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WEAR THE ROAD:

The role of clothing in promoting
women's transport cycling in motor-dominated societies

Master's Thesis for Master of Arts
Fashion & Collection Design

School of Arts, Design and Architecture
Aalto University

2016

ABSTRACT

Aalto University School of Arts, Design and Architecture
Master of Arts thesis abstract

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Title of Thesis Wear the Road: The role of clothing in promoting women's transport cycling in motor-dominated societies

Department Department of Design

Degree Programme Fashion & Collection Design

Year 2016

Number of Pages 103

Language English

Commuting by bicycle is one of the choices that a person can make in one's mobility, and it is a simple, affordable, and healthy one. On a global scale, however, male cyclists disproportionately outnumber female cyclists, especially in Anglophone, motor-dominated societies. This thesis in Fashion and Collection Design begins with the hypothesis that the gender discrepancy in cycling is in part caused by societal pressure on women to appear 'feminine' or 'presentable' which can cause difficulties for women in reconciling the physical act of cycling and the need to dress in a 'stylish', socially acceptable manner. Evidence is gathered from personal conversations with female cyclists from the United States, Canada and the United Kingdom, as well as literature on this topic in the Anglophone spheres. Furthermore, the current state of specialized cycling apparel market and 'cycling apparel' itself are examined to identify problematic disconnect between contemporary style and the current popular image of cyclists. Following on the hypothesis, this research aims to present an encompassing discourse on ways in which clothing, visibility of the female identity and the cyclist identity, and social perception can influence a woman's decision to cycle or not to cycle.

For the most part, insights gathered from both literature and first-hand accounts were consistent with the hypothesis. Research further found that novice or occasional female cyclists are more likely to foster the notion that they need special clothing to participate in commute cycling, and/or are afraid of being perceived 'too much' or 'not enough' of a cyclist, as well as discrimination on the roads as a woman (harassment, being branded as incompetent, especially due to her gender); in contrast, more experienced female cyclists tend to find their own means to adapt their personal style to suit the act the cycling and vice versa, allowing a much more confident navigation of her identity as a woman and a cyclist. Ultimately, the research found that the best way to promote female cycling among women is for them to learn that commute cycling can be performed in their 'regular' clothing, and specialized clothing only plays an auxiliary role in making the task more comfortable, enjoyable, and safe.

The design portion of the project takes the outcome of the research and presents a small collection of versatile, adaptable, cycling-appropriate garments that can be easily incorporated into a broad range of women's existing wardrobes. Rather than establishing commute cycling as a 'sport' as is done in traditional, highly-specialized cycling apparel, the collection views commute cycling as a social activity with only moderate physical and protective demands. The resulting garments are an exploration of everyday silhouettes in functional fabrics, discrete changes in standard pattern cutting for added cycling comfort, and a re-imagination of protective layers in a lighter, more feminine aesthetic.

Keywords Cycling, transport cycling, cycling apparel, women, gender norms, dress

TABLE OF CONTENTS

1	INTRODUCTION	7
2	PERSONAL IMPETUS TO RESEARCH	9
3	METHODOLOGY & KEY QUESTIONS	12
	3.1 List of Interviewees	13
4	BACKGROUND	15
	4.1 Cycling Modal Share in North America	16
	4.2 Cycling Participation by Gender	17
	4.2.1 United States	17
	4.2.2 Canada	19
	4.3 What's Keeping Women Off Bikes?	20
5	APPEARANCE MATTERS	24
	5.1 Visible Identities	25
	5.1.1 The Female Identity	25
	5.1.2 The Cyclist Identity	28
	5.1.3 Balancing Problematic Identities	30
	5.2 Bikes, Clothes and Gender	32
	5.2.1 <i>Shrink-It-And-Pink-It</i> : the Gendering of Products	32
	5.2.2 Femininity vs. Androgyny	33
	5.3 Gendered Inspirations and Gendered Products	35
	5.3.1 Bicycles and Women's Ready-to-Wear Fashion	35
	5.3.2 Gender Imbalance in Cycling Apparel	38

6	PRACTICAL INFORMATION	43
6.1	Is it Necessary? A Necessary Discussion	43
6.2	What Exactly is Cycling Apparel?	47
6.1.1	Features of Cycling Apparel	47
6.1.2	Skirts, Dresses and Bicycles	50
6.1.3	Fabrics	52
6.3	Emerging Brands and Practices	54
7	DESIGN PROJECT	57
7.1	Personal Impetus Towards Design	57
7.2	What Exactly is Cycling Apparel? A Personal Reflection	58
7.3	Sustainable Design Principles	62
7.4	Aesthetics & Inspiration	63
7.5	Features, Details & Fabrics	65
7.6	Garment Evaluations	68
7.7	Reflections	75
7.1.1	Successes	75
7.1.2	Difficulties & Challenges	75
8	CONCLUSIONS	89
	REFERENCES	92
	IMAGE CREDITS	98
	APPENDICES	99
	ACKNOWLEDGEMENTS	103



1 INTRODUCTION

“What shall we wear?” is a query rising from every channel of a woman’s life: for upon each occasion we must be suitably clad to enjoy its peculiar benefits. This is especially noticeable for such exercise as bicycling, for, in this case it is not only a matter of appearing well but the health, the comfort and the safety demand a carefully selected costume and equipment.

– *Ladies’ Standard Magazine, April 1894, p. 98*¹

What do women think about when they dress themselves in the morning? What looks good, what is appropriate, and what is comfortable? How will the world perceive her? Will the clothing she chooses allow her to move through the world the way in which she wants?

Transportation is a part of modern daily life, and the participant occupies a space in a social sphere where he or she is seen and subsequently perceived by the public. Bike commuting is one of the choices that a person can make in one’s mobility, and it is a simple, affordable and healthy one; yet on a global scale, male cyclists disproportionately outnumber female cyclists, especially in Anglophone, motor-dominated societies. The speculative reasons behind this phenomenon are complex and multi-faceted; this master’s thesis in fashion design examines the ways in which concerns around dress, appearance and, by extension, gender norms may affect a woman’s decision to cycle or not to cycle, then demonstrates a potential solution in the form of a small collection of ‘cycling’ apparel.

Historically, women, cycling and dress are closely linked together. Since its early days of popularization, suffragists embraced the bicycle as a physical symbol of liberation and independence, allowing women to literally move away from the confines of the home. Even for early female cyclists, “most outrage was reserved for what women should wear when they rode a bicycle” (McBeth, 2009: p.172); it was a tangible way in which the new cycling woman’s deviance from socially prescribed femininity showed. Though women’s clothing have come a long way towards practical, a degree of hegemonic pressure to be ‘feminine’ still exists in contemporary society, and this presents a barrier to commute cycling for some women.

This work is comprised of two parts: research (theoretical and applied) and a collection. The research portion first provides current statistics in Anglophone (mainly North American) societies on the gender discrepancy among cyclists, then examines insights from both academic and independent literatures to theorize why

¹ The article is only by the initials “C.M.H.” This citation is taken from a secondary source, a web article titled “Women and Bicycles: Fashion for the Active Woman, 1894 Style,” written by Jone Johnson Lewis. For full citation, see bibliography.

this discrepancy exists, hypothesizing that the pressure of being 'presentable' or 'feminine' plays at least a small role that keeps women from freely participating in the practice. The hypothesis is then discussed with female cyclists from the United States, Canada and the United Kingdom to determine its validity, and to investigate if better-designed and marketed cycling clothing has a role to play in encouraging more women to cycle. The applied research is a discussion of the more tangible ways in which these insights can be used to design women's cycling apparel, as well as an observation of what makes for successful clothing for a cycling lifestyle.

For the most part, insights gathered from both literature and first-hand accounts from the interviewees were consistent with the hypothesis, echoing the sentiment that there is a disconnect between what is expected by, or from, contemporary women and the current image of cycling apparel and, to some extent, cycling itself. This disconnection manifests in various forms, including reluctance towards a visible 'cyclist' identity, conflict between aesthetic appeal and functionality in cycling apparel, and a non-inclusive, hegemonic view of femininity from within the cycling industry. In some ways, the idea of 'cycling apparel' itself proved somewhat problematic, as the notion promotes the unintentionally discouraging idea that bike commuting cannot be performed unless the rider owns specialized apparel, which conflicts greatly with the fundamentally egalitarian appeal of cycling.

The collection based on this research focuses on moderate functionality, ease of cycling-related movements, and compatibility with any existing wardrobe rather than exclusively 'sportswear' features. The designs are derived from the conclusion that commute cycling is a social activity with only moderate physical and protective demands rather than a sport. It is an exploration of simple everyday silhouettes, small changes that can be made to traditional pattern cutting to add comfort and elements of sportswear that can be added to any wardrobe to facilitate easy cycling.

The title of this work is a wordplay on the phrase 'Share the Road,' a phrase often used by cyclists in motor-dominated societies as a call for respect and for their fair share of the road in the absence of safe cycling infrastructures. A separated cycling infrastructure in these societies would benefit not only the cyclists but also the drivers, and increase a city's liveability by alleviating traffic and promoting a healthier, more sustainable lifestyle. The push for infrastructure will be taken more seriously when more cyclists take to the roads; in order to do so, more women need to start commuting by bike, and for more women to start riding, a conversation around clothing, appearance, and the act of cycling needs to take place.

This project seeks to contribute to the field of women's cycling apparel design by providing an encompassing, inclusive discourse on fashion, clothing and self-image issues as one of the barriers that women face when performing the "social practices of cycling" (Horton, Rosen and Cox, 2007: p.83), and to suggest new design guidelines which then can be used in future projects in women's lifestyle cycling apparel design. The final aim of this work is ultimately to find ways in which style and clothing can be used to increase female ridership, by encouraging a more socially aware sportswear design practice that better accommodate the complexities of being female.

2 PERSONAL IMPETUS TO RESEARCH

Fashion design is my chosen field of studies and profession; it has fascinated me from an early age, as is common with many young women. Initially, it was the glamorous runways; but as I grew older, I became more interested in its social implications, and its capacity to communicate not only one's aesthetic style but also one's identities.

I only started riding a bike in my early twenties. I lived an awkward, too-far-to-walk, too-close-to-pay-for-transit distance from my university in downtown Toronto, Canada, and I decided that cycling would be the perfect form of transportation. I was afraid at first of the motorized traffic and of my own incompetence as a novice urban cyclist, but soon I began to embrace the freedom of cycling. Being a cyclist became an increasingly important part of my identity, and it began to show in my dress; I started only purchasing clothing which would be suitable for cycling, casting aside short dresses which would get caught underneath the saddle, pencil skirts, stuffy vintage polyesters and tight trousers. I started prioritizing water resistance over stylish cuts in jackets. A couple years down the road (pun not intended), I was once laughed at for showing up in a brightly coloured windbreaker to the sewing studio at school, by close classmates who had been accustomed to my usual outfit of black dresses and my favourite Rick Owens cardigan. Though it was in good humour, the event led me to think about the visibility of my identities and its consequences. No one has only a single identifier – I was, among other identities, a young fashion student, a woman, and a cyclist. I saw myself as “feminine” in my own (literal and colloquial) no-frills way, and enjoyed wearing close-cut silhouettes, dresses, and apparently now sportswear. How does one's style develop and adapt with changing identities?

After graduating from school in 2010, I continued to let my cycling identity organically influence the way I dress throughout my time at different posts in the fashion industry. I was not always conscious of it, but occasionally noticed and reflected on the changes. Over the years, though I still maintained my own version of femininity for myself, to onlookers, I had arguably become less “feminine”. As I gradually got accustomed to wearing half-zipped jerseys and sports tights in lieu

of classic stockings, I was occasionally met with comments like "I didn't think you'd wear something like that," which made me wonder more about how others perceived me and my sporting identity. At the same time, I started to notice discourse such as "I would bike more if it looked better" and "I can't bike and work in the same clothes" frequently arising in casual discussions in social gatherings, and it resonated with my own observation of my style changing for my bicycle.

Interactions with the traffic were also constantly present in my peripheral consciousness. Sharing the road with cars, trams, and far more experienced cyclists, being seen was an important safety consideration, but neon vests remained beyond the line I drew between my style and cycling apparel. Additionally, I felt that my gender held me to a higher scrutiny should I make an error in my cycling, in a similar fashion to female drivers. Even before any of my discourse about visibility of gender norms, I was aware of the very evident male dominance in the cycling population in Canada. Even though it was easy to assume that the dangers of the road and the fear of having to compete with men were behind this imbalance, the question of appearance was never far from my mind.

