132. Id. at 278.
133. Id.
134. I W. LAFAVE, supra note 9, at 523. In fact, even monitoring the beeper from the ground would not have revealed the location of the chemicals. At one point, police needed the use of a helicopter to discern the location of the beeper. Knotts, 460 U.S. at 278.
135. This point is to some extent conceded by Justice Rehnquist in his Knotts majority opinion:

Admittedly, because of the failure of the visual surveillance, the beeper enabled the law enforcement officials in this case to ascertain the ultimate resting place of the chloroform when they would not have been able to do so had they relied solely on their naked eyes. But scientific enhancement of this sort raises no constitutional issues which visual surveillance would not also raise.

United States v. Knotts, 460 U.S. 276, 285 (1983); see also United States v. Karo, 468 U.S. 705, 733 (1984) (Stevens, J., dissenting) (concluding that "[i]n this case, the beeper enabled the agents to learn facts that were not exposed to public view").

The nonconformity of sense-enhancing devices to any visual/aural distinction is understandable. These devices are attractive to police precisely because they provide information not available through the use of unaided sensory perceptions. This nonconformity, however, renders the visual/aural distinction of limited utility in determining whether a particular type of sense-enhanced search requires a warrant.

The visual/aural distinction not only is difficult to apply, but also is of questionable validity. The Court has limited aural-enhanced searches because eavesdropping devices monitor conversations involving communication and expression, thus implicating first amendment concerns. In rejecting a fourth amendment exception that would have authorized warrantless wiretaps when the federal government perceived a threat to domestic security, the Supreme Court, in United States v. United States District Court, wrote: "The price of lawful public dissent must not be a dread of subjection to an unchecked surveillance power. . . . For private dissent, no less than open public discourse, is essential to our free society."

The United States District Court opinion expresses a valid concern that unrestrained eavesdropping could produce a "chilling effect" on expression protected by the first amendment. Nonetheless, the Court's limiting of this concern to searches that involve aural monitoring of communications is inappropriate. Government also may curtail free expression not only by "aural" monitoring of communications, but also by "visual" monitoring of a speaker's activities. For example, consider a very small and unpopular political party, a group engaging in precisely the type of discussion that the first amendment was designed to protect. Given the group's unpopularity, group members probably will prefer to hold political meetings in the

139. See, e.g., Fishman, supra note 13, at 325; Note, Katz and Dogs, supra note 138, at 1101.
141. Id. at 314.
142. See Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 286, 288, 294 (suggesting that a concealed camera actually would constitute a greater invasion of privacy than a wiretap); Note, Telescopes, Binoculars, and the Fourth Amendment, supra note 123, at 391.
security of some isolated location. The principal privacy concern of party members may not be the precise content of what is said at the meeting, but instead could be their association with the unpopular party.\textsuperscript{144}

Unfortunately, given the Court's disinclination to place any limits on vision-augmenting search devices, group members will have little assurance that their presence at the meeting remains undisclosed. Government officials could track group attendance through the warrantless use of beepers attached to suspected members' cars, or through a warrantless aerial survey of an outdoor meeting area.\textsuperscript{145} Under these circumstances, knowledge that government officials have not "bugged" the party's secret meeting ground with listening devices probably would prove of limited comfort to attending members.\textsuperscript{146} The use of devices that enhance police officers' visual faculties thus may produce the same chill on free speech as the use of devices enhancing the officers' aural sensations.\textsuperscript{147} For this reason, the aural/visual distinction apparently employed by the Supreme Court does not seem plausible.

3. Plain View Analogies

Supreme Court decisions have established a "plain view" exception to the warrant requirement. Under this exception, when unanticipated evidence lying in an officer's plain view is discovered during a proper search for other items, the officer may seize the unanticipated evidence.\textsuperscript{148} The Court has rea-

\textsuperscript{144} A. \textsc{Westin}, \textit{supra} note 3, at 69 (holding that "[a] major aspect of privacy for individuals . . . is the ability to move anonymously from time to time"); Note, \textit{Tying Privacy in Knotts, supra} note 13, at 322 (concluding that "constant surveillance of a person's movements could, over time, reveal associational tendencies as thoroughly as a membership list").

\textsuperscript{145} With sophisticated photography and enlarging equipment used from an airborne airplane or helicopter, officers also could record the license plate numbers on automobiles parked outside the hypothetical group's meeting site. \textit{See Dow Chem. Co. v. United States}, 476 \textsc{U.S.} 227, 231 (1986).

\textsuperscript{146} \textit{See Granholm, supra} note 17, at 708-09; \textit{Tomkovicz, supra} note 29, at 719 (noting that "[w]e might take advantage of the out-of-doors by sunning ourselves in various states of undress, by speaking our minds to no one in particular, or by meeting with others. None of these possible exploitations of the opportunities that secluded lands afford are criminal.").

\textsuperscript{147} \textit{See} \textit{Smith v. Maryland}, 442 \textsc{U.S.} 735, 751 (1979) (Marshall, \textsc{J.}, dissenting) (commenting that "[m]any individuals, including members of unpopular political organizations or journalists with confidential sources, may legitimately wish to avoid disclosure of personal contacts").

\textsuperscript{148} \textsc{Coolidge v. New Hampshire}, 403 \textsc{U.S.} 443, 468 (1971) (plurality opin-
soned that requiring an officer to obtain a warrant before confiscating evidence lying at his feet would impose a pointless administrative burden, and, in the case of a discovered weapon, could prove dangerous.\footnote{149}

The Supreme Court has attempted to justify warrantless sense-enhanced searches by analogizing these searches to a physical search falling within the plain view exception.\footnote{150} This argument, related to the aural/visual distinction discussed above,\footnote{151} contends that a contested sense-enhanced search technique merely replicates a plain view search. Because such a plain view search could proceed without a warrant, so the argument goes, the similar sense-enhanced search should not require a warrant.\footnote{152}

For example, in California v. Ciraolo,\footnote{153} the Supreme Court sanctioned the use of an airplane from which officers, without a warrant, observed marijuana illegally cultivated in a suspect's backyard. In upholding this warrantless aerial search, the Court asserted that a plain view of the backyard containing the plants was available to the public.\footnote{154} The Court thus concluded that police do not need a warrant to observe what is visible to the naked eye from public airspace.\footnote{155} The fact that the Ciraolo suspect had built a ten foot high fence around his backyard did not change the Court's conclusion. The Court stated that "a 10-foot fence might not shield these plants from the eyes of a citizen or a policeman perched on top of a truck or a

\footnote{\textit{Compare} Harris v. United States, 331 U.S. 145, 155 (1947) (holding that officers may seize illegal property when entry on premises is legal and the search is valid) \textit{with id.} at 186 (Murphy, J., dissenting) (asserting that authority to arrest gives no corresponding authority to search premises and seize property).}

\footnote{149. Arizona v. Hicks, 480 U.S. 321, 327 (1987); Texas v. Brown, 460 U.S. 730, 739 (1983); Coolidge v. New Hampshire, 403 U.S. 443, 466-67 (1971) (plurality opinion); \textit{see also} Weinreb, supra note 4, at 79 (noting officer's responsibility to protect himself and effect arrest).}


\footnote{151. \textit{See supra} text accompanying notes 115-47.}

\footnote{152. \textit{See Granholm}, supra note 17, at 696; Note, \textit{Electronic Visual Surveillance and the Fourth Amendment}, supra note 3, at 271.}

\footnote{153. 476 U.S. 207 (1986).}

\footnote{154. "Any member of the public flying in this airspace who glanced down could have seen everything that these officers observed." \textit{Id.} at 213-14.}

\footnote{155. \textit{Id.} at 215.}
The Court used similar reasoning to uphold warrantless monitoring with a beeper, concealed in a chemical container and transported by car, in United States v. Knotts. In upholding this warrantless use of a beeper, which led the police to a drug-manufacturing laboratory, the Court emphasized that the beeper was "augmenting the sensory faculties" of the police, and that simple visual surveillance "would have sufficed to reveal" all the relevant facts.

The Court's attempt to analogize sense-enhanced searches to searches falling within the plain view exception is susceptible to attack on a number of grounds. First, the analogy suggests that, under the plain view exception, a warrant is not required whenever an officer spots incriminating evidence. The plain view exception is not nearly this broad. The exception applies only when the investigating officer's "access to the object has some prior Fourth Amendment justification ...."

A previously-obtained search warrant typically has fulfilled this independent justification, and courts frequently have ap-

156. Id. at 211; see also Florida v. Riley, 109 S. Ct. 693, 696 (1989) (concluding officers legally could view marijuana from the air without a warrant).
158. Id. at 282.
159. See Note, Katz and the Fourth Amendment, supra note 99, at 84 (stating that "many of the cases invoking the plain view doctrine — including a number of cases which do not do so by name — cannot comply with the requirement that police officers have a right to be in the areas from which they obtained their view").
160. Illinois v. Andreas, 463 U.S. 765, 771 (1983); accord Texas v. Brown, 460 U.S. 730, 738 (1983); Coolidge v. New Hampshire, 403 U.S. 443, 466-67 (1971) (plurality opinion); Moylan, The Plain View Doctrine: Unexpected Child of the Great "Search Incident" Geography Battle, 26 MERCER L. REV. 1047, 1096 (1975) (stating that "[t]he hardest conceptual problem attending the plain view doctrine is to grasp that it is not a universal statement of the right of a policeman to seize after seeing something in open view; it is rather a limited statement of that right in one of several instances — following a valid intrusion"); Note, Police Use of Sense-Enhancing Devices, supra note 14, at 1173.

