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Beyond Airspace Safety: A Feminist Perspective on Drone Privacy Regulation

Kristen M.J. Thomasen*

INTRODUCTION

No technology emerges in a social or legal vacuum.¹ The laws and norms guiding acceptable uses of new technologies help to shape the ways in which these technologies benefit or disadvantage different individuals and communities.² Recently, the impact of drones on women's privacy has garnered sensational attention in media and popular discussion. Media headlines splash stories from drones spying on sunbathing or naked women and girls, to drones being used to stalk women through public spaces, to drones delivering abortion pills to women who might otherwise lack access.³ Yet despite this popular attention, and the immense literature that has emerged analyzing the

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¹ See generally Corinne Mason & Shoshana Magnet, "Surveillance Studies and Violence Against Women" (2012) 10 *Surveillance & Society* 105 at 108 ("The twin fields of feminist science studies and the history of science clearly demonstrate that new technologies are not objective nor do they spring forth in a cultural vacuum"); Ronald Leenes & Federica Lucivero, "Laws on Robots, Laws by Robots, Laws in Robots: Regulating Robot Behaviour by Design" (2014) 6 *Law, Innovation and Technology* 193 at 194.

² See, e.g., Mason & Magnet, *supra*, note 1 at 109: "the history of surveillance technologies reveals that they also were developed in a cultural code rife with inequalities, and thus reflect those same inequities" and "as these computing technologies were developed in a cultural context of the persistent and widespread occurrence of violence against women, it is expected that these new technologies reflect these old inequalities and have resulted in the intensification of the surveillance and stalking of victims of violence."

³ The latter fitting more directly into the U.S. concept of "decisional privacy" (see e.g. *Roe v. Wade*, 410 U.S. 113). For example, activists have demonstrated how drones can be used to deliver abortion pills in both Poland and Northern Ireland, where abortion is illegal, highlighting the potential of this technology for subversive uses in the future. See, e.g., Lauren O'Neil, "'Abortion drone' delivers pregnancy-terminating pills to women in Poland," *CBC News* (29 June 2015), online: < www.cbc.ca/news/trending/abortion-drone-delivers-medication-to-women-in-poland-1.3132284 > .

privacy implications of drone technology,⁴ the ways in which the drone might enhance or undermine women's privacy in particular have not yet been the subject of significant academic analysis.

This article seeks to contribute to the growing drone privacy literature by examining some of the ways in which the technology is apt to impact women's privacy.⁵ While the analytical focus is on the gendered privacy impacts of drone technology, the article and its conclusions are about more than women's privacy. Examining some of the differential impacts of the technology, and the laws that guide its use, helps to reveal broader inequities that can go unseen when we think about technology without social context. The article ultimately argues that drone regulators cannot continue to treat the technology as though it is value-neutral — impacting all individuals in the same ways. Going forward, the social context in which drone technology is emerging must inform both drone-specific regulation, and the ways in which we approach privacy generally. This article is framed as a starting point for further discussion about how this can be done within the Canadian context and elsewhere.

First, a brief note on terminology. “Drone” is a colloquial term now commonly used to refer to remotely piloted aerial vehicles that range in scale and function from military weapons to children's toys. This article is not focused on the use of the technology in military or international operations.⁶ Instead, this

⁴ See, e.g., A Michael Froomkin & Zak Colangelo, “Self-Defense Against Robots and Drones,” 48 Conn L Rev 1 [forthcoming]; Ryan Calo, “The Drone as Privacy Catalyst” 64 Stan L Rev Online 29; Margot E Kaminski, “Drone Federalism: Civilian Drones and the Things they Carry” (2013) 4 Cal L Rev 57; John Villasenor, “Observations from Above: Unmanned Aircraft Systems and Privacy” (2013) 36 Harv J L & Pub Pol’y 457; Gregory S McNeal, “Drones and Aerial Surveillance: Considerations for Legislators” in *The Robots Are Coming: The Project on Civilian Robotics* (Pepperdine University Legal Studies Research Paper No. 2015/3. (2014); Troy Rule, “Airspace in an Age of Drones” (2015) 95 BU Law Rev 155; Office of the Privacy Commissioner of Canada Research Group, “Drones in Canada: Will the Proliferation of Domestic Drone Use in Canada Raise New Concerns for Privacy” (2013), online: <www.priv.gc.ca/information/research-recherche/2013/drones_201303_e.asp>; Scott Thompson & Ciara Bracken-Roche, “Understanding Public Opinion of UAVs in Canada: A 2014 Analysis of Survey Data and its Policy Implications” (2015) 3 Journal of Unmanned Vehicle Systems 1; Queen's University Surveillance Studies Centre, “Surveillance Drones: Privacy Implications of the Spread of Unmanned Aerial Vehicles (UAVs) in Canada,” Report to the Office of the Privacy Commissioner of Canada by Ciara Bracken-Roche et al (2014); DM Holden, “Flying Robots and Privacy in Canada” (2016) 14 CJLT; Ashley Taborda, “Privacy & Drone Surveillance: The Illusive Remedy” (2017) 15 CJLT 379; Ontario, Office of the Information and Privacy Commissioner, *Privacy and Drones: Unmanned Aerial Vehicles* (Toronto: Information and Privacy Commissioner, 2012).

⁵ The impact of drones on privacy will be different amongst and between women. This article does not imagine one experience of drone privacy invasion, rather it looks at the ways in which gender – as one social factor among many – has influenced the development of privacy law and the potential impact of drone technology.

⁶ For more on the politics of the military drones see, e.g., Anna Feignbaum, “From Cyborg Feminism to Drone Feminism: Remembering Women's Anti-Nuclear Acti-

article is concerned with the devices that are commercially available to individuals, companies, and domestic law enforcement (i.e. non-military devices). These drones are typically small in size, often weighing up to several kilograms. They may be equipped with a variety of additional sensors like high-resolution cameras that are either already installed at the point of sale, or added to the device by the operator. Drones of this size and function can also be manufactured at home. This article considers the current, proposed, or anticipated uses of the technology by private individuals, commercial entities, and/or domestic law enforcement.

With this technological focus in mind, this article will first explain why these domestic-use drones in particular raise gendered privacy concerns, and why a gendered analysis is relevant to thinking about the regulation of the privacy implications of the technology. The article goes on to examine how women have long faced differential access to privacy in public spaces compared to men.⁷ This has arisen both from a gendered history of the legal understanding of what privacy *is*, and from the subsequent inadequate legal and normative protections against the kinds of intrusions that primarily affect women. Specifically, the second section of the article considers how gendered notions of modesty have undermined women's privacy in public space — a space where women already face gender-specific intrusions upon their privacy, which may be further exacerbated by drone technology.

The article goes on to argue that the current approach of Canadian and U.S. regulatory agencies — which focus primarily on physical safety concerns associated with drone use, largely to the exclusion of a nuanced approach to privacy issues — inappropriately treats the technology as though it is value-neutral. The current regulatory approach does exactly what feminist technology critics would caution against: it focuses on the artefact (the physical drone), while overlooking the broader cultural and social practices associated with drone technology, and the social context into which drones are introduced.⁸ This narrow focus obfuscates the ways in which drone technology can reproduce, enhance, alter, or ameliorate existing social inequalities through, among other things, its impacts on privacy.⁹ The article concludes by arguing that drone technology in particular (though not exclusively) requires a more nuanced

visms" (2015) 16 *Feminist Theory* 26; Lorraine Bayard de Volo, "Unmanned? Gender Recalibration and the Rise of Drone Warfare" (2016) 12 *Politics & Gender* 50; Tyler Wall & Torin Monahan, "Surveillance and Violence from Afar: The Politics of Drones and Liminal Security-Scapes" (2011) 15 *Theoretical Criminology* 239; Derek Gregory, "From a View to a Kill: Drones and Late Modern War" (2011) 28 *Theory, Culture and Society* 188.

⁷ Speaking broadly of women's experiences here. The jurisprudence discussed below has often focused on the experience of wealthy, white, cis, heterosexual women, which is obviously not a universal experience.

⁸ See, e.g., Judy Wajcman, "Feminist Theories of Technology" (2010) 34 *Cambridge Journal of Economics* 143 cautioning against exactly such an approach.

approach to regulation that takes into consideration social context and the differential impacts of the technology on individuals and groups. Such perspective is relevant to the current and ongoing debate about drone regulation,¹⁰ particularly in light of the sometimes granular ways in which the gendered impact of drones has already come under scrutiny in popular discussion.¹¹ A gendered perspective provides a critical lens through which to identify some of the difficult privacy challenges raised by drones — not only for women — at a time when the laws guiding the permissible uses and designs of the technology continue to influence the trajectory of innovation.

SECTION I: THE “SUNBATHING TEENAGER” AND DRONE PRIVACY REGULATION

News stories about drones spying on “naked,” “topless,” or “sunbathing” women and girls make regular headlines,¹² as do stories about drones peering into women’s homes, apartments, backyards, or hovering over swimming pools.¹³ Anecdotally, it can be difficult to avoid these stories when following popular discussions about drones. These themes also appear in some of the academic writing on drone privacy.¹⁴ On the other hand, similar stories about

⁹ See, e.g., Linda L Layne, Shalla L Vostral & Nate Boyer, eds, *Feminist Technology* (Champaign, Illinois: UI Press, 2010).

¹⁰ Transport Canada is currently reviewing new regulations for drones in Canada, including seeking community input on a set of proposed new rules. These rules do not deal with privacy or other social implications of the technology, as discussed in the section below. See: Transport Canada, “Proposed Rules for Drones in Canada,” online: < www.tc.gc.ca/eng/civilaviation/opssvs/proposed-rules-drones-canada.html > .

¹¹ See, e.g., *infra* at notes 11-13.

¹² See, e.g., Emma Colton, “Pervy Nerds Get Their Hands on a Drone and Use it Just How You’d Expect,” *The Daily Caller* (24 June 2014), online: < dailycaller.com/2014/06/24/pervy-nerds-get-their-hands-on-a-drone-and-use-it-just-how-you-d-expect/ > ; Kirstie McCrum, “Peeping Toms are ‘Using Drones to Spy on Women and Sharing the Footage online,’” *The Mirror* (28 March 2011), online: < www.mirror.co.uk/news/uk-news/peeping-toms-using-drones-spy-7642394 > ; “Drone caught spying on Vancouver woman sunbathing topless,” *Global News* (14 August 2015), online: < globalnews.ca/video/2167054/drone-caught-spying-on-vancouver-woman-sunbathing-topless > . Many online reports of these stories also, disconcertingly, choose to post the video; I have not cited to these. The posting of this voyeuristic footage to the Internet raises broader concerns and challenges for women’s privacy, and connects drone privacy challenges to discussions about, for instance, revenge porn. See, e.g., Danielle Keats Citron & Mary Anne Franks, “Criminalizing Revenge Porn” (2014) 49 *Wake Forest L Rev* 345. Notably in Canada a number of provinces have introduced or considered statutory tort recourse for incidents of revenge porn.

