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## Warrantless Satellite Surveillance: Will our 4th Amendment Privacy Rights be Lost in Space?, 13 J. Marshall J. Computer & Info. L. 729 (1995)

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# WARRANTLESS SATELLITE SURVEILLANCE: WILL OUR 4TH AMENDMENT PRIVACY RIGHTS BE LOST IN SPACE?

## I. INTRODUCTION

As we approach the twenty-first century, we face a new world of technological advancements that will have lasting effects on society, industry, and the law.<sup>1</sup> One such advancement is in the field of satellite<sup>2</sup> imaging.<sup>3</sup> In the past, satellite images have been extremely useful in depicting important world events, such as the Persian Gulf War<sup>4</sup> and the

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1. *Dow Chemical Company v. United States*, 476 U.S. 227, 231 (1986). "In common with much else, the technology of photography has changed in this century. These developments have enhanced industrial processes, and indeed all areas of life; they have also enhanced law enforcement techniques." *Id.*

2. 17 THE WORLD BOOK ENCYCLOPEDIA 150 (1994). Two classifications of satellites exist: the natural satellite and the artificial satellite. A *natural satellite* is "a natural object that orbits a planet," an example being the earth's moon. *Id.* Conversely, an *artificial satellite* is a "manufactured object that continuously orbits the earth or some other body in space." *Id.* There are currently six categories of artificial satellites: 1) scientific research satellites that gather information about space, the earth's atmosphere, and the planets and stars, 2) weather satellites that observe atmospheric conditions over the earth, 3) communications satellites that transmit the radio signal messages that bring television shows and telephone calls into our homes, 4) navigation satellites that pinpoint locations of airplanes, ships and land vehicles, 5) earth observation satellites that map and monitor the earth and its resources, and 6) military satellites, or "spy satellites," used for military purposes. *Id.* at 152.

3. Peter D. Zimmerman, *Photos from Space: Why Restrictions Won't Work*, TECH. REV., May/June 1988, at 50. An important feature unique to artificial satellites is that they provide pictorial images from a unique vantage point. *Id.* Through the use of high-resolution photography and infrared radiation, satellites are capable of providing us with continuous views of the earth and its activities. *Id.*

The film "Patriot Games" is an excellent example of satellite use. In the film, the CIA utilizes a spy military satellite to hone in on the location of a terrorist camp. PATRIOT GAMES (Paramount Pictures, 1992). The image of the camp is then enhanced so as to allow a CIA agent the ability to tentatively identify specific terrorists in the camp. *Id.* Based on his identification, a military unit destroys the camp while, halfway across the world, CIA agents watch the entire incident, via satellite, as it is occurring. *Id.*

4. Jon Trux, *Desert Storm: A Space Age War*, NEW SCIENTIST, July 27, 1991, at 30-31. During the Gulf War, the U.S.'s most powerful military "spy" satellites were used to focus on Iraq. *Id.* Reconnaissance satellites recorded Iraq's military infrastructure, aided in precision targeting, and assessed bomb damage. *Id.*

Chernobyl disaster.<sup>5</sup> Presently, satellite photos are used to map the earth's surface, to aid in ecological research,<sup>6</sup> and to research areas of archeological and paleontological significance.<sup>7</sup> They are also used to spot potential famine areas,<sup>8</sup> and even to locate dangerous insect swarms.<sup>9</sup> In addition, military "spy" satellites<sup>10</sup> can detect a missile launch,<sup>11</sup> military maneuvers,<sup>12</sup> or a ship's directional course.

Looking toward the future, higher-resolution satellite imaging will

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5. Jeffrey T. Richelson, *The Future of Space Reconnaissance*, SCI. AM., Jan., 1991, at 41. Satellite-obtained images of the Chernobyl disaster studied in combination with intercepted communications allowed the United States to assess the damage as the event was occurring. *Id.* Satellite pictures exhibited the number of reactors still in operation by depicting the heat generated by them. Zimmerman, *supra* note 3, at 47, 49.

6. Diane E. Wickland, *Mission to Planet Earth: The Ecological Perspective*, ECOLOGY, December, 1991, at 1923.

Space-based remote sensing must be an integral part of these research programs because it provides the only means of observing global ecosystems regularly, consistently, and synoptically. Satellite data sets already are being used to document the distribution and areal extent of broad vegetation cover types on the land surface and of phytoplankton in the ocean. Future remote sensing satellites will acquire better calibrated, more comprehensive data sets and additional types of ecological information. We are now challenged to plan for the quantitative use of such remotely sensed information in order to improve our understanding of how the Earth functions as an ecosystem.

*Id.*

7. Bernard Wood, *A Remote Sense for Fossils*, NATURE, January 30, 1992, at 397. Satellite images of the topography in Ethiopia were used to locate the fossilized remains of early humans. *Id.*

8. Diana Steele, *Spotting Famine From Space*, NATURE, April 18, 1991, at 545. Images from a high-resolution satellite can estimate vegetation and rainfall to predict a famine-prone area early. *Id.*

9. *Predicting Pestilence From on High*, ECONOMIST, Aug. 21, 1993, at 69-70. Satellites are being used to locate swarms of locusts and the tsetse fly. *Id.* The satellites provide maps of vegetation where infestation would be likely and then infrared light reflected from the swarms can be picked up by the satellites in order to determine their location. *Id.* In addition, satellite pictures depict patches of flooded pasture where malaria-carrying mosquitoes are likely to breed. *Id.*

10. Trux, *supra* note 4, at 31. Military satellites, also known as "spy" satellites, are known for having the highest resolution capabilities available. *Id.* They are capable of identifying the site and size of a ventilation shaft on the roof of an enemy command center. *Id.* at 30. In addition, it has been said that U.S. spy satellites are able to read automobile license plates from their locations in space. John Mintz, *Whose are the Eyes that Spy? The CIA Could Do Business or Battle Over Satellite Photos*, WASH. POST, Feb. 8, 1994, at D1 col 2.

11. Richelson, *supra* note 5, at 40. Satellite antennas are capable of intercepting signals from foreign countries from over a third of earth's surface and can monitor frequencies or communications continuously. *Id.* Brief, unexpected events, such as missile tests, can therefore be witnessed. *Id.*

12. *Id.* at 40-41. During the Cold War, the U.S. used satellites to determine the size of Soviet weaponry, to monitor treaty compliance and sudden military movements. *Id.* In addition, the U.S. has used the satellite to monitor Iraq's military strength and the relocation of military munitions. *Id.*

play an important role in society.<sup>13</sup> Since the end of the Cold War, the market for satellite imagery and technology has grown world-wide.<sup>14</sup> In the light of world competition, both private and military satellite developers now strive to generate the highest-resolution possible at affordable prices, thus increasing the availability of satellite imagery to both governments and private individuals.<sup>15</sup> As a result, new satellite uses have continued to evolve.<sup>16</sup> Therefore, the potential exists for satellite photos to help law enforcement agencies provide evidence of and halt ongoing criminal activity, such as narcotics trafficking and environmental violations, much in the same manner as aerial surveillance does today.<sup>17</sup>

However, along with the benefits of satellite photography, there may be a cost; the potential exists for unknown sources to scrutinize another's activities without his knowledge or consent.<sup>18</sup> No longer is society deal-

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13. Michael A Dornheim, *Home Shopping*, AVIATION WK. & SPACE TECH., April 26, 1993, at 13. It is interesting to note that images retrieved from satellites are even available by computer. In 1993, researchers stated that:

Users of LANDSAT data will be able to browse through remote-sensing imagery on home or office computers before placing an order. Initially, the new on-line system, developed by the Earth Observation Satellite Co. (Eosat), Core Software Technology and Digital Equipment Corp, will allow the viewing of 30,000 images acquired by the Thematic Mapper since 1991. Data back to 1984 will be added within a year. Eosat will charge \$500 a year for the browsing service.

*Id.*

14. Search of The National Trade Database, USDOC, International Trade Administration, Market Research Reports, World - Remote Sensing Market Overview - IMI940107, (June 29, 1994) (search terms "remote sensing" and "satellites"). The world-wide market for remote sensing data is estimated at six billion dollars (U.S.). *Id.* Satellite systems such as those from the United States, France, the former U.S.S.R and other nation's programs, embody a U.S. \$250 million market, with annual growth rates estimated at 30 to 40%. *Id.*

15. Craig Covault, *Low-Cost Info Technology Energizes Space Data Market*, AVIATION WK. & SPACE TECH., April 4, 1994, at 70. Private access to satellite data is expected to increase in the future. *Id.* It is estimated that by 1995, one million users globally will be involved in the use of GIS-type (geographic information systems) satellite data. *Id.* With satellite technology growing to allow for resolution of "human-scale objects," some predict that the satellite will replace aerial photography because the sophisticated skills involved in interpreting photographs will no longer be needed and the cost will be lower. James R. Asker, *High-Resolution Imagery Seen As Threat, Opportunity*, AVIATION WK. & SPACE TECH., May 23, 1994, at 51, 53. It has been stated that "the applications - and market - for pictures may be limited only by human imagination and ingenuity." *Id.*

16. Covault, *supra* note 15, at 70. McDonalds uses satellite data to choose locations for their restaurants and to plan agricultural strategies for supplying food to those restaurants. *Id.*

17. "The public and police lawfully may survey lands from the air." *Dow*, 476 U.S. at 238 (quoting *Oliver v. United States*, 466 U.S. 170, 179 (1984)).

18. Robert C. Power, *Criminal Law: Technology and The Fourth Amendment: A Proposed Formulation for Visual Searches*, 80 J. CRIM. L. 1, 1-2 (1989). Technological advancement has a "dark side." *Id.* Scientific achievements have also created harmful byproducts. *Id.* A considerable social cost of the increase in police ability to view private activities is the decrease in the level of privacy enjoyed. *Id.* Surveillance technology evinces the power to

ing with mere inferences generated by thermal imagery or with a simple enhanced view from an above airplane or helicopter. Now, a silent, invisible intruder from space possesses the capabilities to peep into our businesses, backyards, and even through physical structures into our homes. Everything and everyone, both the criminal and innocent alike, will be on display. The potential for the misuse of such increased clandestine viewing capabilities is staggering.<sup>19</sup> As a result, questions concerning the constitutionality of satellite photography are likely to occur just as they do when aerial surveillance from an airplane or helicopter takes place.<sup>20</sup> However, the constitutionality of satellite use will be questioned on a much more serious level due to its great potential for intrusiveness into the lives of the American public. Will the taking of photographs from a satellite without first obtaining a warrant violate one's Fourth Amendment right to be secure against an unreasonable search?<sup>21</sup> Is the use and nature of the satellite intrusive to such an extent so as to cause an unreasonable encroachment upon one's right to privacy? Does the use of the satellite for surveillance purposes constitute an unreasonable search under the Fourth Amendment so as to require the procurement of a warrant to assure legality?

The legal system must answer these questions and others before technology completely outpaces the law.<sup>22</sup> In doing so, the cherished privacy rights bestowed on the individual by the Fourth Amendment must

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control the "most meaningful aspects of our lives as free human beings" — freedom, privacy, and dignity. *Id.*

19. The film "Blue Thunder" serves as an excellent example of the misuse of high technology surveillance modes by law enforcers. BLUE THUNDER (Columbia Pictures, 1982). In the film, police are given the use of a high-speed helicopter equipped with the capabilities to see through walls, record whispers, and bomb neighborhoods all for the purposes of crowd control and surveillance. *Id.* The first time the helicopter is launched, its acute sensors are used to look down a woman's blouse from an altitude of 1000 feet. *Id.* As the film progresses, the premise behind the helicopter's use changes from being a simple tool for law enforcement to being a highly powerful military weapon with destructive capabilities. No one would be safe from its wrath. *Id.*

20. Questions concerning whether surveillance constitutes a reasonable search under the Fourth Amendment are likely to be the same. Karen Geer, Note, *The Constitutionality of Remote Sensing Satellite Surveillance in Warrantless Environmental Inspection*, 3 FORDHAM ENVTL. L. REP. 43 (1991).