The Court's initial formulation of the plain view exception required not only that an officer possess an independent justification for a plain view search, but also that the officer's discovery of the evidence in plain view be "inadvertent." Coolidge v. New Hampshire, 403 U.S. 443, 469 (1971) (plurality opinion). It is possible that police no longer must meet this inadvertence requirement to come within the plain view exception to the warrant clause. For example, the Supreme Court has invoked the plain view exception to uphold an officer's warrantless seizure of a heroin-filled balloon and plastic vials containing heroin from a suspect's car. Texas v. Brown, 460 U.S. 730, 743 (1983)
plied the plain view exception when officers have stumbled onto evidence beyond the scope of a valid warrant. The Supreme Court, however, has stated repeatedly that a police officer who spots incriminating evidence by peering into a residence from a public street cannot snatch the evidence without a warrant by invoking the plain view exception. If the plain view exception applied in such cases it would swallow the general rule requiring a warrant.

mandated the plain view exception when officers have stumbled onto evidence beyond the scope of a valid warrant. The Supreme Court, however, has stated repeatedly that a police officer who spots incriminating evidence by peering into a residence from a public street cannot snatch the evidence without a warrant by invoking the plain view exception. If the plain view exception applied in such cases it would swallow the general rule requiring a warrant.

See, e.g., United States v. Grubczak, 793 F.2d 458, 461 (2d Cir. 1986) (holding that an officer could seize a case lying in plain view that contained lock-picking equipment when the case was discovered during an attempt to execute an arrest warrant); United States v. McDonald, 723 F.2d 1288, 1295-96 (7th Cir. 1983) (holding that officers could seize mail discovered in plain view when a warrant authorized officers to search for cocaine and proof of residency), cert. denied, 466 U.S. 977 (1984); United States v. Mason, 523 F.2d 1122, 1126-27 (D.C. Cir. 1975) (finding that officers could seize keys to a stolen auto, discovered during an attempt to execute two arrest warrants); see also Moylan, supra note 160, at 1075 (noting that plain view doctrine allows officers, in the course of a valid search, to seize other incriminating evidence); cf. Arizona v. Hicks, 480 U.S. 321, 326-29 (1987) (holding that officers could not move stolen stereo equipment to check the serial numbers on the equipment without a warrant when the officers had entered an apartment to search for a gun).

Some lower courts have reached a contrary result, upholding the warrantless seizure of evidence spotted by officers peering into a structure through a window. See United States v. Hanrahan, 442 F.2d 649, 653-54 (7th Cir. 1971) (upholding officer's use of a flashlight to peer into a garage window from an adjacent sidewalk); Ponce v. Craven, 409 F.2d 621, 625 (9th Cir. 1969), cert. denied, 397 U.S. 1012 (1970).

See Arizona v. Hicks, 480 U.S. 321, 327 (1987); Coolidge v. New Hampshire, 403 U.S. 443, 468 (1971) (plurality opinion); see also Comment, Reviving Trespass-Based Search Analysis, supra note 45, at 215-16 (noting that many ju-
A second objection to the Court's plain view analogy is that this argument assumes its conclusion. As discussed above, the Court has upheld warrantless sense-enhanced searches by reasoning that an officer's unaided vision could have revealed the relevant information disclosed by the sense-enhanced search. For example, officers could have observed the marijuana plants in Ciraolo by driving past the suspect's backyard in a two-level bus, and officers could have found the illegal drugs in Knotts simply by trailing the suspect's car. If this assertion is correct, however, then why didn't police drive past the Ciraolo backyard in a high bus or truck, or simply tail the car in Knotts? Instead of taking these simple measures, police went to the difficulty and expense of using an airplane or a beeper.

The only sensible reason for this choice is that an unaided visual search would not have replicated the sense-enhanced search. As discussed above, the officers in Knotts could not have followed the trail of the suggestive chemicals simply through visual surveillance of the suspect's activity. Although the officers might have seen the Ciraolo suspect's marijuana plants from the top of a two-level bus, a quick scan from a moving bus might not have resulted in an identification of the plants, and if the bus remained near the fence for some time, the suspect might have become aware of the surveillance. Thus, the Court's conclusion that the Ciraolo and Knotts searches were equivalent to an unaided viewing of the suspect's activities is incorrect as a practical matter.

dicial opinions and commentaries have rejected an overly expansive plain view standard).

165. Gutterman, supra note 1, at 674.
166. See supra text accompanying notes 150-58.
167. Further, the police could have placed a ladder next to the backyard fence.
168. Granholm, supra note 17, at 697.
169. See supra text accompanying notes 128-35.
170. Use of the bus also might have alerted the suspect to the officers' investigation, causing him to destroy the plants before they were seized as evidence. The secret aerial search undertaken by police in Ciraolo thus probably would be more effective than the hypothetical suggested by the Court. The secrecy of aerial searches, however, also raises serious fourth amendment concerns. See supra text accompanying notes 19-43.
171. See Florida v. Riley, 109 S. Ct. 693, 702-03 (1989) (Brennan, J., dissenting); 1 W. LaFave, supra note 9, at 522 (noting that "[i]t is this assumed equivalence between mere 'visual surveillance' and 'scientific enhancement' in Knotts which is troublesome. Under the Katz expectation-of-privacy test, the two investigative techniques simply are not the same."); Granholm, supra note 17, at 709 (discussing the different effect of public surveillance by a uniformed police officer, and public surveillance through a hidden video camera); Com-
More importantly, whether unaided visual surveillance would have revealed the same information as a sense-enhanced search should be irrelevant. The fact that an unintrusive search could have revealed evidence should not serve to legitimize a more intrusive search that police actually conducted. For example, under the reasoning used by the Court in Ciraolo and Knotts, a warrantless ransacking of a home would be constitutional if a search conducted pursuant to a specific warrant could have revealed the same information. The obvious response to such reasoning is that whether a search pursuant to a warrant would have produced the same evidence as the ransacking is irrelevant. A search pursuant to a warrant was not undertaken. Instead, police conducted a warrantless general search, and such a search violates the fourth amendment.

By the same token, a warrantless sense-enhanced search is not justified simply because a search falling within the plain view exception might have produced the same evidence as the sense-enhanced search. The Court should judge the validity of a warrantless sense-enhanced search by the characteristics of the search method actually used, and not by the characteristics of another type of search that police might have used as a substitute.

4. Implicit Consent

In some cases, the Court has reasoned that a suspect's implicit consent justifies a warrantless sense-enhanced search. This reliance on implicit consent apparently arises out of the established rule that a warrant is not required after a suspect's explicit consent to a search. For example, in Washington v. Chrisman, a police officer observed marijuana seeds and a

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2. Bacigal, supra note 35, at 537; Uviller, Evidence From the Mind of the Criminal Suspect: A Reconsideration of the Current Rules of Access and Restraint, 87 Colum. L. Rev. 1137, 1199 (1987) (noting that "because infiltration is normally accomplished by procuring the unwitting invitation or at least the sufferance of the suspect, it has traditionally been treated as a simple case of consent, obviating any fourth amendment problems").
marijuana pipe in "plain view," after he entered a student dormitory room with the permission of one of the residents.\textsuperscript{176} The students then voluntarily turned over three bags of marijuana to the officer.\textsuperscript{177} The students also consented to a search of the dormitory room, which revealed more marijuana as well as LSD. All of these evidence-gathering activities were undertaken without a warrant.\textsuperscript{178} The Washington Court upheld the warrantless search of the dormitory room because the students had consented to the search.\textsuperscript{179}

In an apparent extension of decisions such as Washington, some courts have held that a warrantless sense-enhanced search was justified because the suspect implicitly consented to the use of a sense-enhancing device. The Supreme Court particularly emphasized this implicit consent rationale in United States v. White.\textsuperscript{180} In White, officers concealed a recording device on a government informant. The suspect had no knowledge of his acquaintance's status as an informant, or of the hidden recording device. The device recorded four conversations between the suspect and the informant.\textsuperscript{181} The government did not obtain a warrant before employing the concealed recorder.

In an opinion upholding this warrantless search, Justice Byron White suggested that the suspect implicitly consented to the recording of his conversations:

\begin{quote}
Inescapably, one contemplating illegal activities must realize and risk that his companions may be reporting to the police. If he sufficiently doubts their trustworthiness, the association will very probably end or never materialize. But if he has no doubts, or allays them, or risks what doubt he has, the risk is his. In terms of what his course will be, what he will or will not do or say, we are unpersuaded that he would distinguish between probable informers on the one hand and probable informers with transmitters on the other. Given the possibility or probability that one of his colleagues is cooperating with the police, it is only speculation to assert that the defendant's utterances would be substantially different or his sense of security any less if he also thought it possible that the suspected colleague is wired for sound.\textsuperscript{182}
\end{quote}

\begin{itemize}
\item \textsuperscript{176} Id. at 3-4.
\item \textsuperscript{177} Id. at 4.
\item \textsuperscript{178} Id.
\item \textsuperscript{179} Id. at 9-10. See also United States v. Mendenhall, 446 U.S. 544, 557-59 (1980) (holding no warrant was required when the suspect had consented to a search of her person).
\item \textsuperscript{180} 401 U.S. 745 (1971).
\item \textsuperscript{181} Id. at 747.
\item \textsuperscript{182} Id. at 752; cf. Maine v. Moulton, 474 U.S. 159, 180 (1985) (holding that
The Court also relied on a suspect's implicit consent to uphold the warrantless use of a pen register — a device that records all numbers dialed from a particular phone. In *Smith v. Maryland*, the Court validated the warrantless use of a pen register to identify a burglar who subsequently made "threatening and obscene phone calls" to the victim of his earlier burglary. In support of its conclusion, the Court suggested that all individuals who make phone calls implicitly consent to the use of a pen register. The Court noted that the introductory sections of some telephone directories allude to the possible use of pen registers.