¹³ See, e.g., “Drone Spy: Man uses UAV to Take Video of Seattle Woman,” *Daily Motion* (2015), online: < www.dailymotion.com/video/x2q8a65 > ; “Watch This Badass Woman Try to Shoot Down A Drone Filming Her House,” *Popular Mechanics* (5 March 2017), online: < www.popularmechanics.com/flight/drones/a25543/shoot-down-drone/ > .

drones spying on men — particularly in a state of undress — are relatively rare.¹⁵

In a 2016 post on the online news website Slate, law professor Margot Kaminski labeled this recurrent theme the “sunbathing teenager narrative” — alluding to the fact that these stories often involve drones flying over women, particularly young women, in a state of undress. Kaminski questions, “with all we know about the complexities of information privacy,” which is deeply engaged by drone technology, “why is the female sunbather the story that keeps capturing attention?”¹⁶ To try to explain why this narrative might be so popular, Kaminski refers to the old tale of Lady Godiva, whose husband, Count Leofric, claimed he would lower oppressive taxes on the residents of Coventry, England the “day she rode naked through the streets on horseback.” As the tale goes, she did exactly that. Out of respect for their heroine’s modesty, all of the city folk averted their eyes, except for one man, the Peeping Tom — who was promptly punished for the offence of undermining the noble woman’s honour. Kaminski goes on to explain the contemporary drone connection with the Lady Godiva tale:

The sunbather disrupted by drones is a Lady Godiva story, of sorts, without the tax policy. A young woman expresses liberation by wearing a bikini in her backyard or on the beach. Everyone generally follows social norms and refrains from staring for too long, or taking photos or video. But the hovering drone breaks that agreement and must be punished, just like Tom. Often it’s dad who does the punishing, but sometimes it’s just a Good Samaritan. Law isn’t very helpful.

Ultimately, Kaminski argues that this gendered trope is a distraction; “it provides a woefully incomplete account of the kinds of privacy concerns that drones raise,” ignoring, for instance, the significant impact that drones might have on informational privacy, the implications of facial recognition payloads for anonymity, risks relating to cybersecurity and hacking, and so on. She expresses concern about the possibility that legislators will focus on protecting the modesty of sunbathing teenagers, while ignoring the potentially far more

¹⁴ Margot Kaminski identified examples in her Slate post discussed in this section. See, e.g., McNeal, *supra* note 4; Troy Rule, “Drone Zoning” (2016) 95 NCL Rev 133. Both cited for this point in Margot Kaminski, “Enough with the ‘Sunbathing Teenager’ Gambit,” *Slate Future Tense* (17 May 2016), online: < www.slate.com/articles/technology/future_tense/2016/05/drone_privacy_is_about_much_more_than_sunbathing_teenage_daughters.html > .

¹⁵ A Google search for “drone spies on man” (from Canada at the time of writing) reveals one story from Utah about a couple who spied on a series of people including one man in his bathroom, and number of stories about husbands spying on their cheating wives. Meanwhile, the same search with “woman” reveals multiple pages of applicable search results: Mary Papenfuss, “Utah Couple Arrested Over ‘Peeping Tom’ Drone” *Huffington Post* (17 February 2017), online: < www.huffingtonpost.com/entry/peeping-tom-drone_us_58a6847fe4b045cd34c03e56 > .

¹⁶ Kaminski, *supra* note 14.

widespread and problematic impacts that drones can have on informational privacy.

I agree with Kaminski that policymakers need to consider the broader range of privacy issues raised by the recent proliferation of drones. However, I also believe that this “sunbathing teenager” trope, which Kaminski has helpfully identified and named, reveals important privacy concerns arising from the growing domestic popularity of drone technology. While Kaminski is right that lawmakers would be foolish (and sexist) to focus drone regulations around outdated norms of women’s modesty, this gendered privacy narrative nevertheless reveals a deeper issue that lawmakers *should* be concerned about. Drones are particularly adept at taking advantage of weaknesses in privacy protection that exist in large part because the early origins of the privacy doctrine did focus on women’s modesty as central to women’s privacy, and privacy generally. To ignore this broader issue risks overlooking some of the ways in which drone technology is likely to exacerbate privacy intrusions experienced by women. The following sub-sections explain how the modesty theory understands and protects only a limited notion of privacy, and how this antiquated notion of privacy influenced the early development of privacy jurisprudence. The next section builds on this background to examine how early reliance on modesty has affected how the law protects privacy today, and what this means for women’s privacy in the context of growing drone use.

The Modesty Theory of Privacy

Lady Godiva’s ride through city streets aside,¹⁷ the modesty theory of privacy that underlies the “sunbather” narrative is grounded upon a traditional expectation of a woman’s confinement and seclusion within the home.¹⁸ When she is relegated to the home, she ought not be interfered with or gazed upon by others — particularly uninvited men — including where that gaze is mediated by a drone.

A central problem with this understanding of a woman’s privacy is that it is narrowly limited to protecting her from intrusions in circumstances where she is concealed, secluded, and behaving virtuously; fulfilling her domestic roles of homemaking and child care.¹⁹ Accordingly, in order to gain protection, a woman historically had to essentially become invisible — modesty norms required that women “exhibit speech, dress, and behaviour calculated to deflect attention from

¹⁷ Let us not forget that Lady Godiva was a British noblewoman with considerable class and race privilege to protect her.

¹⁸ Historically, “women’s privacy” brought to mind the notion of peaceful seclusion within the domestic sphere. See Anita Allen, *Uneasy Access: Privacy for Women in a Free Society* (Lanham, Maryland: Rowman & Littlefield, 1988) at 20: Feminine modesty forced a kind of “obligatory, social disappearing act that shield[ed] a woman in the mantle of privacy”.

¹⁹ Anita Allen & Erin Mack, “How Privacy Got its Gender” (1991) 10 N Ill UL Rev 441 at 453.

their bodies, views, or desires.”²⁰ Protection of this state of being does little to actually protect a woman’s experience of privacy (e.g. her access to an invasion-free home life did not fall within the modesty framework due to her traditional role as subservient housekeeper and mother).²¹ Nor would this theory protect a woman perceived by traditional norms to be immodest — one who ventures into public, engages in sexual activity outside of marriage, or enters the workforce.²² The modesty theory of privacy bestowed a heavily class-, race-, and sexuality-limited protection against visibility and interference by others, reliant upon on a woman’s self-enforced concealment and seclusion in the marital or family home, and her ability to meet antiquated standards of virtue.²³

The “sunbather” narrative has undertones of this modesty theory of privacy; as pointed out by Kaminski, the drone that flies over a woman in her backyard or in her home, invading her privacy and undermining her modesty (and, most importantly, undermining the man of the house’s control over who can see her), is deserving of punishment — often by the young woman’s father.²⁴ As will be further discussed below, however, the same has not been the case where a drone is used in a similarly invasive way in a public space, again echoing this understanding of privacy as based on concealment, seclusion and invisibility. While a modesty-based analysis of a woman’s right to privacy seems antiquated now, the next sub-section examines how this notion shaped the early development of privacy jurisprudence, which still resonates today.

Modesty Within Privacy Jurisprudence

Professor Anita Allen has highlighted the role that traditional norms of female modesty and virtue played in the early development of the American privacy tort (which provides the foundation for the development of the Canadian common law tort of “intrusion upon seclusion”).²⁵ These norms of modesty laid the ground work for how courts have come to understand the scope and limits of privacy protection. For instance, in the article “How Privacy Got its Gender,” Allen and co-author Erin Mack identify the “outmoded normative assumptions about female modesty and seclusion” at the core of the tort’s early development through an examination of early privacy tort cases, as well as the foundational article “The Right to Privacy” by Samuel Warren and Louis Brandeis.²⁶

²⁰ *Ibid* at 444.

²¹ *Ibid* at 477.

²² *Ibid* at 477. This problem is notably still prevalent in sexual assault trials in Canada and the U.S. See, e.g., Alison Crawford, “Justice Robin Camp resigns after judicial council recommends removal,” *CBC News* (9 March 2017), online: < www.cbc.ca/news/politics/justice-robin-camp-judicial-council-1.4017233 > .

²³ Allen & Mack, *supra* note 19 at 444.

²⁴ Kaminski, *supra* note 14.

²⁵ See, e.g., *Jones v. Tsige*, 2012 ONCA 32, 2012 CarswellOnt 274, 108 O.R. (3d) 241, 211 A.C.W.S. (3d) 1007 (Ont. C.A.).

For instance, in laying the groundwork for the protection of a man's right to a "private home" and "family life" (i.e. the famous "right to be let alone"), Warren and Brandeis rely on a line of cases in which parents and husbands are found to have rights of recovery against the male seducers of their daughters and wives²⁷ or where the shame and dishonour caused by a daughter's seduction is judicially remedied.²⁸ Intrusions upon a woman's modesty were framed as an offence to her husband or father deserving of compensation (rather than as an offence, for example, to her control over her own body or environment, solitude, or anonymity). These are among the early cases that set out the scope and boundaries of the "right to be let alone" in Warren and Brandeis' famous article — which ultimately underscored the development of the American privacy tort. Allen and Mack observe that "women appear in Warren and Brandeis' article as seduced wives and daughters," while the implications of a "private home" and "family life" for women, and, in particular, women's privacy, go completely overlooked.²⁹

Allen and Mack also refer to numerous tort cases where the courts went remarkably far to compensate a female plaintiff for a privacy loss on the reasoning that any intrusion which amounted to a loss of her modesty should be actionable.³⁰ Allen and Mack determine from the reasoning in these cases that the basis on which male judges rationalized such sizeable remedies was a "paternalistic, patriarchal concern for feminine modesty and virtuous seclusion"; not a concern for a woman's equal "right to be let alone" or her right to benefit from the values that privacy protection can afford.³¹ Were that to be the case,

²⁶ Samuel D Warren & Louis D Brandeis, "The Right to Privacy" (1890) 4 Harv L Rev 193; Allen & Mack, *supra* note 19 at 477.

²⁷ As a reflection of the principle of non-interference with a man's family relations: Allen & Mack, *supra* note 19 at 458.

²⁸ As proof of a historical regard for human emotion in law: *Ibid* at 458.

²⁹ *Ibid* at 459, 466: Warren and Brandeis were "not critical of the ways in which homelife [. . .] and norms of female modesty contributed to women's lacking autonomous decisionmaking and meaningful forms of individual privacy." To underscore this point, Allen and Mack direct us to Charlotte Perkins Gilman, a contemporary of Warren and Brandeis, who emphasized that the appeal to the "privacy of the home" overlooked (or took for granted) that someone needed to maintain that home, and that women had been relegated to that role; that there was not actually much privacy in the home for women, between children, other family members, servants, etc; and that because of male authority over the home domain women confined to that home lacked decisional privacy over marriage, sex, and reproduction. "Women's lack of meaningful opportunities for individual privacy is tied to their economic role. To have real privacy, women would have to be freed from their limited role in the economy as mere housekeepers and mothers": Allen & Mack, *supra* note 19 at 458 (summarizing Gilman).

³⁰ "Typical judges were likely to be strongly influenced by pervasive notions of a need to take special care to preserve women's modesty as among their chief virtues." Allen & Mack, *supra* note 19 at 462.

³¹ *Ibid* at 464.

then the many intrusions upon a woman within the marital or family home would also be prohibited.