21. The Fourth Amendment states:

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

U.S. CONST. amend. IV.

22. Laurence H. Tribe, *The Constitution in Cyberspace: Law and Liberty Beyond the Electronic Frontier*, HUMANIST, Sept./Oct. 1991, at 21. "Ironically, fidelity to original value requires flexibility of textual interpretation." *Id.*

be preserved for both domestic and professional settings. Increased technology should not mean decreased privacy rights of individuals. In addition, law enforcement interests should not take precedence over a person's Fourth Amendment privacy rights.

This comment will examine issues likely to arise through the warrantless use of the satellite as a surveillance tool. Section Two will provide a necessary background for both a Fourth Amendment study and for an examination of the use of satellites. Section Three will provide an analysis of the current state of the law with regards to warrantless aerial surveillance and the likely ramifications on warrantless satellite use. In particular, this comment will first review the Supreme Court's position on "reasonable" aerial searches. Then, it will discuss the factors that influence what the Court has determined to be reasonable aerial searches under the Fourth Amendment. Next, this section will contemplate the ongoing struggle that exists between an individual's privacy interests and the government's law enforcement interests. Last, it will propose that a warrant requirement exist for satellite searches. Section Four concludes by asserting that the government must strive to protect the rights and freedoms granted to its citizens, especially the protection from warrantless intrusions.

## II. BACKGROUND

### A. THE FOURTH AMENDMENT - A HISTORICAL PERSPECTIVE

The Fourth Amendment affords individuals protection from unreasonable searches and seizures of their "persons, houses, papers, and effects."<sup>23</sup> However, a judge may issue a search warrant upon a finding of probable cause.<sup>24</sup> The premise behind obtaining a warrant upon probable cause is that an impartial third-party judge decides between the competing interests of the citizen and the law enforcement agent,<sup>25</sup>

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23. U.S. CONST. amend. IV.

24. This is known as the *warrant clause*. U.S. CONST. amend. IV.

25. *United States v. Karo*, 468 U.S. 705, 717 (1984). In *United States v. Karo*, based on informant information, agents for the Drug Enforcement Administration (DEA) inserted a beeper (a radio transmitter which emits signals that can be located by a receiver) into a can of ether which was to be transferred to a party believed to be using the ether to extract cocaine from clothing. *Id.* at 708. No search warrant was obtained prior to the insertion. The beeper tracked the movement of the can to the respondents' homes and later to storage facilities. *Id.* One could smell the ether from outside the curtilage of the residences and from outside of the locker in which it was stored. *Id.* When the can was subsequently moved from a storage facility to a respondent's house, agents used the beeper monitor to determine the can was located in the house and, thereafter, obtained a warrant as a result, in part, of the information gleaned from the beeper. *Id.* at 709. The court held that the monitoring of the can through the use of the beeper violated the Fourth Amendment. *Id.* at 714. It held that the monitoring of a beeper in a residential setting not open to visual surveillance violated the Fourth Amendment rights of those with a "justifiable interest in

thereby assuring the protection of individual's rights.

When the constitutionality of warrantless law enforcement surveillance is at issue, courts must determine whether a "search" has occurred under the Fourth Amendment.<sup>26</sup> In the past, the Supreme Court elected to follow the Trespass Doctrine in such situations. Under that doctrine, a physical intrusion was necessary for an illegal search to occur.<sup>27</sup> However, as times changed and technology improved, it became obvious that a physical intrusion was no longer necessary to invade one's privacy. As a result, this view was abandoned.<sup>28</sup> At present, in determining whether

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the privacy of the residence." *Id.* The monitor indicated that the beeper was in the house, a fact which could not have been verified by observation. *Id.* at 715. The court stated that "indiscriminate monitoring" of the home that is "withdrawn from public view" involves a serious violation of one's interest in privacy. *Id.* In addition, the court stated:

The primary reason for the warrant requirement is to interpose a 'neutral and detached magistrate' between the citizen and the officer engaged in the often competitive enterprise of ferreting out crime. Those suspected of drug offenses are no less entitled to that protection than those suspected of non-drug offenses. Requiring a warrant will have the salutary effect of ensuring that the use of beepers is not abused, but imposing upon agents the requirement that they demonstrate in advance their justification for the desired search.

*Id.* at 717. The individual has a strong interest in preserving her right to privacy, whereas society's interest lies in preserving the peace and law enforcement. Mark Lloyd Smith, Comment, *Warrantless Aerial Surveillance: Searching for Constitutional Standards*, 52 J. AIR L. & COMM. 257, 261 (1986).

26. *Karo*, 468 U.S. at 728 (Stevens, J., concurring in part and dissenting in part). In *U.S. v. Karo*, the court stated:

[T]he Fourth Amendment protects two kinds of expectations, one involving 'searches,' the other 'seizures.' A 'search' occurs when an expectation of privacy that society is prepared to consider reasonable is infringed. A 'seizure' of property occurs when there is some meaningful interference with an individual's possessory interests in that property.

*Id.* (quoting *United States v. Jacobsen*, 466 U.S. 109 (1984)). The focus here in on the 'search' aspect of the Fourth Amendment. In general, one presumes warrantless searches to be unreasonable aside from some recognized exceptions. *Karo*, 468 U.S. at 717. Exceptions noted include automobiles, consent, and exigent circumstances. *Id.* Other exceptions include searching a person lawfully arrested while committing a crime and search of the place of the arrest in order to find evidence connected to the crime. *Katz v. United States*, 389 U.S. 347, 358 (1967).

27. In the past, the Supreme Court has construed the Fourth Amendment narrowly, confining protection to those things specifically designated by the Constitution: persons, houses, papers, and effects. U.S. CONST. amend. IV. The Court in *Olmstead v. United States* held that wiretaps inserted into telephone wires from the street without any physical trespass on the defendant's property did not constitute an unlawful search under the Fourth Amendment. *Olmstead v. United States*, 277 U.S. 438, 457 (1928). The court stated that there was no search nor seizure. *Id.* The evidence was obtained merely through one's sense of hearing. *Id.* at 464. Since there was no physical entry into the defendants' homes or offices and there was no seizure of any tangible item, the Fourth Amendment was not violated. *Id.* at 466.

28. *Katz*, 389 U.S. at 353. The court in *Katz* held that the government's listening to and recording of the defendants telephone conversations in a phone booth by means of an electronic device planted outside the booth was a search and seizure for the purposes of the

a search violates the Fourth Amendment, courts consider: (1) whether the person had a "subjective expectation of privacy"<sup>29</sup> and (2) whether that expectation is recognized as reasonable<sup>30</sup> by society.<sup>31</sup>

In applying this two-part-test to warrantless aerial surveillance, courts have considered contributing factors to determine the constitutionality of a search. For instance, the Supreme Court has placed great importance on the location of the person or thing being observed.<sup>32</sup> It has attached varying degrees of privacy to the home and its curtilage,<sup>33</sup> the workplace,<sup>34</sup> and open, outdoor areas.<sup>35</sup> The home and the area surrounding it, being personal and intimate settings, enjoy the greatest degree of privacy protection.<sup>36</sup> Conversely, the Court has stated that the industrial or workplace setting commands a decreased expectation of privacy.<sup>37</sup> Therefore, greater leeway is given to the government to conduct warrantless observations of such commercial property.<sup>38</sup> As for open, outdoor areas, the Court has chosen to deny privacy protection for open fields<sup>39</sup> and areas within a public vantage point.<sup>40</sup>

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Fourth Amendment, regardless of the fact that there was no physical entrance into the phone booth. *Id.* The premise behind the decision was that one who enters a phone booth and shuts the door is entitled to assume that his conversation is private. The court stated that to decide otherwise would "ignore the vital role that the public telephone has come to play in private communication." *Id.* at 352.

29. *Ciraolo*, 476 U.S. at 211. This involves asking whether the party has an intent and desire to maintain his privacy. *Id.* Did the party take "normal precautions to maintain his privacy?" *Id.*

30. "The test of legitimacy is not whether the individual chooses to conceal assertedly 'private' activity," but rather "whether the government's intrusion infringes upon the personal and societal values protected by the Fourth Amendment." *Oliver v. United States*, 466 U.S. 170, 182 (1984).

31. *Katz*, 389 U.S. at 361 (Harlan, J., concurring). This is known as the *Katz* test. *Id.*

32. Lisa J. Steele, Comment, *The View From On High: Satellite Remote Sensing Technology and the Fourth Amendment*, 6 HIGH TECH.L.J. 317, 323 (1991).

33. Curtilage is "the area to which extends the intimate activity associated with the 'sanctity of a man's home and the privacies of life.'" *Ciraolo*, 476 U.S. at 212 (citing *Oliver v. United States*, 466 U.S. 170, 180 (1984); quoting *Boyd v. United States*, 116 U.S. 616, 630 (1986)).

34. *Dow*, 476 U.S. at 236.

35. See *infra* note 203 and 207 and accompanying text (discussing open fields and plain view).

36. *Blalock v. State of Indiana*, 483 N.E.2d 439, 442 (Ind. 1985). The home is considered a place of intimacy and freedom. *Id.*

37. *Dow*, 476 U.S. at 237-38.

38. *Id.* at 237.

39. *Oliver*, 466 U.S. at 170. The open fields doctrine "permits police officers to enter and search a field without a warrant. The term 'open fields' may include any unoccupied or undeveloped area outside of the curtilage." BLACK'S LAW DICTIONARY 1091 (6th ed. 1990). "There is no societal interest in protecting the privacy of those activities, such as the cultivation of crops, that occur in open fields." *Oliver*, 466 U.S. at 179.

40. *Riley*, 488 U.S. at 449. Plain view is described as follows:



Aside from location considerations, the Court has also considered other factors which bear on the constitutionality of a warrantless search. The level of vision-enhancement,<sup>41</sup> the altitude where the search took place,<sup>42</sup> the frequency and duration of the surveillance,<sup>43</sup> and any precautionary measures taken by the subject to avoid a loss of privacy<sup>44</sup> are all examined by the Court to determine whether the government invaded Fourth Amendment privacy rights. The Court has considered these factors individually and in combination in reaching their conclusions.

#### B. THE SATELLITE - A NEW FOURTH AMENDMENT CONCERN

Gone are the days when the Trespass Doctrine controlled and a simple physical intrusion constituted an unreasonable search.<sup>45</sup> Advanced technology has made physical intrusion unnecessary and therefore one need not trespass to violate the Fourth Amendment.<sup>46</sup> Sophisticated equipment is now available that can hear and see what human ears and eyes cannot.<sup>47</sup> Among this novel equipment are aerial surveillance tools and artificial satellites.

At present, many types of artificial satellites orbit the earth, relay-

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In search and seizure context, objects falling in plain view of officer who has the right to be in position to have that view are subject to seizure without a warrant and may be introduced in evidence . . . . Under "plain view doctrine," warrantless seizure of incriminating evidence may be permitted when police are lawfully searching specified area if it can be established that police had prior justification for intrusion into area searched, that police inadvertently came across item seized, and that it was immediately apparent to the police that the item seized was evidence . . . . However, the plain view doctrine may not be used to extend a general exploratory search from one object to another until something incriminating at last emerges . . . .

BLACK'S LAW DICTIONARY 1150 (6th ed. 1990). What is seen from a public vantage point is not constitutionally protected. *Riley*, 488 U.S. at 449; *Katz*, 389 U.S. at 351.

41. *Geer*, *supra* note 20, at 51.

42. *Smith*, *supra* note 25, at 291. "Several courts have placed at least some significance on altitude regulations in determining the reasonableness *vel non* of an aerial search." *Id.* There is no "bright line minimum altitude standard" but it can be helpful in determining whether searches will "offend the sensibilities of a majority of the Court." Bradley W. Foster, *Warrantless Aerial Surveillance and the Right to Privacy: the Flight of the Fourth Amendment*, 56 J. AIR L. & COM. 719, 749 (1991).