The implicit consent rationale of *White* and *Smith* is entirely conclusory. These decisions provide no basis for the assertion that the suspects implicitly consented to a sense-enhanced search. Consent might have been a reasonable inference in *White*, for example, if the informant had shown the suspect a sign reading, "I am an informant wired with a hidden recording device," and the suspect nonetheless embarked on his defense's sixth amendment right to counsel was violated by admission at trial of incriminating statements defendant made to attorney who wore recording device); *Massiah v. United States*, 377 U.S. 201, 207 (1964) (holding that defendant's own incriminating statements, obtained from transmitter installed in defendant's car by confederate, could not be used against defendant at trial).

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184. Id. at 737.
185. The Court stated:

Although most people may be oblivious to a pen register's esoteric functions, they presumably have some awareness of one common use: To aid in the identification of persons making annoying or obscene [telephone] calls . . . . Most phone books tell subscribers, on a page entitled 'Consumer Information,' that the company 'can frequently help in identifying to the authorities the origin of unwelcome and troublesome calls.' . . . Telephone users, in sum, typically know that they must convey numerical information to the phone company; that the phone company has facilities for recording this information; and that the phone company does in fact record the information for a variety of legitimate business purposes.

Id. at 742-43 (citations omitted). The Court also has suggested that a suspect's implicit consent supports the use of an aerial search. See, e.g., *Florida v. Riley*, 109 S. Ct. 693, 695 (1989) (stating that "[b]ecause the sides and roof of [the defendant's] greenhouse were left partially open, however, what was growing in the greenhouse was subject to viewing from the air. . . . [Defendant] Riley could not reasonably have expected that his greenhouse was protected from public or official observation from a helicopter had it been flying within the navigable airspace for fixed-wing aircraft."); *California v. Ciraolo*, 476 U.S. 207, 213-14 (1986); *see also California v. Greenwood*, 108 S. Ct. 1625, 1627 (1988) (stating that by placing objects in a trash can located outside of a residence, the resident implicitly consents to an examination of those items).

186. See *Amsterdam*, supra note 1, at 407; *Bacigal*, supra note 35, at 544-45, 553-54; *Uviller*, supra note 173, at 1200.
incriminating conversation. The Court relies on a fiction of consent, based on the notion that a suspect knew there was a possibility of surveillance. This fiction is equally applicable in wiretap cases, however, in which the Court requires a warrant.\textsuperscript{187} Indeed, the Court's implied consent reasoning logically leads to the conclusion that warrants never are necessary.\textsuperscript{188} A court could hold that a suspect implicitly consented to any form of search, and that the search thus does not require a warrant. Such reasoning, however, would render the warrant clause meaningless.

The Court's implicit consent decisions thus lack any factual support for the conclusion that the defendant somehow consented to a search. The decisions rely on the assumption that Americans accept an Orwellian regime of constant eavesdropping as the current state of affairs. Ironically, the Court seems blinded to the fact the Court itself can significantly influence the validity of this assumption, depending on how it decides this implied consent issue. Allowing warrantless use of pen registers makes telephone users more likely to expect eavesdropping, and thus circularly provides a basis for implicit consent. Conversely, proscribing pen registers would decrease the likelihood of implicit consent.

Because of this circularity, implicit consent is not a viable means of distinguishing those sense-enhanced searches that require a warrant from those that do not. If the \textit{White} defendant implicitly consented to a tape recording of his statements by speaking to his acquaintance, then courts similarly should hold that a suspect implicitly consents to a wiretapping of his conversations whenever he dials a telephone number.\textsuperscript{189} This conclusion, however, is inconsistent with settled precedent.\textsuperscript{190}

In short, implicit consent is a manipulable conclusion that a court may use to uphold any warrantless sense-enhanced

\textsuperscript{187} See infra note 190.

\textsuperscript{188} But see Smith v. Maryland, 442 U.S. 735, 749 (1979) (Marshall, J., dissenting) (stating that "even assuming, as I do not, that individuals 'typically know' that a phone company monitors calls for internal reasons, ... it does not follow that they expect this information to be made available to the public in general or the government in particular"). See also Alschuler, \textit{Interpersonal Privacy and the Fourth Amendment}, 4 N. Ill. U.L. Rev. 1, 29 (1983) (distinguishing pen register from human operator); Uviller, \textit{supra} note 173, at 1207 (discussing Supreme Court's treatment of pen register).

\textsuperscript{189} Bacigal, \textit{supra} note 35, at 554.


SENSE-ENHANCED SEARCHES

search. This concept is of little analytical value in determining the types of sense-enhanced searches that should require a warrant.¹⁹¹

B. CONFUSION IN THE LOWER COURTS: TWO ATTEMPTED APPLICATIONS OF THE SUPREME COURT'S SENSE-ENHANCED SEARCH ANALYSIS

Given the limited utility of the Supreme Court's warrant analysis in sense-enhanced search cases, one might anticipate significant confusion in the lower courts. Such confusion indeed exists, and may be responsible for the Court's frequent consideration of sense-enhanced searches.

The following section considers two types of warrantless sense-enhanced searches that continue to divide the lower courts: 1) The viewing of a protected area with a telescope or binoculars; and 2) The use of fluorescent powder to connect a suspect to incriminating evidence. The diverse results and conclusory analysis of cases discussing these warrantless searches illustrate the difficulties faced by lower courts in attempting to apply the Supreme Court's warrant analysis to sense-enhanced search cases.

1. Viewing a Protected Area With a Telescope or Binoculars

A recurrent problem arising in the lower courts involves whether an officer, situated in a public place, must obtain a warrant before viewing the inside of a residence or office through a telescope or binoculars.¹⁹² The sense-enhanced search distinctions employed by the Supreme Court strongly suggest that the Justices would not require a warrant.¹⁹³

¹⁹¹ This Article thus treats the implicit consent rationale differently from the other Supreme Court sense-enhanced search distinctions. This Article does not reach a general conclusion on the validity of the physical trespass or the plain view doctrines, but only concludes that these doctrines should not apply to analysis of sense-enhanced searches. Conversely, this Article concludes that the implicit consent rationale is entirely unworkable and should be abandoned.

¹⁹² See generally Note, Telescopes, Binoculars, and the Fourth Amendment, supra note 123, at 379-80 (suggesting that police use of telescopes and binoculars to observe activities beyond the range of the "naked eye" violates an individual's expectation of privacy).

¹⁹³ Dicta in two Supreme Court cases decided well before Katz provide some support for the proposition that such a warrantless use of binoculars or a telescope is permissible. In one case the Court upheld the warrantless use of a radio transmitter to overhear a conversation between a suspect and an undercover agent. On Lee v. United States, 343 U.S. 747, 753 (1952). In support of
of a telescope or binoculars enhances a visual, rather than an aural sensation, and the surveillance might be analogized to a "plain view" search. A court also might reason that the suspect implicitly consented to a viewing by leaving an opening through which officers could observe the inside of a residence or office. In addition, the binocular or telescope viewing would not involve a physical trespass into a constitutionally protected area.

On the basis of this analysis, most lower courts have upheld the warrantless viewing of a home or office through binoculars or a telescope. Some lower courts, however, have

its conclusion, the Court wrote: "The use of bifocals, field glasses or the telescope to magnify the object of a witness's vision is not a forbidden search." Id. at 754. In an even earlier decision, the Court upheld the use of a searchlight trained by the Coast Guard on a vessel at sea. United States v. Lee, 274 U.S. 559, 563 (1927). In reaching this result, the Court wrote that "[s]uch use of a searchlight is comparable to the use of a marine glass or field glass. It is not prohibited by the Constitution." Id.

Neither On Lee nor Lee involved police use of a telescope or binoculars to peer into a home or office. At least one case has questioned the continued validity of the language in these cases after the Katz decision. See United States v. Taborda, 635 F.2d 131, 136 (2d Cir. 1980).

194. See supra text accompanying notes 115-72.

195. Courts routinely have upheld the warrantless use of binoculars and telescopes to observe public places. See, e.g., United States v. Allen, 633 F.2d 1282, 1291 (9th Cir. 1980), cert. denied, 454 U.S. 833 (1981); United States v. Minton, 488 F.2d 37, 42 (4th Cir. 1973), cert. denied, 416 U.S. 936 (1974); see also United States v. Dunn, 480 U.S. 394, 394 (1987) (upholding the warrantless use of a flashlight to illuminate the inside of a barn); Texas v. Brown, 460 U.S. 730, 739-40 (1983) (upholding the warrantless use of a flashlight to view the inside of an auto). These decisions have rested on the conclusion that searches occurring in the open fields do not require a warrant. See United States v. Dunn, 480 U.S. 294, 304 (1987); Oliver v. United States, 466 U.S. 170, 184 (1984); see also United States v. Ward, 703 F.2d 1058, 1059 n.2, 1061-62 (8th Cir. 1983) (upholding the warrantless use of a "night scope," which "operates [at night] by drawing upon all available sources of light to illuminate the magnified image"). As discussed below, any distinction between the warrantless use of binoculars and telescopes to view the open fields, and the warrantless use of these devices to look into a constitutionally protected area, should be abandoned. See infra text accompanying notes 235-44. But see United States v. Taborda, 635 F.2d 131, 139 (2d Cir. 1980) (distinguishing the use of a telescope to view the open fields from the use of a telescope to view the inside of a residence); State v. Blacker, 52 Or. App. 1077, 1081, 630 P.2d 413, 417 (1981) (same).

expressed concern that although the officer technically has not committed a physical trespass into a constitutionally protected area, his vision has intruded into this protected area. These courts have held that the observation of a constitutionally protected area with binoculars or a telescope requires a warrant.