Women's modesty, and her concealment from the gaze of strangers within the home, has also factored into the development of constitutional privacy protections. For instance, Professor Jeannie Suk examines the central role of women's modesty in modern U.S. Fourth Amendment precedents.³² In *Kyllo v United States*, which involved the use of a forward-looking Infrared device by police to examine the amount of heat emanating from a home, Justice Scalia centres his concerns about the invasiveness of this technique on the potential visibility of the "lady of the house taking her bath and sauna."³³ Suk elaborates that this focus on the *lady* in her sauna (who appears nowhere in the facts of the case), "evokes the privacy interest of the man [of the house] entitled to see the lady of the house naked and his interest in shielding her body from prying eyes. Privacy is figured as a woman, an object of the male gaze."³⁴

Suk explains how the "lady in the bath" evokes concerns about prying eyes lusting after a man's wife; the threat to the woman's virtue by the suggestion of sexual infidelity in the eyes of the voyeur.³⁵ Anxiety about an intrusion into the man's home "can be expressed as anxiety about female sexual virtue. A meaning of a man's home as his castle that emerges here is the need to shield his wife's body from other men's desire."³⁶

While such explicitly gendered rhetoric has not appeared in Canadian constitutional privacy cases, the judicial protection of privacy on the basis of concealment within the sanctity and privacy of the home — sometimes developed through reference to American case law including that cited above — certainly does exist here, too.³⁷ And, a recent Ontario Court of Appeal decision also

³² Jeannie Suk, "Is Privacy a Woman?" (2009) 97 Geo LJ 485.

³³ *Kyllo v. United States*, 533 US 27 (2001).

³⁴ Suk, *supra* note 32 at 488 highlights other examples from the United States Supreme Court.

³⁵ "Kyllo's lady in the bath draws on a complex of cultural associations that emanate from this canonical story: the prying eyes of legal elders who violate the private boundary of a home and lust after a man's wife; the predication of well-ordered domesticity on the woman's virtue, gravely threatened by the suggestion of sexual infidelity, even rape, enacted in the voyeurs' observation of her naked body; the restoration of domestic order qua legal order by punishment of the gaze." *Ibid* at 490.

³⁶ "If in the adage [a man's home is his castle] the home is envisioned as a barrier against intrusion, we have seen that anxiety about intrusion can be expressed as anxiety about female sexual virtue. A meaning of a man's home as his castle that emerges here is the need to shield his wife's body from other men's desire. To neglect or decline to do so is to prove himself unworthy to be the man of the castle, unworthy of that domain of privacy to which a man in his home is entitled." *Ibid* at 491. See also I Bennett Capers, "Unsexing the Fourth Amendment" (2014—2015) 48 UC Davis L Rev 855.

³⁷ See, e.g., *R. v. Plant*, 1993 CarswellAlta 566, 1993 CarswellAlta 94, [1993] 3 S.C.R. 281, [1993] S.C.J. No. 97 [1993] A.W.L.D. 890 (S.C.C.); *R. v. Tessling*, 2004 SCC 67, 2004 Carswell Ont 4351, 2004 CarswellOnt 4352, [2004] 3 S.C.R. 432, [2004] S.C.J. No. 63 (S.C.C.); *R. v. Gomboc*, 2010 SCC 55, 2010 CarswellAlta 2269, 2010 CarswellAlta 2270,

echoes the notion that only that which is (modestly) secluded from the prying eyes of a peeping Tom is protected.

The Ontario Court of Appeal case, *R. v. Jarvis*, involved a highschool teacher who covertly photographed and filmed young women students in his high school using a pen camera.³⁸ The focus of the footage was on the women's cleavage. Jarvis was charged with voyeurism, an offence with three elements, including that (i) the accused surreptitiously (non-consensually) observed or made a recording of a complainant, (ii) in a context where the complainant has a reasonable expectation of privacy, and that (iii) the observation was sexual in nature. The majority of the court held that the Crown failed to prove the second element of the offence. Students had no reasonable expectation of privacy in the parts of their bodies that were visible to everyone.³⁹ The majority contrasted this with the hypothetical example of "upskirt photos" where an accused uses a camera affixed to a shoe or other low vantage point to covertly take pictures under women's skirts.⁴⁰ Women in these cases may expect privacy vis-à-vis the parts of their bodies that are concealed, by virtue of this concealment. Rather than premise the *Jarvis* complainants' expectation of privacy around, for example, the social circumstances in which the filming occurred, or the right of young women not to be filmed by people in a position of power over them (regardless of whether this is done openly or secretly), or the right of young women to control information about themselves, the majority in *Jarvis* relied on concealment as necessary to any expectation of privacy against sexual observation. Notably, as of the time of writing, this decision is on appeal to the Supreme Court of Canada.

While explicit judicial reliance on modesty as the standard by which to assess a woman's privacy seems antiquated today (though hardly absent from judicial reasoning⁴¹), this theory nevertheless laid some of the ground work for the current understanding of the scope of privacy protection in Canadian and U.S. doctrine. Consequently, it failed to lay legal groundwork for protection against common invasions of privacy experienced predominantly by women. In other words, early privacy laws were not designed by or for women; the role of women within the development of privacy jurisprudence has been as wives, daughters,

[2010] 3 S.C.R. 211, [2010] S.C.J. No. 55 (S.C.C.); *R. v. Patrick*, 2009 SCC 17, 2009 CarswellAlta 481, 2009 CarswellAlta 482, [2009] 1 S.C.R. 579, [2009] S.C.J. No. 17 (S.C.C.). But see *R. v. Spencer*, [2014] 2 S.C.R. 212, recognizing constitutional protection of at least anonymity in some circumstances in public.

³⁸ *R. v. Jarvis*, 2017 ONCA 778, 2017 CarswellOnt 15528, 139 O.R. (3d) 754, [2017] O.J. No.5261, 356 C.C.C. (3d) 1 (Ont. C.A.) [*Jarvis*]. Appeal to the Supreme Court of Canada heard on 20 April 2018. On appeal at the time of writing.

³⁹ *Ibid* at para 108.

⁴⁰ *Ibid* at para 98.

⁴¹ Reliance on notions of modesty as necessary to women's protection from unwanted advances still notably arises in sexual assault trials in Canada and the U.S. See, e.g., Allen & Mack, *supra* note 19 at 444.

and lovers of the (cis, heterosexual, property-owning, white) men whose interests shaped the development of the doctrine.⁴²

The lasting impact of the modesty theory of privacy may in fact reconcile the different legal outcomes in a number of popular drone privacy stories. On the one hand, aggressive measures taken to disarm a drone flying over private property and purportedly exposing women to the gaze of a male stranger — to the extreme of shooting down the drone over a residential area — have been deemed socially, if not legally, acceptable (as already emphasized by Kaminski). Meanwhile, no legal protection was offered to a woman who felt a similar sense of intrusion on a public beach — her aggressive response to the drone operator led to her being charged and ultimately convicted of criminal assault.⁴³ Similarly, the privacy concerns of a sex-worker who was filmed with a john by a vigilante with a drone were not raised in reports about the incident — even when the vigilante posted his video online; meanwhile the sex worker was sentenced to a year in prison on the basis of the drone footage.⁴⁴

The next section of this article explores how the gaps in legal protections of privacy outside the realm of seclusion and modesty (particularly in public space) have an inequitable impact upon and amongst women, and how several features of drones make the technology particularly adept at taking advantage of some of these legal gaps.

SECTION II: DRONES AND GENDERED PRIVACY INVASIONS

One central implication of the modesty theory of privacy, rooted as it is in women's seclusion within the home, is that in public space, individuals enjoy considerably less, or no, privacy. Feminist privacy scholarship has expounded upon the implications of this for women — particularly with respect to harassment on public streets, a form of privacy invasion that is overwhelmingly targeted at women, yet under-regulated in law. This section first describes how the features of the drone make the technology especially adept at engaging the privacy of individuals in public space generally. It then draws from feminist privacy literature, which builds on the discussion of the limits of the modesty theory of privacy set out above, to demonstrate how women's experiences of privacy in public are underprotected in ways that drone technology is apt to

⁴² Allen & Mack, *supra* note 19.

⁴³ “Judge dismissed charges for man who shot down drone,” *WDRB News* (26 October 2015), online: < www.wdrb.com/story/30354128/judge-dismisses-charges-for-man-who-shot-down-drone >; Joel Landau, “Connecticut woman who assaulted teen for drone at beach requests probation,” *NY Daily News* (19 June 2014), online: < www.nydailynews.com/news/crime/conn-woman-attacked-teen-drone-seeks-probation-article-1.1836545 > .

⁴⁴ Samuel Osborne, “Prostitute caught on drone camera having sex with elderly man pleads guilty,” *Independent* (31 March 2016), online: < www.independent.co.uk/news/world/americas/prostitute-caught-on-drone-camera-having-sex-with-elderly-man-pleads-guilty-a6960946.html > .

exploit. This discussion provides the basis for the final section of the article, which argues that drone regulation requires broader consideration of the social implications of the technology, including the ways in which it might differentially impact individuals and groups.

Privacy-Invasive Drone Features

Drones have several features that combine to present fairly unique privacy challenges, relative to other surveillance technologies.⁴⁵ For instance, two of the most significant physical features of the drone that challenge privacy are also two of its most fundamental features — the fact that drones fly, and that they do so without a human on-board. The aerial nature of drone technology permits an operator to access potentially unexpected vantage points of the ground below, compared to ground-based or stationary tools of observation like CCTV cameras or cell phone video. Further, as there is no human on board, the drone can be smaller than a manned aircraft, and can be operated in areas that are too dangerous or difficult for a manned craft to access. The unmanned aerial nature of drones also makes the technology well suited for longer-term monitoring and tracking, to the extent that fuel sources permit.⁴⁶ Furthermore, since drones can be purchased at relatively low costs (depending on the sophistication of the device), and are easily accessible on the consumer market, they can be put to wide-scale use by a variety of operators.⁴⁷ These features and capabilities, among others, can combine to create a “panoptic” chilling effect on individuals on the ground below.⁴⁸ The technology can not only collect enormous amounts of

⁴⁵ The following two paragraphs are drawn from my prior work: see Kristen Thomasen, “Flying Between the Lines: Drone Laws and the (Re)Production of Public Spaces” in Eric Hilgendorf & Uwe Seidel, eds, *Robotics, Autonomics, and the Law* (Baden-Baden, Germany: Nomos, 2017) 205.

⁴⁶ Battery power in many commercially accessible drones allows the device to stay aloft for up to approximately 30 minutes. As battery technology progresses or other fuel sources are developed this may, of course, change. However, for now, the more popular commercially available drones would not be capable of long-term monitoring; some more sophisticated drones may be able to stay aloft for longer. Meanwhile, corporations hoping to use drones for delivery have recommended infrastructural changes in cities, including battery re-charging stations, that would allow for longer flights: Adario Strange, “Amazon patent shows how delivery drones could dock on street lights,” *Mashable* (19 July 2016), online: <mashable.com/2016/07/19/amazon-drone-docking-stations/#bgnNomp9tOqH> .