I moved to Europe in 2012, and my custom-built black single speed bike came with me. Aside from fulfilling my dream of living in Europe amidst its creative energy, I was also looking forward to immersing myself in the safer, more inclusive cycling culture. There, I could start over with my *visible* identity without the preconceptions of people who knew me before I 'became a cyclist.' Riding in the designated bike lanes shared equally by men and women, I was never questioned for wearing a dress with sports tights underneath; I began to hypothesize how the presentation of self (especially for women), the act of cycling, and the lack of female cyclists all correlate to each other, and thus I arrived at the starting point of my thesis.

Through this research, I am hoping to contextualize my role as a fashion designer within the issue of female cycling advocacy. I am admittedly approaching this project with full understanding that my part to play in this may be small: without safe cycling infrastructure and important shifts in hegemonic gender roles, not much may change for the future of women in cycling. Nevertheless, I hope to find ways that design can be used as an effective communications medium in social activism, and define what is missing in the current cycling apparel market that I might find meaningful work as a designer.



Standing with the bike that taught me to truly love cycling. The bike was built by a very dear friend in Toronto in 2011 from old parts we found in a community bike shop. Since then, this bike has crossed oceans with me, first to Berlin in 2012 then to Helsinki in 2013.

3 METHODOLOGY & KEY QUESTIONS

To establish the current state of cycling culture in North America, cycling statistics are observed. Attention is paid to cycling's modal share in transportation methods and bicycle usage share per gender. Other commonly cited major barriers that affect women's decision to cycle for transport besides clothing are also studied in brevity in order to build a complete background understanding of the gender bias in cycling.

The theoretical research portion consists of two main components: a review of available literature, and qualitative research via the means of conversations with female cyclists. Gender gap in cycling in has garnered much attention in the last years, and there are many studies and theories available on the topic. Though the research takes North American urban settings as its main geographical focus, the cycling community is also very much male-dominated in other Anglophone countries; as such, some relevant studies from the United Kingdom were also taken into consideration. These literatures include insight on gender performance and visibility of identities, both of which manifest through clothing, as one of the barriers that keep many women off bikes. Along with books, academic journals, and editorials, self-published zines by female cyclists was an important source of insight for this research. Bike zines are usually published by members of alternative communities – those who do not conform to hegemonic standards and boundaries of gender performance – and reflect the opinions of those who have an amount of discourse around the act of cycling. Feminist perspectives in cycling advocacy zines are abundant, and the discussions around gender, dress, and the act of cycling found in them are honest, uncensored, and complex, printed without the fear of immediate backlash sometimes with the help of pseudonyms. The women who publish feminist bike zines are often very expressive with their devotion to their bicycle, and are equally outspoken about both the large-scale systematic problems (such as traffic infrastructure issues and hegemonic gender performance) and the subtler, more nuanced day-to-day micro-aggressions they face on the roads from both outside and within the cycling community specifically as female or queer cyclists.

Key questions asked were:

- How does the question of dress and appearance affect a woman's decision to cycle, and how do its implications differ among women who do or do not consider themselves committed "cyclists"?
- What are the features of specialized "cycling apparel"?
- What is the current state of women's cycling apparel market? In what ways is it successful, and in what ways is it falling short?
- Overall, does clothing design have a role to play in encouraging women to participate in commute cycling?

First-hand conversations with 20 female cyclists with different levels of cycling experience and levels of commitment across Anglophone communities provided more specific thoughts on how concerns regarding apparel and appearance contribute to, or play against, confident cycling or willingness to start cycling for women. In these interviews, the interviewees talked about the implications of their self-image, style and wardrobe to the act of cycling in a casual, unscripted discussion.

3.1 List of Interviewees

The interviewees were all female. They were asked to determine their commute cycling level from one of the following options: leisure (rarely for transport purposes, "weekend riders"); occasional ("fair-weather cyclist", or when mood strikes); frequent (cycling comparatively as often as other means such as taking public transport or driving); daily commuter (only choosing not to cycle due to particular obstacles, such as bad weather or excess baggage).

The subjects were mainly contacted through peer connections. As such, there are limitations in regards to the variety amongst the interviewees, particularly in the age range (20-33 years old). In the excerpts, brackets ([]) indicate added words for clarification, and ellipses (...) indicate deleted segments excerpted to show only the most relevant excerpts of the interviews.

Even though the interviews were not scripted and allowed to take its natural course, some vital questions were asked to every interviewee:

- Age, occupation, and city
- How would you describe your personal style, and has cycling affected your style or vice-versa?
- Do you feel affected by your gender and gender expectations on the road?
- What do you typically wear for cycling?
- What is your opinion on specialized cycling apparel?

LIST OF INTERVIEWEES

CITY	AGE	OCCUPATION	CYCLING LEVEL
Leeds (UK)	25	PhD student	Frequent
New York	27	Actress/barista	Daily commuter
New York	30	Teacher	Occasional
Edmonton	32	Teacher	Frequent
Montreal	29	Receptionist	Daily commuter
Montreal	30	Cook	Occasional
Toronto/Leeds	27	Project manager	Occasional
Toronto	28	Tailor	Frequent
Toronto	30	Artist	Daily commuter
Toronto	20	Student	Leisure
Toronto	27	Waitress	Daily commuter
Toronto	26	Product designer	Frequent
Toronto	24	Photographer	Occasional
Vancouver	26	Retail worker	Daily commuter
Vancouver	28	Sports instructor	Occasional
Vancouver	30	PhD student	Frequent
Vancouver	23	Retail worker	Daily commuter
Seattle	27	IT specialist	Occasional
Victoria	31	PhD student	Frequent

While conversing about dress and social perceptions of cycling, the topic of femininity and gender norms inevitably took place; however, relationships, family status, and domestic obligations were not discussed and were not questioned unless it naturally arose. The findings are presented in a non-linear manner, sorted by topic of discussion and relevance rather than the means of data collection.

4 BACKGROUND

Get a bicycle. You will not regret it if you live. – *Mark Twain*

Biking is sustainable, good for the health, cheap, and fun. Supporting arguments for the benefits of cycling are so vast, that to write an elaborate paragraph listing out its positives seems almost arduous. Cycling leaves virtually no carbon footprint on the environment, being powered solely by the human body and imposing very little stress upon the infrastructure on which it moves. The cardiovascular activity can curb mental conditions such as insomnia and anxiety, help control weight, fight heart diseases and cancer, reduce stress, and increase productivity (Garrad, Rissel and Bauman, 2012). There are very few costs after the initial purchase, aside from occasional repairs and a few accessories. Recently, it has been even suggested that bike lanes and bike racks can boost profit for businesses (Andersen, 2014). Best of all, it is, in theory, a very egalitarian practice – it is “empowering to individuals of all genders, shapes, and sizes. Bicycling can be done by people of all ages [...] and brings people together outside to enjoy the gorgeous planet on which we are so lucky to live.” (Seiffert, 2011: p.5)

Strangely, despite all its benefits, cycling as a mode of transportation is not a very popular one in North America. Only a very small percentage of the population participates in the practice, and those who do are often met with hostility and scepticism. Understanding the plight of the cyclist in car-dominated societies can be difficult for those living in Northern or Central European countries where cycling is widely accepted and practiced. For the purpose of this study where cycling is established as a marginalized practice outside the “norm”, particularly for women, a comprehensive statistical review of the current cycling situation is necessary; the next few headings will examine the figures from the United States and Canada thoroughly. Though it will not be discussed at length in this study, it is worth noting that in other Anglophonic countries such as the United Kingdom (Cycling Embassy of Great Britain, n.d.) and Australia (Pucher, Garrad and Greaves, 2010), biking only accounts for about 1% to 2% of all trips made, closely resembling the situation in North America.



The plight of the North American cyclist: riding in the gutter in Toronto (this page) and in unprotected infrastructure in Oregon (next page).

4.1 Cycling Modal Share in North America

Throughout this portion, the use of multiple sources enabled the correction of possible bias and minimization of discrepancies. For each country, efforts were made for the purpose of this particular research to find the most current statistics available wherever possible; however, figures from slightly older dates were also considered to bridge any substantial discrepancies, and to paint the most encompassing picture of the cycling scene in North America.

In America, according to the 2014 census survey on non-motorized work commutes from 2008 to 2012 conducted by American Census Bureau, an approximate 0.6% of the 140 million workers in the United States commuted to work by bicycle, while 86.2% travelled to work by private motorized vehicle (McKenzie, 2014).

Against odds, bicycle commuting is gaining popularity in the United States. The same publication reported a significant increase in the number of U.S. workers to commute to work by bicycle, from 0.6% (around 488,000 workers) in 2000 to 1.0% (786,000) in 2012, representing the largest percentage increase in any modes of transport. It is worth nothing, however, that even though the increase in cyclists comes in drastically large percentages, because the starting figure is very small, the increased participation levels in cycling still remain low, especially in comparison to Northern and Central European countries.

In Canada, there are immediate challenges in trying to determine the transport cycling participation rates: first, the most recent nationwide statistic available is dated 2011. City statistics, either city-commissioned or independent, are also more



difficult to find, due to the fact that cycling advocacy efforts are generally not yet as well-established as in the United States. Nevertheless, the available statistics are presented below. Given the gaining popularity of bicycling in recent years, as witnessed in the US, it is safe to assume that the current rates are slightly higher than the stated figures.

The general rate of Canadian commuters who bike to work is slightly higher than in the United States, with the national modal share standing at 1.3% as of 2011 (Statistics Canada, 2013). The highest rate of commuters by bike was found in Victoria, British Columbia at 5.9%, followed by Kelowna, British Columbia at 2.6%, Ottawa, Ontario at 2.4% and Kingston, Ontario at 2.2%. The bike commuting rates in the five most populous cities in Canada are as follows: Toronto, 1.2%; Montreal, 1.7%; Vancouver, 1.8%; Calgary, 1.2%; and Edmonton, 1.1% (ibid.).

4.2 Cycling Participation by Gender

4.2.1 United States

PeopleForBikes, an U.S.-nationwide cycling advocacy group, commissioned a comprehensive research to Breakaway Research Group and the U.S. Bicycling Participation Benchmarking Study Report was released in March 2015. It noted in its opening remarks that "previous research on bicycling participation has been hampered by a variety of methodological limitations" such as different types and contexts of bicycling participation, and states as its objective that this new research was designed to address and re-standardize bicycling participation research. Indeed,

it is worth noting that a large number of previous cycling participation research in the United States focuses on recreational or leisure cycling.