The Tenth Circuit opinion in *Fullbright v. United States* provides an example of a court upholding warrantless binocular surveillance of a home or office. In *Fullbright*, decided shortly after *Katz*, officers stationed in open fields used binoculars to observe three defendants operating an illegal alcohol-producing still inside a shed. While stating that a warrantless physical search of the shed would have violated the fourth amendment, the *Fullbright* court relied on the lack of any physical trespass, as well as an implicit consent argument, to sustain the warrantless binocular viewing of the shed.

Some courts have upheld such warrantless binocular or telescope observations, even when officers could view the suspect's residence only from an inaccessible location. In *United States v. Whaley*, the suspect's property was located in secluded woods bounded by a river and a canal. By stationing themselves across the canal on neighboring property, officers could view the suspect's uncurtained basement with binoculars. After three months of such warrantless observa-

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197. *Fullbright*, 392 F.2d at 433.
198. *Id.* at 434.
201. When the investigators made their initial observation, the door to the shed was open and its light was sufficient to reveal what was going on. “The extent of the investigators’ action at the time was to look. . . . [O]bservations from outside the curtilage of activities within are not generally interdicted by the Constitution.” *Id.*
204. *Id.* at 587.
tion, the officers arrested the suspect, charging him with cocaine manufacture and distribution. The Whaley court upheld the warrantless search, writing that an unenhanced "plain view" could have revealed the same evidence as the binocular surveillance.\textsuperscript{205}

In contrast to decisions such as Fullbright and Whaley, some lower courts have concluded that the viewing of a residence or an office with binoculars or a telescope requires a warrant.\textsuperscript{206} In United States v. Taborda,\textsuperscript{207} a cocaine processing operation established in an apartment was observed by Drug Enforcement Administration agents from an apartment located across the street. The agents viewed the cocaine laboratory both with their unenhanced vision and with a "high-powered telescope."\textsuperscript{208} The Taborda court held that the unenhanced viewing was a permissible warrantless search, but that the use of a telescope without a warrant violated the fourth amendment.\textsuperscript{209}

A federal district court reached a similar result in United States v. Kim.\textsuperscript{210} In Kim, FBI agents using warrantless telescope and binocular surveillance from two different locations observed an illegal gambling operation conducted in the defendant's apartment.\textsuperscript{211} The Kim court held that this warrantless telescope and binocular surveillance was unconstitutional. The court asserted that such surveillance "can intrude on individual privacy as severely" as the warrantless wiretapping banned by the Supreme Court in Katz.\textsuperscript{212} The Kim court also rejected the government's contentions that the surveillance was analogous to a search falling within the "plain view" exception, and that the defendant implicitly consented to the search by


\textsuperscript{206} Id. at 590-92. Judge Bryan Simpson dissented, concluding: "The view obtained was poles apart from a constitutional plain view and not preclusive of a reasonable expectation of privacy." Id. at 592.

\textsuperscript{207} Id. at 138-39. Judge Edward Dumbauld dissented from the majority's conclusion that the warrantless use of the telescope was unconstitutional. Id. at 141.

\textsuperscript{208} Id. at 134.

\textsuperscript{209} Id. at 138-39. Judge Edward Dumbauld dissented from the majority's conclusion that the warrantless use of the telescope was unconstitutional. Id. at 141.

\textsuperscript{210} Id. at 138-39. Judge Edward Dumbauld dissented from the majority's conclusion that the warrantless use of the telescope was unconstitutional. Id. at 141.

\textsuperscript{211} Id. at 1254.

\textsuperscript{212} Id. at 1256-57.
leaving his curtains open.\textsuperscript{213}

Although most courts have upheld warrantless surveillance of a residence or office with bincoulars or a telescope,\textsuperscript{214} decisions such as \textit{Taborda} and \textit{Kim} demonstrate that the validity of these searches remains an open issue. Given the limited usefulness of Supreme Court sense-enhanced search analysis in resolving this issue, the Court may well be forced to consider warrantless telescope and binocular searches.

2. Fluorescent Powder

Police have used fluorescent powder, invisible to the naked eye, as a means of connecting a suspect to incriminating evidence.\textsuperscript{215} Investigators cover contraband or a suggestive object with the invisible powder. After learning that someone has retrieved the treated object, police place a suspect’s hands under a fluorescent light. If the light discloses the presence of the fluorescent powder, the police may then connect the suspect to the incriminating evidence.\textsuperscript{216}

Although the Supreme Court has never ruled on the application of the warrant clause to fluorescent powder searches, the analysis used by the Court in other sense-enhanced search

\textsuperscript{213} \textit{Id.}

\textsuperscript{214} Decisions holding that police do not require a warrant to view the inside of a residence or office with a telescope or binoculars receive some support from recent Supreme Court decisions upholding warrantless aerial searches. For example, the Court upheld a warrantless aerial search that employed sophisticated magnifying and photographic equipment to view an industrial complex. Dow Chem. Co. v. United States, 476 U.S. 227, 238-39 (1986). In refusing to find that this search violated the fourth amendment, however, the \textit{Dow Chemical} opinion continued: “[T]he photographs here are not so revealing of intimate details as to raise constitutional concerns.” \textit{Id.} at 238; \textit{see also} Florida v. Riley, 109 S. Ct. 693, 697 (1989) (upholding a warrantless naked-eye observation from a helicopter of marijuana growing in the defendant’s backyard greenhouse); California v. Ciraolo, 476 U.S. 207, 213-15 (1986) (upholding a warrantless aerial search during which officers employed their unenhanced vision to spot marijuana in the suspect’s backyard).

In short, although the aerial search cases provide some support for the argument that telescope and binocular observations of a residence do not require a warrant, these Supreme Court decisions do not resolve the telescope and binocular cases.

\textsuperscript{215} \textit{See generally} 1 W. LAFAVE, \textit{supra} note 9, at 349-55 (describing cases in which police have used fluorescent powder); \textit{Note, Police Use of Sense-Enhancing Devices, supra} note 14, at 1189-94 (describing police use of fluorescent powder).

\textsuperscript{216} The fluorescent powder search thus operates somewhat similarly to a beeper search, discussed above. \textit{See supra} text accompanying notes 8-9, 128-35. Both types of searches allow police to link individuals with incriminating evidence.
cases suggests that a search using fluorescent powder should not proceed without a warrant. The use of fluorescent powder does enhance a visual, rather than an aural sensation, and this distinction would suggest that a warrantless use of fluorescent powder should be permissible. The use of fluorescent powder cannot be analogized to a plain view search, however, because the powder is invisible to the naked eye. Nor is it readily apparent how a court could find that a suspect implicitly consented to a search using fluorescent powder without assuming the Orwellian spectre that each object one touches is a potential medium of surveillance.\textsuperscript{217} Finally, the fluorescent powder search involves a trespass of a constitutionally protected area—the suspect's person, which police must examine with an ultraviolet light.

Despite this suggestion that a search using fluorescent powder should require a warrant, most lower courts have held that the use of such powder does not require a warrant.\textsuperscript{218} These cases employ little reasoning to support their conclusion. For example, in United States v. Richardson,\textsuperscript{219} the Sixth Circuit upheld the warrantless use of a fluorescent powder scan, which connected burglars with two bags of coins stolen from a bank.\textsuperscript{220} The Richardson court simply concluded: “We do not regard the examination of appellant's hands under the ultraviolet light as a search within the meaning of the Fourth Amendment.”\textsuperscript{221} The Richardson court continued that even if a fourth amendment search had occurred, “we agree with the finding of the District Judge that the appellant voluntarily consented to it.”\textsuperscript{222}

Like the Supreme Court's decisions invoking a suspect's implicit consent,\textsuperscript{223} the Richardson court's conclusion that the defendant consented to the fluorescent powder search is diffi-
cult to understand. Although the defendant may have agreed at the police station to place his hands under a fluorescent light, he obviously did not consent to the police dusting of the coin bags with fluorescent powder, which formed a necessary part of the search.

Other cases approving the warrantless use of fluorescent powder have employed even more cursory reasoning. In *Los Angeles Police Protective League v. Gates*, police used fluorescent powder without a warrant in an attempt to identify officers who were committing burglaries while on duty. An officer subsequently fired by the police department for suspected unlawful conduct brought a civil rights action, alleging that the warrantless use of the fluorescent powder was unconstitutional. The *Gates* court upheld the fluorescent powder search, emphasizing the state's interest in maintaining police integrity.

The importance of expediency is the only rationale mentioned by the *Gates* court in departing from the warrant requirement. The court did not even attempt to bring the fluorescent powder search within one of the exceptions to the warrant clause recognized by the Supreme Court.

Courts that have reached a contrary conclusion, holding that a search using fluorescent powder requires a warrant, have not employed much more elaborate reasoning. In *United States v. Kenaan*, police used fluorescent powder without a warrant to demonstrate that the suspect had taken possession of a package containing cocaine. In holding this warrantless search unconstitutional, the First Circuit simply noted that searches of a person typically require a warrant, and held that this rule should apply to the use of fluorescent powder.