⁴⁷ Simple drones with built-in cameras can be purchased for \$50 CAD. More sophisticated drones cost in the thousands of dollars, which is still quite inexpensive relative to a manned aircraft. The implications of this accessibility could mean considerably more surveillance in public. See, e.g., Woodrow Hartzog & Evan Selinger, “Surveillance as Loss of Obscurity” (2015) 72 *Wash & Lee L Rev* 1343.

⁴⁸ Roger Clarke, “Understanding the Drone Epidemic” (2014) 30 *Computer Law & Security Review* 230. As Professor Clarke explains, “drones actually bring back the sense of physical superiority of the observation-point over ground-dwelling individuals.” Professor Ryan Calo has previously described drones as representing “the cold,

information from the ground below, it can also *feel* invasive and enter into one's personal space.⁴⁹

It is of course possible that over time people will become accustomed to drones in the sky, such that this panoptic effect eases. However, another legally important feature of drones — the fact that they operate detached from a human pilot — raises further challenges for privacy and accountability. An individual may feel that a drone has invaded her privacy, but if she cannot identify its operator because the pilot was located at a distance, then she may not know whom to pursue, or through which legal mechanism, if any.⁵⁰ Furthermore, an individual might not know what information a drone is collecting or for what purpose, which makes it difficult to know which legal remedy, if any, is available. This uncertainty may also serve to compound the panoptic implications discussed above.⁵¹ The drone's detachment from the pilot therefore disempowers the observed; she has no immediate way to gain more information about the drone's operation or operator.⁵²

Drones & Women's Experience of Privacy in Public Space

In her book *Uneasy Access*, Professor Anita Allen demonstrated ways in which women experience too much of the wrong kinds of privacy, and not enough of the right kinds of privacy. Section I of this article touched on some of the *wrong* kinds of women's privacy — gender-biased standards of modesty that stem, at least in part, from seclusion within the home and invisibility from strangers. The wrong privacy has also included the ways in which privacy doctrine has historically shielded domestic abusers from legal accountability, by

technological embodiment of observation." See Ryan Calo, "The Drone as Privacy Catalyst" 64 *Stan L Rev Online* 29 at 34.

⁴⁹ As perhaps exemplified by the breadth of recent news stories involving individuals shooting at drones, or otherwise seeking to disable them.

⁵⁰ See, e.g., Froomkin & Colangelo, *supra* note 4. Of course recourse to the settler legal system will not necessarily be a useful or preferred response to drone invasions. Drone policy-planning must extend beyond these legal and regulatory responses.

⁵¹ *Ibid.* Uncertainty about a drone's mission and owner played a significant role in an encounter leading to one of the first U.S. criminal cases involving a drone (see, e.g., Justin Peters, "Judge Dismisses Case Against Man Who Shot Down a Drone Over His Property," *Slate*, online: < www.slate.com/blogs/future_tense/2015/10/28/case_against_william_merideth_for_shooting_down_a_drone_is_dismissed.html >).

⁵² This could also result in individuals taking dangerous self-help measures in response to drones. As Froomkin & Colangelo, *supra* note 4 explain at 33: "the less the victim knows about the robot spy, or suspected spy, the more that its surveillance is likely to seem a threat. And the more that the surveillance seems a threat, the more that the victim will seek not just a judicial remedy — uncertain, likely time-consuming and costly, and probably much too late to undo the harm — the more that the victim will seek a self-help remedy." See also: Ciara Bracken-Roche, "Domestic drones: The politics of verticality and the surveillance industrial complex", 71 *Geographica Helvetica* 167 (2016)

protecting the “sanctity of the home” at the expense of women seeking state assistance or protection from their (predominantly male) domestic abusers.⁵³

Meanwhile, women continue to lack what Allen refers to as the right kinds of privacy — decisional autonomy, particularly over marriage, reproduction, and sex (which were traditionally seen as part of “family life,” over which men had decision-making authority), as well as the ability to seek replenishing solitude outside the confines of the home. In other words, women in particular lack privacy in public, due especially to the disruptions caused by sexual harassment in public spaces and the workplace.

Allen defines “privacy in public” as the “inaccessibility of persons, their mental states, and information about them to the senses and surveillance devices of others.”⁵⁴ She explains that “seclusion, achieved through physical distancing, and anonymity, achieved through limited attention paid, are the forms of inaccessibility that significantly constitute privacy in public.”⁵⁵ Through different cases, the Supreme Court of Canada has similarly recognized that there can be some expectation of privacy in public — either through an expectation that encounters with others in public will be fleeting/limited in temporal scope,⁵⁶ will be anonymous,⁵⁷ and/or that observations, conversations, and personally-identifying information collected in public will not be widely shared.⁵⁸

However, access to and the importance of this realm of privacy have been, and continue to be, gendered. The public realm, as Allen describes, can be a place

⁵³ See, e.g., Catherine MacKinnon, *Feminism Unmodified: Discourses on Life and Law* (Cambridge: Harvard University Press, 1987); Elizabeth M Schneider, “The Violence of Privacy” (1990—1991) 23 Conn L Rev 973.

⁵⁴ Allen, *supra* note 18 at 123-124. The question of what “privacy in public” entails is not an easy or straightforward one to answer, and requires consideration of different theories of privacy, as well as what constitutes public. I turn to Allen’s definition here as a helpful one for thinking through, in particular, the gendered nature of privacy’s early and ongoing development. However, this is by no means an exclusive definition. For more on this issue see especially Woodrow Hartzog, “The Public Information Fallacy” 98 BUL Rev [forthcoming in 2018]; Stuart Hargreaves, “Relational Privacy’ & Tort” (2017) 23 Wm & Mary J Women & L 433; Kristen Thomasen, “Robots in the Public Square: Regulation and the Changing Nature of Public Space” (We Robot 2018, Stanford University, 14 April 2018), online: < conferences.law.stanford.edu/werobot/wp-content/uploads/sites/47/2018/02/Thomasen-Robots-in-the-Public-Square-We-Robot-Draft.pdf > .

⁵⁵ Allen, *supra* note 18 at 123-124.

⁵⁶ *R. v. Wise*, 1992 CarswellOnt 71, 1992 CarswellOnt 982, [1992] 1 S.C.R. 527, [1992] S.C.J. No. 16 (S.C.C.).

⁵⁷ *R. v. Spencer*, *supra* note 37.

⁵⁸ *Aubry c. Éditions Vice-Versa Inc.*, 1998 CarswellQue 4806, 1998 CarswellQue 4807, [1998] 1 S.C.R. 591, [1998] S.C.J. No. 30, 157 D.L.R. (4th) 577 (S.C.C.); *R. v. Marakah*, 2017 S.C.C. 59, 2017 CarswellOnt 19341, 2017 CarswellOnt 19342, [2017] 2 S.C.R. 608, [2017] S.C.J. No. 59 (S.C.C.); restraints on collection of information — including in public — for commercial purposes are also set out in *Personal Information Protection and Electronic Documents Act*, S.C. 2000, c. 5. [PIPEDA].

of private tasks, where women can alleviate or escape the stresses of home or employment. However, intrusions into one's solitude or "right to be let alone" — e.g. by street harassment — can "break the flow of thought and distract a woman's attention, utterly without purpose, from her own concerns."⁵⁹ Private tasks and repose are replaced with experiences of leering, insulting, prying, and offensive touching.⁶⁰ These unwanted intrusions have the effect of silencing, intimidating, and objectifying women when they enter public space,⁶¹ and often leave women with little legal or normative recourse, either out of fear of a dangerous altercation, the desire to avoid embarrassment, or a lack of time, money, or unlikelihood of success in seeking police or legal intervention.⁶² Viewed individually, these privacy invasions can seem *de minimis*, and perhaps receive little or no legal protection for this reason.⁶³ But when their frequency is considered, the impact of these invasions on women's access to privacy is cumulatively significant.⁶⁴

For example, Canadian and U.S. statistics show that women's experience of street harassment is widespread — near universal by some estimates.⁶⁵ Additionally, public harassment is experienced significantly differently amongst women. For example, in the United States, African American women

⁵⁹ Allen, *supra* note 18 at 128.

⁶⁰ *Ibid.* This does not include such encounters as striking up a conversation or flirtation: "The privacy-diminishing intrusions that are to be condemned as morally disrespectful and harmful have little to do with genuine personal interest in the women who are victimized." *Ibid.* at 133. Precisely the kind of encounter that could not (likely) be mediated by an anonymizing technology.

⁶¹ *Ibid.* at 131.

⁶² *Ibid.* at 127.

⁶³ *Ibid.* See also Cynthia Grant Bowman, "Street Harassment and the Informal Ghettoization of Women" (1993) 106 Harv L Rev 517.

⁶⁴ Allen, *supra* note 18. See also Jena McGill & Ian Kerr, "Reduction to Absurdity: Reasonable Expectations of Privacy and the Need for Digital Enlightenment" in Jacques Bus et al, eds, *Digital Enlightenment Yearbook* (Amsterdam: IOS Press, 2012) on the problem of reviewing a series of relatively minor privacy invasions independently, rather than as a whole.

⁶⁵ A study by Cornell University found that 85% of women in the United States experience street harassment before the age of 17. The study also indicated that 50% of women under 40 had been groped or fondled in the last year, whereas 77% of women had been followed by a man or a group of men. Over half of the respondents noted changing their clothing or behaviour due to concerns over street harassment. See ILR School Cornell University, "Street Harassment Statistics," online: < www.ilr.cornell.edu/news/street-harassment-statistics > ; Beth A Livingston, "Street Harassment Statistics in the United States," online: Cornell Survey Project < www.slideshare.net/iHollaback/street-harassment-statistics-in-canada-cornell-survey-project-2015-48200467 > ; See also "Statistics — Stop Street Harassment Studies," online: Stop Street Harassment < www.stopstreetharassment.org/resources/statistics/sshstudies/ > . Similarly, 88% of Canadian women report their first instance of street harassment before the age of 17. See Beth A Livingston, "Street Harassment Statistics in the United States," online: Cornell Survey Project < www.slideshare.net/iHollaback/cornell-canada > .

not only experience quantitatively more street harassment, but the harassment is qualitatively different, rooted in histories of slavery and sexism.⁶⁶ Furthermore, verbal or physical harassment can escalate into more intrusive, dangerous, or violent forms of public harassment, including stalking and rape, which are also experienced differently at intersecting axes of marginalization.⁶⁷ Women can also face non-consensual filming and photography of their bodies and activities, sometimes accompanied by the sharing of these images online, which not only interrupts their enjoyment of public space, but also disempower them by undermining their control over information about themselves.⁶⁸ By interfering with a woman's safety, security, repose, solitude, and even her anonymity and control over images of herself, street harassment, stalking, and other sexual violence in public constitute (at least) invasions of a woman's privacy in public space, against which she might have limited normative or legal recourse because of the very space where the intrusion occurs.

⁶⁶ See, e.g., Deirdre Davis, "The Harm that has No Name: Street Harassment, Embodiment and African American Women" (1994) 4 *UCLA Women's LJ* 133; Deborah M Thompson, "'The Woman in the Street': Reclaiming the Public Space from Sexual Harassment" (1993) 2 *Yale JL & Feminism* 313.