Its key findings are as follows:

- 34%, or 103.7 million Americans cycled at least once in the past year
- Overall, 27% of men and 33% of women surveyed had ridden a bicycle at least once in the past year; only 11% of the women surveyed had participated in transportation cycling
- Overall, 15%, or 45.1 million Americans, rode a bike in the past year for transportation
- The gender split was much more even among “committed” riders (104+ days ridden): 16% male, 12% female

While this particular study is comprehensive in scale and in types and contexts of cycling, it has its own shortcomings; the research defines a “participant” as anyone who has ridden a bike once or more in the time frame of a year. In this contrived context, female riders outnumber the males in the United States; however, when observing cycling activity on the road (as opposed to a formulated questionnaire), the gender divide becomes much more substantial, showing a drastic dominance by male cyclists. The report by the American Census Board found that the rate of bicycle commuting in men, at 0.8%, was more than double than that of women, 0.3% (McKensize, 2014). The League of American Bicyclists (2015) compiled a comprehensive list of bicycling commuter rates by state and gender derived from American Census Bureau’s 2011 community survey; in this format, the gender disparity is seen much more clearly. At worst, the split stands at 85% male and 15% female (Mississippi), and even at best it is at 63% male and 37% female (Montana). Figures from the five most populous states are listed below:

1. California: 75% male, 25% female
2. Texas: 80% male, 20% female
3. Florida: 75% male, 25% female
4. New York State: 76% male, 24% female
5. Illinois: 74% male, 26% female

Even in states with more bike-friendly reputations, the male dominance in bike commuting practice is still apparent. Oregon, the home state to Portland, the only city to be granted “Platinum” cycling friendliness status by the League of American Bicyclists stand at 66% male, 34% female; Minnesota, home state to the “Twin Cities” of Saint Paul and Minneapolis, the metropolitan area generally regarded as a forerunner in US female cycling culture (Reeves, 2012), still rings in at 71% male, 29% female.¹

These are statewide numbers, and include suburban and rural areas in which transportation cycling is neither practical nor widely practiced. For urban

¹ NB: This statistic represents the state of Minnesota, not to be confused with the city statistic of Saint Paul and Minneapolis discussed further on in the chapter.

populations' cycling participation rates within densely populated areas and business districts, membership distribution by gender among bike-share program users provide some insight. Analysis of rider information from bike share stations from New York, Portland, Chicago and Boston collected between July and November 2013 yielded the following results (Singer-Vine, 2014²):

- Citi Bike, New York City: 76% male, 24% female; some stations show as low as 11% female rider registrations
- The Yellow Bike Project, Portland: 69% male, 31% female
- Divvy Bike, Chicago: 79% male, 21% female
- Hubway, Boston: 75% male, 25% female

These figures reflect the gender statistics of the actual riders borrowing bikes from stations, not the number of program members by gender, which is more evenly represented, meaning that even among those who have committed to and paid for bikeshare memberships, men are more likely to ride than women. The disparity is similar to those found in city- and statewide surveys. In the case of New York City, an observation of 4,316 bicyclists from June through November 2013 also found a sizable disparity between male and female riders: 78% male to 21% female; 1% unidentified (Tuckel and Milczarski, 2014). In the "Twin Cities" of Saint Paul and Minneapolis, where the female cycling participation rate is consistently estimated to be the highest in the country, female riders count between 37% and 45% of the cycling population, depending on data (Reeves, 2012).

4.2.2 Canada

Even though cycling statistics in Canada are not as abundant as in the United States as noted earlier, there are still clear, and numerous, indications that cycling is still more popular among men than women, with sources in the last four years reporting the nationwide female ridership figure to be around 30% of the cycling population (Evans Ogden, 2014; Canadian Fitness and Lifestyle Research Institute, 2012). Figures per city is easier to find in Canada than in the US, due to the much smaller number of significant metropolitan areas.

In the case of Toronto, Ontario, the most populous city in Canada, the female share of the city's ridership was reported at 35% as of 2006, in the most recent city-conducted data available (City of Toronto, n.d.); the age of the data may be indicative of the city's lack of initiative in addressing the issue.

Montreal, Quebec, boasting more than 800 kilometres of designated bike paths and 350 kilometres of separated infrastructure (Walker, 2015), consistently

² BuzzFeed, being a viral newsfeed website, lacks a certain degree of academic and statistical credentials; however, this particular article clearly states its research methodology and cites its varied resources, including data taken directly from bikeshare programs themselves, and specially programmed, open-source websites with live updates for which data is retrieved directly from bike stations in the cities.

ranks as the most cycling-friendly city in North America by the Copenhagen Index (2015) (it is somewhat noteworthy that the city's worldwide ranking dropped from 8th in 2011, to 14th in 2013, then to 20th place in 2015 – however, this may be due to improvements in other cities rather than Montreal's shortcomings or decline). Yet even there, the female share of the bike ridership is estimated at only about 33% (Larsen, El-Geneidy and Yasmin, 2010).

A census of cyclists in Calgary, Alberta found that 75% of cyclists commuting downtown were male. Women were more likely than men to be possible or occasional cyclists, while men were more likely than women to be regular cyclists. This study reported that women were more concerned about "safety, being able to carry daily items, and the need to fix their hair." (Twaddle, Hall and Bracic, 2011: p.28)

Vancouver, British Columbia, also reported a similar figure as of 2011, with the gender split among cyclists being 28% female and 72% male (TransLink, 2011).

4.2 What's Keeping Women Off Bikes?

"Cycling transcends class, ethnicity, gender, sexuality and age – something that just about anyone can do." (McBeth, 2009: p.167) However, as examined previously, in Anglophonic societies, so few are choosing to cycle; and within this already-small community, the male prominence is astounding. "Where are all the female cyclists?" is indeed a perplexing question, with many speculative answers.

Studies have found that the single biggest factor that prevents one from riding a bicycle, regardless of gender, is the lack of access to a bicycle (Royal and Miller-Steiger, 2008: 4). Yet, another study found that in the United States, 60% of bicycle owners aged 17-28 are women (The League of American Bicyclists, n.d.). When it comes to ridership, however, male cyclists outnumber female riders at least two to one, and often much more, as examined in the previous chapter. The reason for this is a question that has perplexed many transport sociologists and bike advocates and, accordingly, there are many theories questioning the reasons behind the gender discrepancy.

In numerous researches that examine the cycling gender gap in North America, Australia, and the United Kingdom, concerns about road safety are cited as the major inhibition that keeps women from riding their bikes. Indeed, it would be unfounded to overlook this factor. Failing to plan for safe, separated bike lanes were a hugely unfortunate oversight in North American urban planning, not only for women but all cyclists, and even for drivers. There are strong evidences to support the hypothesis that a safe riding conditions would be extremely effective in encouraging more women to participate in bike commuting. One research found only one woman in two male counterparts to be confident in riding with motorized traffic (Szczerpanski, 2013); other studies have shown that women are far more likely to go further to seek out a safer street on which to bike, and that the gender split among cyclists is much more even in intersections where a separated cycling infrastructure exists (Edmondson, 2011). Women have been called the "indicator species of cycling

safety,” (Slavin, 2010) however to conclude that fear or accidents and injuries as the only reason behind female reluctance to cycle is misguided and overly simplistic.

I lived and biked in Edmonton for five years before I moved to Vancouver. Vancouver has way better infrastructure for sure, and because of where I work [at a gym] and where I live [Commercial Drive, an area known for its liberal lifestyle] I do see lots of girls biking, but I don't particularly see more girls [biking] than I did in Edmonton outside of my areas. I do feel safer here but I am just one person, it's not really enough. (28, Vancouver)



Some studies suggest the burden of household chores and child-rearing play a part in keeping women off bikes.

Another perspective on the lack of women in the cycling population in North America points to delegation of women to the domestic sphere of childrearing and housework, and the preference of a car over bikes to perform these duties. Women are more likely to pick up groceries for the whole family, to make compounded trips from work to pick up children from school (and then perhaps to the store), possibly leading to more physical exhaustion and leaving them to rely on the “comfort” of having a car. These works began to come into attention some years after the studies on road safety and infrastructure, and often take an opposition stance to refute the “build it and they will come” breed of conclusiveness that is frequently demonstrated by the infrastructure argument, pointing out the complex sociological idiosyncrasies of being a woman in contemporary North American societies, and the intangible hegemonic boundaries that exercise its influence on women beyond what is physically there or not there, such as separated bike lanes.

Furthermore, the male dominance at the industry level – in bike stores, in command levels in the cycling industry, in high-profile racing, even in community-

level bike initiatives – does nothing to encourage female ridership. The fear of being mocked by competent males becomes materialized into experience when a woman walks into a bike shop to find a bike to suit her needs only to be scorned by a male salesman, as Cathy Bussey (2013a), a London-based cycling advocate, experienced for herself when purchasing her own bicycle:

When I bought my last bike a male friend came into the shop with me. The male assistant ignored everything I said, spoke directly to my (non-cyclist) friend and told him that everything I wanted was wrong. I said I wanted a mountain bike. 'When is she going to go off-roading?' was the scornful response, accompanied by an eye-roll in my male friend's direction.

Elly Blue (2010), an Oregon-based cycling advocate and writer, expressed similar views in the inaugural issue of her bike zine *Taking the Lane*:

What you don't hear as much about is the experience that women have not just as individuals riding on the road, but as participants – and leaders – in bicycling communities: as employees or customers in shops, at races, in the industry, in advocacy, and in discussions online and off. Particularly in parts of the bike scene with a strong connection with sports and business, assumptions about gender often remain unquestioned. Things are changing, but it's still very much a man's world. (p.5)

An interviewee, who has cycled in Madison, Milwaukee, and is now a dedicated bike commuter with a 10-mile (or 16 km) commute in New York City, said:

I think it is a much deeper societal fear of strong, empowered women. Femininity in this culture is often still commercialized as dainty and polite and fragile. And all of those things are fine. I even think that biking can be all of those things. That's not what I look for in biking, but you know, I have other outlets where I get to be a damsel. ... I have had women approach me and say they could never do what I do, but I think when more women start cycling and are out there on the roads, the more appropriate it will be for everyone. (27, New York)

This very pronounced male dominance does not exist the famously bike-friendly countries in Europe: women account for 45% of all bike trips in Denmark, 49% in Germany and 55% in the Netherlands (Pucher and Buehler, 2008: p.502). These countries have undeniably better cycling infrastructures than North American cities, but looking deeper into the matter, these countries also rank highly in gender equality according to the Gender Inequality Index (United Nations Development Programme, 2015). And this complex subject goes deeper than a layer of asphalt; it suggests that in these countries, women are viewed as equally competent as men, entitled to exercise the same physical and social activities without prejudice.

Infrastructure, aversion to danger and the social construct and duties of being female in the contemporary world undeniably affect a woman's decision to, or not to, ride a bicycle. However, analyzing the impact and implications of road safety



Cyclists enjoying the rare separated infrastructure in Vancouver, Canada.

and infrastructure, and making suggestions for future urban planning, is beyond the scope of this research. While gendered expectations and performance are a recurring theme in the commentary, the main focus of this work is to explore the potential of a fashion and clothing in promoting and enabling urban female cycling, even in a small way of which it is capable.

5 APPEARANCE MATTERS

As discussed in the previous chapter, the barrier between women and cycling is a complex matter for which there is not one clear explanation. The need of dressing, appearing, and being perceived in a contextually and socially appropriate manner is one of the idiosyncrasies of the contemporary woman, and consequently, one of the hindrances that stand between some women and cycling. Certainly not to discredit the works on the infrastructure problem and the imbalance of domestic duties – these works are well founded, and definitely have significant substance that should be considered in participatory female cycling advocacy. However, no matter how conclusive the findings may be, danger on the road is certainly not the only deterrent for women, and women with a partner, a household, or children in their care are not the only demographic to be taken into account.

While researching for her book, Bussey (2013b) found that practical reasons such as dress did indeed have a role in keeping women off bicycles. In her book, she cited the following as commonly given reasons women choose not to cycle:

- I don't have the time
- I'm too unfit
- Traffic is terrible where I live
- It's too dangerous
- I don't want to worry about bike repairs
- I have children
- The weather is unpredictable
- *I am worried about looking stupid*
- *I'm going to look terrible for the rest of the day*
- *No one looks good in spandex (p.18-22)*

Italics are my own to highlight the role of appearance and social perception in hindering women from cycling. Many of the reasons are associated with looks, stemming from insecurities and the fear of being judged or perceived a certain

way by colleagues, other cyclists, and even anonymous on-lookers. Since the early days of dress reform sparked by early suffragists on bicycles, women's clothing has come a long way towards functional; "but even though clothing styles adapted, the attitude that women who aren't wearing the standard costume of the day should be questioned has not changed." (Hansen, 2008: p.25) Undoubtedly, the pressure to keep up a certain appearance in contemporary society goes far beyond the experience of cycling – not only for women, but especially for women. Shelley Jackson (2005), a New Orleans-based female bike mechanic and activist, described the plight of women in the cycling community:

Biking is different for us women. From trying to get respect as a mechanic, or even as a customer in a bike shop, being taken seriously when we apply for jobs as messengers, and surprisingly in this day and age, how we dress on bikes.