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225. *Id.* at 38-39.
226. *Id.* at 46.
227. *Id.*
228. See, e.g., *United States v. Kenaan*, 496 F.2d 181, 183 (1st Cir. 1974); People v. Santistevan, 715 P.2d 792, 795-96 (Colo.), *cert. denied*, 479 U.S. 965 (1986); *see also* State v. Howell, 524 S.W.2d 11, 16-18 (Mo. 1975) (holding unconstitutional a warrantless swab of the defendant's hands, undertaken to test for residue particles indicating that the defendant recently had fired a gun).
229. 496 F.2d 181 (1st Cir. 1974).
230. *Id.* at 182.
231. *Id.* at 183. In remanding the case for a new trial, the *Kenaan* court suggested that the warrantless search would be constitutional if this search
A similarly brief analysis of fluorescent powder searches appears in *People v. Santisteven.*232 Relying heavily on *Kenaan,* the Colorado Supreme Court held that the warrantless use of fluorescent powder violates the fourth amendment.233 As in *Richardson,* the *Santisteven* court stated that a suspect's consent to an examination of his hands under ultraviolet light would exempt a fluorescent powder search from the warrant requirement. The Colorado Supreme Court thus remanded the case for a finding on whether the suspect had consented to the examination of his hands.234

None of the lower courts considering the use of fluorescent powder have articulated persuasive grounds for upholding or invalidating these warrantless searches. The constitutionality both of warrantless fluorescent powder searches and of warrantless telescope and binocular searches of a residence eventually may require a decision by the Supreme Court. In the interim, police and the lower courts will continue to struggle with these issues.

C. SUMMARY

The Supreme Court primarily has considered four factors to determine whether a particular type of sense-enhanced search requires a warrant: 1) Whether the search involves a physical trespass, and thus requires a warrant; 2) Whether the search enhances aural sensations, and thereby requires a warrant, or enhances visual sensations, and thus does not require a warrant; 3) Whether the search discloses information available to an officer's "plain view," and thus is exempt from the warrant requirement; and 4) Whether the suspect implicitly consented to the search, and thereby renders the warrant requirement inapplicable. The artificial nature of these distinctions has resulted in the apparently arbitrary and ad hoc quality of decisions applying the warrant clause to sense-enhanced searches. The lack of guidance provided by these Court opinions has in turn generated conclusory and conflicting lower court decisions.

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234. Id. at 795-96; see also Williams v. City of Lancaster, 639 F. Supp. 377, 382 n.4 (E.D. Pa. 1986) (discussing the "possibility" of a suspect's consent to a screening for fluorescent powder).
The four criteria relied on by the Supreme Court do not respond to the fourth amendment concerns identified in Part I of this Article. Accordingly, the Court's distinctions in no way ensure that those sense-enhanced search techniques raising the most serious fourth amendment concerns will receive the prior review of the warrant process.

In light of the inadequacy of the Court's sense-enhanced search distinctions, the third part of this Article considers alternative factors for determining whether various types of sense-enhanced searches should require a warrant. This section will identify factors that could produce a more coherent warrant requirement, consistent with the fourth amendment concerns identified in Part I.

III. A SUGGESTED APPLICATION OF THE WARRANT CLAUSE TO SENSE-ENHANCED SEARCHES

The following section suggests that courts should balance three factors in determining whether a particular type of sense-enhanced search requires a warrant. The three suggested factors are: 1) The specificity of the information revealed by the sense-enhanced search, 2) The limited duration of the sense-enhanced search, and 3) The extent to which the sense-enhanced search requires officers to focus on a particular individual.

This approach would require police to obtain a warrant before employing those sense-enhanced searches most susceptible to abuse. A search that revealed broad information, allowed for surveillance of a large number of individuals, and lasted indefinitely would facilitate abuse more readily than a brief search that provided police with only a narrow type of information about an individual suspect.

This section uses the three factors listed above to evaluate Supreme Court decisions that apply the warrant requirement to sense-enhanced searches. This section also considers the limitations of a warrant clause analysis based on these three factors. Under the suggested approach, the Supreme Court would balance the above three factors to develop rules that would determine the necessity of a warrant prior to any particular type of sense-enhanced search. The Court would engage in "definitional" or "categorical" balancing, and thus weigh the three factors to obtain a bright-line rule. Accordingly, the Court would reject an ad hoc balancing approach, which would require

235. See supra text accompanying notes 16-79.
courts to determine the reasonableness of each case in which a sense-enhanced search was used without a warrant.\textsuperscript{236}

The appropriateness of constitutional interpretation through categorical versus ad hoc balancing has received extensive discussion.\textsuperscript{237} In interpreting the fourth amendment, the Court has at times followed each approach.\textsuperscript{238} Nonetheless, the


\textsuperscript{237} Aleinikoff, \textit{supra} note 236, at 979 (stating that “definitional balancing does not prove to be a panacea. Any gain in certainty it provides comes at the price of reduced coherence.”); Strossen, \textit{The Fourth Amendment in the Balance: Accurately Setting the Scales Through the Least Intrusive Alternative Analysis}, 63 \textit{N.Y.U. L. Rev.} 1173, 1175-76 (1988) (asserting that “fourth amendment rights, like other constitutionally guaranteed individual liberties, should receive the more certain protection resulting from categorical rules rather than the less certain protection resulting from ad hoc balancing”); Wasserstrom & Seidman, \textit{The Fourth Amendment as Constitutional Theory}, 77 \textit{Georgetown L.J.} 19, 44-50 (1988).

\textsuperscript{238} The Court occasionally has embraced such a categorical balancing approach in applying the warrant requirement to some types of sense-enhanced searches. For example, the Court has held that all wiretaps require a warrant. See United States v. United States Dist. Court, 407 U.S. 297, 308 (1972); Katz v. United States, 389 U.S. 347, 353 (1967); Berger v. New York, 388 U.S. 41, 64 (1967). At least to date, the Court has not required a warrant prior to any aerial search. See Florida v. Riley, 109 S. Ct. 693, 696-97 (1989); Dow Chem. Co. v. United States, 476 U.S. 227, 239 (1986); California v. Ciraolo, 476 U.S. 207, 215 (1986).

In other cases, however, the Court has not adopted such bright-line rules. For example, the Court has required a warrant before police may conduct beeper searches in some cases, but not in others. United States v. Karo, 468 U.S. 705, 718 (1984) (holding unconstitutional warrantless monitoring of a beeper located in a residence); cf. United States v. Knotts, 460 U.S. 276, 285 (1983) (permitting warrantless monitoring of a beeper that traveled on public streets).

The Court’s recent fourth amendment decisions have suggested an increasing reliance on ad hoc balancing. In these decisions, the Court has not promulgated general rules on the applicability of the warrant clause, but instead has evaluated warrantless searches on a case-by-case basis. See Skinner v. Railway Labor Executives’ Ass’n, 109 S. Ct. 1402, 1419 (1989) (upholding warrantless blood and urine tests of railway workers, “[t]hough some of the privacy interests implicated by the toxicological testing at issue reasonably might be viewed as significant in other contexts”); New Jersey v. T.L.O., 469 U.S. 325, 342 (1985) (permitting warrantless search of a high school student by a teacher or administrator “when the measures adopted are reasonably related
bright-line rules developed through categorical balancing, and
the guidance provided by these rules to police and lower courts,
appear preferable in fourth amendment cases to the ephemeral
standards produced by ad hoc balancing.\textsuperscript{239}

Determining which factors the Court should consider in
deciding when the warrant clause applies should prove at least
as important as the choice of a categorical or ad hoc balancing
approach. The three factors suggested in this Article — the
specificity of information revealed by a sense-enhanced search,
the duration of the search, and the extent to which the search
requires officers to focus on a particular individual — respond
directly to the fourth amendment concerns identified in Part
I.\textsuperscript{240}

Conversely, the factors relied on by the Supreme Court in
applying the warrant clause to sense-enhanced searches bear
to the objectives of the search and not excessively intrusive in light of the age
and sex of the student and the nature of the infraction”).

\textsuperscript{239} Categorical balancing is particularly appropriate in determining the
appropriate application of the fourth amendment warrant clause. In any par-
ticular case, a police officer who typically possesses little or no legal training
will make the decision whether to apply for a warrant. In addition, officers
seeking evidence of criminal activity often must act quickly, and rarely will
have the opportunity to ponder the reasonableness of a warrantless search at
their leisure. See Oliver v. United States, 466 U.S. 170, 181-82 (1984); Strossen,
supra note 236, at 1193-94; Wasserstrom & Seidman, supra note 237, at 48.

An incorrect fourth amendment decision by investigating officers may re-
sult in severe consequences. If a court subsequently determines that an of-
ficer’s failure to obtain a warrant violated the fourth amendment, evidence
obtained in the warrantless search might be excluded from any criminal trial,
and an individual who clearly committed a crime may be allowed to go free.
See Mapp v. Ohio, 367 U.S. 643, 648-50 (1961); see also Burkoff, Bad Faith
Searches, 57 N.Y.U. L. Rev. 70, 84-122 (1982) (discussing relevance of police of-
(finding that “physical evidence seized by officers reasonably relying on a war-
rant . . . should be admissible”). Such results not only will reintroduce danger-
ous criminals into society, but also may encourage contempt for fourth
amendment rules among law enforcement officers. United States v. Leon, 468
U.S. 897, 907-08 (1984) (noting that guilty defendants may go free, resulting in
disrespect for the law); Stone v. Powell, 428 U.S. 465, 486-87 (1976) (explaining
that application of the exclusionary rule is restricted to areas in which police
misconduct will be deterred).

Because of the serious consequences resulting from incorrect law enforce-
ment decisions, lower courts may prove reluctant to find a warrantless police
search unreasonable and unconstitutional. The absence of the bright-line
rules provided by categorical balancing thus may result in a failure by lower
courts to enforce the fourth amendment. See Amsterdam, supra note 1, at
393-94; Kamisar, Does (Did) (Should) the Exclusionary Rule Rest on a “Princi-
pled Basis” Rather Than an “Empirical Proposition”? 16 CREIGHTON L. Rev.