⁶⁷ Kimberlé Crenshaw, "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics" (1989) *University of Chicago Legal Forum* 139. In regard to escalating violence in public, see, for example, the case of Marie Laguerre in France, in which street harassment turned violent, with the whole encounter between Ms. Laguerre and the harasser captured on CCTV video. The video was subsequently posted online. The public reaction prompted the French government to outlaw street harassment. This case is an example of street harassment turning violent, but also contributes to a problematic notion that video surveillance might be used to protect women, discussed further below. Kim Wilsher, "Uproar in France over video of woman hit by harasser in Paris street," (30 July 2018) *The Guardian*, online: < www.theguardian.com/world/2018/jul/30/uproar-in-france-over-video-of-woman-marie-laguerre-hit-by-harasser-in-paris-street > . Stalking is the fifth most common violent offence committed against women in Canada. Canadian women are three times more likely to be victims of stalking than men, perpetrators are most often men: see Ministry of the Status of Women, "Statistics: Sexual Harassment and Stalking," online: < http://www.women.gov.on.ca/owd/english/ending-violence/sexual_harassment.shtml > ; however, Indigenous people in Canada are twice as likely (7%) as non-Indigenous people (3%) to have experienced some form of stalking, and young women aged 15-24 reported the highest rates of being stalked: see Department of Justice Canada, *A Handbook for Police and Crown Prosecutors on Criminal Harassment*, November 2012 update (Ottawa: Department of Justice Canada, 2009); Metropolitan Action Committee on Violence Against Women and Children, *What You Need to Know About Stalking: A Guide for Service Providers*, March 2009 update (Toronto: METRAC, 2003). Similarly, in the United States women of colour experience higher rates of stalking — 1 in 4 American Indigenous women report experiencing stalking, and 1 in 5 African-American women experience stalking: see Colorado State University, "Stalking Statistics," online: < <http://www.wgac.colostate.edu/stalking-statistics> > .

⁶⁸ See, e.g., "Upskirt Photos Not Illegal, U.S. Court Rules," *CBC News* (6 March 2014), online: < www.cbc.ca/news/world/upskirt-photos-not-illegal-u-s-court-rules-1.2562395 > . See also, *Jarvis*, *supra* note 38.

These existing conditions of inequality will impact and be impacted by the development and adoption of new technologies like the drone.⁶⁹ Drone technology certainly does not cause street harassment or stalking, nor is it a necessary condition for the invasions of women's privacy described above. But the technology is integrating into a social context in which street harassment and stalking are already a moral and social — if not legal — problem for women. So, it is necessary to consider how the technology might impact that social context — and how that social context might (or should) impact the development and regulation of the technology.

On one hand, the combination of several key attributes of drone technology — in particular its dislocation from the operator and related anonymity of the user of the device, as well as the “silent observer” nature of the technology — might actually discourage its use for some forms of street harassment, which often entail a more personal interaction between the harasser and the individual experiencing harassment, and the assertion of a power dynamic between them.⁷⁰ These features though, also make the drone more apt for use in escalated forms of harassment like stalking where the stalker can remain anonymous and potentially more difficult to identify — not to mention more capable of accessing unexpected or difficult to shield vantage points. Drones have, in fact, already been used for these purposes for exactly these reasons.⁷¹ Additionally, the dislocation of the drone from its operator deepens the power imbalance between the harasser and the individual whose privacy is invaded. Where there is already little legal or social recourse for a privacy invasion by a person, the drone adds a further informational and accountability barrier — an individual encountering a drone might not know who is operating the drone, why, or how to prevent it.

Furthermore, the nature of the drone as an anonymous observer could have an acutely objectifying impact — there is no social interaction intended, the object of the observation is entirely objectified.⁷² In this case, rather than reducing its potential for harassment, the drone's unique combination of features might simply change the nature and experience of harassment. Perhaps then, it is

⁶⁹ Torin Monahan, “Dreams of Control at a Distance: Gender, Surveillance, and Social Control” (2009) 9 *Cultural Studies Critical Methodologies* 286 at 289.

⁷⁰ See, e.g., Thompson, *supra* note 66 at 327-328. This of course assumes that the drone is not equipped with one or two-way communication. There is no good reason to assume this limitation in the future.

⁷¹ Diana Tourjee, “Several Women in This Rural Town Say They Were Stalked by Drones,” *Broadly Vice* (2 November 2017), online: <broadly.vice.com/en_us/article/9kqqjp/several-women-in-this-rural-town-say-they-were-stalked-by-drones?utm_source=broadlytwitterus> .

⁷² See, e.g., Laura Mulvey, “Visual Pleasure and Narrative Cinema” (1975) 16 *Oxford Journals* 6 (setting out the concept of male gaze); Hille Koskela, “The Gaze without Eyes: Video-Surveillance and the Changing Nature of Urban Space” (2000) 24 *Progress in Human Geography* 243; Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective” (1988) 14 *Feminist Studies* 575.

unsurprising that stories are already proliferating about drones being used to sexually harass, stalk, and objectify women in public.⁷³ Concern about public harassment of women and the impact of harassment on their privacy can be distinguished from the “sunbather narrative” that focuses on women’s modesty, as here the focus is on the invasion into a woman’s personal privacy in the form of her right to repose, to use and enjoy public space, and to anonymity — rights that are also central to men’s privacy in public space, and not to a woman’s duty of modesty.

Further consideration, and empirical and qualitative work, is needed to better understand and unpack how this emerging and potentially prolific technology will impact privacy in public. None of the above discussion is intended to suggest that drones may not be used the same way against men. However, the social context, including the long history of sexual violence, stalking, and objectification of women in public, cannot be overlooked. While drone technology — and the surveillance payloads that can be attached to it — will engage the privacy interests of both men and women in public spaces,⁷⁴ gender — intersecting with race, colonialism, sexuality, class, disability, and age — continues to be an important determinant of one’s ability to expect and assert personal privacy outside the home.⁷⁵

Privacy Consequences of Drones as a Tool to “Protect” Women in Public Space

A further privacy issue that should be considered in the context of drone privacy regulation may soon emerge in light of the reality of women’s experiences in public spaces cited above. Drones have recently been suggested as a tool to help protect women, in particular from gender-based violence in public. Two recent examples include the use of drones as personal streetlamps, which can be summoned through a cell phone application and which would follow an individual around when they feel unsafe.⁷⁶ A second recent suggestion has been to use drones to monitor public spaces perceived as high risk for crime — in

⁷³ Callie Beusman, “Of Course Women Are Getting Sexually Harassed by Drones,” *Jezebel* (14 May 2014), online: < jezebel.com/of-course-women-are-getting-sexually-harassed-by-drones-1576526357 > ; Lauren O’Neil, “Sexual Harassment by Drones a Growing Concern” *CBC News* (11 June 2014), online: < www.cbc.ca/newsblogs/yourcommunity/2014/06/sexual-harassment-by-drones-a-growing-concern.html > ; Maggie Gilis, “‘Creepy and Invasive’: St. John’s Woman Says She’s Being Watched by a Drone,” *CBC News* (30 November 2016), online: < www.cbc.ca/news/canada/newfoundland-labrador/drone-following-st-john-s-woman-1.3874380 > .

⁷⁴ However, these types of informational invasions, and their consequences, are also heavily based on gender, race, class, age, disability, and so on. See, e.g., Monahan, *supra* note 69; Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham, NC: Duke University Press, 2015); Rachel E Dubrofsky & Shoshana Amielle Magnet, eds, *Feminist Surveillance Studies* (Durham, NC: Duke University Press, 2015).

⁷⁵ Anita Allen, “Gender and Privacy in Cyberspace” (2000) 52 *Stan L Rev* 1175.

⁷⁶ Peter Corboy, “Fleetlights: A Prototype Team of Flying Torch Drones to Guide the Way

particular, the New Delhi, India police force plans to use small surveillance drones equipped with night vision and thermal imaging cameras as a means to counteract rape.⁷⁷ These proposed uses, among other similar proposals by both state and private actors, could very well have beneficial outcomes for women. But such proposals must be subjected to a critical analysis before their acceptance and widespread adoption, particularly where the justification for this drone usage is the purported “protection of women.”

As professors Mason and Magnet observe,

. . . it is a difficult task to critique surveillance technologies aimed at ensuring women’s safety against abusers. When made visible as anti-violence tools, technologies of surveillance appear to be uncontroversial to a range of actors. [. . . but] by overlooking the complex ways that surveillance practices and technologies are entrenched within the prison industrial complex, one might miss key challenges that surveillance technologies pose to anti-violence strategies. Whether it is smartphones, iPhone applications, Google maps, or home surveillance, feminist surveillance studies scholars must investigate the ways that existing inequalities may be exacerbated by their use.⁷⁸

Drone privacy scholarship must be attentive to the ways in which the protection of one marginalized group could be co-opted to justify, for example, increasing public surveillance, or surveillance of particular people or places.⁷⁹ For instance, the social construction of the “woman as a victim” in need of protection can lead to her own forced surveillance. Professors Wesley and Gaardener highlight the difficult trade-off women can experience between wanting to feel safe while accessing the outdoors, and their discomfort with the increased surveillance that can accompany this desire.⁸⁰ The potential of a self-summoned drone lamp that tracks one’s location will perhaps encompass this

at Night,” *Designboom* (18 November 2016), online: < www.designboom.com/technology/fleetlights-direct-line-drone-app-11-18-2016/ > .

⁷⁷ Anne Stelle, “Will Drones Keep India’s Women Safe From Rape?,” *Global News Blog* (11 December 2014), online: < www.csmonitor.com/World/Global-News/2014/1211/Will-drones-keep-India-s-women-safe-from-rape > ; Zusha Elinson, “Taser Explores Concept of Drone Armed With Stun Gun for Police Use,” *The Wall Street Journal* (20 October 2016), online: < www.wsj.com/articles/taser-explores-concept-of-drone-armed-with-stun-gun-for-policeuse-1476994514 > .

⁷⁸ Mason & Magnet, *supra* note 1 at 114-116: “assertions that surveillance technologies keep us safer from violence as they help police to arrest perpetrators [are] deeply problematic. Rather, they may only further the criminalization of victims of violence through mandatory arrest policies for women, or women may avoid even those technologies explicitly designed to help enable police surveillance of their abusers for fear of a criminal justice outcome.”

⁷⁹ Dubrofsky & Magnet, *supra* note 74 at 1. The “racist imagining of violence as key to communities of colour justifies new forms of surveillance by the state in ways that facilitate the disproportionate criminalization of communities of colour.” Dubrofsky & Magnet, *supra* note 74 at 8.

difficult balancing in the future. It must be acknowledged, however, that as the technology becomes more prolific and accessible, women may lose any real choice in the matter. For instance, were a woman to avoid some purportedly helpful or protective surveillance and then experience violence in public, law enforcement, courts, or social circles might question why she resisted the helpful technology — a form of tech-driven victim blaming.