In 2014, Canadian writer Sheila Heti published her book *Women in Clothes*, a massive 528-page account with contributions from 639 women exploring women's relationship with clothes. In its opening chapter, Heti wrote:

For someone who is fascinated by how people relate to one another, it's hard to overlook personal style as a way we speak to the world. One day I just decided, Today is the day I'm going to figure out how to dress. I biked to a bookstore [...] and went to the section where there were fashion and style books, looking for the one that would tell me what women thought about as they shopped and dressed. But there was nothing like that. There were books about Audrey Hepburn and books filled with pictures from *Vogue*, but nothing that felt useful to me at all. (p.12)

While the book did not directly ask questions related to cycling, some of the women were cyclists to varying levels of commitment, and for some, bicycles were inherently linked to the way they saw themselves in their everyday lives. When asked when she feels the most attractive, one woman answered: "In spring or summer, in a dress, when I have a fun manicure and some interesting footwear, riding my bike." (ibid.: p.130) Another woman advised others not to wear too many things that serve no function, and to "wear what you can wear on a bicycle." (ibid.: p.166) The last quote is a particularly noteworthy clue that suggests that for the women who do cycle, the bicycle does have an influence over their choice of clothing.

5.1 Visible Identities

5.1.1 The Female Identity

In-depth discussion on the subject of manifestation of gender inequality in current society is far beyond the scope of this work; it would suffice to say that being female has its difficulties, and those difficulties undoubtedly influence the cycling



woman. For example, women are subjected to a seemingly higher, stricter standard of beauty and presentation than men, and it extends into the realm of cycling, as cycling advocate and community engagement professor Melody Hoffman says in an interview (Goodyear, 2014):

I am bothered by women who say they want to be able to wear high heels and bike at the same time. It is not safe. How intense are the patriarchal standards of beauty that women insist on wearing clothing and shoes that limit their mobility and make it more difficult to bike? ... I know many women worry about showing up to work sweaty after biking. I have yet to run into a man that shares that concern.

One interviewee expressed her enjoyment in feeling exempt from such expectations on her winter bike commutes in extreme weather conditions:

I was working as a waitress at a really adorable French restaurant [in Milwaukee]. I biked all year round, in the snow or rain or extreme wind. I kind of loved being the crazy girl who rolled up in a snow storm in a pair of men's jeans and a balaclava, and then I would change into my black pants and white apron and looked just like all the rest of the girls. (27, New York)

Her choice of language, in which she describes herself as 'crazy' for choosing to cycle in the winter, taking to menswear in her more extreme cycling practice, and identifying the female gender of her co-workers, provides subtle clues to the biased social expectations on men (performing extreme tasks) and women (looking presentable). For this interviewee, passing as male meant liberation from the pressure imposed on women to look good.

Harassment is another aspect in which dress is related to the female reluctance to cycle. Being a woman and appearing in public as the assigned gender



Biking ladies of New York City.

exposes one to the specific types of assault reserved for women, especially when participating in a predominantly male practice such as cycling. One woman tells of being verbally assaulted by drivers while biking:

I always feel like 'asshole' is just a really good gender-neutral [insult for somebody], but it always turns to 'bitch' and 'cunt.' It will always go there, you know, if you're a woman. (Stop Street Harassment, 2014)

Experience of harassment for women is often tangled with her dress, as recalled by interviewees in a research conducted in Michigan, United States (Roberts, 2015) on the subject of women, cycling and public engagement:

I was once riding a bike that was too big for me ... while wearing shorts. A man, who I believe to be a pimp kept following me and offering me "work" ... I turned around and went home. [I felt] vulnerable [...] if I fall, what will happen? (p.52)

I mean I know that if I wear short shorts I'll get whistled at more. But like, normally, I don't. I'll wear like Bermuda shorts or wear pants - and I always if I'm wearing, like, a low cut shirt and I have a backpack I pull my shirt up in the front and like tuck it under the straps of my backpack. (Ibid.: p.72)

Questioning what she looked like in the moment of the incident is a common outside reaction when a woman experiences sexual harassment, and can have an influence on the way she dresses:

Once I was stopped [on a bike] at a red light wearing a dress, and a man walked by and just spanked my ass. I was so startled ... I thought it was my fault for wearing a dress. I went home to change. (27, Toronto)

For female cyclists who inadvertently ride gender boundaries in motor-dominant cultures, both being feminine and being androgynous have their own consequences – as one rider sums up, “cat-calling when my hair is long. Homophobic slurs when my hair is short.” (Giddings, 2015) The most profound problem lies in that women of all walks and all representations face some degree of harassment in their lives – regardless of their sexuality, gender identity, hair or dress style and the way they choose to represent their gender identity, in and out of the cycling sphere.

Prescribing what is ‘appropriate’ for women to wear while cycling is not an effective solution for getting women to cycle past the concerns of appearance and harassment. The idea that women must dress a certain way in order to be comfortable in public is unfounded and inherently misogynistic. However, when talking about pressures that influence a woman’s dress, it remains a factor that must be acknowledged. Particularly after an experience of harassment, women may think about the way they dress with a different perspective – one with an increased significance on protection and safety – and start using minimization tactics, knowingly or unknowingly, where she covers herself in order to attract as little attention as possible. The staunch feminist voice that a woman should feel free to wear whatever she pleases and be safe does not manifest so comfortably in the minds of real women out in the world. As such, it is important for designers to be sensitive towards this issue and be mindful of garments that may be difficult for most women to carry confidently, particularly when the design project at hand is a pragmatic one.

5.1.2 The Cyclist Identity

In a traditional sense, “cycling apparel” generally brings up the idea of skin-tight tops, spandex shorts with chamois, topped off with a helmet and a neon-coloured hi-viz jacket. This kind of a cycling outfit serves the functional role of maximizing aerodynamics, wearing comfort and visibility on the road. In purely practical terms, there seems to be very little opposing arguments; more visibility means safer cycling, safer driving for motorists, and rationally should be a priority for everyone sharing the road. On some level, it may seem that at least some of these qualms around dress and cycling could be subdued by adopting of the cycling ‘uniform,’ particularly the kind of harassment that is invited by wearing a dress or other female-assigned clothing. One female cyclist in Toronto interviewed said in Heti’s (2013) book said:

As much as things like bike shorts are unflattering, there is so much clarity about what’s the best style and colour. I will wear bright colours for safety without a qualm. I wish I could wear a navy blue boiler suit and have a shaved head, but if I did those things, they would attract attention rather than repel it (p.332).

In fact, there is still the thought in car-dominant cultures that cycling is as an activity for which specific high-performance clothing is required (Pooley, 2013: 164). However,



Some cyclists display their cyclist identity by wearing 'props' such as neon colours and messenger bags; some carry no symbols that would distinguish them off their bikes. Portland, Oregon.

there are problems in wearing such an easily distinguishable outfit, especially if that distinguishable identity is a marginalized one.

The kind of 'visibility' to which Heti's interviewee is referring is not the ability to be seen by drivers for road safety, but an undesirable kind – one that stems from a sense of 'otherness' and stigma, exposing the affected person to discrimination or at least the feeling of being subjected to such. Both personal transportation and wearing of clothes are activities ultimately performed in public, and therefore are never simply contained in an individual. It opens one up to interpretations and reactions from the onlookers. And as with any other activity performed in such a sphere, "questions of identity loom large in the social practices of cycling." (Horton, Rosen and Cox, 2007: p.83)

In 2012, British cycling sociologist Rachel Aldred published her study "Incompetent or Too Competent? Negotiating Everyday Cycling Identities in a Motor Dominated Society." Based on data from 55 interviews, Aldred argues that cyclists are "caught between two threats: appearing too competent as a cyclist (a 'proper cyclist'), and appearing not competent enough (a 'bad cyclist')" – and 'appearing' in this context refers mainly to the tangible objects of clothing, lights, and helmets, even though road performance and knowledge of bike repairs did account in smaller significance. Some cyclists reported purposefully wearing hi-viz cycling apparel as a way of 'professionalizing' oneself, and to 'stake a claim to respect' against the discrimination of cyclists from motorists on the shared roads. While appealing to some, however, others found it a risky option for the fear of appearing 'too much' like a cyclist. They reported being made fun of at their workplace for appearing with cyclist 'props,' and being easy-to-identify targets of abuse from motorists. For

women falling into this category, it means that they are exposed to the type of abuse reserved especially for women, but also for 'bike nuts,' or too much of a cyclist.¹ Even off-bike, identifiable items like bike shorts or a bright-coloured windbreakers remain visible identifiers.

I want other cyclists to notice that I am a cyclist too. I totally want the head nod, that sense of camaraderie. But I don't want cars to notice me. Well, that's too strong, maybe. I'd just rather not be noticed. (24, Toronto)

However, for those who are accustomed to the idea, being dressed in identifiably cyclist clothing – as unsuitable as it may be in popular definitions of being fashionable or feminine – does not present much of a concern, as pseudonym Fox (2008) cites in her *Dames on Frames* zine article:

Spandex is now the standard bike costume, and while it is the most comfortable clothing on the bike for me, it can be rather uncomfortable off the bike. I have to admit feeling a little exposed when walking in the grocery store in bike shorts at first, but I got over it. (p.25)

5.1.3 Balancing Problematic Identities

"Fashion, dress and adornment [...] locate the actor either inside or outside a particular group" (Langman, 2003: 226); difficulties in designing for that particular group appear when being inside or outside the group is both problematic. This difficulty applies to both being a cyclist as studied by Aldred, and being a woman, where being feminine invites questions of vulnerability and incompetence, and being androgynous invites criticism on deviance.

Considerations for the conflicting identities is what is lacking in today's cycling apparel market. Most of the products available now mostly fall into one of two categories: to borrow Aldred's terms, 'too much of a cyclist' with an array of road-racing features, or 'not enough of a cyclist,' attempting to mimic a traditional daywear aesthetic without enough distinguishing 'cycling apparel' features to give the wearer the assurance of being a legitimate, 'proper' cyclist. Differing interpretation of femininity is also an important consideration. Nevertheless, whether women choose to be feminine or androgynous, female cyclists have taken their own definition of female gender performance and turned it as a symbol of strength and confidence in their cycling practice.

¹ Other than being a nuisance on the road in motor-dominated societies, being 'too much of a cyclist' has other negative connotations tied to it, such as being poor, immature and unprofessional; it also carries associations with anarchist, punk, or criminal and unorganized cultures. For detailed discussion on these implications, see Zack Furness' 2010 book *One Less Car: Bicycling and Politics of Automobility*, particularly chapter 5, titled *Two-Wheeled Terrors and Forty-Year-Old Virgins: Mass Media and the Representation of Bicycling*.

**On yer bike! Rachel Riley flaunts pert derriere
as she cycles to work**

- *Express UK*, April 21, 2016

**Off yer bikes! Cyclists are a menace to society
- and self-righteous to boot
You are just pedalling, you plastic-hatted ninnies,
not saving the bloody planet**

- Rod Liddle, *The Spectator*, November 13, 2016

**Roads are built for buses, cars, and trucks. Not for people on
bikes. And my heart bleeds for them when I hear someone
gets killed, but it's their fault at the end of the day.**

- Rob Ford, former mayor of Toronto, March 7, 2007

Between sexualization of female cyclists and unapologetic disdain towards cyclists
in motor-dominated societies, female cyclists ride a precarious line in these cultures.

5.2 Bikes, Clothes and Gender

5.2.1 *Shrink-It-And-Pink-It*: the Gendering of Products



Hyper-feminine cycling jerseys from Sugoi, Monton, and Pearl Izumi.

While these jerseys are not necessarily intended for urban commute cycling, the image of the 'Lykra-clad racer' remains a prominent stereotype of the cyclist in motor-dominated cultures.

Because the cycling apparel industry is mostly directed and operated by men, there is a misunderstanding of what a woman may want on her bike; Bussey (2013) calls it the "shrink-it-and-pink-it" approach, where the model of femininity is skewed and distorted into a heteronormative definition. Although some attempts have been made for women to take the matter into their own hands, my observations have been that in these efforts have failed represent an inclusive vision of femininity.

The reasons behind the cycling apparel industry's failure to address the complex issue of femininity is a long-standing issue, stemming from early popularization of cycling when it was marketed as a masculine practice unsuitable for the female gender. An explanation of this unfortunate build-up can be found in the practical manifestation of "gendering of products." Gendering of a product refers to the process of giving an appeal that specifically targets one gender to a product that could be gender-neutral and/or is wanted, needed or can be well utilized by both genders (Alreck, 1994: p.6). This may be done through inclusion or exclusion of symbols that are associated mainly or exclusively with one sex in visible design features, gendered advertising or promotion, or distribution channels. This practice follows guidelines provided by the Sex Role Scales, a concept developed by marketing and consumer pattern researchers Robert B. Settle, Pamela L. Alreck and Michael A. Belch in the early 1980s, in order to guide product designers and marketers in the process of gendering a product or a brand.