43. Reliance on the frequency of the number of overflights is a factor that aids in determining reasonableness. *Smith*, *supra* note 25, at 293.

44. *Id.* at 294.

45. *Katz*, 389 U.S. at 353 (stating that "the premise that property interests control the right of the Government to search and seize has been discredited").

46. *Id.* The Fourth Amendment protects people not "areas." *Id.*

47. Lewis R. Katz, *In Search of A Fourth Amendment For The Twenty-First Century*, 65 IND. L.J. 549, 551-52 (1990). Among the sophisticated surveillance technology available are: electronic tracking devices, telephone wiretaps, and airplane and helicopter surveillance. *Id.*

ing valuable information to its inhabitants.<sup>48</sup> Uses broadly range from communications to environmental study.<sup>49</sup> However, one of the most impactful uses of the artificial satellite is in the area of pictorial imaging.<sup>50</sup>

A world market has grown for both satellite imagery and technology.<sup>51</sup> Countries now struggle to compete with one another to achieve the highest possible resolution capabilities.<sup>52</sup> In the U.S., commercial satellites as well as military satellites have been launched. Soon, as the result of a government decision to allow the sale of military spy satellite technology to commercial developers,<sup>53</sup> American companies will be able to generate and sell images derived from satellites capable of detecting objects as small as a one square yard.<sup>54</sup>

With a strong competitive market and advances in technology, prices for satellite images are decreasing.<sup>55</sup> As a result, they are becoming more widely available and scientists predict that satellite systems will be capable of generating higher resolution images at a lower cost than aerial surveillance systems.<sup>56</sup> Since law enforcement agencies currently utilize aerial surveillance in the apprehension of criminals, it is logical that they will ascend the technological ladder and utilize satellite imagery for surveillance as it becomes available.<sup>57</sup> Therefore, satellites

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48. For technical explanations on the workings of the satellite and its operations see generally ANDREW F. INGLIS, *SATELLITE TECHNOLOGY: AN INTRODUCTION* (1991); MARK LONG, *WORLD SATELLITE ALMANAC: THE COMPLETE GUIDE TO SATELLITE TRANSMISSION AND TECHNOLOGY* (2nd ed.) (1987); and MARTIN DAVIDOFF, *THE SATELLITE EXPERIMENTER'S HANDBOOK* (1990).

49. See *supra* notes 4-12 and accompanying text (detailing uses of the satellite).

50. Richelson, *supra* note 5, at 43. Commercial satellites are in existence which offer relatively low resolution pictorial images to the satellite user. *Id.* Military satellites, also referred to as "spy" satellites, generally offer high resolution pictorial images. *Id.* See *supra* note 10 and accompanying text (discussing the capabilities of spy satellites).

51. See *supra* note 14 and accompanying text (discussing the world-wide remote sensing market).

52. Countries involved in developing highly technical satellite systems include the United States (Landsat), France (Spot), Japan (Mos), and Italy (Eurimage). Many other countries also participate in satellite imaging as well. Search of The National Trade Database, USDOC, International Trade Administration, Market Research Reports, World - Remote Sensing Market Overview - IMI 940107, (June 29, 1994) (search terms "remote sensing" and "satellites").

53. Edmund L. Andrews, *U.S. to Allow Sale of The Technology For Spy Satellites*, N.Y. Times, March 11, 1994, at A1, D5.

54. *Id.* In addition, controversy exists as to whether Russia will allow its 0.75 meter technology onto the market. Asker, *supra* note 15, at 53.

55. *Id.* at 51. As of May 1994, the price for a panchromatic image of an object on the ground as small as two to three meters taken from a satellite ranged between \$1,000 to \$5,000. *Id.*

56. *Id.* at 53.

57. See *supra* note 15 and accompanying text (discussing estimated future satellite use).

will serve as the next logical step for law enforcement surveillance.<sup>58</sup>

### III. ANALYSIS

Every American enjoys the inherent privilege of being "let alone" to conduct their lives with minimal personal and governmental intrusion.<sup>59</sup> Our society holds the right to be free from unreasonable invasion of private lives and property as a fundamental principle.<sup>60</sup> The Fourth Amendment to the Constitution assures the preservation of such rights.<sup>61</sup> It exists to prevent invasions of one's "indefeasible right of personal security, personal liberty, and private property."<sup>62</sup> It provides that people are to be protected from unreasonable searches and seizures and that warrants will not be granted absent probable cause.<sup>63</sup>

In determining the constitutionality of a search, courts apply a seemingly simple two-part test.<sup>64</sup> First, the court determines whether the party exhibited an actual expectation of privacy<sup>65</sup> and second, whether society considers that expectation reasonable.<sup>66</sup> Such a task should be simple when applied to a mere physical trespass or to a ground observation.<sup>67</sup> However, once visual enhancements are used and searches take place from the air and atmosphere, troubles develop.<sup>68</sup> Applying the test is no longer a simple task. Instead, it becomes ex-

58. The court in *Dow* predicted the possibility of satellite surveillance. *Dow*, 476 U.S. 227 at 238.

59. W. PAGE KEETON ET AL., PROSSER AND KEETON ON TORTS, § 117, at 849 (5th ed. 1984). Four different types of invasion of privacy can occur: 1) appropriation or seizure of a person's name or likeness for another's gain or benefit, *id.* at 852; 2) unreasonable and highly offensive intrusion upon the seclusion of another person, *id.* at 254-55; 3) public disclosure of private facts, *id.* at 256; and 4) placing a person in a false light in the public eye, *id.* at 863. Here, the relevant privacy tort likely to be invaded by both aerial and satellite surveillance is intrusion upon seclusion.

60. "One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person." RESTATEMENT (SECOND) OF TORTS § 652B (1977).

61. The Fourth Amendment resulted from the colonies' "struggles against arbitrary power in which they had been engaged for more than 20 years." *Boyd v. United States*, 116 U.S. 616, 630 (1886). The framers of the Constitution wished to restrain the abuse of the power to search private houses and seize private papers, a practice much abused by the English. *Boyd*, 116 U.S. at 641 (Miller, J., concurring).

62. *Id.* at 630.

63. U.S. CONST. amend. IV.

64. *Katz*, 389 U.S. at 361.

65. *Id.* This is the subjective end of the expectation of privacy test.

66. *Id.* This involves an objective evaluation of one's expectation of privacy. *Id.*

67. *Dow*, 476 U.S. at 236. "Dow plainly has a reasonable, legitimate, and objective expectation of privacy within the interior of its covered buildings, and it is equally clear that expectation is one society is prepared to observe." *Id.*

68. *Ciraolo*, 476 U.S. at 218 (Powell, J., dissenting).

tremely complicated, involving the weighing of several factors bearing on the search.<sup>69</sup> As a result, such complications may weaken the spirit of the Fourth Amendment and shatter its goal to protect citizens from arbitrary government surveillance.<sup>70</sup>

Satellite surveillance is one such enhanced visual capability which threatens an erosion of Fourth Amendment protection. However, since it is a novel technique, the courts have not yet had the opportunity to examine this area of surveillance.<sup>71</sup> Therefore, one must look to the next best alternative in order to predict the likely effects of satellites on Fourth Amendment Rights - aerial surveillance.<sup>72</sup> Aerial surveillance has provided law enforcers with a means to obtain information from an elevated viewpoint in a non-obtrusive manner, just as satellite surveillance is capable of doing.<sup>73</sup> Satellite use is the "next logical step"<sup>74</sup> from aerial surveillance.

This analysis serves to ponder the past views on aerial surveillance in order to properly handle the ramifications of law enforcement's use of satellite surveillance in the future. The first part of this analysis will discuss the Supreme Court's position on "reasonable" aerial searches. The second part will consider factors deemed influential by the Court in their determination of what is "reasonable." Third, an analysis of the struggle between the individual's privacy rights and law enforcement in-

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[A] standard that defines a Fourth Amendment "search" by reference to whether police have physically invaded a "constitutionally protected area" provides no real protection against surveillance techniques made possible through technology. Technological advances have enabled police to see people's activities and associations, and to hear their conversations, without being in physical proximity. Moreover, the capability now exists for police to conduct intrusive surveillance without any physical penetration of the walls of homes or other structures that citizens may believe shelters their privacy.

*Id.*

69. See *Geer*, *supra* note 20, at 43 (explaining the factors bearing on the search).

70. *Dow*, 476 U.S. at 240 (Powell, J., dissenting in part). Justice Powell stated that the Court, for nearly 20 years, held to a standard that ensured the protection of Fourth Amendment rights as technology expanded "the Government's capacity to commit unsuspected intrusion into private areas and activities." *Id.* But, upon deciding *Dow*, the Court turned away from that standard to hold that because no physical trespass occurred and because the equipment used was not the most sophisticated available, no Fourth Amendment search occurred. *Id.* Powell stated that privacy interests will be decided based on the method of surveillance; therefore, as technology progresses, Fourth Amendment rights will gradually disintegrate as technology progresses. *Id.*

71. The author's research does not reveal any case law at the time of publication.

72. While the Court has not considered satellite surveillance cases, it has ruled on aerial surveillance cases. *Dow*, 476 U.S. at 227. Satellites have many similar characteristics to aircrafts. *Steele*, *supra* note 32, at 320. The only major difference is that satellites are invisible from the ground. *Id.*

73. *Id.*

74. *Id.* at 326.

terests will follow. Last, this note proposes that courts should require the issuance of warrants to authorize satellite surveillance.

A. CIRCUMSTANCES REPRESENTATIVE OF THE COURT'S STANCE ON  
"REASONABLE" SEARCHES

The majority of courts have embraced the view that aerial searches using complicated technologies do not constitute an intrusion for Fourth Amendment purposes.<sup>75</sup> In fact, they have chosen to construe the Fourth Amendment so as to allow such warrantless searches.<sup>76</sup> The Supreme Court decisions in *Dow Chemical Company v. United States*,<sup>77</sup> *California v. Ciraolo*,<sup>78</sup> and *Florida v. Riley*<sup>79</sup> serve as excellent examples of the difficulties technology presents the legal system.<sup>80</sup>

1. Dow Chemical Company v. United States<sup>81</sup>

*Dow Chemical* presents an excellent view of the Supreme Court's position on the issue of warrantless aerial surveillance and technology. In this case, the Dow Chemical Company ("Dow"), manifesting a strong interest in preserving its trade secrets, maintained detailed ground security<sup>82</sup> for its indoor/outdoor plant.<sup>83</sup> After Dow denied the EPA a second chance to inspect its plant, the EPA chose to bypass an administrative search warrant.<sup>84</sup> Instead, the EPA photographed the plant from an airplane equipped with a floor-mounted precision aerial mapping camera.<sup>85</sup>

After learning of the inspection, Dow brought suit claiming the

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75. Courts are struggling to apply a broad application of the Fourth Amendment to technological cases. Foster, *supra* note 42, at 720.

76. *Id.* at 721.

77. *Dow*, 476 U.S. 227.

78. *Ciraolo*, 476 U.S. 207.

79. *Riley*, 488 U.S. 445 (plurality opinion).

80. Foster, *supra* note 42, at 721.

81. *Dow*, 476 U.S. at 227.

82. Dow took great pains to bar the plant from public view at ground level. *Dow*, 476 U.S. at 241 (Powell, J., dissenting in part). It erected an 8-foot chain link fence to surround the entire complex and it employed security personnel to guard the facility aided by closed-circuit television monitors. *Id.* In addition, alarm systems and motion detectors were used to keep intruders off of the property. *Id.* The use of cameras on the Dow facility was strictly prohibited without the review and approval of management. *Id.* Finally, as an additional precaution, the outdoor manufacturing facilities were located within the center portion of the yard so as to conceal them from public view. *Id.*

83. *Dow*, 476 U.S. at 229. The property consisted of covered buildings with manufacturing equipment and piping located between the buildings. *Id.*

84. *Id.*

85. *Id.* at 229-30.