Further, North American history is replete with examples where the fear of victimization of white women has justified racial discrimination, criminalization, and surveillance of marginalized groups, including other women.⁸¹ Compounding this justification for discrimination, such narratives can serve to further justify a state refusal to surveil or criminalize those who abuse members of these marginalized groups,⁸² such as the Canadian government's refusal to investigate the murders of Indigenous women and girls,⁸³ while simultaneously supporting state surveillance of Indigenous communities and individuals.⁸⁴

While, again, drone technology is not the cause of, nor does it necessitate, this outcome, the technology is well-suited to facilitate and expand state surveillance, particularly when coupled with the seemingly beneficial promise of improving women's security. This is supported by, among other things, the drone's relatively low cost (both to acquire, and to operate relative to police foot or helicopter patrol), capacity to enter into otherwise difficult-to-access areas, and the increasing autonomy of the device permitted by on-board software that requires less skill and training to operate.⁸⁵ In other words, the drone overcomes many of the resource barriers that would ordinarily limit such surveillance.⁸⁶ Accordingly, assessing the increased state use of drones through a feminist lens requires consideration of the ways in which drones — potentially those utilized with the goal of protecting women — may actually increase the surveillance of (particularly, marginalized) women in public.⁸⁷

⁸⁰ J Wesley & E Gaardener, "The gendered 'Nature' of the urban outdoors: Women negotiating fear of violence" (2004) 18 *Gender & Society* 645.

⁸¹ See, e.g., Constance Backhouse, *Colour-coded: A Legal History of Racism in Canada* (Toronto: Osgoode Society for Legal History, 1999).

⁸² See, e.g., Mary Louise Fellows & Sherene Razack, "The Race to Innocence: Confronting Hierarchical Relations Among Women" (1997-8) 1 *J Gender Race & Just* 335 at 342-344; Jane Bailey, "'Gendering Big Brother': What Should a Feminist Do" (2016) 12 *J Law & Equality* 157.

⁸³ Amnesty International Canada, "No More Stolen Sisters: The Need for a Comprehensive Response to Discrimination and Violence Against Indigenous Women in Canada" (2004), online: <www.amnesty.ca/sites/amnesty/files/am-r200122009en.pdf>; cited by Bailey, *supra* note 82 at 5.

⁸⁴ E.g. Andrew Crosby & Jeffrey Monaghan, *Policing Indigenous Movements: Dissent and the Security State* (Black Point, NS: Fernwood Books Ltd, 2018).

⁸⁵ "Surrey Now Has the UK's 'Largest' Police Drone Project," *Wired* (12 April 2016), online: <www.wired.co.uk/article/surrey-police-uk-largest-drone-trial>.

⁸⁶ See, e.g., Woodrow Hartzog & Evan Selinger, "Surveillance as Loss of Obscurity" (2015) 72 *Wash & Lee L Rev* 1343.

Furthermore, deeper consideration of whether this use of drone technology will actually have the effect of protecting the women it purports to protect is necessary. Professor Koskela's analysis of the effectiveness of CCTV cameras used for this same purpose reveals a number of concerns, including that these volume-less cameras failed to protect women from verbal assaults, and that the cameras transformed into a form of voyeurism for the predominantly male security personnel.⁸⁸ One could imagine, with the drone's dislocation from a human intervener, that human intervention in a crime would have, at least, a time-delay and as noted above, an objectifying impact on the individual being observed.⁸⁹

Finally, the assumption that video or other evidence collected by a drone would assist a complainant in the event of violence in public must be critically assessed. For example, digital evidence in criminal prosecutions of sexual violence has not consistently been treated by courts as beneficial to the complainant or prosecution. In her examination of several recent Canadian cases, Alexa Dodge explains how even digital evidence that seems to confirm a complainant's testimony (or substitutes for it where she cannot remember) could be used against her in ways bolstered by rape myths.⁹⁰ Dodge gives as one example the case *R. v. R. (J.)*, where an accused was seen on a surveillance camera grabbing the complainant's breasts and buttock. The judge at first instance concluded that the complainant was unclear or ambiguous in the video about whether she was consenting to the touching — the video was subsequently interpreted as contradicting her verbal testimony.⁹¹ Though this decision was

⁸⁷ As Professor Jane Bailey has poignantly emphasized in the context of digital surveillance: "Feminists who engage with Big Brother need to be mindful of the ways in which responses to the kinds of surveillance of most relevance to the privileged may fail to address or even worsen the kinds of surveillance disproportionately experienced by the 'other' due to the underlying discriminatory tropes that make them targets in the first place." Bailey, *supra* note 82 at 17.

⁸⁸ Hille Koskela, "Video Surveillance, Gender, and the Safety of Public Urban Space: 'Peeping Tom' goes Hi-Tech?" (2002) 23 *Urban Geography* 257.

⁸⁹ Delegating crime intervention to the drone itself raises a host of other questions beyond the scope of this discussion. See, e.g., Jason Koebler, "The Legal and Ethical Ramifications of Letting Police Kill Suspects with Robots," *Motherboard* (9 July 2016), online: <motherboard.vice.com/en_us/article/dallas-shooting-bomb-robot-legal-analysis>. Different privacy concerns or harms might arise when the subject(s) of drone observation are or are not aware of their observation, depending in part on the underlying theory of privacy guiding the assessment. Privacy harms can arguably flow from unknown observation, or from situations where the observation is entirely automated — i.e. where footage is analyzed only by technical means, not through human eyes. See, e.g., Ian Kerr, "Schrödinger's Robot: Privacy in Uncertain States" 20 *Theor Inq L* [forthcoming in 2019]. The non-consensual use or sharing of information or images collected, even without the subject's knowledge, can also cause privacy harm even when the observation itself might not be considered a privacy harm. See, e.g., Ryan Calo, "The Boundaries of Privacy Harm" (2011) 86 *Ind LJ* 1131 at 1159-1161.

⁹⁰ Alexa Dodge, "The digital witness: The role of digital evidence in criminal justice responses to sexual violence" (2017) *Feminist Theory* 1.

later overturned, it nevertheless underscores Dodge's observation that while digital evidence may be assumed to be "static and lacking human bias,"⁹² and therefore useful in the prosecution of crime, its use is never truly objective, particularly when it is interpreted by another individual in different circumstances.⁹³ This is not to mention the fact that criminal prosecution — particularly one which involves the display of video evidence of the crime — might not be the preferred or desired recourse for a complainant. Yet the existence of such video evidence may, ultimately, take the decision about recourse away from her. The justification of increasing public surveillance to protect women should therefore be subjected to further critical analysis on the basis that the purported evidence obtained from drones might not even serve the purpose of protecting women, particularly if scrutinized with attention to the impact of pervasive cultural rape myths.

The examples of the gendered implications of this emerging technology discussed in this section are non-exhaustive and each will merit deeper analysis if/ as drone technology is more widely adopted. A further observation that can be drawn from the above discussion is that the experience and personal consequences of privacy invasions and surveillance in public space have been known to members of subordinated groups, including women, for a long time.⁹⁴ While the drone has been seen as a "privacy catalyst"⁹⁵ — a tool with the potential to draw greater social attention to the value and precarity of privacy protections — the real impact that it may have will be to catalyze the attention and concern of members of empowered groups, who by virtue of a privileged status have not been subject to significant privacy invasions and surveillance.⁹⁶ Critically though, any meaningful response prompted by an increased recognition of the importance of privacy must be comprehensive enough to acknowledge different experiences of privacy and its invasion by drones. Drawing on this examination, the final section of this article considers whether and how these different implications can be addressed through the current North American approach to drone regulation.

⁹¹ *Ibid* at 10. See also *R. v. R. (J.)*, 2016 ABQB 414, 2016 CarswellAlta 1390, [2016] A.W.L.D. 3507, [2016] A.J. No. 571, 13 W.C.B. (2d) 539 (Alta. Q.B.) overturning the discussed youth court decision.

⁹² Dodge, *supra* note 90 at 3.

⁹³ "The act of looking can never be neutral": *Ibid* at 10, citing Katherine Biber, *Captive Images: Race, Crime, Photography* (New York: Routledge, 2007) at 119; Haraway *supra* note 73.

⁹⁴ Bailey, *supra* note 83 at 4: "The fact of the matter is members of subordinated groups have known the powers and technologies of surveillance for some time. For these groups, surveillance is and always has been inescapably noticeable because it is part of everyday life. See also Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Durham, NC: Duke University Press, 2015).

⁹⁵ Calo, "Privacy Catalyst," *supra* note 6.

⁹⁶ Bailey, *supra* note 83 at 9.

SECTION III: REFLECTING ON THE “SAFETY-FIRST” FOCUS OF CANADIAN AND U.S. DRONE REGULATION

Having considered some ways in which drone technology might differentially affect women’s privacy, particularly in ways that might not be addressed under privacy laws of general application, this section examines Canadian and U.S. drone-specific regulation to assess whether and how some of these differential outcomes might be addressed within existing regulatory frameworks.⁹⁷

First, this section identifies a North American “approach” to drone regulation — namely, identifying the general themes and priorities in the regulation of drones, and how regulations purport to apply to the technology itself and the social contexts into which it is adopted. The goal here is not to set out a detailed summary of all drone laws in Canada and the United States, many of which are in a state of frequent flux, but rather to draw out some generalizations, as these are helpful for the subsequent analysis of drone regulation, particularly in light of issues raised in the preceding section. This section then goes on to explain why the current value-neutral approach to drone regulation can not sufficiently address the ways in which this technology can negatively impact individuals and communities, beyond their personal physical safety. Finally the section argues that social impacts of the technology need to be better addressed not only in technology-neutral privacy laws, but also through the rules that regulate drone design and permissible uses.

Canadian and U.S. Approach to Drone Regulation

In regards to Canadian and U.S. drone regulation, a preliminary observation is that both countries now appear to accept that drone technology is “here to stay”. While in each country there are some significant regulatory limits on widespread drone use, the federal governments of both Canada and the U.S. have taken the position that drone technology will bring economic benefits to society as a whole, and that it is worth encouraging further adoption.⁹⁸ This is

⁹⁷ This section considers both the Canadian and U.S. contexts, as the regulations in each country have remained on a similar trajectory with new developments in one country often influencing the other, particularly given the geographical proximity of the two countries and their sometimes collaborative approach to airspace regulation. Helpful insight can be gained from considering each.

⁹⁸ See, e.g., The White House, Presidential Memorandum, “Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems” (15 February 2015), online: < obama-whitehouse.archives.gov/the-press-office/2015/02/15/presidential-memorandum-promoting-economic-competitiveness-while-safegua > (acknowledging the transformative economic potential of drones, while also recognizing the need to safeguard privacy, civil rights, and civil liberties); Canadian Aviation Regulations Advisory Council, Notice of Proposed Amendment, 2015-02, “Unmanned Air Vehicles — Executive Summary” (28 May 2015), online: < www.apps.tc.gc.ca/Saf-Sec-Sur/2/NPA-APM/doc.aspx?id=10294 > . (“The rising sales and evolving technology of unmanned air vehicles (UAVs) make them a rapidly growing part of the aviation industry [. . .]Transport

significant in the sense that, while regulators might strive to address and minimize risks associated with the technology, ultimately there is an expectation that non-risky uses of the technology will increasingly be permitted.