\textsuperscript{240} See supra text accompanying notes 16-79.
little relationship to the fourth amendment concerns raised by such searches. Even if the Court developed a categorical test using one of these factors, such as the presence or absence of a physical trespass, this rule might not prevent the warrantless use of sense-enhanced devices raising the most serious fourth amendment concerns.\textsuperscript{241}

Contrary to current Supreme Court analysis,\textsuperscript{242} the approach developed in this section would provide that the location where a sense-enhanced search is initiated would have no bearing on whether police must obtain a warrant. As discussed above, the presence or absence of a physical trespass is of little relevance in analyzing sense-enhanced searches.\textsuperscript{243} The power of sense-enhancing devices often will allow police to gain information about activities occurring in a constitutionally-protected area, even when the sense-enhancing device is located outside of this area.\textsuperscript{244} In addition, sense-enhanced searches not requiring a physical trespass actually may raise particularly serious fourth amendment concerns, because police more easily may preserve the secrecy of searches that do not require a physical entry onto a suspect's property.\textsuperscript{245}

\textsuperscript{241} For much of the twentieth century, the Court applied a categorical rule that only searches involving a police trespass of a constitutionally protected area could require a warrant. See Olmstead v. United States, 277 U.S. 438, 466 (1928); Hester v. United States, 265 U.S. 57, 59 (1924). The Court abandoned this categorical rule in 1967, holding that the warrantless wiretapping of a telephone in a public telephone booth violated the fourth amendment even though this search did not involve a physical trespass of a constitutionally protected area. Katz v. United States, 389 U.S. 347, 353 (1967); see also supra note 85 (listing sources addressing the rule that only searches involving physical trespass into a constitutionally protected area require a warrant). On the continuing importance of the physical trespass doctrine in fourth amendment law, and the weaknesses of this doctrine, see supra text accompanying notes 84-114.

\textsuperscript{242} See supra text accompanying notes 84-114.

\textsuperscript{243} See supra text accompanying notes 101-14.

\textsuperscript{244} See supra text accompanying notes 101-04.

\textsuperscript{245} The approach suggested in this Article is not necessarily inconsistent with the Supreme Court's holdings that physical searches conducted in the open fields do not require a warrant. See Oliver v. United States, 466 U.S. 170, 184 (1984); Hester v. United States, 265 U.S. 57, 59 (1924); see also supra note 90 (describing Oliver). Physical searches, such as those involved in Oliver and Hester, inherently are confined to the open fields where investigating officers are located. Sense-enhancing devices used in the open fields, however, may transcend this location and invade constitutionally protected areas, such as homes or offices. The Court's proscription of the warrantless wiretapping of a public telephone indicates that some searches occurring in public places require a warrant. Katz v. United States, 389 U.S. 347, 353 (1967); cf. United States v. Dunn, 480 U.S. 294, 301 (1987) (upholding use of a flashlight in the open fields to illuminate the interior of a nearby barn).
A. A Suggested Three-Part Balancing Test

1. Specificity of Information

As a first factor for evaluating the appropriateness of a warrantless sense-enhanced search, the Court should focus on the breadth of the information conveyed by a particular type of search. This factor responds to the concern that a sense-enhanced search may approximate a search pursuant to a general warrant, which the framers of the fourth amendment sought to proscribe. By approving the warrantless use of only those sense-enhanced search techniques that provide police with a limited and specific type of information, the Court can minimize the danger that police will engage in unbridled surveillance of an individual's private life. Allowing police to conduct only narrowly-focused searches without a warrant also might induce police to choose these forms of investigation, rather than broader and more intrusive search techniques that would require a warrant.

Title III of the Omnibus Crime Control and Safe Streets Act of 1986 (Title III) underscores the importance of ensuring that warrantless sense-enhanced searches gather only a specific type of information. Title III, enacted in response to Supreme Court decisions proscribing warrantless wiretaps, provides standards for the issuance of warrants authorizing wiretaps. The Title III application for a telephone intercept warrant must include, among other things, both “details as to the particular offense that has been, is being, or is about to be committed,” and “a particular description of the type of communications sought to be intercepted.”

246. See supra text accompanying notes 44-58.
247. See United States v. Jacobsen, 466 U.S. 109, 122 (1984) (upholding warrantless use of a chemical test that “could disclose only one fact previously unknown to the agent — whether or not a suspicious white powder was cocaine. It could tell him nothing more, not even whether the substance was sugar or talcum powder.”); Terry v. Ohio, 392 U.S. 1, 18 (1968) (holding that “a search which is reasonable at its inception may violate the Fourth Amendment by virtue of its intolerable intensity and scope”); Amsterdam, supra note 1, at 411; Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 3, at 282-83.
248. See supra text accompanying notes 101-14.
2. Limited Duration of the Search

A second factor for evaluating a warrantless sense-enhanced search would favor those search techniques that provide information for only a limited period of time.\textsuperscript{252} If a certain type of sense-enhanced search is able to function only briefly, the search necessarily will convey more limited information than a similar search that continues for a more lengthy duration.\textsuperscript{253} One can envision search techniques as replicating either a photograph, at one extreme, or a movie, at the other. Search techniques analogous to a photograph will provide police with discrete information about the activities of a suspect at only one isolated moment. At the other extreme, search techniques analogous to a movie will provide police with a relatively complete profile of a suspect and his associates over an extended period of time.\textsuperscript{254}

Title III explicitly recognizes the policy that searches should continue for only a limited period of time.\textsuperscript{255} In applying for a telephone intercept warrant under Title III, federal officers must include “a statement of the period of time for which the interception is required to be maintained.”\textsuperscript{256}

3. Focus on Particular Individuals

As discussed in Section I, police surveillance of third parties not independently suspected of engaging in criminal activity constitutes a serious fourth amendment concern.\textsuperscript{257} In

\begin{itemize}
\item \textsuperscript{252} See Butterfoss, As Time Goes By: The Elimination of Contemporaneity and Brevity as Factors in Search and Seizure Cases, 21 HARV. C.R.-C.L. L. REV. 601, 604 (1986) (stating that “[t]he Supreme Court has long recognized that if special circumstances necessitate creating an exception to the general rule requiring a warrant, the resulting search or seizure must occur only at the time in which those circumstances are present, and must be as short as possible in duration”); Granholm, supra note 17, at 711; Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 283-84; Note, Tracking Katz, supra note 18, at 1488 (stating that “[s]earches permitted as minimal intrusions have ordinarily involved brief physical examinations similar to those that might arguably be expected from the public at large. By contrast, an attached beeper represents a lengthy physical intrusion that appropriates an item for an unintended use.”); Note, Tying Privacy in Knotts, supra note 13, at 326.
\item \textsuperscript{253} See 1 W. LAFAVE, supra note 9, at 500 (stating that “it is the breadth of the intrusion rather than its depth at any particular instant in time which is most threatening to privacy”).
\item \textsuperscript{254} See Note, Tracking Katz, supra note 18, at 1494.
\item \textsuperscript{255} See supra text accompanying notes 247-49.
\item \textsuperscript{256} 18 U.S.C. § 2518(1)(d) (1988).
\item \textsuperscript{257} See supra text accompanying notes 59-79.
\end{itemize}
determining the propriety of a warrantless sense-enhanced search, courts thus should consider whether a search technique requires police to focus on a particular suspect.\textsuperscript{258}

Search techniques that provide police with information on previously unknown third-parties are particularly susceptible to abuse. Police may use these techniques in high-crime areas to engage in a virtual fishing expedition, observing everyone who wanders into the wide net cast by the sense-enhanced search.\textsuperscript{259}

Using this factor, courts should favor search techniques that allow police to focus on a single suspect. For example, in conducting an aerial search, even the most conscientious officer cannot limit her view to a single parcel of land.\textsuperscript{260} Some types of sense-enhanced searches, such as aerial searches, thus inherently result in random or arbitrary police surveillance, not justified by any prior suspicion of criminal activity.\textsuperscript{261} Courts typically should require a warrant before conducting such searches.

B. APPLICATION OF THE TEST

The following section applies the three-factor test to various types of sense-enhanced searches considered by the Supreme Court and the lower courts. Some Supreme Court cases would be decided similarly under the proposed tests, such as the Court’s opinion allowing warrantless canine sniffs.\textsuperscript{262} This Article asserts, however, that other Court decisions are incorrect, such as decisions upholding warrantless aerial surveillance.\textsuperscript{263}


\textsuperscript{259} See Amsterdam, supra note 1, at 405 (discussing abusive police conduct of warrantless “investigative ‘stops’” in high-crime areas).

\textsuperscript{260} See supra text accompanying notes 51-54.

\textsuperscript{261} See Granholm, supra note 17, at 687-91 (discussing the installation of video cameras in high-crime areas, which record all activities occurring on the public streets).

\textsuperscript{262} United States v. Place, 462 U.S. 696, 710 (1983).

1. Canine Sniffs

The Court's decision upholding warrantless use of drug-detecting dogs in *United States v. Place*\(^{264}\) appears clearly correct under the three-factor analysis. Canine sniffs do not require police to focus on a particular individual, and thus implicates the third factor discussed above. Police easily could rove through an airport terminal with a drug-detecting dog, or require each person passing by a checkpoint to submit to a canine sniff.

Canine sniffs, however, reveal only very limited and specific information about an individual. Police will learn from the dog whether a suspect is carrying a certain type of contraband, and that is all the officers will learn.\(^{265}\) In addition, canine sniffs only last for a very short duration.\(^{266}\) At a certain point, the investigator will lead the dog to the suspected location of illegal drugs or other contraband. The dog will sniff the location, and indicate whether the contraband is present. And then the search ends.