The Sex Role Scale is devised of two sets of subscales, each containing 48 statements regarding areas of behaviour such as dating and sexuality, family activity, recreation and leisure, and social demeanour. 1,200 adults were then surveyed to identify each statement as feminine or masculine; the results were used to find "what

is and what is not prescribed by sex roles ascribed by society for men and women (Ibid.: p.6).” In terms of the fast and ever-evolving issue of gender, gender identity and gender performance, are arguably a very old idea; while it might be tempting to argue that the findings of the study are no longer relevant due to its age, the rhetoric of social hegemony that has taken centuries to build is not so easily demolished. Not unexpectedly, in this study, being physically active, participating in sports, and being autonomous in one’s mobility were all identified as a masculine trait. The gender roles prescribed through this study, and its implications for gendering products, still carry a certain resonance when applied to the cycling apparel market today:

Using cross-over behaviours can even be effective for gendering of products if it is done adroitly. ... When the model is shown crossing over into the opposite sex role, everything else about the product must epitomize the role of someone of that sex. An example might be an advertisement for aftershave lotion that shows a young father holding his naked infant in his arms. Aside from his care of the child, everything else about him should be extremely masculine. ... Without all the other signs of manliness, he might appear to be effeminate to many in the audience (Ibid.: p.10).

Therefore, traditional school of thought for designing women’s cycling apparel might assume that a woman veering outside assigned gender norms and participating in the masculine practice of cycling, must dress herself feminine colours or prints.

5.2.2 Femininity versus Androgyny

However, even for more open-minded and egalitarian designers, finding a definitive version of femininity for female cyclists is an extremely tall order. There is the question of aesthetics and taste. There is no single look that can please every woman – this is the justification for the work of the fashion designer, and the countless new styles of clothing that are funnelled into the market every day. If it were driven only by necessity and function, the task of designing for the female cyclist would be a much simpler task.

On one hand, there are women who argue that riding a bicycle in feminine dress in its more traditional form – dresses, skirts and heels in a range of colours – is a protest against the view that cycling is a male domain. Bike Pretty, an online retailer specializing in ‘stylish’ cycling apparel and accessories for women, boldly stated on its main page: “Feminine attire while biking is a giant middle finger to the patriarchy. Femme = strong!” (Bike Pretty, 2016)

The other side of the argument advocates a more unisex approach. Grace Wong (2013), a cycling advocate and writer for The Guardian, argues that “endless frills and florals may encourage women to be less assertive riders” and called for the industry to leave such strongly gendered visual elements out of cycling apparel. Emmy Tither, a British cycling instructor, expressed similar views in her interview with Wong:

Marketing for women should be done in the same way it's done for men. I wish it wasn't about being traditionally girly and making women look good in a heteronormative sense. I find it frustrating ... All the men's photos are of them being awesome and cycling in bad weather, I want that for women too, it should be about the awesomeness of cycling. (Ibid.)

This argument calls for inclusion. When a perfectly unisex activity (such as cycling) is skewed and distorted for 'exclusive' marketing to a certain group – women – that certain group sometimes becomes excluded from the 'general' version of that activity. The problem of exclusion extends beyond just clothing in the cycling industry, where female cyclists are seen as 'the other' that must be separately addressed in divided sections in stores, special adverts, women-only rides and races and clothing is an extension of this issue. Rosie Downes, another interviewee in Wong's piece, elaborated on the problem:

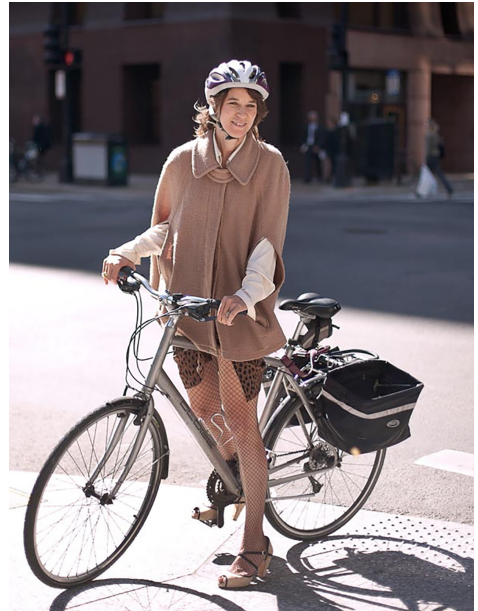
You have the women's stuff siloed off because there's this belief that things need to be marketed to us on an island, which makes inclusion difficult ... I struggle to identify with marketing campaigns that think I'll buy more stuff if it's got flowers on it and is designed for use on a segregated cycle lane.

Those who support merging of 'women's cycling' into simply 'cycling' advocate for a visually indistinguishable (or at least less distinguishable) road identity between genders as a means of being treated as equals on the road. However, others call for the 'feminine image' to be seen as strong and competent as a better solution than androgyny. One cyclist in Vancouver, Canada, told her experience with expression of femininity:

The first couple years, I consciously tried to look like one of the boys. All black, and I got one of those waterproof packs that bike messengers carry around, you know. Once in a while for special events, I wore dresses and even heels riding but I felt really self-conscious, like everybody could see I was nervous. I stopped for every car and every pedestrian because, this sounds so awful but I felt like by looking like a woman, I looked vulnerable, like anyone could yell at me. Like if I made a mistake, they would think, that woman doesn't know the rules. But now it's been 8 years, I know my rights, I know the city and finally now I'm enjoying being feminine. I have a powder pink helmet now. Sometimes strangers will tell me as I'm riding, 'great helmet!'" (26, Vancouver)

I'm very femme. I usually wear lipstick and full makeup. I almost always wear dresses. I don't wear heels but I wear ballet flats or feminine boots [when I cycle]. (25, Leeds)

In the interviews, it was noted that women who were experienced and competent cyclists were generally less likely to be afflicted by her dress and female identity in her cycling. It should be noted the femininity debate within the female cyclist community is not a simple question of what looks best; it veers into deeper



Female cyclists in Chicago, Illinois, with their own versions of femininity.

discussions on gender structure, gendered expectations, and being defiant against the view that cycling is still a male domain.

I really can't tell if there is something inherently different from female cyclists and female non-cyclists. I don't know why I have told myself that I am allowed to walk that boundary of femininity-masculinity, when so many American women seem afraid to. ... I enjoy wearing beautiful clothing. I like the way I look when my eyes have mascara on them and my cheeks are rosy. I can be feminine, and truly enjoy it, but usually my clothing and my style has to fill some other more pragmatic purpose. (27, New York)

5.3 Gendered Inspirations and Gendered Products

5.3.1 Bicycles and Women's Ready-to-Wear Fashion

Interestingly, for all its paradoxes and difficulties in getting real women to get started in transport cycling, stylized images of cycling women has long held a place in the fashion industry. The whimsical, carefree appeal of women in stylish designer clothing has appeared editorial photoshoots in fashion magazines, in advertisements, in shop windows, and even on the runways of live fashion shows.

The idea of using fashion as a form of cycling activism is not new either; in 2011, 30 designers including Diane von Furstenberg and Phillip Lim offered customized bikes during New York Fashion Week for free rides as a part of the Tour de Fashion event in support of raising cycling levels in New York, and in 2014, the city's bikeshare system, CitiBike, collaborated with Bloomingdale's to feature their



Representation of the female cyclist in high-fashion media. Counterlockwise from top: Vogue Netherlands; Harper's Bazaar US; Vogue UK.



bikes in the store windows alongside designer Rebecca Minkoff's matching blue bags, in hopes to encourage more female ridership. However, these efforts have not exactly succeeded in convincing real women. As with prêt-à-porter women's fashions, often there is a disconnect between high fashion and day-to-day dressing, and at an accessible consumer level, there are often mixed messages that cycling can be stylish, but stylish cycling clothing for women is not so readily available. When women's cycling is promoted at this high calibre of fashion, it is often the bike being used simply as a prop in fashion shows and, predictably, high fashion is not relatable for most women, due to a variety of financial and lifestyle-related reasons.

These fashion-focused campaigns are also problematic in that they can only appeal to a certain types of women. These efforts centre around the notion that women enjoy shopping for purses and keep up with fashion trends, failing to reach those who do not identify with this brand of femininity, and ultimately continuing the discussion of hegemony that exists within the cycling apparel industry.



In the end, there is nothing inherently wrong with pink. When worn by strong figures, there is subversive power in the colour. The problem lies not in that pink is seen as feminine; it lies in that feminine is seen as weak and incompetent.

Regardless, bicycles are complex, visually appealing objects, and the fashion industry's fascination with the image of freedom and beauty resonating in women on bikes is objectively comprehensible. Even though the efficacy of these campaigns are not exactly measurable, they are still interesting exploration of using fashion to get at least some women interested in cycling.

5.3.2 Gender Imbalance in Cycling Apparel



Left: H&M x Brick Lane Bikes. Right: Oliver Spencer x Vulpine.

Designer fashion has been used to (attempt to) promote female cycling, and bicycles have been used to add to the visual imagery of fashion. These images are beautiful, and the products advertised next to the bicycle are enticing; however, they are not always practical, relatable, or affordable in real life to most demographics of women, and usually, the products are not meant to serve a function in enabling comfortable cycling. When it comes to products at the retail level designed with both style and cycling in mind, women may find their selection to be limited.

Men have an abundance of styles and functionality levels to choose from; from function-over-appearance technical gear for bike messengers braving bad weather, to fashion-conscious selections offered by famed designer brands, the spectrum is full and varied. There were low-cost options from H&M's collaboration with Brick Lane Bikes; Levi's special edition Commuter jeans cut especially for cyclists; classic blazers and trousers in technically enhanced wools from Oliver Spencer's collaboration with cycling apparel brand Vulpine; Mihara Yasuhiro's special collection of cycling apparel in collaboration with Puma; Paul Smith's entire 531 line; all the way to the top-of-the-line, patent-pending high street technical wear from the



Left: Puma x miharayasuhiro. Right: Acronym

German-Japanese design firm Acronym. There are vast options to suit virtually any needs and taste. Women, however, do not have such luxuries; most of these projects mentioned are specifically menswear-only projects, or often include only one or two options for women. Even the most mainstream companies such as H&M completely excluded women's options from their cyclist collection. Levi's finally introduced the Commuter for women range in 2015, four years behind the men's line, and "women keenly felt the delay." (Davies, 2015: 39) There are essentially no companies at this level of business and influence that cater to female cyclists only, or even have an equal production share of men's and women's products. This imbalance may have consequences in promoting cycling for women:

I get it, obviously, that because not that many girls bike, so there aren't that many cycling clothing companies for girls, especially companies that know what they're doing. But it's complicated. Sometimes I think [a girl] thinks about biking, and thinks she should go to a store and buy a bike—"something" before she can bike, and she goes to the store and there's nothing she likes. So she just doesn't [bike]. (28, Toronto)

I think it's a locked-in cycle because actually I think cool design projects around female cyclists could spark an interest and provide a bigger pool, but design projects only want to focus on big existing markets. (27, Toronto/Leeds)

In a way, stuff that's out there feels like the society's prescription of how men or women should be or what they're allowed to do. The array of men's cycling stuff, that's like, the world is saying, 'you're a dude, go ride your bike,' whereas I feel like women don't have that encouragement. (23, Vancouver)

Efforts to design and cater for female cyclists have proven a difficult task for those who have attempted. New York-based Outlier is one of the brands that gained some attention in the past as a pioneer in 'everyday' women's cycling apparel. Their promotional photograph for the women's Daily Riding Pant of a young woman with flowing brown hair aboard a stylish folding bike became somewhat of a wish-list sensation among women's cycling magazines and blogs; despite this success, the brand stopped producing women's apparel altogether in 2014. In another example, Iva Jean's Reveal Skirt, a bike-friendly pencil skirt that zipped open in the back to reveal extra fabric to enable cycling, appeared to garner praise from female cyclists with more conservative aesthetics or occupations with overwhelmingly positive reviews on their website and numerous blog posts dedicated to the item. However, the brand too permanently stopped operations in 2014.