EPA's action violated the Fourth Amendment.<sup>86</sup> However, the Supreme Court<sup>87</sup> held that such aerial surveillance did not constitute a "search" under the Fourth Amendment.<sup>88</sup> First, the Court reasoned that the expectations of privacy in an industrial setting differ from those found in a private home.<sup>89</sup> The industrial setting does not connote the same level of intimacy as the private home, and, therefore, "greater latitude" is given to industrial inspections than to home inspections.<sup>90</sup> In so stating, the Court held that Dow had no expectation of privacy in an outdoor, industrial area.<sup>91</sup>

Second, the Court looked to the intrusiveness of the search. It distinguished between ground and aerial searches, stating that Dow's precautions would prevent ground intrusions; however, since it did not protect against aerial intrusions, the public could view the open areas of the plant from the sky.<sup>92</sup> Also, the Court stressed that the mere magnification of human vision does not give rise to a constitutional question.<sup>93</sup> The photographs were generated from a commonly used mapping camera and not from a sophisticated surveillance device, such as a satellite.<sup>94</sup> In addition, the photographs did not reveal any intimate or

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86. *Id.* at 230. In addition, Dow claimed the EPA investigation went beyond its statutorily granted authority. *Id.*

87. The District Court granted Dow's motion for summary judgment, stating that the EPA had no authority to take aerial photos and that their action constituted a violation of the Fourth Amendment. *Dow*, 476 U.S. at 230. It then enjoined the EPA from taking further aerial photos of Dow's plant and from copying or distributing the photos already obtained. *Id.* The Court of Appeals reversed stating that Dow had a subjective expectation of privacy in certain areas from ground levels but none from aerial surveillance. *Id.* The U.S. Supreme Court granted certiorari. *Id.*

88. *Id.* at 239. "We hold that the taking of aerial photographs of an industrial plant complex from navigable airspace is not a search prohibited by the Fourth Amendment." *Id.*

89. "[T]he Government has 'greater latitude to conduct warrantless inspections of commercial property' because 'the expectation of privacy that the owner of commercial property enjoys in such property differs significantly from the sanctity accorded an individual's home.'" *Id.* at 237-38 (quoting *Donovan v. Dewey*, 452 U.S. 594, 598-99 (1981)).

90. *Dow*, 476 U.S. at 236. The Court stated that "the intimate activities associated with family privacy and the home and its curtilage simply do not reach the outdoor areas or spaces between structures and buildings of a manufacturing plant . . . unlike a homeowner's interest in his dwelling, '[t]he interest of the owner of commercial property is not one in being free from any inspections.'" *Id.* at 236 (quoting *Donovan v. Dewey*, 452 U.S. 594, 599 (1981)).

91. *Dow*, 476 U.S. at 238.

92. *Id.* at 237. The court noted that Dow did not take precautions against aerial surveillance despite its location near an airport. *Id.* If Dow's elaborate ground security indicated an actual expectation of privacy on the ground, the lack of aerial security should indicate the lack of privacy expectation concerning aerial surveillance. *Id.*

93. *Id.* at 239.

94. *Id.*

It may well be, as the Government concedes, that surveillance of private property by using highly sophisticated surveillance equipment not generally available to

private details but merely outlined the plant's buildings and equipment.<sup>95</sup> Therefore, the Court held that the EPA did not deprive Dow of a reasonable expectation of privacy.<sup>96</sup> Looking toward the future, the dissenters<sup>97</sup> noted that under the majority view, as technology advances, Fourth Amendment rights will decay.<sup>98</sup> They explained that the *Dow* majority was deciding the reasonableness of one's expectation of privacy not according to society's view on privacy rights, but according to the degree of sophistication of the surveillance equipment.<sup>99</sup> They noted that businesses, harboring strong interests in maintaining trade secrets, have historically enjoyed protection from unreasonable intrusions.<sup>100</sup> Accordingly, businesses may enjoy a reasonable expectation of privacy by taking legitimate steps to protect that right.<sup>101</sup> The *Dow* dissenters noted that the company appeared to have done everything within its power to protect the plant, including the outdoor areas, from unwanted intrusions through its "elaborate" security measures.<sup>102</sup> In addition, the dissent asserted that the surveillance device was a sophisticated aerial mapping camera which captured images capable of being greatly en-

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the public, such as satellite technology, might be constitutionally proscribed absent a warrant. But the photographs here are not so revealing of intimate details as to raise constitutional concerns. Although they undoubtedly give EPA more detailed information than naked-eye views, they remain limited to an outline of the facility's buildings and equipment.

*Id.*

95. *Dow*, 476 U.S. at 239.

96. *Id.*

97. Justices Powell, Brennan, Marshall, and Blackmun all dissented in part. *Id.* at 240.

98. *Dow*, 476 U.S. at 240 (Powell, J., concurring in part and dissenting in part).

99. *Id.* at 251. "If the Court's observations were to become the basis of a new Fourth Amendment standard that would replace the rule in *Katz*, privacy rights would be seriously at risk as technological advances become generally disseminated and available in our society." *Id.*

100. *Id.* at 245. This type of protection dates back to the origins of the Fourth Amendment. *Id.* The framers wished to avoid intrusions similar to the English writs of assistance and general warrants which were "acutely felt by the merchants and businessmen whose premises and products were inspected." *Id.* Therefore, it is impossible to conclude that places of business are to be denied the same protections under the Fourth Amendment which are afforded to residences. *Id.* at 245-46.

101. *Id.* at 249.

102. *Dow*, 476 U.S. at 242 (Powell, J., concurring in part and dissenting in part). In addition to the security measures previously mentioned, Dow's security program instructed employees to notice any suspicious commercial overflights, such as planes crossing over the plant several times, and to attempt to obtain a description of the aircraft and its identification number. *Id.* If such a situation arose, Dow worked with the state police and local airports in order to discover the pilot. *Id.* If it is determined that there were photos taken, Dow took steps to prevent the distribution of photos that showed details of any of its trade secrets. *Id.*

larged and analyzed without significant loss in detail or resolution.<sup>103</sup> As a result, the camera saw much more than the naked-eye could, even if the observer was perched directly above the property.<sup>104</sup> Accordingly, the dissenters concluded that the use of aerial photography in this situation should constitute a violation of the Fourth Amendment.<sup>105</sup>

## 2. California v. Ciraolo<sup>106</sup>

Similar to the facts in *Dow*,<sup>107</sup> *California v. Ciraolo*<sup>108</sup> compelled the Supreme Court<sup>109</sup> to contemplate the constitutionality of warrantless aerial surveillance. As in *Dow*, the Court in *Ciraolo* similarly held an aerial observation to comport with the Fourth Amendment.<sup>110</sup> The facts indicate that police officers trained in marijuana detection secured a plane and flew over the defendant's yard in search of drugs because fencing prevented them from observing the property from ground level.<sup>111</sup> At an altitude of 1,000 feet,<sup>112</sup> using a standard 35mm camera, they observed and photographed marijuana plants<sup>113</sup> growing in the yard.<sup>114</sup>

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103. *Id.* at 243. The camera cost more than \$22,000 and was the finest precision aerial camera available. *Id.* The pictures taken at 1,200 feet were capable of being enlarged to a scale of one inch to twenty feet or more, therefore allowing the viewing of equipment, pipes, and power lines one-half inch in diameter. *Id.*

104. *Id.* at 243.

105. *Id.* at 251.

106. *Ciraolo*, 476 U.S. 207.

107. Both *Dow* and *Ciraolo* were decided on May 19, 1986. *Ciraolo*, 476 U.S. at 207; *Dow*, 476 U.S. at 227.

108. *Ciraolo*, 476 U.S. 207.

109. The trial court denied the respondent's motion to suppress evidence obtained in the search. *Ciraolo*, 476 U.S. at 210. Consequently, the respondent plead guilty to a charge of the cultivation of marijuana. *Id.* The California Court of Appeal reversed stating that the warrantless aerial observation of respondent's yard violated the Fourth Amendment. *Id.* The Court reasoned that the backyard was within the curtilage of the home and that the fences involved indicated that the respondent manifested a reasonable expectation of privacy by any standard. *Id.* The court stated that the flyover was not routine but instead was done for the specific purpose of observing respondent's curtilage. *Id.* The California Supreme Court denied review. *Id.* The Supreme Court granted the States petition for certiorari. *Id.*

110. *Id.* at 215.

In an age where private and commercial flight in the public airways is routine, it is unreasonable for respondent to expect that his marijuana plants were constitutionally protected from being observed with the naked eye from an altitude of 1,000 feet. The Fourth Amendment simply does not require the police traveling in the public airways at this altitude to obtain a warrant in order to observe what is visible to the naked eye.

*Id.*

111. *Id.* at 209. The yard was completely surrounded by a 6-foot outer fence and a 10-foot inner fence. *Id.*

112. *Id.* 1,000 feet was within navigable airspace. *Id.*

113. *Ciraolo*, 476 U.S. at 209. The plants stood 8 to 10 feet in height. *Id.*

114. *Id.* The yard consisted of a 15 by 25 foot plot of land. *Id.*



The Supreme Court applied the two-part test for determining whether the action constituted a search under the Fourth Amendment.<sup>115</sup> The Court held that the defendant clearly possessed a subjective intent and desire to maintain privacy in his yard from ground level viewing because he had a 10-foot fence concealing the marijuana.<sup>116</sup> The fence constituted a normal precaution to maintain such a privacy.<sup>117</sup> However, the Court was not clear whether the defendant manifested an expectation of privacy from an aerial view of the property.<sup>118</sup>

When the Court turned its attention to the second part of the test, the reasonableness aspect, the confusion deepened. The defendant claimed that the yard was protected from warrantless searches because it was within the curtilage of his home, the area given greater protection from intrusion because it is associated with the "sanctity of a man's home and the privacies of life."<sup>119</sup> However, the Court held that simply because an area is within the curtilage of a home, police observation is not necessarily prohibited.<sup>120</sup> It stated that "[w]hat a person knowingly exposes to the public," whether at home or in the workplace, is not protected by the Fourth Amendment.<sup>121</sup> Since the officers observed the marijuana while within public navigable airspace, without physical intrusion, and from a place where the plants were discernable by the human eye, the Court found that the expectation of privacy was unreasonable according to societal standards.<sup>122</sup>

As was the case in *Dow*, a dissent followed.<sup>123</sup> The dissenters stated that the Fourth Amendment is to be construed to reflect modern times<sup>124</sup> and is not meant to remain static according to the practices occurring at

115. *Id.* at 211.

116. *Id.* Placing a 10-foot fence to conceal a marijuana crop from street-level views is an action that clearly meets the test of manifesting a subjective intent to preserve privacy as to that marijuana crop. *Id.* The fence served its purpose because the respondent "took normal precautions to maintain his privacy." *Id.* (quoting *Rawlings v. Kentucky*, 448 U.S. 98, 105 (1980)).

117. *Ciraolo*, 476 U.S. at 211.

118. *Id.* at 211-12. The court stated that a 10-foot fence might not shield the plants from those perched on top of a truck or bus. *Id.* at 211.

119. *Id.* at 212.

120. *Id.* at 213.

121. *Ciraolo*, 476 U.S. at 213. "The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares." *Id.*

122. *Id.* at 213-14. "[T]hat respondent's expectation that his garden was protected from such observation is unreasonable and is not an expectation that society is prepared to honor." *Id.* at 214.