These positive aspects of canine sniffs support the *Place* decision upholding the warrantless use of drug-detecting dogs.\(^{267}\)

2. Wiretaps and "Wired" Informants

The Court's decisions requiring a warrant prior to the installation of a wiretap also appear correct under this analysis.\(^{268}\) Admittedly, wiretaps require police to focus somewhat on a particular individual. Prior to placing a wiretap, police must at least determine whose phone they wish to tap. The wiretap will allow police to listen to conversations that include both the suspect and third parties. The simple requirement that police determine the subject of a wiretap in advance, however, will place some limits on the unrestricted and abusive use of this technique.

Nonetheless, wiretaps raise very serious concerns under the first two factors discussed above. Wiretaps do not yield specific information, but instead require police to inspect a variety of information. In evaluating information revealed by the wire-
tap, police will have no choice but to sift through all of the sus-
pect's communications in search of conversations revealing
criminal activity.

In addition, police may use a wiretap to monitor a suspect's
calls for a lengthy period of time. The wiretap necessarily ends
only when a suspect changes his phone number.\textsuperscript{269} Through a
regular review of a suspect's phone conversations over such an
extended period, police may develop an extraordinarily detailed
portrait of the suspect's private life. In short, wiretaps implicate
significant fourth amendment concerns, and the Court was
correct to prohibit warrantless wiretaps.\textsuperscript{270}

The same factors that support the prohibition on warrant-
less wiretaps also support a prohibition on the warrantless use
of a recording device planted on an informant.\textsuperscript{271} Like the
wiretap, the use of a "wired" informant also forces police to fo-
cus on a particular suspect. Unlike the wiretap, the use of a
"wired" informant cannot last for an indefinite duration. At
some point, the informant must withdraw from his conversa-
tion with the suspect.

Repeated use of the recorder is possible, however, although
such use will require subsequent rewiring and monitoring of
the informant. Moreover, the concealed recorder may retain
extensive conversations on a variety of topics.\textsuperscript{272} Although the
informant may attempt to restrict his conversation with a sus-
pect to crime-related subjects, the informant cannot prevent a
suspect from conversing on a broad range of matters.\textsuperscript{273} In

\textsuperscript{269} United States District Court, 407 U.S. at 325 (Douglas, J., concurring)
(describing one wiretap that "lasted for 14 months and monitored over 900
144, 147-48 (D.D.C. 1976); see also Harrison, Alleged Wiretap Scheme in Cin-
cinnati, L.A. Times, Jan. 14, 1989, at 1, col. 1 (reporting on alleged wiretapping
by police and telephone company).

\textsuperscript{270} The Court's decision requiring police to obtain a warrant before in-
stalling a "spike mike" listening device in the wall of a residence appears cor-
rect for the same reason. See Silverman v. United States, 365 U.S. 505, 512
(1961).

\textsuperscript{271} United States v. White, 401 U.S. 745, 762 (1971); Lopez v. United
States, 373 U.S. 427, 440 (1963); cf. Maine v. Moulton, 474 U.S. 159 (1985) (con-
cluding that use of a body wire transmitter by undercover informant violated
the sixth amendment); Massiah v. United States, 377 U.S. 201, 206 (1964) (ex-
cluding evidence obtained from a concealed radio transmitter, used to record
the defendant's conversations after his indictment and without his counsel
present).

\textsuperscript{272} See Loewy, supra note 42, at 1253-54.

\textsuperscript{273} See Moulton, 474 U.S. at 164-66 (discussing the attempts of a wired in-
formant to focus a suspect's conversation on incriminating activities).
short, the Court's decision to allow the warrantless use of a recording device concealed on an informant is incorrect under the proposed test.274

3. Aerial Searches

The Court also would decide warrantless aerial search cases differently under the proposed test.275 The duration of an individual overflight is limited by the length of time that a plane may remain airborne. Although the inquisitive officer may soon return to the air, police will require continued appropriations of money and manpower to undertake repeated aerial searches.

The breadth of information that police may obtain through aerial surveillance, however, is virtually unlimited. Aerial searches throw open all of a suspect's outdoor property for police observation. Officers scanning a suspect's land from the air may no more limit their survey to unlawful activity than police listening to a wiretap can limit their review to a suspect's incriminating conversations.276

Nor do aerial searches require police to focus on any particular suspect. Police flying over an area may survey entire cities or neighborhoods falling within the officers' field of vision. Police undertaking aerial surveillance cannot limit their vision to a particular parcel of land. Aerial surveillance does not simply fail to require that police focus on a particular subject — this type of search prevents such a police focus. For all of these reasons, the Court should require a warrant prior to searches conducted from an airplane or helicopter.

4. Resolving Lower Court Conflicts: The Binocular and Fluorescent Powder Cases

Use of the three-factor balancing test described above also would yield clear results both in the telescope and binocular cases, and in the fluorescent powder cases that have divided the lower courts.277 Under this test, the warrantless use of a telescope or binoculars to peer into a protected area would be un-

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Binocular and telescope observation do not provide only a specific type of information, and need not be confined to a particular individual. Instead, police can use these devices to view a range of individuals and activities from a single location. Furthermore, binocular and telescope surveillance can continue for an indefinite period of time.

In contrast, the approach suggested in this Article would permit the use of fluorescent powder without a warrant. The use of this powder will reveal only a narrow type of information — whether the suspect has come in contact with certain evidence. The process of scanning the suspect’s hands with a fluorescent light will force police to focus on a particular individual, and because the fluorescent powder will soon wash off of the suspect’s hands, the duration of such a search is strictly limited.

5. Two Difficult Cases: Beepers and Pen Registers

Supreme Court decisions upholding the warrantless use of a pen register in virtually all circumstances, and the warrantless use of a beeper in some circumstances present much closer questions than the search techniques considered above.

Police using these search techniques must to some extent focus on a particular individual in determining where to install the beeper or pen register. This need to focus the search supports the Court’s refusal to require a warrant prior to all uses of a pen register, and some uses of a beeper. The pen register or beeper, however, will not merely provide police with information about a particular suspect, but also will compile information about individuals associating with the suspect. Police will learn of these individuals because the pen register lists all phone numbers called by a suspect, while the beeper informs police of all locations visited by the suspect.

At first glance, the pen register and beeper provide rela-

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278. In fact, any warrantless use of telescopes or binoculars would be unconstitutional. See supra text accompanying notes 233-43.

279. See United States v. Whaley, 779 F.2d 585, 592 (11th Cir. 1985) (upholding warrantless binocular surveillance of a suspect’s basement, which lasted for three months), cert. denied, 479 U.S. 1055 (1987).

280. See also 1 W. LAFAVE, supra note 9, at 354-55 (discussing use of ultraviolet light as an investigative technique).


tively specific information. Searches employing only a beeper will inform police of locations visited by a suspect, while searches employing only a pen register will list phone calls made by the suspect. Nevertheless, police may use either the list of phone numbers provided by the pen register, or the list of locations obtained by tracking the beeper, to obtain a fairly comprehensive portrait of a suspect’s acquaintances and activities.283

In addition, police may monitor these devices for a virtually unlimited period of time. Like a wiretap, only the installation of a beeper or pen register requires any significant police effort or expense. Once the pen register or beeper is in place, police may continuously or intermittently monitor information until the device fails to function. The Court’s approval of warrantless beeper and pen register searches thus is defensible, but the concerns raised by these techniques may justify a reevaluation of decisions declining to require a warrant.

C. LIMITATIONS OF THE TEST

The suggested approach may be criticized for failing to provide a clear rule.284 This approach, however, should result in a less ambiguous standard than the distinctions relied upon by the Supreme Court.285 Under the approach advocated above, courts would allow or would prohibit all warrantless uses of a particular sense-enhanced search technique. Courts would not draw fine distinctions based on the location where a sense-enhancing search device is used,286 or whether the search provides information that an officer’s “plain view” could have revealed.287 The suggested approach would decrease the unpre-

283. See Smith v. Maryland, 442 U.S. 735, 748 (1979) (Stewart, J., dissenting); see also Granholm, supra note 17, at 707 (discussing the use of surveillance cameras on public streets).


285. See supra text accompanying notes 80-191.

286. Cf. supra text accompanying notes 84-114 (analyzing sense-enhanced searches in physical trespass cases).

287. See Bradley, supra note 4, at 1500-01; cf. supra text accompanying notes 148-172 (discussing Supreme Court’s plain view analogies).
dictable and ad hoc nature of decisions applying the warrant clause to sense-enhanced searches.

Courts would determine whether to allow the warrantless use of any new type of sense-enhancing device, developed through technological invention or police innovation, through balancing the three factors outlined above.\textsuperscript{288} Police and lower courts thus would not receive precise guidance on whether a new type of sense-enhanced search requires a warrant.

An honest answer to criticism of this approach is that no more certain approach is feasible. A wholesale rejection of the warrant requirement would not address the serious concerns raised by sense-enhanced searches, as discussed in Part I.\textsuperscript{289} The Supreme Court’s willingness to allow several types of sense-enhanced searches without a warrant forecloses a clear rule requiring police to obtain a warrant prior to any sense-enhanced search.\textsuperscript{290}

Requiring a warrant prior to any sense-enhanced search not only might prove cumbersome for police, but also undesirable for potential suspects. For example, assume that the Court required a warrant prior to a canine sniff. Instead of simply leading the drug-detecting dog up to suspicious airport luggage or individuals, police now must impound the luggage or detain the individuals for minutes or hours while processing a warrant application. Police might not seek a warrant merely authorizing a canine sniff, but instead might obtain a warrant authorizing a broad physical search of an individual’s clothing or possessions.\textsuperscript{291} Individuals affected by these practices might well favor the warrantless canine sniff as an alternative.\textsuperscript{292}

In addition to the absence of a clear, bright-line rule, the suggested approach might be criticized as unduly restricting the use of sense-enhanced search techniques. Many writers, including some Supreme Court Justices, have lauded the value of sense-enhanced searches in police work, and have attacked sug-

\textsuperscript{288}. Some uncertainty will accompany any test that requires a balancing of multiple factors. Henkin, \textit{supra} note 236, at 1048; Strossen, \textit{supra} note 237, at 1184-85; Wasserstrom & Seidman, \textit{supra} note 237, at 48.