Finances and a viable market is indeed a looming point of difficulty for these smaller-scale cycling brands. The specialized nature of technical apparel adds another layer to this issue; technical apparel is different from 'fashion' in that it cannot exist for the sake of aesthetics; it must serve a function, and that it cannot be positioned as an art piece. In practical terms, it needs specialized fabrics, and depending on the garment and functionality, it can only be made in specialized factories with specialized equipment. To meet the minimum order quantities at all of these tiers, the designer must have a sizeable financial capital and a sufficiently significant retail outlet. Consequently, the resulting options from smaller, female-run design companies come up short in the technical functionality aspect that would qualify a clothing item as 'cycling apparel.'

For the working designers in the industry, design and aesthetics remain a challenge. As discussed in the previous chapter, designing cycling wear for women is a difficult task due to the conflicting ideas around femininity and competence; however, this is the work of the designer – to take a topic at hand and interpret it as he or she sees fit. There is no one answer for this complicated predicament, however my hypothesis is that the industry's idea of inclusion relies too heavily on pigeonholed view of 'femininity' rather than versatility. Given the peculiar perception of female cyclists in motor-dominant cultures especially, clothing designed for them should give the wearer the ability to control the degree to which she represents her gender and her 'cyclist' identity, while maintaining the benefits of specialized sports apparel.

I think balance is really important. I have the pink helmet s, but I don't have a pastel-coloured cruiser. I have a diamond frame that's fast as hell. I wear a skirt, flowers, polka dots, whatever I want, but never really all at the same time. When cycling companies try to picture a woman it's often a caricature, the whole 'heels on wheels' thing with a girl in a fifties outfit with a bow on her head. I think there are very few women who are so hyper-feminine all the time. It's not relatable. That balance is what's lacking, I think. (26, Vancouver)

Levi's Commuter



Outlier



Iva Jean





6 PRACTICAL INFORMATION

This chapter discusses the features, details, and fabrications that make up the specialized category of clothing labelled 'cycling apparel.' The term 'cycling apparel' itself is somewhat open to interpretation; some may argue that anything that you can easily bike in qualifies as such, especially in the context of urban transport cycling, while some may argue that 'cycling apparel' requires inherent distinctions. Here, I have attempted to present various perspectives on the subject, instead of working from a presumptive conclusion.

6.1 Is it Necessary? A Necessary Discussion

Before proceeding further, I wanted to hold a critical and analytical discussion regarding the validity of the category itself. Concerning the practice of commute cycling in particular, the 'need' for specialized apparel is somewhat debatable. Bike commuting, unless the commute is particularly challenging, or unless the rider intentionally makes it so, is not an athletic pursuit. Iva Jean (2016), a now-defunct women's cycling apparel company that garnered for its efforts to bridge 'cycling apparel' and contemporary womenswear, stated that the brand's purpose was to "encourage women to get on a bike and ride with the style, personality and confidence they bring to every other aspect of their lives," inspired by founder Ann DeOtte's experience in Europe where transport cycling is widely accepted and practiced by "women, men, and families of all ages riding their bikes in everyday clothes." (Rook, 2013) Indeed, cycling being possible in everyday clothing is an important aspect of what it makes it accessible for most demographics. It means no additional financial strain; it means not having to veer away from the costume of one's (sub)cultural associations; it means being able to participate without leaving the personal feeling of safety that comes from a comfortable personal style. The role of specialized clothing for biking is only auxiliary; it can add comfort to the ride enable riding in harsh weather conditions, improve visibility and give confidence to the rider.

After all, pictures of fashionable men and women, happily cycling in stylish clothing that were clearly not 'meant' for cycling are frequently featured not only in cycling-style blogs¹ but also in fashion-for-fashion's-sake style blogs²; clearly, commuting on a bike is possible while staying style-blog worthy.



Catherine Baba
in Paris.



Guest at Copenhagen
Fashion Week.

There are a number of cycling guidebooks available in the market. These books are generally written with the intention to help and encourage people who travel by motorized means, such as cars or public transport, to try commute cycling. I examined a few of these books, paying special attention on chapters discussing clothing and equipment.

¹ Cycle Chic series of blogs is perhaps the best-known example of cycling fashion blogs. Many major cycling hubs have their own cycling chic blogs, but Copenhagen Cycle Chic is the first of the series and remains the most prominent. See online at <http://www.copenhagencyclechic.com>.

² Some fashion blogs have tags or categories for cyclists being featured. For examples, see <http://www.thesartorialist.com/tag/bicycles/> and <http://www.garancedore.com/tag/bicycles/>

Of the books reviewed, first in chronological order was *Commuting by Bike: You've got to be crazy!*, published in 1995. The title is telling of the attitude towards cycling at the time; even more telling, the chapter on cycling clothing is called The Exotic Lizard. As is common with earlier works, this book presents the most simplistic views on cycling clothing out of the books reviewed. The author asserts that for short rides, 'normal' clothes will suffice, and that "a pant-leg clip and a pair of cycling shoes" are all that is needed (Orobko, 1995: p.59). It is indeed absolutely possible to ride in everyday attire – some may even argue that this is a better perspective for promoting cycling as a 'normal' practice in places where it is still marginalized – however, it is somehow apparent in such simplified statements that the book presents a male perspective, although it is not explicitly said.

The Girl's Guide to Life on Two Wheels by Cathy Bussey (2013b), a cycling guidebook written especially for to encourage women to pick up cycling, claims that "from sporty chic to catwalk, cycling is as versatile as it is accessible," (p.81) and its chapter Looking Good While Cycling presents a very positive view on the current availability of women's cycling apparel, alongside a directory of cycling apparel brands which the author views as a notable contributors to the current availability of women-specific cycling apparel. Her argument that cycling can be a stylish practice is well established, with a variety of images and examples of fashion industry veering into cycling. The brands promoted by Bussey in her book are mostly cycling-specific brands, including makers of style-conscious helmets and pannier bags, "traditional cycling jerseys in untraditional prints and patterns" and other clothing that "combine style with performance," (ibid.: p.83) suggesting that stylish cycling still requires, or at least would be better with, some form of specialized equipment.

Everyday Cycling, written by Elly Blue, the editor of the feminist bike zine *Taking the Lane*, presents a slightly more dubious view on 'cycling apparel.' While she agrees that specialized bike clothing has the potential to improve the cycling experience, she focuses on the ease of participation of commute cycling as one of its main selling points, stating "bicycle commuting doesn't have to be complicated," (p.30) and that it "can be done wearing professional attire ... plus a rain jacket and dry socks just in case." (p. 31) Her assertion is that no change to a wardrobe is necessary, but rather that the wardrobe will naturally gradually evolve as the participant cycles more and more. (p.28)

Similarly, the question of specialized cycling clothing and its necessity was met with mixed opinions in my personal communications:

I don't think they're necessary really, unless you're going really far. Girls in their everyday clothes look the best. It might suck when it rains, but most girls I know don't bike when it's raining anyway. (28, Toronto)

I think it's good! I want to have some [specialized cycling apparel], but can't justify owning when I don't ride it very often and it can be quite expensive. But I like the safety features of some of clothing and also like, the ergonomic design made for a cyclist's posture. (27, Toronto/Leeds)

[I bike in] just my regular stuff, and a helmet. (25, Leeds)

Right now I bike in spandex bike shorts and a tank top ... I totally have biked in dresses and skirts and full make-up to weddings and auditions, and even a few performances. (27, New York)

People in full 'biking' get-up look a bit ridiculous to me. I don't see why anyone just biking around the city would need so much. (30, New York)

I didn't see the point until I tried them. Then I resented the hours I spent in my soaking cotton shirts. When they say quick-drying, they mean it. (27, Toronto)

For some, the validity for cycling-specific clothing was found not in necessity itself, but in legitimatizing the cyclist as a 'proper' cyclist, and in popularizing the image of cycling:

I feel like running and going to the gym has gotten cooler because there's some really cool looking clothes for that stuff now ... I'm sure there are cooler clothes now because more people are doing it and there's market for that, but also it seems like more people are doing it now because it's cooler. It goes both ways, I think. (27, Seattle)

I already see the influence of sportswear trickling down, or up, or across, whatever it is, to contemporary womenswear, or at least details taken from sportswear, like taping of seams as a design element. So many big retail stores have an activewear section now. I think it's more about the target market. (28, Toronto)

And some women who felt their style did not align with anything that the cycling apparel industry has to offer, found their own ways to keep wearing their own clothes while cycling, by the means of making peace with a slight mess, altering their own clothing or choosing a different bike:

I don't think I want to wear sporty things, really. I've made my peace with being a little bit sweaty and a little messy. (30, New York)

Personal style is immensely important to me. ... My style [somewhat] works with biking. There are certain things I won't wear, like anything that shows sweat too easily. But really, if you want to wear it, you make it work. I wear silk, dresses, heels... But everything I wear generally has a bit of a practical component to it. And honestly, if I want to wear that white silk skirt, I will. You just have to learn the tricks of the trade. (28, Toronto)

I have a pretty quirky style. Vintage blazers and high-rise pants are my "thing," but it's not always easy to bike in these things. But then I realized while living in Amsterdam riding a cruiser that if I have an upright riding position, it's not a problem. (30, Toronto)

I'm a queer high-femme. I never wear pants ... I'm all bloomers and petticoats – layers and layers of skirts ... How could I continue to perform my gender

AND use my bicycle as my primary form of transportation? ... I didn't change the clothing that I wear; instead, I found ways to make the vast majority of my clothing more cycling-friendly. I slightly changed the way I wear my wardrobe, and I embrace this shift. (Fae, n.d.)

The differing opinions highlight that, while cycling for transportation is something that can be done in just about any clothing, designated cycling clothing can play an auxiliary role in making the ride more pleasant, protecting the wearer from weather, or even simply legitimizing the rider by adding visibility to her status as a 'cyclist.'

6.2 What Exactly *is* Cycling Apparel?

What differentiates 'cycling clothing' from not? As examined earlier, and as is visible in cyclists in urban areas, cycling can be done in regular, non-specialized clothing with the exception of a few styles that may cause discomfort or danger to the rider. However, to be formally marketed as 'cycling apparel' and perhaps to be sold in specialty bike shops, the garments should have some distinguishing, cycling-specific functional features. 'Functionality' can mean many things but in the context of cycling, it (mainly) means wearing comfort and enhanced mobility, weather adaptability, and abrasion resistance. Designing for cycling may focus on layering capabilities to maximize body temperature control and comfort.

Generally, the fit (or the silhouette) of specialized cycling clothing is determined by the rules of aerodynamics. Overall, they are fitted close to the body without much excess fabric. Cycling race clothing tends to be skin tight, with varied levels of compression; such engineering is not necessary for 'lifestyle' riders.

6.2.1 Features of Cycling Apparel

Items of clothing described below are by no means an exhaustive list of 'cycling apparel', but rather a small selection of items that are particularly applicable to the practice of urban bike commuting, determined by both my own experiences as a cyclist, and from what is often categorized by cycling apparel companies as 'urban cycling' clothing.³

TROUSERS & JEANS

Wearing comfort is especially critical in trousers because the cyclist's legs are constantly engaged in motion. Trousers should not be too tight across the hip flexor area; the material should have some stretch factor, while remaining durable; the waistline should be raised at the back to provide better coverage in riding position; high-abrasion areas such as the crotch should be paid special attention. Additional features may include (but not limited to) reflectivity, U-lock holsters, elasticized or buttoned ankles, crotch gussets, deeper pocket bags, and water- and dirt-repellent

³ Brand consulted include Rapha (<http://www.rapha.cc>), Vulpine (<http://www.vulpine.cc>), and Nau (<http://www.nau.com>).



Top: demonstrating stretch in cycling trousers.
Bottom: baselayers in polyester (left) and merino wool (right).

finishes. JeWon Yu, who spearheaded Levi's Commuter denim project, considers stretch, reflectivity, back coverage and reinforced seams as the four essential features of cycling jeans (Davies, 2015: 41).