123. *Id.* at 215. Justices Powell, Brennan, Marshall, and Blackmun all dissented. *Id.*

124. *Ciraolo*, 476 U.S. at 217 (Powell, J., dissenting). The Amendment must be construed "in light of contemporary norms and conditions." *Id.*

the time of its creation.<sup>125</sup> Therefore, to judge whether there has been an improper search on the basis of whether a physical intrusion has occurred denies the existence of the reality of technological advancement.<sup>126</sup> The dissent maintained that the defendant had a reasonable expectation of privacy from aerial observation of his yard.<sup>127</sup> In addition, it rejected the notion that citizens bear the risk that those traveling in an aircraft, a product of modern technology, will view what goes on in their backyards as a result of the open nature of those yards.<sup>128</sup> It is highly unlikely that commercial travelers would even get a glimpse of what goes on in a backyard; accordingly, no such risk occurs in reality.<sup>129</sup> In *Ciraolo*, officers flew over the yard for the sole purpose of discovering evidence of a crime without first obtaining a warrant.<sup>130</sup> The dissent, written by Justice Powell, stated that society would not force individuals to withstand this type of warrantless police invasion into residential areas.<sup>131</sup> Such action "poses far too serious a threat to privacy interests in the home to escape entirely some sort of Fourth Amendment oversight."<sup>132</sup>

### 3. Florida v. Riley<sup>133</sup>

A third Supreme Court case involving aerial surveillance is *Florida v. Riley*.<sup>134</sup> In *Riley*, when investigating officers were unable to see<sup>135</sup> the contents of a covered<sup>136</sup> greenhouse<sup>137</sup> that they suspected of hous-

125. *Id.*

126. *Id.* at 218. "[A] standard that defines a Fourth Amendment 'search' by reference to whether police have physically invaded a 'constitutionally protected area' provides no real protection against surveillance techniques made possible through technology." *Id.*

127. *Id.* at 223.

128. *Ciraolo*, 476 U.S. at 223-24 (Powell, J., dissenting).

129. *Id.* Travelers on commercial and private flights "normally obtain at most a fleeting, anonymous, and nondiscriminating glimpse of the landscape and buildings over which they pass. The risk that a passenger on such a plane might observe private activities, and might connect those activities with particular people, is simply too trivial to protect against." *Id.*

130. *Id.* at 224-25. "Here, police conducted an overflight at low altitude solely for the purpose of discovering evidence of crime within a private enclave into which they were constitutionally forbidden to intrude at ground level without a warrant." *Id.*

131. *Id.* at 225. "It is not easy to believe that our society is prepared to force individuals to bear the risk of this type of warrantless police intrusion into their residential areas." *Id.*

132. *Ciraolo*, 476 U.S. at 225 (Powell, J., dissenting).

133. *Riley*, 488 U.S. 445.

134. *Id.*

135. *Id.* at 448. A wire fence surrounded both the greenhouse and the mobile home and a "Do Not Enter" sign was posted on the property. *Id.*

136. *Id.* The greenhouse was covered with corrugated roofing panels, some translucent and some opaque. *Id.*

137. *Riley*, 488 U.S. at 448. The greenhouse was situated 10 to 20 feet behind defendant's mobile home. *Id.* Two sides of the greenhouse were enclosed and the remaining open

ing marijuana plants<sup>138</sup> from the officers' location on the road, they circled the property by helicopter at 400 feet.<sup>139</sup> At the time of the surveillance, ten percent of the roof of the greenhouse was missing.<sup>140</sup> Through the openings in the roof and through open sides of the greenhouse, the investigating officer observed marijuana growing inside.<sup>141</sup>

The Court<sup>142</sup> followed the precedent set by *Ciraolo* that commercial flight is a routine practice and that the public has considerable access to the airways.<sup>143</sup> Therefore, the Court held that it is unreasonable to expect that a greenhouse, with a portion of its roof missing, would be protected from public view from a helicopter flying within navigable airspace.<sup>144</sup> In a concurring opinion, Justice O'Connor stated that since the public use of airspace at altitudes over 400 feet often occurs, the defendant did not have a reasonable expectation of privacy from aerial searches.<sup>145</sup>

Yet again, the dissent<sup>146</sup> vehemently disagreed. The dissent, written by Justice Brennan, rejected the majority belief that the viewing of the inside of a portion of the curtilage from 400 feet above constituted a reasonable search.<sup>147</sup> Instead, the dissent believed that the search constituted an unconstitutional intrusion on privacy and security.<sup>148</sup> In addition, it disagreed with the notion that 400 feet above the home was a public vantage point stating that views from that level involved use of a highly sophisticated helicopter normally not accessible to the ordinary

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sides were blocked by trees, shrubs, and the mobile home so as to prevent inspection from the surrounding property. *Id.*

138. *Id.* The Sheriff's office was acting on an anonymous tip that marijuana was being grown on the property. *Id.*

139. *Id.*

140. *Id.*

141. *Riley*, 488 U.S. at 449.

142. The Florida Supreme Court held that surveillance of the interior of a partially covered greenhouse in a residential backyard from an altitude of 400 feet in a helicopter was a search for Fourth Amendment purposes and therefore required a warrant under both the Fourth Amendment (as applied by the Fourteenth Amendment to the states) and the Florida Constitution. *Id.* at 448.

143. *Riley*, 488 U.S. at 450.

144. *Id.* at 451.

145. *Riley*, 488 U.S. at 455 (O'Connor, J., concurring). Justice O'Connor stated that if the public rarely travels overhead, then Riley had not "knowingly exposed" his greenhouse to the public's scrutiny. *Id.* But, if the public does regularly travel over his backyard at 400 feet, then Riley had no reason to expect the curtilage of his home would be free from public aerial observation. *Id.*

146. *Riley*, 488 U.S. at 456 (Brennan, J., dissenting). Justices Brennan, Marshall, and Stevens dissented.

147. *Id.* at 457.

148. *Id.* at 460.

citizen.<sup>149</sup>

#### 4. *A Collective Evaluation on the Current State of Law*

The cases above represent the current status of the law of aerial surveillance. The major problem common in all cases centers on what are reasonable expectations of privacy. It is easy to determine that people expect privacy in their homes, backyards, and workplaces. The difficulty arises when one tries to determine whether an expectation is reasonable according to society's standards.<sup>150</sup>

In attempting the difficult task of determining whether a search is reasonable under the Fourth Amendment in *Dow*, *Ciraolo*, and *Riley*, the Court appears to have misconstrued the Fourth Amendment's goal of protecting individual interests. Instead, it places greater weight on the intrusiveness of the search, thereby allowing reemergence of the Trespass Doctrine.<sup>151</sup> In *Dow*, the court stated that an "actual physical entry . . . into any enclosed area would raise significantly different questions" than those involved when only a technological intrusion has occurred.<sup>152</sup> In *Ciraolo*, the Court stated that since the surveillance was not physically intrusive, it did not require a warrant under the Fourth Amendment.<sup>153</sup> In *Riley*, the Court explained that since there was no hazard to persons or property on the surface, no violation of the Fourth Amendment occurred with respect to aerial surveillance.<sup>154</sup>

The Court's trend of looking at the intrusiveness of a search indicates the reemergence of the Trespass Doctrine.<sup>155</sup> This doctrine states that there must be a physical trespass for a Fourth Amendment violation to occur.<sup>156</sup> This view blatantly ignores developing technology.<sup>157</sup> Clearly, satellites and other electronic devices do not physically intrude, yet they still have the capacity to deprive people of their right to privacy. To violate the provisions of the Fourth Amendment, a physical intrusion

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149. *Id.* The dissent mentioned that to be able to see over the fence involved in the present case, expensive and sophisticated equipment needed to be used, equipment not generally available to the public at large. *Id.*

150. Is it possible to draw a line between what is considered a reasonable or an unreasonable search in the advent of increased technology? Foster, *supra* note 42, at 748.

151. Anita K. Modak-Truran, Casenote, *Warrantless Aerial Surveillance After Ciraolo and Dow Chemical: The Omniscient Eye in the Sky*, 18 *LOY. U. CHI. L.J.* 285, 307 (1986).

152. *Dow*, 476 U.S. at 237.

153. *Ciraolo*, 476 U.S. at 215.

154. *Riley*, 488 U.S. at 452.

155. Modak-Truran, *supra* note 151, at 307.

156. See *supra* note 27 and accompanying text (discussing the Trespass Doctrine).

157. *Dow*, 476 U.S. at 240 (Powell, J., concurring in part and dissenting in part). "Such an inquiry will not protect fourth amendment rights, but rather will permit their gradual decay as technology advances." *Id.*

is not necessary.<sup>158</sup>

In determining the reasonableness of an aerial investigation, the cases above wrongfully indicate a distinction between industrial and residential settings.<sup>159</sup> In *Ciraolo*, the Court stated that greater protection is given to the home and its curtilage.<sup>160</sup> The reason is that family and personal privacy are connected to the home both physically and psychologically and privacy expectations are greater there.<sup>161</sup> In *Dow*, the Court conceded that an industrial complex clearly demands some privacy in its covered property.<sup>162</sup> However, the Court indicated that industry is not entirely free from inspection<sup>163</sup> and that the government enjoys a "greater latitude" in conducting warrantless observations of commercial property.<sup>164</sup> Moreover, industry cannot expect the same respect in its outbuildings and yards as the curtilage of a home because such areas lack personal and familial characteristics associated with a home and because they more greatly resemble open fields and public areas.<sup>165</sup>

While it is true that the workplace does not possess the personal and familial privacies associated with the home, it is also true that the workplace plays an integral part of one's daily activities. People spend a large part of their day in the workplace, developing interpersonal relationships. In competitive businesses, the need to keep trade secrets is foremost in the thoughts of proprietors.<sup>166</sup> Therefore, logic dictates that society accept that owners of commercial properties have a right to be free from unreasonable intrusion.<sup>167</sup> The differences between businesses

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158. *Dow*, 476 U.S. at 248. The dissent in *Dow* noted that the Court's observation that the aerial photography involved was not accompanied by a physical intrusion was irrelevant to the Fourth Amendment analysis. *Id.* at 251. The Court in *Katz* overruled the Trespass Doctrine. *Id.* Therefore, physical trespass is no longer reliable to determine invasion of privacy. *Ciraolo*, 476 U.S. at 223 (Powell, J., dissenting). Instead, one must determine whether the surveillance invaded a reasonable expectation that a certain activity or area would stay private. *Id.* The dissent in *Ciraolo* stated:

[The Court] relies on the fact that the surveillance was not accompanied by a physical invasion of the curtilage. . . . Reliance on the manner of surveillance is directly contrary to the standard of *Katz*, which identifies a constitutionally protected privacy right by focusing on the interests of the individual and of a free society. Since *Katz*, we have consistently held that the presence or absence of physical trespass by police is constitutionally irrelevant to the question whether society is prepared to recognize an asserted privacy interest as reasonable.

*Id.* See *supra* note 28 and accompanying text (analyzing *Katz* and the Trespass Doctrine).

159. *Modak-Truran*, *supra* note 151, at 308-09.

160. *Ciraolo*, 476 U.S. at 213.

161. *Id.*

162. *Dow*, 476 U.S. at 236.

163. *Id.* at 238.

164. *Id.*

165. *Id.* at 237.

166. *Dow*, 476 U.S. at 248. (Powell, J., concurring in part and dissenting in part).

167. *Id.* at 245.

and homes should not play so important a role in determining reasonableness. Each demand different, yet equally important privacies. For example, the workplace involves trade secrets<sup>168</sup> and the daily workings of a business, whereas the home involves the notion of family.<sup>169</sup> Both places are fundamental to the lives of individuals and deserve equal protection.<sup>170</sup>

Aside from the question of what is considered "reasonable" under the two-part test, another question must be asked: who determines what society deems reasonable? Does society decide what is reasonable or do magistrates hold that power? Since magistrates are slightly removed from society because they are called upon to judge actions, a debate exists whether magistrates possess the capabilities to accurately determine what society believes or thinks.<sup>171</sup> The cases addressed depict this problem. These cases had the same core of Justices in the majority and dissenting opinions,<sup>172</sup> indicating a stand-off in the Court. Which side is correctly construing what society would deem reasonable? Since many of the justices participating in the above decisions are no longer on the Court, it will be interesting to see the path the Court will follow when forced to decide whether society would deem warrantless satellite surveillance reasonable.