\textsuperscript{289}. \textit{See supra} notes 16-79 and accompanying text.

\textsuperscript{290}. \textit{Cf.} Bradley, \textit{supra} note 4, at 1491-98 (suggesting a fourth amendment model that would require a warrant prior to almost every search).

\textsuperscript{291}. \textit{See} United States v. Mendenhall, 446 U.S. 544, 548-49 (1980) (describing police discovery of heroin on a suspect’s person after the police detained her at Detroit Metropolitan Airport and asked her to participate in a strip search).

\textsuperscript{292}. \textit{See} Loewy, \textit{supra} note 42, at 1245-48.
gestions limiting the use of such searches. These Justices and commentators have asserted that sense-enhancing search techniques allow police to gather accurate information of unlawful activity without an extensive use of limited police manpower, or the danger to individual officers that may accompany a traditional physical search.

Police convenience, however, does not determine the fourth amendment validity of a practice, a rule that the Court has reiterated on a number of occasions. The fourth amendment is designed to protect individuals from unreasonable po-

293. *See*, e.g., *California v. Ciraolo*, 476 U.S. 207, 213 (1986) (noting the accurate observation of marijuana cultivation from an airplane, made “in a physically nonintrusive manner”); *Maine v. Moulton*, 474 U.S. 159, 166 (1985) (Burger, C.J., dissenting) (objecting to the suppression of “highly probative and reliable evidence,” obtained by the use of a recording device concealed on an informant); *United States v. Place*, 462 U.S. 696, 707 (1983) (upholding a warrantless canine sniff); *United States v. White*, 401 U.S. 745, 753 (1971) (upholding the warrantless use of a recorder concealed on an informant, and noting that such a recorder is likely to produce “relevant and probative evidence which is also accurate and reliable”); *see also* Fishman, *supra* note 13, at 305 (discussing the usefulness of beeper searches).

By contrast, proponents of sense-enhanced searches at times may exaggerate the effectiveness of such practices. *See* Granholm, *supra* note 17, at 687-88 (discussing the ineffectiveness of surveillance cameras installed on the public streets of several cities); *Hufstedler*, *supra* note 31, at 1518 (stating that “[w]e have the illusion that electronic surveillance is effective because the only cases we ever see are those in which some kind of incriminating evidence is ultimately produced. The innocent victims . . . may never find out that the causes of their distress were invisible searches and, even if they later learn the cause, no redress is available.”); *Uviller*, *supra* note 173, at 1199.

294. For example, consider police investigation of an individual suspected of growing marijuana on her extensive and rugged property. In a traditional physical search, police must slowly traverse the property. If the property actually is used to grow marijuana, police will fear concealed and dangerous traps designed to prevent discovery or poaching of the crop. *See*, e.g., *United States v. Bernard*, 757 F.2d 1439, 1441 (4th Cir. 1985); *Carter v. United States*, 729 F.2d 935, 937 (8th Cir. 1984). If the police are wrong about the suspect’s status as a marijuana grower, police may spend a great deal of time and find absolutely nothing.

Instead, police may survey this property in an aerial search. The search will involve no danger to police. If the police are wrong about the use of the parcel as a marijuana field, they will learn of their error in a matter of minutes. *See Note, Tying Privacy in Knotts*, *supra* note 13, at 331.

295. *See United States v. Knotts*, 460 U.S. 276, 284 (1983) (stating that “[w]e have never equated police efficiency with unconstitutionality, and we decline to do so now”); *Mincey v. Arizona*, 437 U.S. 385, 393 (1978); *Almeida-Sanchez v. United States*, 413 U.S. 266, 283 (1973) (Powell, J., concurring) (asserting that “inconvenience alone has never been thought to be an adequate reason for abrogating the warrant requirement”); *United States v. United States Dist. Court*, 407 U.S. 297, 318 (1972); *see also* Tomkovicz, *Beyond Secrecy for Secrecy’s Sake*, *supra* note 29, at 660 (explaining the influence of the efficacy fac-
lice practices, which officers may have undertaken precisely because they are efficient.296 If police expedience determined the extent of fourth amendment protections, police could use the vaguest suspicions as an excuse for ransacking any residence. This obviously is not the law.

Perhaps a more persuasive response to law enforcement concerns is that the suggested approach is not a wholesale ban on sense-enhanced searches.297 Instead, this approach merely mandates that police should not consummate certain types of sense-enhanced searches without first obtaining a warrant.298 The warrant application process may involve some paperwork and delay, but the difficulty of obtaining a warrant should not be overstated.299 As discussed above, the process of applying for a warrant will help convince police to abandon searches that had no legitimate justification in the first place.300

CONCLUSION

Since the 1967 Katz decision, the Court has authored at least nine major decisions applying the warrant clause to various types of sense-enhanced searches.301 As these decisions continue to accumulate, the Court may prove increasingly re-

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296. See Note, Electronic Visual Surveillance and the Fourth Amendment, supra note 3, at 295-96.
298. See United States v. Karo, 468 U.S. 705, 719 (1984) (finding that "[i]t requires only a casual examination of the warrant affidavit, which in relevant respects consists of undisputed factual assertions, to conclude that the officers could have secured the warrant [for a physical search and seizure of a drug manufacturing laboratory] without relying on the beeper"); Note, Tying Privacy in Knotts, supra note 13, at 331.
299. See supra note 106.
300. See supra text accompanying notes 19-43; see also Bradley, supra note 4, at 1495 (explaining benefits of requiring police to apply for warrants).
luctant to re-evaluate its methods for resolving sense-enhanced search cases.\textsuperscript{302} Instead, the Justices are more likely to compare each new sense-enhanced search case to some technique already considered by the Court.\textsuperscript{303} For example, the Court needed only a few paragraphs to uphold warrantless surveillance from a low-flying helicopter in its most recent sense-enhanced search decision, \textit{Florida v. Riley}.\textsuperscript{304} In upholding this warrantless aerial search for marijuana cultivation, the \textit{Riley} Court primarily relied on a prior decision that had permitted warrantless surveillance from an airplane flying at a higher altitude.\textsuperscript{305}

Despite the Court's apparent disinclination to embark on a significant reconsideration of its analysis and holdings in sense-enhanced search cases, such a reconsideration is necessary. The Court's fact-specific sense-enhanced search decisions provide little guidance to police or lower courts. The distinctions employed by the Court in these cases are artificial and difficult to apply. Perhaps most importantly, these distinctions bear little relationship to the fourth amendment concerns generated by sense-enhanced searches. A continued application of the Court's current methods of analysis provides little assurance that the warrant requirement will limit those searches with the greatest potential for violating fourth amendment rights.

This Article has developed a test based on a balancing of three relevant factors. Because these factors are linked directly to fourth amendment concerns, application of this categorical balancing test should produce a more coherent and appropriate Court decisions addressing whether a particular type of sense-enhanced search requires a warrant).

\textsuperscript{302} See Bradley, \textit{supra} note 4, at 1501 (suggesting that if the Court does not discard current fourth amendment exceptions and distinctions, "it is destined to sink ever deeper into the mire of contradiction and confusion").

\textsuperscript{303} Such an unelaborated invocation of precedent has characterized other areas of constitutional law in which the Court has published numerous and apparently conflicting opinions. See Buchanan, \textit{Governmental Aid to Sectarian Schools: A Study in Corrosive Precedents}, 15 Hous. L. Rev. 783, 784 (1978) (reviewing Court holdings on the validity of aid to religiously-affiliated schools under the establishment clause of the first amendment).

\textsuperscript{304} 109 S. Ct. 693, 696-97 (1989).

\textsuperscript{305} California v. Ciraolo, 476 U.S. 207, 215 (1986). The aerial search in \textit{Ciraolo} was conducted from an altitude of about 1,000 feet. \textit{Id.} The helicopter used by police in \textit{Riley} flew at an altitude of about 400 feet. \textit{Florida v. Riley}, 109 S. Ct. 693, 694 (1989); see also Dow Chem. Co. v. United States, 476 U.S. 227, 239 (1986) (upholding the warrantless surveillance of an industrial complex conducted from an airplane).
warrant requirement than the distinctions employed by the Supreme Court.

Admittedly, a fourth amendment approach that relies on the warrant clause may not receive a warm reception from the United States Supreme Court. In recent decisions, the Justices have upheld a variety of warrantless searches. Nonetheless, even if the Supreme Court proves unwilling to reconsider its application of the fourth amendment to sense-enhanced searches, the warrant requirement imposed by state constitutions may provide appropriate protection. As discussed above, a number of state courts already have differed with the United States Supreme Court in applying state constitutional provisions to sense-enhanced searches.

The power, effectiveness, and secrecy of sense-enhancing devices dramatically increases the danger posed by arbitrary, unfounded, or abusive police investigations. Nowhere is an appropriate application of the warrant clause more essential to protect the security promised by the fourth amendment.


The Court's recent de-emphasis of the warrant clause runs counter to a strong body of historical evidence, which suggests that the Framers of the Constitution intended for most searches to require a warrant. See Grano, Rethinking the Fourth Amendment Warrant Requirement, 19 Am. Crim. L. Rev. 603, 617-21 (1982).

307. See supra text accompanying note 12.

308. See Gormley, supra note 12; see also Abrahamson, Criminal Law and State Constitutions: The Emergence of State Constitutional Law, 63 Tex. L. Rev. 1141, 1165-69 (1985) (discussing various state courts' interpretations of state constitutions).