BASE AND MIDLAYERS

For next-to-skin layers, moisture and temperature control are among the most vital factors. As discussed earlier, cycling can be performed in just about anything; however, functional fabrics can certainly enhance the experience. Keeping this in mind, designing aesthetically pleasing, 'fashionable' garments with moderate technical advantages is certainly a very feasible task when designing with urban cyclists with reasonably short commutes; those with longer, more challenging

commutes will most likely require a change of clothing anyway, and such dedicated riders probably already have a designated 'uniform' for their practice. For the average rider, quick drying is perhaps the most beneficial feature, so that the wearer will feel dry and comfortable within a short period of time after reaching the destination. Special finishing treatments can add anti-microbial or odour-reducing features to the fabrics. Traditional cycling tops are typically called jerseys. Jerseys can come in a variety of fabrics, colours, weights, and sleeve lengths, and generally have a zipped opening, either half- or full-length in the front, allowing for quick control over insulation or ventilation of the body. Classic road jerseys are commonly equipped with large elasticized pockets in the back for storage. While such features serve a clear function, they do not grant much freedom to the designer; elasticized pockets in particular do not translate well into everyday city clothing. Flat-locked seams in base- and mid-layers can help minimize chafing.

WEATHER-PROTECTIVE LAYERS



Left: multi-purpose rain jacket. Right: cycling-specific rain jacket.

A level of weather-adaptability is probably the defining distinguishing feature of cycling outerwear. Weather adaptability can mean many things; water and wind resistance, heat-retention qualities, or breathability and ventilation for warmer climates. Heat retention is generally achieved in jackets through storm cuffs, raised collars, and elasticized hem. Mesh lining and ventilation zippers can be placed under the armpits to add ventilation. Reflective features are also commonly found. Though some designs may include hoods, the hood must be carefully designed; oversized hoods can significantly reduce the wearer's range of vision, especially when looking back to check before passing traffic or changing directions. Pockets are another



Left: traditional rain pants for cycling.
Top: Rain Legs.

polarizing feature in cycling jackets. General outdoor-use waterproof jackets do cross over frequently, and these jackets tend to have multiple pockets, which can be handy for cyclists, providing easy storage and access to the wearer's belongings including essential bike accessories, such as lights and keys. However, more specialized-for-cycling jackets may prioritize minimal weight over extra pockets. Other than a rain jacket, a lighter-weight windbreaker is also very useful for a cyclist.

Rain pants are also an important item in a cyclist's wardrobe, but are probably one of the more difficult items to translate into a less sporty, more fashionable aesthetic. Because it primarily is worn over another pair of pants or leggings, it requires a baggy fit and a flexible waistband but should still be fitted at the ankles to block out water and not get caught in the bike chains. Recently, the idea of only covering the upper part of the wearer's legs with water resistant shorts, apron-like skirts, or crossover ideas such as Rain Legs became available as an alternative.

In water-resistant layers, as with more general-use outdoor sports clothing, seam-sealing tapes are used to cover the stitching lines. The tape is typically adhered by the use of a taping machine, which uses heat to bond the tape to the fabric.

6.2.2 Skirts, Dresses and Bicycles

Considering aerodynamics, protection from the elements, and basic concerns of modesty, it would not be so logical to argue skirts and dresses as performance 'cycling apparel.' One interviewee voiced concerns about modesty:



I will say when I do cycle a lot, there are a lot of things in my closet that I can't wear for the fear of flashing someone, or getting my long flowing skirt caught in a chain. ... One time I was walking up a hill behind a girl in a dress pushing up this hill [on a bike] like a boss, but I could also see her bright red unmentionables without trying at all. And I judged her. This skirt was just billowing in the wind. So I felt that if she knew she was going to be cycling, she shouldn't be wearing something so light. (27, Toronto/Leeds)

In New York, there have been even incidents where the police tried to fine or even ban women from wearing skirts on bikes, citing that it is distracting to drivers and therefore dangerous; happily, such an effort never materialized (Apple, 2011). Regardless, it is possible to establish them as 'bike friendly' – and to promote such a significant part of a woman's wardrobe as bike-friendly seems rather important for the purpose of encouraging the attitude that cycling can be performed by anyone in any style of dress.

One friend told me once, "I don't bike because I love wearing skirts too much." And I was just like, hey, I do it all the time! But she was somehow so convinced that she couldn't do it. I think essentially it's about her ideals of femininity, and the skirt thing is just an easy excuse. (30, Toronto)

I like fit-and-flare dresses [for biking] s and those are super comfy. (25, Leeds)

I personally love riding in skirts. It makes me feel good, like, badass, pretty, carefree, whatever. I don't mind being a little bit exposed on my bike because it's only for a second and then I'm gone. It's totally fine if it's not too long or not too tight. (27, Vancouver)

For designers, there are no hard-and-fast rules for designing skirts for cycling. Generally, cycling in skirts is easily done if the skirt is:

- Made of a suitable fabric; generally heavy enough not to get blown away by wind
- Not long enough to caught in bike chains
- Not too short (and tight) to get caught underneath the saddle, generally problematic if the skirt is fitted to mid-thigh
- Loose enough around the hips and knees to allow for pedalling motion.

6.2.3 Fabrics

The specialized fabrics are the biggest distinguishing feature that separates specialized sports clothing from everyday clothing. With the recent growth of the sportswear industry, there have been consequent rapid expansion and developments in sportswear fabrics as well. For the purpose of this paper, the scope of sportswear fabrics has been limited to an overview of fabrics particularly relevant to cycling apparel.

Denim used for cycling jeans differentiates itself from traditional denim by its content. Traditional denim is mostly made up of cotton, even though 1 to 3% mix of spandex has become increasingly common especially in women's jeans; cycling denim is frequently a combination of cotton, spandex and synthetics such as polyester or polyamide, for technical advantages such as reduced weight, better dimension retention, weather- and abrasion-resistance. Alternatively, all-synthetic or synthetic-spandex mixes may be considered for different types of trousers.

Polyester and polyamide are extremely versatile fabrics, and are present across the board in cycling apparel throughout different layers in different fabrication. In base layers and jerseys, they are often blended with elastane for stretch and fit. Particularly in base layers, the fabrics often have a pique, chain link, or mesh structure for superior breathability and minimal drying time.

Protective layers such as windbreakers, rain jackets, and pants are also usually made of specially treated polyester or polyamide. Waterproof fabrics come in numerous varieties. Primarily, the waterproof membrane (typically polyurethane) is either coated or laminated onto the face fabric, and come in two- or three-layer varieties; three-layer fabrics have a tri-coat mesh printed onto the waterproof membrane to protect the membrane against wear, and therefore do not require a separate lining to be incorporated into the garment. Recently, a variety durable water resistant (DWR) finishes have been popularized, and DWR-treated cottons can also be easily found in outerwear.

Merino wool is a historically important material in cycling apparel. Wool has been widely used for cycling since the introduction of the sport and its early days of garnering attention as a popular past time; its natural ability to maintain body temperature made it a good choice. Despite the significant developments in synthetic activewear fabrics, some companies still use merino wool for their jerseys sometimes by itself, or with synthetics (most often polyester). Some particularly environment-conscious cyclists back 100% merino garments for its more sustainable nature (given that the sheep are treated well) than chemically derived synthetic fibres (McGivern, 2009a).

As with the rest of the fashion industry, sustainability should be an important consideration for the cycling apparel industry. Some industry professionals have argued cycling as a part of a more sustainable lifestyle, and therefore everything that is related to promoting and enabling cycling is inherently 'green.' (McGivern, 2009b) In this context, cycling apparel, particular that designed to overcome the dress barrier, could be viewed as an approach to sustainable fashion, looking beyond the conventional approach to sustainable fashion of primarily determining the environmental friendliness of the garment in its production phase (through the questions of fabric choice, quality, production method, place of manufacture or a combination of these factors). Clothing that promote and enable cycling would go one step further and incorporate a sustainability element in the use phase of the garment by encouraging the sustainable habit (cycling), and could ultimately enhance the overall environmental awareness in its users.

All of this, however, is only a proposition; commute cycling is certainly a green(er) practice when done instead of another means involving a motorized vehicle, by itself, it's not enough to dub 'bike-friendly' clothing as environmentally friendly. However, there are many exciting developments in the field of technical textiles that would justify such labelling. Sustainable wool and machine-washable technical cashmere are gaining momentum with breakthrough brands like Kit & Ace, and technologies in recycling polyester and polypropylene fabrics have made large strides in the past few years, and have come into wide use by major activewear companies such as The North Face, Patagonia, and Nau. Moving forward, all branches of cycling apparel industry – performance and lifestyle – should consider incorporating such fabrics into their manufacturing process.⁴

⁴ For a much-more in-depth discussion on the topic of sustainability in technical textiles, see Laura Seppälä, **Sustainable responsible outdoor clothing: What every designer should know**, Master's thesis, University of Lapland, 2010.

6.3 Emerging Brands & Practices

When discussing women's lifestyle cycling apparel, success stories are hard to define. Iva Jean seemed to have the right elements to promote transport cycling for working women, but closed after 5 years; London-based Cyclodelic, maker of unusual cycling bags in ultra-feminine prints and colours, went as far as a concession shop at the Topshop flagship store in Oxford Circus, London, yet quietly disappeared in 2013. Rapha boasts a history and a following but is still a dominantly a road-cycling brand, with a larger men's selection than women's. Other recognizable cycling brands, such as Pearl Izumi, Shimano, and Castelli are all focused on road cycling. Brands like Sweaty Betty and Lululemon, which operate under arguably more 'feminine' practices of yoga and fitness, both have sub-collections that could be seen as 'cycling-friendly' – called *Lifestyle* and *Ego* respectively – but neither of the brands explicitly say the collections are meant for cycling, perhaps not to limit the target customer to such a small group: female cyclists.

Vulpine was founded in 2012 in the United Kingdom, and since then has garnered much press and praise for its versatile designs and innovations. Its styles range from road race-friendly to classically tailored, with materials ranging from highly technical synthetics to DWR-treated cotton. In terms of visual representation, Vulpine's ads feature both men and women in a variety of conditions, from an urban setting in work-appropriate clothing, to country roads in bad weather.

New York-based Vespertine takes on urban cycling apparel with a focus on reflectivity. Their signature looks feature a windowpane pattern with reflective threads woven directly into the fabric, and comes in shirts, dresses, and jackets.

San Francisco-based Betabrand demonstrates perhaps the most interesting, newest approach to designing cycling apparel: the brand bills itself "the web's crowdfunded clothing community," and relies on the potential buyers to decide what to make by asking them directly to back the projects via crowdfunding websites, and therefore guaranteeing buyers and minimizing financial risk. The platform is not specifically for cycling apparel, but many of the successfully funded projects inadvertently have had a cycling focus, including an array of 'bike-to-work' skirts and pants, reflective jackets, and backpacks, possibly due to the potential of this modus operandi to minimize financial commitment of starting a label. However, it does pose its own set of problems, such as licensing conflicts (projects funded via Betabrand are produced under the Betabrand label), the crowdfunding goal itself being difficult to meet, or in some cases, projects garnering too much attention that the line of production cannot meet the demand.

It is not yet possible to accurately gauge the success or effectiveness of these new brands and ideas. In any case, these brands are adding variety to the women's cycling apparel industry. The most pressing goal at the moment is to achieve strength in numbers; new brands, new fabrics, and new approaches to the business of fashion all spark an interest, widen the market, and every article that gets written on fashionable cycling clothing has the potential to convince a woman to start cycling.



Vulpine



Vespertine



Betabrand



7 DESIGN PROJECT

Chapter 7 is a candid reflection of the design and production process that followed the research. It details the inspiring and challenging task of applying ideas from this complex, sociological research to more tangible products of a 'design' thesis. It was of personal importance for me to embody as much of the discourse collected through the interviews and readings as possible, which proved somewhat limiting for my thought process regarding design, but in its own rewarding way; it pushed me to conscientiously examine what is necessary and what could truly be beneficial to put potential female cyclists at ease in regards to their appearances, instead of approaching the design project with more superfluous motivations.