If the Court continues to construe the Fourth Amendment to favor law enforcement interests over personal privacy interests and denies the arrival of future high-end technology, such as remote sensing<sup>173</sup> through satellites, the Fourth Amendment will disintegrate from neglect.<sup>174</sup> Warrantless searches will occur with greater frequency, without the subject even knowing they are being observed. This terrifying possibility is

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168. *Id.* at 239.

169. *Id.* at 237.

170. *Dow*, 476 U.S. at 246. "We have never held that warrantless intrusions on commercial property generally are acceptable under the Fourth Amendment. On the contrary, absent a sufficiently defined and regular program of warrantless inspections, the Fourth Amendment's warrant requirement is fully applicable in the commercial context." *Id.*

171. Harvey Wingo, *A 2020 Vision of Visual Surveillance and the Fourth Amendment*, 71 OR. L. REV. 1, 21-22 (1992). "Who is to determine whether society would acknowledge that a particular expectation of privacy is either reasonable or unreasonable? This Court has obviously assumed that its members have the wisdom to discern what 'society' thinks." *Id.* Is the court a fair representation of the public or should the public itself be polled?

172. *Dow*, 476 U.S. at 240. In *Dow*, Justices Powell, Brennan, Marshall, and Blackmun expressed dissenting opinions. *Id.* In *Ciraolo*, once again Justices Powell, Brennan, Marshall and Blackmun disagreed with the majority. *Ciraolo*, 476 U.S. at 215. In *Riley*, Justices Brennan, Marshall, Stevens and Blackmun expressed dissenting opinions. *Riley*, 488 U.S. at 446.

173. Remote sensing is "the science of gathering data on an object or area from a considerable distance, as with radar or infrared photography, to observe the earth or a heavenly body." RANDOM HOUSE WEBSTER'S COLLEGE DICTIONARY 1139 (1992).

174. Tribe, *supra* note 22, at 21.

antithetical to the democratic ideals of our society, where the Constitution guarantees that the United States is a nation of, for, and by the people.<sup>175</sup>

## B. THE FACTORS INFLUENCING REASONABLENESS

In addition to examining the holdings of the cases mentioned above, one needs to fully and individually analyze the factors contributing to finding reasonableness in aerial surveillance situations and then analogize those factors to future satellite surveillance. Otherwise, it is impossible to wholly comprehend those decisions and their implications for satellite surveillance. The factors most widely applied include the location of the search,<sup>176</sup> the altitude and frequency of overflight,<sup>177</sup> the randomness of the observation,<sup>178</sup> and any precautionary measures taken to assure privacy.<sup>179</sup> In many instances, the factors are used in combination to determine whether society would consider an observation to be unreasonable.

### 1. *Location: the Home, Curtilage, Open Fields, and Plain View*

While "the Fourth Amendment protects people and not places,"<sup>180</sup> the level of that protection varies according to the place being searched.<sup>181</sup> Location plays a pivotal role in what is considered a reason-

175. "We overlook grappling with these dangers to our democracy only at our peril." Willard Uncapher, *Trouble in Cyberspace: Civil Liberties at Peril in the Information Age*, HUMANIST, Sept./Oct. 1991 at 34.

176. *Riley*, 488 U.S. at 445 (involving a partially enclosed greenhouse within the curtilage of the home.); *United States v. Dunn*, 480 U.S. 294 (1987) (involving a barn located 60 yards from the home); *Dow*, 476 U.S. at 227 (involving an outdoor industrial manufacturing plant); *Ciraolo*, 476 U.S. at 207 (involving a backyard); *Oliver*, 466 U.S. at 170 (involving a field of marijuana a mile from the home).

177. *Riley*, 488 U.S. at 448 (400 feet in a helicopter); *Dow*, 476 U.S. at 229 (12,000, 3,000 and 1,200 feet in an aircraft); *Ciraolo*, 476 U.S. at 209. (1,000 feet in an airplane).

178. *Smith*, *supra* note 25, at 296.

179. A precautionary measure is a step made in advance to avoid possible injury or harm. It is "prudent foresight." *Dow*, 476 U.S. at 236.

180. *Katz*, 389 U.S. at 351. In *Katz*, the Court stated that deciding whether an area is "constitutionally protected" in a Fourth Amendment analysis takes away from the main focus of the Fourth Amendment — people. *Id.* The court emphasized that the focus should be on the individual not on the area. *Id.* For instance, the parties in *Katz* placed great weight on the characterization of a phone booth where calls were placed. *Id.* The petitioner claimed the phone booth was a "constitutionally protected area" while the Government stated that since it was made of glass it was open to public view and thereby not protected. *Id.* at 351. The court rejected the Government's view and refused to place such importance on the area, stating that the mere fact that the petitioner could be seen while making a call did not relinquish his privacy right. *Id.* It stated that in the phone booth he enjoyed the same right to privacy as if he had been in a business office, the apartment of a friend, or in a taxi. *Id.*

181. *Modak-Truran*, *supra* note 151, at 290-93.

able expectation of privacy for Fourth Amendment purposes.<sup>182</sup> As a result, varying degrees of privacy are associated with the home,<sup>183</sup> the area surrounding the home,<sup>184</sup> the corporate setting,<sup>185</sup> and open, outdoor areas.<sup>186</sup>

*a. The Home, Industry, and Curtilage*

The home enjoys the greatest degree of protection. It is generally considered an intimate setting, a virtual sanctuary.<sup>187</sup> The home is a place where one can reasonably expect privacy.<sup>188</sup> Therefore, due to the great value and respect society affords the home, a governmental invasion without a search warrant is presumably unreasonable.<sup>189</sup> People need to be assured that they will not fall prey to destruction of their rights in their own homes; this presumption serves as a legal guarantee of security.

In furtherance of the notion that "one's home is one's castle," society also rightfully protects the curtilage of the home from unreasonable intrusion.<sup>190</sup> Curtilage is the area in the immediate vicinity of the house.<sup>191</sup> However, courts have disagreed about what constitutes curtilage. Generally, all exterior buildings and areas associated with a residence, such as yards, garages, sheds, and barns, have been held to be within the curtilage.<sup>192</sup> However, opposite views exist as to the status of

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182. *Dow*, 476 U.S. at 238. In *Dow Chemical*, the fact that the location being searched was an outdoor manufacturing plant and not a home or backyard played an important role in determining that no unreasonable search occurred for the purposes of the Fourth Amendment. *Id.*

183. *Blalock*, 483 N.E.2d at 442.

184. *Dunn*, 480 U.S. at 300.

185. *Dow*, 476 U.S. at 235.

186. *Id.*

187. *Blalock*, 483 N.E.2d at 442. "The home is fundamentally a sanctuary, where personal concepts of self and family are forged, where relationships are nurtured and where people normally feel free to express themselves in intimate ways." *Id.* (quoting *Dow Chemical Co. V. United States*, 749 F.2d 307, 314 (6th Cir. 1984)). The home is a place of intimacy and freedom. *Id.*

188. *Katz*, 389 U.S. at 360 (Harlan, J., concurring).

189. *Id.* at 361. "[T]he invasion of a constitutionally protected area by federal authorities is, as the Court has long held, presumptively unreasonable in the absence of a search warrant." *Id.*

190. *Dunn*, 480 U.S. at 300. At common law, the notion of curtilage was created to include the area "immediately surrounding a dwelling house" so that the same protections would be granted to it as were granted to a house when a burglary occurred. *Id.* Today, the notion of curtilage is considered when interpreting the extent of the Fourth Amendment privacy rights. *Id.*

191. *Dow*, 476 U.S. at 235; *see also infra* note 33.

192. *Dunn*, 480 U.S. at 308 (Brennan, J., dissenting).



these locations.<sup>193</sup> The Supreme Court has delineated four factors to help determine whether an area is within the curtilage and to help eliminate judicial confusion: the proximity of the area to the home, whether the home's enclosure envelops the area claimed as curtilage, the use of the area, and the actions taken to restrict public observation of the area.<sup>194</sup>

While a recognition exists that industrial locations have a reasonable expectation of privacy within the covered buildings,<sup>195</sup> the Supreme Court has rejected the notion of industrial curtilage.<sup>196</sup> The Supreme Court has stated that the Government has greater leeway to conduct warrantless searches of commercial property than residential property.<sup>197</sup> The Court denies a proprietor the same expectation of privacy that a residential owner enjoys based on the fact that society does not grant the same personal and familial respect to the business environment as it does to the home.<sup>198</sup> The Court claims that a proprietor of a business is never free from all inspections.<sup>199</sup>

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193. *Dunn*, 480 U.S. at 297. In *Dunn*, the Supreme Court held that a barn located on a 198-acre ranch that was completely surrounded by a boundary fence was not a part of the curtilage. *Id.* The ranch residence and a small greenhouse were surrounded by an interior fence and two barns were located about 50 yards from that fence. *Id.* The larger of the barns was enclosed by a wooden fence with waist-high gates and netting stretched from the ceiling to the top of the gates. *Id.*

Due to a belief that the manufacturing of drugs was occurring in the barn, law enforcement agents used warrantless ground electronic and aerial surveillance and actual physical intrusion onto the property and into the barn to gain the needed proof for conviction. *Id.* at 296-98. The court held that the barn was not in the curtilage of the house, and therefore not constitutionally protected. It stated that 50 to 60 yards from the house was a substantial distance and as a result the barn should not be treated as an annex of the house. *Id.* In addition, the barn was not surrounded by the same fence as the house and therefore was not within the marked boundaries of the house. *Id.* The court stated the barn was not used in relation to intimate activities of the home, as evidenced by the fact that it was used for unloading the defendant's truck and a motor of some sort could be heard. *Id.* Last, the court reasoned that since the fence was only a typical ranch fence, no barrier to observing the enclosed areas existed. *Id.* at 303.

Justices Brennan and Marshall's dissent rejected the majority view. They recognized a barn as essential to farm life and noted that courts have long recognized a barn as part of a farm's curtilage. *Dunn*, 480 U.S. at 309 (Brennan, J., dissenting).

194. *Dunn*, 480 U.S. at 301. The Court in *Dunn* stated, "these factors are useful analytical tools only to the degree that, in any given case, they bear upon the centrally relevant consideration—whether the area in question is so intimately tied to the home itself that it should be placed under the home's 'umbrella' of Fourth Amendment protection." *Id.*

195. *Dow*, 476 U.S. at 236. "Dow plainly has a reasonable, legitimate, and objective expectation of privacy within the interior of its covered buildings, and it is equally clear that expectation is one society is prepared to observe." *Id.*

196. *Id.* at 239.

197. *Id.* at 237.

198. *Id.* at 238.

199. *Dow*, 476 U.S. at 238.

*b. Open Fields and Plain View*

As property extends further and further away from the home, it enjoys less and less protection.<sup>200</sup> As a result, one does not possess a reasonable expectation of privacy in open fields,<sup>201</sup> despite any precautions taken to exclude others.<sup>202</sup> These areas lack the intimacy and personal aspects normally associated with the home.<sup>203</sup> In addition, these areas are more accessible to the public and have been held to be lawfully observable from the air.<sup>204</sup>

The Plain View doctrine is correlative to the notion of open fields.<sup>205</sup> This doctrine states that what a party knowingly exposes to the public, regardless of location, is not protected by the Fourth Amendment because it is not reasonably expected to be private.<sup>206</sup> It is irrelevant whether the subject being observed is within the curtilage of the home if it is within view from a public vantage point.<sup>207</sup>

In aerial surveillance cases, courts have held that if the flight occurred within public navigable airspace where naked eye observation is possible, no unlawful search occurs.<sup>208</sup> In the wake of ever-advancing technology, the fact that naked eye views may be replaced by sophisticated vision-enhancing gadgets has not changed the courts' view on this issue. It has been stated that the "mere fact that human vision is enhanced somewhat . . . does not give rise to constitutional problems."<sup>209</sup>

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200. *Oliver*, 466 U.S. at 179. "[O]nly the curtilage, not the neighboring open fields, warrants the Fourth Amendment protections that attach to the home." *Id.* at 180.