Another important aspect of drone regulation in the context of risk-assessment is a focus on safety. In both Canada and the U.S., the primary regulators of drone technology are federal safety agencies — Transport Canada and the Federal Aviation Administration, respectively. The specific rules promulgated by these agencies unsurprisingly focus on safety, particularly with respect to other airspace users, as well as people, animals, and property on the ground.⁹⁹

In both countries, drone regulations vary according to the operator of the drone (state agencies, commercial operators, recreational users, journalists) — though these distinctions are beginning to disappear¹⁰⁰ — and according to the size of the drone (smaller drones are subject to less regulation than larger drones). In both countries, recreational users (those who fly drones for personal reasons, not for commercial or research purposes) were largely unregulated for a long time, though this is also beginning to change.¹⁰¹ Commercial drone operators (who put their drone toward a business purpose) have traditionally been highly regulated. The extent of regulation has not been predicated on the purpose of the operation (beyond the commercial versus recreational distinction), nor on the types of surveillance or other payloads attached to the drone.

For safety reasons, flights over populated areas, and flights near airports are generally more restricted than those over open fields or unpopulated spaces. Both countries restrict drones from certain airspace, including near military installations, prisons, and in national parks. While these safety rules have some beneficial consequences for personal privacy — particularly by limiting the use of

Canada seeks a balanced approach to both safely integrate UAVs into Canadian airspace and encourage innovation within this important new subsector of civil aviation. At the same time, it is important to recognize the unique risks UAVs and UAV users of varying degrees of aviation expertise, pose to other airspace users.”).

⁹⁹ This focus is in accordance with each agency’s core objectives. See, e.g., Transport Canada, “What we do,” online: < www.tc.gc.ca/eng/aboutus-whatwedo.htm > ; Federal Aviation Administration, “What we do” online: < www.faa.gov/about/mission/activities/ > .

¹⁰⁰ For example in Canada, proposed new rules will apply based on the size of the drone and type of operation, rather than the category of operator. See, e.g., Transport Canada, “Proposed rules for drones in Canada,” online: < www.tc.gc.ca/en/services/aviation/drone-safety/proposed-rules-drones-canada.html > .

¹⁰¹ Transport Canada recently adopted fairly stringent limits on recreational use, after a long period where recreational users were largely unregulated. See “Increased Risk to Aviation Safety: New Rules Introduced for Recreational Drone Use in Canada,” *Financial Post* (20 March 2017), online: < business.financialpost.com/fp-tech-desk/increased-risk-to-aviation-safety-new-rules-introduced-for-recreational-drone-use-in-canada > .

drones in populated areas — privacy is not the central philosophy of drone regulation. Accordingly, as the safety of drone technology improves, some of these laws that currently protect privacy only consequentially will likely change.¹⁰²

In Canada, privacy concerns raised by drones have received relatively little attention from drone regulators, beyond general calls for drone operators to “respect the privacy of others” and “avoid flying over private property or taking photos or videos without permission.”¹⁰³ By contrast, the privacy implications of drones have received more attention in the U.S.¹⁰⁴ For example, the National Telecommunications and Information Administration (NTIA) has developed voluntary drone privacy guidelines, to which the FAA refers operators. These guidelines primarily recommend notifying individuals whose data might be collected, and collecting the minimum amount of information necessary.¹⁰⁵ In a press release corresponding with the implementation of new drone rules in June 2016, the FAA advised that it will act to address privacy considerations and provide drone users with “recommended privacy guidelines” as a part of a registration process.¹⁰⁶ Privacy practices are couched as a way to ensure the economic success and social integration of the technology, for commercial and

¹⁰² *Ibid.*

¹⁰³ See Transport Canada, “Flying Your Drone Safely and Legally,” online: < www.tc.gc.ca/eng/civilaviation/opssvs/flying-drone-safely-legally.html > . Transport Canada also released a video on privacy and trespassing associated with drones. The script is the following: “If you’re using a drone in your backyard, avoid flying over private properties or taking photos or videos without permission”: Transport Canada, “Curious Drone? Privacy and Trespass,” online: < www.tc.gc.ca/eng/mediaroom/uav-privacy-and-trespassing-7654.html > ; “Transport Canada to Introduce New Drone Regulations,” *CTV News* (11 January 2016), online: < www.ctvnews.ca/canada/transport-canada-to-introduce-new-drone-regulations-1.2732227 > .

¹⁰⁴ In 2016, the Electronic Privacy Information Center (EPIC) began a lawsuit against the FAA over their rules governing the use of commercial drones. EPIC argues that the FAA is obligated to consider privacy issues, since Congress directed the FAA to develop “comprehensive” rules surrounding drone safety in the U.S. airspace: see Stephanie Condon, “FAA Sued for Lack of Drone Privacy Rules,” *ZD Net* (24 August 2016), online: < www.zdnet.com/article/faa-sued-for-lack-of-drone-privacy-rules/ > .

¹⁰⁵ NTIA best practices can be found at: < www.ntia.doc.gov/files/ntia/publications/voluntary_best_practices_for_uas_privacy_transparency_and_accountability_0.pdf > . The best practices can be summarized as: drone operators are to inform anyone affected by their collection of data (like photographs), securing the data, and limiting how the collected data is used and shared. The best practices also advocate for not collecting data unnecessarily or where a subject has a reasonable expectation of privacy. The FAA takes the approach that it cannot regulate data gathered by drones, as it also cannot regulate data gathered by hand-held cameras. See also: Lisa Ellman & Jared Bomberg, “The FAA’s De Facto Drone Privacy Standards,” *Iapp* (30 August 2016), online: < iapp.org/news/a/the-faas-de-facto-drone-privacy-standards/ > ; Roger Slade & Jacob Epstein, “New FAA Drone Regulations Do Little to Protect Individual Privacy Rights”, *Florida Community Association Professionals* (December 2016), online: < www.fcagroup.com/flcaj/flcaj-articles/new-faa-drone-regulations-little-protect-individual-privacy-rights/ > .

non-commercial operators.¹⁰⁷ While these are positive privacy ideals, to date they provide no actual legal recourse for individuals negatively affected by drone use. Indeed, accountability and recourse for privacy concerns have not been the primary focus for either of the national regulators.¹⁰⁸

In the United States, and to a lesser degree in Canada, other levels of government have also begun to regulate drones in relation to privacy. Often these laws do not address the existing gaps in legal protection in public space that leave many forms of gendered privacy invasions un- or under-protected against.¹⁰⁹ Some state laws permit self-defensive action against drones over private property, though not in public space.¹¹⁰ Nevertheless, the validity of many of these laws can be challenged given the primacy of federal jurisdiction in both countries.¹¹¹

Implications of the Safety-Based Approach to Drone Regulation

Having set out some general themes in the approach to drone regulation, this sub-section analyzes this regulatory approach. None of the drone laws in Canada or the U.S. are explicitly gendered — there are no laws restricting or mandating particular gender-driven access to or use of drone technology. However, as Langdon Winner has famously observed, artefacts, like the drone, have politics¹¹² — and regulatory frameworks that fail to consider these politics

¹⁰⁶ Federal Aviation Administration, Press Release, “DOT and FAA Finalize Rules for Small Unmanned Aircraft Systems” (21 June 2016), online: < www.faa.gov/news/press_releases/news_story.cfm?newsId=20515 > .

¹⁰⁷ *Supra* note 98.

¹⁰⁸ Transport Canada, for example, has a webpage where individuals can report unwanted drone encounters, however it is primarily concerned with drones flying near other aircraft or airports, not with privacy complaints: see Transport Canada, “Drone Incident Report Form,” online: < www.tc.gc.ca/eng/civilaviation/opssvs/drone-incident-report-form.html > .

¹⁰⁹ See, e.g., state and local laws summarized by the Bard College Center for the Study of the Drone, “Local and State Drone Laws,” online: < dronecenter.bard.edu/state-and-local-drone-laws/ > . For example, Florida’s drone laws prohibit surveillance of a person *on her private property* where that person would not be visible from the ground. This may arguably expand some privacy protection beyond privacy laws of general application, however it does not address surveillance in public spaces. See Fl Stat tit §48 934.50 (2013) at s. 3; in contrast to *Florida v. Riley*, 488 US 445 (1989), in which the U.S. Supreme Court held that law enforcement do not require a warrant to observe private property from public airspace.

¹¹⁰ Mariam McNabb, “Drone Privacy: What Are a Drone Operator’s Rules and Responsibilities?,” *Drone Life* (7 February 2017), online: < dronelife.com/2017/02/07/drone-privacy-rules-responsibilities/ > ; “Current Unmanned Aircraft State Law Landscape,” online: National Conferend of State Legislatures < www.ncsl.org/research/transportation/current-unmanned-aircraft-state-law-landscape.aspx > .

¹¹¹ Margot E Kaminski, “Drone Federalism: Civilian Drones and the Things they Carry” (2013) 4 Cal L Rev 57.

¹¹² Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High*

may permit the perpetuation of inequalities through those technologies.¹¹³ Even though the laws regulating drones appear to be gender neutral, these regulations can, in fact, obscure the gendered impacts of the technology.

For instance, the primary regulatory focus on safety presumes that this technology presents the same types of risks (physical injury and property damage), of the same level of importance, to everyone. This approach fails to take into account the other politics of the device — such as lending an operator a degree of anonymity, or perpetuating an informational and power imbalance between the operator and the object of observation (who might not be able to locate, or stop, the operator), or enhancing the feeling of objectification experienced by individual observed by a drone — which can have different meanings for different people. It is feasible that for some, physical safety from a drone is not the first priority or concern for regulation. For instance, prevention of drone harassment, intimidation, or voyeurism permitted by the technology — and the subsequent publication of information emanating from such encounters — might be a higher or equivalent priority to some, at least at the point of encountering the device. Prevention of state sanctioned pervasive surveillance in public spaces (including those that would be hard to access on foot, or expensive to access by manned aircraft) might be the predominant concern for others.

Furthermore, the regulatory approach does not explicitly distinguish between different social contexts in which drones might be operated. While regulations can apply differently in populated versus unpopulated areas (which has the consequence of treating different social contexts differently) these regulations are not designed with social context in mind and do not recognize any differences between the social contexts arising in populated and less-populated areas. As noted, they are also subject to change as the technology becomes safer. Additionally, drone regulations do not consider the impact of different payloads or different drone design features in different contexts or on different individuals.¹¹⁴ Regulations instead focus on regulating the artefact (the ‘drone’ as an unmanned vehicle that takes to the airspace), rather than how it

Technology (Chicago: University of Chicago Press, 1986); “Do Artifacts Have Politics?” (1980) 109 *Daedalus*. See also Bruno Latour, “Where are the missing masses? The sociology of a few mundane artifacts,” in Wiebe E Bijker & John Law, eds, *Shaping technology/building society: studies in sociotechnical change* (Cambridge: MIT Press, 1992) 225.

¹¹³ Deborah Johnson, “Sorting Out the Question of Feminist Technology” in Linda Layne, Sharra Vostral & Kate Boyer, eds, *Feminist Technology* (Champaign, Illinois: University of Illinois Press, 2010).

¹¹⁴ See Woodrow Hartzog, *Privacy’s Blueprint: The Battle to Control the Design of New Technologies* (Cambridge: Harvard University Press, 2018) for the compelling argument that privacy law should demand that user protection be designed into new technologies. See also Ontario, Office of the Information and Privacy Commissioner, “Privacy by Design: The 7 Foundational Principles” (Toronto: Information and Privacy Commissioner of Ontario, 2009).

integrates into society. Accordingly, the particular politics embodied in the technology remain largely unaddressed.