201. *Hester v. United States*, 265 U.S. 57, 59 (1924).

202. *Oliver*, 466 U.S. at 181. In *Oliver v. United States*, the Supreme Court held that an unwarranted intrusion into an open field on the petitioner's farm, despite the existence of a locked gate and a no trespassing sign, which led to the discovery of growing marijuana plants did not violate the Fourth Amendment. *Id.* The petitioner had no legitimate expectation that the open fields would not be searched. *Id.* at 184.

203. *Id.* at 179. In *Blalock v. State of Indiana*, the Supreme Court of Indiana held that a greenhouse with a translucent roof located at the opposite end from the residence on a 77-acre wooded property was sufficiently situated for the open fields doctrine to apply. *Blalock*, 483 N.E.2d at 443. Therefore, no unlawful intrusion into the property owners' privacy or Fourth Amendment rights occurred when officers flew over the greenhouse taking photos and identifying plants inside as being marijuana. *Id.*

204. *Oliver*, 466 U.S. at 179. "And both petitioner *Oliver* and respondent *Thornton* concede that the public and police lawfully may survey lands from the air." *Id.*

205. *Dow*, 476 U.S. at 228.

206. *Ciraolo*, 476 U.S. at 213.

207. *Id.* "The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares." *Id.*

208. *Id.* In *Ciraolo*, the Court held that the law enforcement officers who were experienced with narcotics searches, and who were flying over a backyard at 1000 feet while taking photos, did not conduct an unlawful search under the Fourth Amendment because the marijuana plants were readily discernable to the naked eye. *Id.* at 214.

209. *Dow*, 476 U.S. at 238.

c. *The Effect of Location on Satellite Surveillance*

While it is obvious that the home and the open field demand varying degrees of respect concerning both ground and aerial surveillance, the fact that the Plain View Doctrine can totally sidestep this respect is bewildering. Under the Plain View Doctrine, a law enforcement official has the right to hover over a home, without a warrant, and observe and/or take photos of objects or people that can be seen on or in the exterior of the home.<sup>210</sup> Further, that official's acts are deemed legal under the premise that one should not expose what he or she does not want publicly observed.<sup>211</sup> This view purports that all of society reasonably expects that its outdoor actions and possessions within elevated public view are accessible.<sup>212</sup> It presumes that because people leave objects outside within the view of anyone in an aircraft, they assume a risk that someone will observe them and that they impliedly consent to this observation.<sup>213</sup> This belief is clearly erroneous.

In reality, society simply does not think in such a manner.<sup>214</sup> Otherwise, many would have long since undergone the illogical and cumbersome task of placing a covering over their backyards for privacy's sake.<sup>215</sup> For instance, the person who sunbathes in the nude<sup>216</sup> in the privacy of a fenced-in backyard does not assume that someone in an aircraft is observing from above. Instead, that person rightfully believes that he or she is alone in the isolation of a private backyard. The Court

210. *Riley*, 488 U.S. at 455. Naked-eye observations of a greenhouse located within the curtilage of the home from a helicopter flying at 400 feet was not an unreasonably search under the Fourth Amendment. *Dow*, 476 U.S. at 239. The taking of aerial photos from an airplane operated in navigable airspace of an outdoor manufacturing plant is not a search prohibited by the Fourth Amendment. *Ciraolo*, 476 U.S. at 215. The Fourth Amendment does not require the police to obtain a warrant to view what can be seen with the naked-eye at an altitude of 1,000 feet.

211. *Id.*

212. Steele, *supra* note 32, at 328-29. This stance indicates that because travel through the air occurs with relative frequency one should "reasonably anticipate" that an observation can or will be made from that angle. *Id.*

213. David E. Steinberg, *Making Sense of Sense-Enhanced Searches*, 74 MINN. L. REV. 563, 604 (1990). Implied consent is derived from the notion of express consent, whereby a search warrant is deemed unnecessary where the subject of the search explicitly consents beforehand. *Id.* Where one could reasonably infer the possibility that a person or place will be observed, consent to that observation is implied and no warrant is required. *Id.*

214. *Id.*

The Court relies on a fiction of consent, based on the notion that a suspect knew there was a possibility of surveillance. . . . 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.

*Id.*

215. Steele, *supra* note 32, at 333. Americans should not find it necessary to build an "opaque bubble" over their land to have a reasonable expectation of privacy there. *Id.*

216. *Id.* at 328.

must remember that reasonableness is determined by society's standards.<sup>217</sup> For the Court to state that society reasonably expects such an observation conflicts with our present conception of property ownership, privacy, and democracy.<sup>218</sup> In reality, such a belief would bring us one step closer to the notion that we should be aware because "Big Brother is watching."<sup>219</sup>

Satellite surveillance will further complicate matters. No longer is the issue simply that someone is watching from the air, now we face the fact that something is watching from space.<sup>220</sup> Since satellites essentially survey the exteriors of various locations, and not the interior, it is unlikely that the respect granted to the home and its curtilage and the notion of open fields will be greatly affected by satellite use. Instead, the Plain View Doctrine will be disturbed.<sup>221</sup> Since it is unrealistic and highly unlikely that the public reasonably anticipates observation of its outdoor activities from simple aircrafts, it is almost incomprehensible to expect the public to assume that satellites are watching.<sup>222</sup> While it may be argued that the availability and use of satellites have increased to such an extent that the average person should assume they are being viewed, satellite use and technology has not yet reached the level so as to make it so widely available to the general public.<sup>223</sup> While it is true that the satellite market is quickly growing, satellite technology and images appear to be utilized primarily in big business and the military.<sup>224</sup> Unlike navigable airspace, space currently is not a public vantage point for

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217. *Katz*, 389 U.S. at 361. Part two of the test for the constitutionality of a search put forth in *Katz* asks whether the party's expectation of privacy would be considered reasonable by society's standards. *Id.*

218. Steinberg, *supra* note 213, at 604. The idea that people impliedly consent to being observed is unsupported by fact. The people of America do not accept the notion of a totalitarian regime. *Id.* Americans pride themselves on being free from overly intrusive governmental measures such as unwarranted eavesdropping and spying. *Id.*

219. George Orwell, NINETEEN EIGHTY-FOUR 6 (1949).

220. More than 2,000 satellites currently orbit the earth. 17 THE WORLD BOOK ENCYCLOPEDIA 150 (1994).

221. Geer, *supra* note 20, at 46. As technology increases in sophistication, what constitutes plain view is scrutinized. *Id.* Obviously, as the ability to observe objects from further and further away in greater detail increase, no longer will an object literally be in "plain" view. *Id.*

222. Foster, *supra* note 42, at 757. "By forcing citizens to bear the risk of warrantless aerial surveillance, the Court has failed to consider the risks to our society inherent in such a blanket authorization of police activity." *Id.*

223. Steele, *supra* note 32, at 327. It is unlikely courts will rule that outer space is a public vantage point. *Id.* However, since the light projecting the image passes through public airways, the possibility exists that courts would construe this as an excuse not to require a warrant. *Id.* This argument appears far-fetched. If used, it would be a mere guise by which law enforcement agencies would be allowed to proceed without a warrant.

224. *Id.*

viewing capabilities.<sup>225</sup> Therefore, risk of loss of privacy should not be imputed on the general public, as its availability remains outside of the public's immediate grasp and control. In a democratic society, the average person should not be forced to withstand such a risk.

## 2. *Altitude and the Frequency of Overflights*

Like location, the altitude involved in aerial observation and photography and the frequency of overflights are relevant to the determination of the reasonableness of a search.<sup>226</sup> In *Riley*,<sup>227</sup> the Supreme Court determined that since an aircraft was traveling within frequently used navigable airspace in accordance with FAA regulations, there was no unlawful aerial intrusion.<sup>228</sup> Consequently, because anyone could hire an aircraft and view the greenhouse, the parties could reasonably anticipate that it would be subject to observation from the sky.<sup>229</sup>

On the basis of aerial surveillance, this view distorts reality. FAA regulations were created as safety measures, not for privacy means.<sup>230</sup> Therefore, they are not a proper gauge by which to measure one's reasonable expectation of privacy. In addition, the *Ciraolo*<sup>231</sup> dissent stated that the mere fact that the public may travel through the airspace is irrelevant to the issue, because unlike law enforcement officers focusing on a specific property, the general public merely obtains a fleeting glance at the area below them.<sup>232</sup> The *Ciraolo* dissent properly noted that the risk of commercial air passengers viewing private activities on the ground are so minimal that no need to protect against it exists.<sup>233</sup> However, the specific viewing of an area from above by law enforcement obvi-

225. *Id.*

226. *Dow*, 476 U.S. at 239. In *Dow*, an airplane search from altitudes of 12,000, 3,000, and 1,200 feet within navigable airspace was considered reasonable under the Fourth Amendment. *Id.* at 229. In *Ciraolo*, an airplane traveling at 1,000 feet in public airways did not violate the Fourth Amendment. *Ciraolo*, 476 U.S. at 215. In both cases, the court considered the altitude in question in determining whether a reasonable search occurred.

227. *Riley*, 488 U.S. at 445.

228. *Id.* Because there is public use of airspace at altitude of 400 feet and above, *Riley* had no reasonable expectation that his curtilage was protected from naked-eye aerial views. *Id.* However, the court stated that public use of altitudes lower than 400 feet may be "sufficiently rare that police surveillance from such altitudes would violate reasonable expectations of privacy, despite compliance with FAA air safety regulations." *Id.*

229. *Id.*

230. *Riley*, 488 U.S. at 458 (Brennan, J., dissenting).

231. *Ciraolo*, 476 U.S. at 207.

232. *Ciraolo*, 476 U.S. at 223 (Powell, J., dissenting). The actual risk to privacy from commercial or pleasure aircraft is virtually nonexistent. *Id.* Travelers on commercial flights, as well as travelers on private planes using the planes for business or personal reasons, normally obtain at most a fleeting, anonymous, and nondiscriminating glimpse of the landscape and buildings over which they pass. *Id.*

233. *Id.* at 224.

ously obtains a clearer, more specific image. As a result, a warrant must be required to protect against the invasion of privacy resulting from such methods.

Satellites present an even more complicated situation than aerial surveillance. Altitude and the frequency of the overflights have been replaced by space and the frequency with which the satellite orbits the earth gathering data. Is this analogous to the aircraft flying within frequently used navigable airspace? It is doubtful courts will determine space to be a public vantage point because access to it has been limited to astronauts and scientists.<sup>234</sup> While the right to launch a satellite is not completely denied to the general public, at present the only entities capable of such a venture are government bodies and wealthy corporations.<sup>235</sup> While the public can purchase images from satellites at relatively low cost, the fact remains that space is not truly a public place.

In addition, space presents quite a different perspective from aerial surveillance. In aerial surveillance, it is at least possible that one would notice an airplane or helicopter hovering above, and therefore take precautions to avoid loss of privacy upon discovery of the intrusion.<sup>236</sup> An airplane or helicopter may be seen and/or heard from the ground.<sup>237</sup> However, this is not the case with a satellite. A satellite is a mere undetectable speck outside of the earth's atmosphere. A person subject to a satellite search is not put on notice that he is being monitored.<sup>238</sup> Therefore, it appears the subject is unjustly denied his right to privacy.

### 3. *Random Searches*

Whether an investigation involves a broad, random search of an area in its totality or whether it focuses on a particular individual or object is yet another factor associated with what constitutes a reasonable expectation of privacy under the Fourth Amendment.<sup>239</sup> In a random aerial search, law enforcement officials do not limit what they see. Anything or anyone within the searcher's field of vision can legally be observed without a warrant.<sup>240</sup> There is no requirement that the search be limited to a particular person or object nor is there a requirement that a

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234. Steele, *supra* note 32, at 327.

235. *Id.*

236. *Id.*

237. *Id.* at 328. One can, at the minimum, observe a plane or helicopter in the air and can hear the roar of its engines. *Id.* With satellites, such an observation or hearing is impossible. *Id.* Therefore, satellite photography is "constitutionally unfair" and inequitable because it allows the law enforcer to have a considerable advantage over the subject of the search. *Id.*

238. Steele, *supra* note 32, at 328.

239. Smith, *supra* note 25, at 296.

240. Steinberg, *supra* note 213, at 619.

suspicion of illegality exist.<sup>241</sup> Consequently, law enforcement officials essentially have a free hand to "engage in a virtual fishing expedition, observing everyone who wanders into the wide net cast by the sense-enhanced search."<sup>242</sup> Accordingly, privacy rights are destroyed.

Since satellites are capable of observing large areas and particular locations, similar questions will exist in the future when law enforcement uses satellites.<sup>243</sup> In order to curb the destruction of privacy rights in the realm of advanced technology, a warrant should be required before a search can be made.<sup>244</sup> As a result of requiring a warrant, boundaries would be set concerning the subject and extent of the search, and privacy rights would be preserved.<sup>245</sup>

#### 4. *Precautionary Measures*

Courts have typically held that fences, "No Trespassing" signs, security systems and other methods used to exclude unauthorized observation of private property are insufficient for aerial surveillance.<sup>246</sup> Therefore, according to the courts, one cannot reasonably expect to maintain privacy from aerial observance through use of these measures.<sup>247</sup>

What must the public do to prevent exposure of its outdoor private property from both aerial and satellite view? It does not appear that the public has any possible method available other than building coverings over outdoor areas to prevent view from the sky.<sup>248</sup> Obviously, such a method is unreasonable. Since the number of options given to citizens is virtually nonexistent and since the courts have granted an almost free hand to law enforcement personnel to conduct aerial observation, the logical solution is to force the acquisition of a warrant before the search takes place. This action would move towards preserving the people's inherent right to privacy.

### C. INDIVIDUAL PRIVACY V. LAW ENFORCEMENT

While case law demonstrates what is considered a reasonable search and demonstrates those factors which specifically contribute to reasonableness, also important is the ongoing struggle that exists between gov-

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241. Smith, *supra* note 25, at 297. This indicates an "unconstrained exercise of discretion." *Id.* The law enforcement official has all of the power and is not held subject to any checks or balances. *Id.*

242. *Id.*

243. See *supra* note 15 and accompanying text (discussing future satellite use).

244. Foster, *supra* note 42, at 759.

245. Smith, *supra* note 25, at 296.

246. *Id.* at 293-95.

247. *Dow*, 476 U.S. at 236.

248. *Dow*, 476 U.S. at 241 (Powell, J., concurring in part and dissenting in part).

ernmental power and individual rights.<sup>249</sup> Government strives to obtain law and order through necessary law enforcement and individuals strive to enjoy a life of privacy free from governmental intrusion.<sup>250</sup> Courts must strike a balance between these two competing interests in order to maintain a democratic society.<sup>251</sup>

However, recent case law indicates that courts have not yet achieved such a balance.<sup>252</sup> Law enforcement interests have overwhelmed privacy interests.<sup>253</sup> Instead of the law mirroring society, courts have chosen to stifle the law and imprison it in the past.<sup>254</sup> As technology increases, privacy rights decrease.

In holding that aerial surveillance and other technologically enhanced search methods do not require a warrant under the Fourth Amendment, courts have allowed police power to go unchecked at the expense of individual privacy rights.<sup>255</sup> Law enforcement officials maintain the capacity to search both the guilty and the innocent for any or no reason at all without the judicial oversight inherent in a warrant.<sup>256</sup> This places unlimited discretion in the hands of law enforcement personnel.<sup>257</sup> As a result, the protections of personal liberty and privacy under

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249. Brian J. Serr, *Great Expectations Of Privacy: A New Model For Fourth Amendment Protection*, 73 MINN. L. REV. 583, 584 (1989). There exists an internal tension between the private sector and the government law enforcement sector. *Id.*

250. *Id.* "In the fourth amendment context, this struggle pits the government's power to detect and redress violations of its laws against an individual's interest in a private life free from government intrusion." *Id.*

251. *Id.* Courts have a duty to assure that the use of a surveillance technique which contains the capacity to reduce the freedoms constitutionally granted to the American people and to destroy privacy interests does not harm both citizens rights and the general notion of a "free and open society." Foster, *supra* note 42, at 757.

252. The decisions of *Dow Chemical*, *Ciraolo*, and *Riley* serve as excellent examples of the Supreme Court's inability to strike the necessary balance between law enforcement and privacy rights where advanced technology is involved.

253. Serr, *supra* note 249, at 584. "In the last decade, however, the Court's means of promoting law enforcement interests has tipped the balance unnecessarily further and further away from individual freedom, significantly diminishing the realm of personal privacy." *Id.*

254. Foster, *supra* note 42, at 757. Left unchecked, law enforcement officers have been allowed to place into use high technology surveillance techniques that continue to grow more and more oppressive as knowledge of science increases. *Id.*

255. Katz, *supra* note 47, at 573. The court's decision allows the police to have the power to do what the American public cannot. *Id.* If a private individual performed such high technology surveillance on another person, such an act would be considered reprehensible. *Id.*

256. *Id.* at 549. "Today in America, the police may target any individual for scrutiny — for good reason, for bad reason or for no reason at all." *Id.*

257. *Id.* at 551. Most surveillance decisions remain at the discretion of law enforcement officers. "[L]aw enforcement officers are free to decide for themselves the limits of American privacy." *Id.* We cannot rely on governmental law enforcement officers to voluntarily respect and regard an individual's privacy rights and interests. *Id.* at 576. Too much is at



the Fourth Amendment as well as the notion that the United States enjoys a limited government dissipates.

If the Court continues along the same illogical and destructive route as it has in aerial surveillance cases, the use of the satellite for surveillance purposes surely will be held reasonable, thereby furthering the destruction of individual privacy rights.<sup>258</sup> A change is needed in light of modern technology.

#### D. THE LOGICAL SOLUTION

Clearly, developing technology demands change. As the law currently stands on the subject of aerial surveillance, deciding after the fact whether a search is constitutional involves the weighing of many factors, involving much analysis and a great deal of confusion.<sup>259</sup> In following such a path, the Supreme Court has chosen to give greater deference to law enforcement interests than to the Fourth Amendment privacy rights of the individual. As even more sophisticated, highly-intrusive technological equipment like satellites are used in surveillance, confusion is likely to deepen and privacy rights will be intruded upon further.<sup>260</sup> Consequently, a change must be made.

The logical solution is to require a warrant for satellite and other technologically-enhanced surveillance methods. A warrant is a simple means by which to protect a very important part of the American way of

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stake for the privacy rights of the individual to rely solely on governmental self-restraint. *Id.* Individual freedoms are too important to the American way of life to jeopardize them in such a manner. *Id.*

258. One scholar, creating a fictional case involving satellite surveillance, predicted an outcome for the effect on Fourth Amendment privacy rights. Wingo, *supra* note 189, at 17-18. In the fictitious case, the court held that satellite photography taken seventy-five miles into the atmosphere did not require a warrant. *Id.* The facts involved a search for illegal drugs being transported to a large Texas ranch. *Id.* A spy satellite was used to take photos of the suspected arrival landing site of the drugs located on the defendant's ranch. *Id.* The landing site observed was located several miles from the ranch home itself. *Id.*

The spy satellite used was capable of photographing objects three inches long from an altitude of up to 135 miles into the atmosphere. *Id.* The government did not want to use a low-flying aircraft to obtain the photos because it would have put the ranch on notice that it was being watched. *Id.* After viewing the photos, a search warrant was obtained for the ranch which allowed law enforcers to gather enough evidence together to convict a central figure in drug traffic. *Id.* The fictional court held that such a search was reasonable as the subject searched was an open field. *Id.* It is reassuring to note that this case is purely fictional. However, if the Court continues along the same destructive path that it is following, one day this case may be a reality.

259. See *supra* notes 176-179 and accompanying text (discussing the factors involved in aerial surveillance).

260. See *supra* note 70 and accompanying text (discussing the dissent's prediction in *Dow*).

life - one's right to privacy.<sup>261</sup> A warrant requirement would allow the government the freedom to observe a particular location or individual where a legitimate reason exists while protecting the inherent right to privacy.<sup>262</sup>

By merely requiring a warrant for both satellite and technological surveillance, the government would preserve the inherent right of privacy while maintaining the use of an extremely helpful method of surveillance. Placing only a minimum burden on law enforcement personnel,<sup>263</sup> a warrant assures that law enforcement is not conducted at the expense of the public's inherent rights.<sup>264</sup> Law enforcement personnel must explain the search to a neutral magistrate before, not after, it has occurred.<sup>265</sup> Such a requirement would indicate that the individual's constitutional rights lie foremost in the thoughts of the law.

#### IV. CONCLUSION

The courts must protect the individual's inherent right to privacy in our era of advancing technology. In an age where satellites can detect images a meter in length on the earth, the American public may legitimately question how this will affect them. The highly sophisticated and technologically intrusive satellite is the wave of the future. In light of that future we must ask whether our lives be subject to constant unauthorized scrutiny. Will science devise a method to counter the intrusive nature of the satellite, such as a satellite shield or will the American government gradually take on the characteristics of "Big Brother" - viewing and knowing all?

As law enforcement agencies will eventually use the satellite in surveillance, courts must prepare. While this wonderful new form of sur-

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261. Foster, *supra* note 42, at 762. Judicial intervention is needed to control zealous law enforcement officers. *Id.*

262. Katz, *supra* note 47, at 554. "There may be a legitimate reason for the government to seek information about a particular individual, and in such a case, government access should be granted." *Id.*

263. Foster, *supra* note 42, at 762. It is not "unduly burdensome to require" a warrant prior to an aerial search. *Id.* While the warrant will make law enforcement more difficult, effective law enforcement cannot be achieved at the expense of our liberty. *Id.* The employment of a warrant will help to keep American society free. *Id.*

264. *Id.* at 759. Effective law enforcement cannot be achieved at the expense of our liberty. *Id.*

265. A search warrant is:

An order in writing, issued by a justice or other magistrate, in the name of the state, directed to a sheriff, constable, or other officer, authorizing him to search for and seize any property that constitutes evidence of the commission of a crime, contraband, the fruits of crime, or things otherwise criminally possessed; or, property designed or intended for use or which is or has been used as the means of committing a crime. . . .

BLACKS LAW DICTIONARY 1350 (6th ed. 1991).

veillance will aid in the reduction of the criminal element in society, the courts must consciously realize that in the process, innocent individual's rights will be demolished as well.<sup>266</sup> The framers of the Constitution created the Fourth Amendment to protect and preserve all Americans' right to privacy by curbing unreasonable intrusions by law enforcement officials.<sup>267</sup> As it now stands, that goal has been diminished by both the courts and law enforcers who allow warrantless aerial surveillance to pose serious threats to personal liberties under the guise of the plain view and open fields doctrines. It is obvious that satellite surveillance, due to its nature and capabilities, will pose an even greater problem if left unchecked for the future. The logical solution, in order to maintain constitutional freedoms in satellite and technological surveillance, is to require a warrant. Requiring a warrant places only a minute burden on the law enforcer while protecting the constitutional right to privacy. A warrant assures that law enforcement is not achieved at the expense of the public's inherent privacy rights. The courts must remember the importance of those rights and strive to protect and preserve them for all to enjoy.

*KRYSTEN C. KELLY*

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266. Foster, *supra* note 42, at 759. If it is held that the police have the power to look into private backyards and homes, innocent acts as well as guilty ones will be observed. *Id.* We cannot simply say that only the criminal will be affected. *Id.* Since no warrant is required, no restrictions would exist to prevent the observation of the innocent. *Id.*

267. *Id.* at 762.

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