Of course, as discussed above, the FAA and other levels of government, particularly in the United States, have begun to turn their attention toward privacy. This is a positive step in terms of addressing some of the social concerns that drones raise. However, to date this has generated little actual legal or normative protection or recourse, particularly for the kinds of privacy invasions that disproportionately affect women. And Canada has remained behind in addressing privacy issues through drone regulation generally. The next section sets out some initial steps for moving forward.

Preliminary Responses to these Regulatory Challenges

Recognizing that the primary responsibility for drone regulation in both Canada and the United States falls to safety agencies, this section sets out some possible next steps toward addressing some of the differential impacts of drones within the current framework. However, without a broader rethinking of both privacy law (particularly as it applies in public space),¹¹⁵ and the system for drone regulation, these recommendations are limited in their scope and impact. The ultimate solution to the issues identified in this article will be the dismantling of the systems of oppression that lead to these differential privacy experiences, among other inequities and injustices.¹¹⁶ This section simply sets out some preliminary ideas for how regulators might start to re-balance the attributes of drone technology, through regulation, so as to address a broader range of concerns beyond airspace safety.

First, federal drone regulators ought to accept responsibility to consider the privacy and other social impacts of drone technology and to address these impacts through policy and regulation. As noted, the FAA has already begun to address some privacy concerns related to drone use. A broad understanding of airspace “safety” will increasingly need to include privacy. As this author has previously argued along with drone scholar Ciara Bracken-Roche:

Addressing privacy in [drone] regulations is not only forward-thinking but it helps to mitigate potential conflicts that may arise from public concern about [drone] data collection, and can contribute to a greater sense of security amongst the public encountering [drone] technology. As [drone] technologies almost always collect data, operators also need to be aware of the privacy concerns that not only arise in the real-time

¹¹⁵ If privacy laws of general application do grow to recognize more of the privacy harms that primarily affect individuals other than white, cis, heterosexual, able-bodied, property-owning/renting men, this would be a positive development, perhaps even one that can be catalyzed with increasing diversity on the bench. See e.g. Madam Justice Bertha Wilson, “Will Women Judges Really Make a Difference?” (1990) Osgoode Hall LJ 507.

¹¹⁶ bell hooks, *Feminism is for everybody: passionate politics* (New York City: South End Press, 2000).

operation of [drones] but also the longer term questions about data collection, protection, and storage.¹¹⁷

Addressing privacy concerns can arguably enhance airspace safety by, for instance, mitigating potential conflicts prompted by the use of the technology, like the examples discussed in Part I above. By addressing the privacy and other social impacts of the technology through regulation, regulators also have an opportunity to encourage privacy-friendly technological design.¹¹⁸ Drone manufacturers have already implemented safety-enhancing designs into their products, including limiting the user's ability to fly the technology in specific airspace.¹¹⁹ Similarly, imposing certain data collection limits on the permissible use of the technology, for instance, can encourage designs that allow users to follow such requirements. Treating privacy concerns as outside the scope of "safety" overlooks an opportunity to influence the trajectory of innovation in more a publically beneficial and context-aware direction, and to ultimately enhance the safety of both airspace and of the individuals who encounter and interact with airspace technologies.

Second, regulators must place greater emphasis on developing mechanisms for accountability. Regulators can continue to develop design requirements that help to rebalance the informational and power imbalance between the operator of the drone and the individual encountering the drone, which could subsequently provide an avenue for redress and future prevention. This may be a difficult task, technologically. For example, while drones could be required to bear the equivalent of a licence plate, which can aid with identifying the operator, how can regulators ensure that it is visible from a distance or while the drone is in movement? Emitting information from the drone to, for instance, a cell phone application could be useful, but presumes that individuals experiencing negative encounters also own and carry a phone. Similarly, listing all drone flights on a website would be useful, except to those without regular access to the Internet. Providing a mechanism or reporting outlet for harmful drone encounters, or even a dedicated investigator or mediator, could also further this endeavour, though such initiatives can be resource-heavy, or potentially ineffective. However, accountability need not and ought not always

¹¹⁷ Kristen Thomasen & Ciara Bracken-Roche, "Public Consultation on the Regulations Amending the Canadian Aviation Regulations (Unmanned Aircraft Systems)" (Submission to Transport Canada, 13 October 2017).

¹¹⁸ See, e.g., Woodrow Hartzog, *Privacy's Blueprint: The Battle to Control the Design of New Technologies* (Cambridge MA: Harvard University Press, 2018) arguing that law can and should require designers and manufacturers to respect privacy in the design of their products, encouraging regulators to focus on the initial design of products and not solely on permissible uses of those products.

¹¹⁹ For instance, after a DJI drone crashed on the White House lawn in 2015, the company pushed a firmware update that prevented its devices from being flown over the White House. See "Drone maker DJI bans Washington flights after White House crash," *BBC News* (28 January 2015), online: < www.bbc.com/news/technology-31023750 > .

involve state actors and the judicial system. Professor Michael Fromkin and Zak Colangelo have suggested design-based mechanisms to address the information imbalance between the drone operator and an individual encountering a drone, as a means for reducing uncertainty about the device. For instance, a drone could be equipped with coloured lights or other markers to inform individuals about the drone's capabilities (e.g., whether or not it is filming).¹²⁰ This may also help to address the power imbalance between the operator and the observed by giving the observed greater awareness relating to the encounter — though this still must be accompanied by some form of recourse to address privacy harm. None of these suggestions definitively deal with the issue of gendered privacy invasions. However these combined factors could begin to address some of the attributes of drones that risk worsening the state of public privacy for women.

Regulators should simultaneously focus on increasing public participation in all stages of the regulatory process — developing mechanisms for intervention at both the design phase and in the contexts of sale and use.¹²¹ One mechanism is to adopt a “critical feminist technology assessment,” extending existing technology assessment procedures by, “first, giving voice to the full range of interested groups in technological design and, second, starting from a critical debate about what and whose needs are to be met, rather than from existing technologies.”¹²² In other words, focus on democratizing the technology from the “outside in.”¹²³

As a final observation, regulators can adopt policies and targets to enable women to increase their technical competence and access to drone technology.¹²⁴ There are already numerous endeavours targeted at increasing women's involvement in the industry, as well a number of women in prominent positions within the drone industry.¹²⁵ Nevertheless, men still heavily dominate

¹²⁰ A Michael Fromkin & P Zak Colangelo “Self-Defense Against Robots and Drones” (2015) 48 Conn L Rev 1. See also, Hartzog, *supra* note 115.

¹²¹ Wendy Faulkner, “Technology Question in Feminism” (2001) 24:1 Elsevier 79 at 91.

¹²² *Ibid* at 91.

¹²³ *Ibid*. Of course, recommendations arising from such an assessment may call for significant changes to current drone design or permissible drone use, or even an undoing of currently permissible design or use, which might encounter resistance from users and manufacturers who rely on the current state of regulation. However, the *status quo* should not serve as an impediment to improved regulation. Drone design and use already encounter resistance from other affected community members, as discussed throughout Part I. While the technology is already in widespread use in both Canada and the U.S., the state of regulations, and even design, remain in flux. Broader assessments of the impact of the technology, beyond a focus on physical safety, can still influence the trajectory of law and innovation, as well as the emerging norms around drone use, and ought to be considered.

¹²⁴ *Ibid*.

¹²⁵ Matt McCue, “Meet the Women Shaping the Future of the Drone Business,” *Fortune* (1 July 2015), online: <fortune.com/2015/07/01/women-drone-industry/> ; Sally French, “In Eliminating Gender Stereotypes in the Drone Industry, It's Not Enough to Passively

the drone industry.¹²⁶ Greater diversity of voices both within and without the industry can help to democratise the technology from both the inside and out. However, encouraging women into the industry cannot be the sole or primary solution to addressing the issues raised in this article. First, it places an expectation on women to accept the system as is and learn to adapt to and within it — a system that some women may deem socially harmful.¹²⁷ Simply encouraging women to become more involved with technology that is largely shaped by and for men will not necessarily bring about more egalitarian or feminist technology. Second, while becoming increasingly affordable, drone technology is still a luxury to many, who may not have the financial or time resources to dedicate to entering into an industry, particularly out of a “gender obligation”. Encouraging more women to become involved with the technology from a technical or policy perspective can have positive consequences, but cannot be the sole solution to addressing differential impacts of the technology.

Ultimately, broader changes to law and society will be needed to fulsomely address many of the underlying issues identified in this article. Nevertheless, drone regulators are in a position to have an immediate and direct impact on the use and design of a technology that — because of its particular features — could exacerbate existing social inequities. These public agencies ought to take this broader social context into consideration when regulating drone technology.

CONCLUSION

This article has drawn from feminist privacy scholarship in order to consider some of the gendered ways in which drone technology might engage privacy law and norms. The non-exhaustive list of examples has revealed that the traditional norms of women’s privacy as rooted in modesty persist today, if not explicitly in the legal framework, certainly in popular discussions of drone technology. This narrative risks undermining the ability of women to assert privacy in public spaces, particularly in response to persistent gendered invasions of their privacy, which can be exacerbated by the attributes of drone technology. Yet a purported

Wait For Others to Change,” *The Drone Girl* (6 February 2015), online: < thedrone-girl.com/2015/02/06/in-eliminating-gender-stereotypes-in-the-drone-industry-its-not-enough-to-passively-wait-for-others-to-change/ > .

¹²⁶ Drone vendors target men: see Zara Stone, “Disarming the Drone Gender Gap,” *Buzzfeed News* (20 October 2015), online: < www.buzzfeed.com/zarastone/disarming-the-drone-gender-gap?utm_term=.vbLd20NQ5V#.yiaXK9nVBE > . Men buy 90% of civilian drones. Most drone enthusiasts and most civilian drone professionals are men. In a recent drone film festival, out of 330 submissions, only 11 films were submitted by women. Advertisements lack women, or treat them as bystanders. There is an unconscious bias that women do not fly drones: see Ben Guarino, “Men Buy 90% of Civilian Drones and That’s Big Trouble for a Growth Industry,” *Inverse* (19 January 2016), online: < www.inverse.com/article/10294-men-buy-90-of-civilian-drones-and-that-s-big-trouble-for-a-growth-industry > .

¹²⁷ *Supra* note 109.

concern about women's safety in public could simultaneously lead to greater surveillance by drone technology — both of and amongst women — further engaging and worsening experiences of privacy in public space. When assessing the Canadian and U.S. approach to drone regulation, in light of these concerns, it becomes apparent that the current approach treats the technology as value-neutral, rather than as a system embedded with particular politics. Regulatory agencies should place greater emphasis on addressing some of the politics of the drone — for instance, by working to eliminate the power imbalance caused by the drone's dislocation from its operator (among other possible responses), by bringing more voices into policy and regulatory discussions at the development, sale, and use phases, while also increasing women's involvement in the industry and in the use of the technology. Ultimately, though, the most rewarding solution to many of these concerns will only come from broader social and legal change.