7.1 Personal Impetus Towards Design

In the early stages of this project, I first thought about the products I wanted to make before I started conducting the research and forming my discourse around the ways in which I could help women overcome the fear of cycling through clothing and design. Before the research, when I tried to envision what shape the end products would take, they were caught in between two very different directions. One was a contemporary take on traditional cycling apparel and performance sportswear, perhaps a 'cycling apparel' version of Stella McCartney's collaboration with Adidas; and two, technically advanced high-street clothing with hyper-tailored silhouettes, such as that of Acronym or Veilance by Arc'teryx, but for women. I did, in fact, develop a number of patterns and prototypes of 'functional' garments with complex zippered pockets and an array of other technical features. In some ways, I may have even hoped, for the sake of my design project, that the findings of my research would indicate that cycling is *definitely*, measurably made better with specialized clothing, and that well-designed, well-marketed women-specific cycling clothing would definitely help improve the image of cycling, but in this thinking, I constantly felt challenged by my own cycling practice of being perfectly content in mostly non-specialized everyday

clothing (*why do women's trousers suddenly need zippered pockets if it were to be called cycling-friendly?*), my interviewee's comments on the blunders of the cycling apparel industry pushing specialized clothing on female consumers, and the fact that better-realized versions of the prototypes that I was developing already existed out in the market.

As the interviews went on and I paid closer attention to what was being said, I found it easier to come to terms with my own views of cycling and 'cycling apparel'; the fact that cycling is an incredibly accessible practice for even the most marginalized members of society is an important motivator in my personal advocacy for cycling. It is not an elitist practice; it does not require a high fitness, a young performer, or a large budget for equipment. While I do still believe that highly specialized, highly technical and accordingly highly priced garments have a place within the cycling community, I simply realized that it is not *my* undertaking to develop these garments. Urban cycling is a realistic, and perhaps the most relevant, case of where specialized protective or mobility-enhanced clothing may be needed in stylish, work- or social-setting friendly designs, and there are designers and brands who are taking on the task and doing them very well (at least for men). Through the interviews and candid reflection of my own views and my own cycling practice, I simply came to realize that this was not the way to achieve what I originally intended to with my thesis, which was to examine the role of clothing and style in encouraging women who are not yet cyclists to consider cycling as a form of transportation. I slowly came to realize that the best way to encourage women to start cycling is perhaps to help women understand that cycling can work for everyone, and every style.

It wasn't about designing clothes that would protect women on bikes against harassment (that goes much deeper than design and clothing, into the collective mind of contemporary society), trying to come up with one aesthetic of 'femininity' that can please every woman, or trying to make cycling apparel as appealing and intriguing as runway designer fashions; I believe that there is a missing link between what contemporary women are choosing to wear and what the current cycling apparel industry is delivering them at the moment; my purpose is to identify and bridge that gap, and to hopefully start a dialogue on how easy it is to translate what a woman already owns and loves to wear into a comfortable and easy bike commuting practice, and to help women embrace biking as a part of their everyday life.

7.2 What Exactly *is* Cycling Apparel? A Personal Reflection

In the early stages of this project, I first thought about the products I wanted to make before I started conducting the research and forming my discourse around the ways in which I could help women overcome the fear of cycling through clothing and design. Before the research, when I tried to envision what shape the end products would take, they were caught in between two very different directions. One



What I wore on my bike commutes to school during 6 random days between May and August 2016. Observing my own habit provided an important insight for my design direction.

was a contemporary take on traditional cycling apparel and performance sportswear, perhaps a 'cycling apparel' version of Stella McCartney's collaboration with Adidas; and two, technically advanced high-street clothing with hyper-tailored silhouettes, such as that of Acronym or Veilance by Arc'teryx, but for women. I did, in fact, develop a number of patterns and prototypes of 'functional' garments with complex zippered pockets and an array of other technical features. In some ways, I may have even hoped, for the sake of my design project, that the findings of my research would indicate that cycling is *definitely*, measurably made better with specialized clothing, and that well-designed, well-marketed women-specific cycling clothing would definitely help improve the image of cycling, but in this thinking, I constantly felt challenged by my own cycling practice of being perfectly content in mostly non-specialized everyday clothing (*why do women's trousers suddenly need zippered pockets to be called cycling-friendly?*), my interviewee's comments on the blunders of the cycling apparel industry pushing specialized clothing on female consumers, and the fact that better-realized versions of the prototypes that I was developing already existed out in the market.

As the interviews went on and I paid closer attention to what was being said, I found it easier to come to terms with my own views of cycling and 'cycling apparel'; the fact that cycling is an incredibly accessible practice for even the most marginalized members of society is an important motivator in my personal advocacy for cycling. It is not an elitist practice; it does not require a high fitness, a young performer, or a large budget for equipment. In trying to develop a technically advanced performance wear, I felt that I was taking away the things I love the most about cycling.

Indeed, urban cycling is a realistic, and perhaps the most relevant, case of where specialized protective or mobility-enhanced clothing may be needed in stylish, work- or social-setting friendly designs, and there are designers and brands who are taking on the task and doing them very well (at least for men, and hopefully soon for women).

While I certainly believe that highly specialized, highly technical and accordingly highly priced cycling clothing have a place in the cycling world, I simply realized that it is not *my* undertaking to develop these garments; this was not the way to achieve what I originally intended to with my thesis, which was to find a discourse around clothing and style that could encourage women who are not yet cyclists to consider cycling as a form of transportation. Through the interviews and candid reflection of my own views and my own cycling practice, I came to realize that the best way to encourage women to get on their bikes is perhaps to help women understand that cycling can work for everyone, and every style.

It wasn't about designing clothes that would protect women on bikes against harassment (that goes much deeper than design and clothing, into the collective mind of contemporary society), trying to come up with one aesthetic of 'femininity' that can please every woman, or trying to make cycling apparel as appealing and intriguing as runway designer fashions; I believe that there is a missing link between what contemporary women *want* to wear and what the current cycling apparel industry is delivering them; my purpose is to identify and bridge that gap, and to



Left, Stella McCartney for Adidas; Right; Veilance by Arc'teryx

hopefully start a dialogue on how easy it is to translate what a woman already owns and loves to wear in her wardrobe into a comfortable and easy bike commuting practice, and to help women embrace biking as a part of their everyday life.

So then, if my theory to encouraging women to start cycling is helping them understand that they don't need to change their clothes to participate, what is my role as a designer?

Being a dedicated cyclist myself, and having managed to establish a feeling of security and comfort in making my own personal style work with cycling, I decided not to shy away from my own personal experiences and preferences affecting my design process. As discussed in the research with experienced, dedicated riders, my wardrobe has gradually evolved over my cycling years to consist almost entirely of clothing that enables me to cycle comfortably, and I have learned what works with the cycling motion and what hinders it, and what specialized sports clothing, if not specifically 'cycling' clothing, adds level of comfort and ease to daily cycling. With the new goal of building on the accessible appeal of cycling, I decided to build a small collection of garments that is a combination of 'everyday clothing' that is optimized for hassle-free cycling with additions of some specific 'sportswear' elements taken from the items my own wardrobe that I have noted particularly as beneficial to my own non-specialized clothing, which enables me to bike more comfortably in various conditions. This way, I can deliver what I have learned from my nearly ten years of building an organically cycling-friendly wardrobe to novice female cyclists, and hopefully help them realize that bike commuting is a truly easy habit to adopt, while giving them some sense of legitimacy in their practice, knowing that they are wearing something that was designed with specific act of cycling in mind.

To devise at least what I thought of as nearly universally applicable design guidelines as possible for bike-friendly clothing, I first had to think about what my peers and I wear on our bikes. I observed not only those I interviewed for insights, but on a broader scale. Overall, it seemed that most young women that I knew, did not have a distinction between their everyday wardrobe and their cycling wardrobe, consistent with my impetus towards design. In my peer group, the vast majority were content in biking in their skinny jeans (with stretch), cotton t-shirts, chiffon dresses and everything in between. There were some, who took on 40-50 minute commutes, who wore a simple 'uniform' of sports leggings and quick-dry t-shirts; these women kept a small collection of 'work clothes' at their workplace and simply changed into them for the work day. Most of them owned protective layers, such as water- and/or wind-resistant jackets and pants. The jackets in particular were not necessarily reserved for cycling; many of the women wore their weather-protective jacket as their primary outerwear.

This was the balance that I sought to achieve in my collection; clothing that can be useful in various contexts, without necessarily needing a distinction, but made in moderately functional fabrics that move well, dry fast, and provide some protection in bad weather, in shapes and silhouettes suited for cycling, with all the potentially dangerous trial-and-error process already completed through my (and my experienced bike commuter peers') experiences. I wanted to accommodate a wide pool of women and styles. I thought about a woman who may wear a neat shirt and trousers on a short commute to work, a sleeveless dress over a long-sleeved breathable top, or a windproof vest over her favourite skirt. These are all valid ways of dressing for bike commuting. Style is a personal choice; most women, in one way or another, form her own sense of what she likes to wear and what looks good on her. It may evolve and change with her interests and her circumstances, such as her hobbies, her place or residence, her occupation or work environment, and her social circles, but ultimately, regardless of these external factors, there are designs and clothing that can work with cycling within the given circumstances.

7.3 Sustainable Design Principles

Even though I purposefully refrained largely from the discussions of sustainable design in the research portion simply owing to that this very vast discussion was outside of the scope of my thesis, in my own design practices, sustainability is also a very important discourse, and therefore I decided to open a (brief) discussion in the design part of this work.

The fact that cycling has a low environmental impact (especially in comparison to other means of transport) is one of the major reasons why I want to promote cycling as a life habit. As such, all industries surrounding cycling, including cycling apparel, should make an effort to commit to sustainable production; otherwise, it runs a risk of contradicting itself. Designing garments that work with an existing wardrobe, too, is a minor way of restricting unnecessary overconsumption and production.

I must first acknowledge the challenges I faced while attempting to participate first hand in tangible, concrete practice of sustainable design, particularly in using sustainable fabrics; materials like recycled polyester and sustainable merino wool is not easy to source in small quantities as an individual, and the financial requirements simply could not be met in order to use these fabrics. However, there are other more non-tangible ways at a systematic level in which designers can participate in sustainable design practices, and I wanted to be aware of these processes.

According to Gijs Bakker and Louise Shouwenberg (2013), there are three main types of sustainable design practices; one, to decrease consumption (the most effective method, but ignores financial reality and suppresses creativity), two, promoting better materials and production methods, and finally, focusing “not directly on any sub-aspect such as sustainability but reflects a more fundamental level on the changing relationships between people and their everyday environment.” (p.378) They point to four essential elements in a designer’s toolkit:

- Idealism
- Intuition
- Sense of aesthetics
- Awareness of the ever-changing social, cultural, economic and political contexts in which products are born and will function. (Ibid.: 376)

Using these tools, the designer can at least attempt to create a well thought-out product for which he or she can take full responsibility. For myself, designing with the purpose of providing insightful clothing for female cyclists is a way for me to engage in sustainable design practices in that promoting bike commuting is seeking to promote a more fundamentally healthy relationship between the rider and her environment. It is my hopes that the garments that I produce will have a positive with the wearer’s quality of life, encourage a more sustainable lifestyle with a dedication to bike commuting, without having to impose an unnecessary, imagined ‘need’ for a large number of new products.

7.4 Aesthetics & Inspiration

Instead of denying the inevitable perpetuation of my own cycling experience into the design process, I viewed it as positive, constructive insights from which my designs could benefit. I did, however, exercised caution to not ask only myself “would I wear this?” but instead asked more objective questions like “does this work?” and “is it useful?”

My aim was to take the traditional idea of cycling apparel, which sees cycling as a demanding, courageous physical activity and therefore inevitably establishes it (in the perception of contemporary gender perspective) as a masculine act, and reframe that idea as a gender-neutral act of simply ‘commuting’ and feminize the

A rather ordinary multi-purpose weatherproof jacket. Its functionalities do not leave much room for freedom of design.



clothing but in a different way than the shrink-it-and-pink-it approach that has left many female cyclists disillusioned. I refrained from asking very specific questions about design elements from interviewees, in order not to limit my own creative autonomy. However, certain symbols are definitely assigned as 'feminine' in our contemporary society – the colour pink, floral prints (and to some degree, prints in general), glitter, and light, flowing materials such as chiffon. Even though I personally subscribe to the school of thought that visible femininity is a valid form of expressing female autonomy, for the purpose of this collection, I decided to veer away from these explicitly identifiable symbols of femininity. I would look for outlets for expression of femininity in different ways, which is where my identity as a designer played part.

I chose to convey femininity through fitted, close-to-the-body silhouettes, full volumes in skirts, and particularly for protective layers, sheer fabrics and quilting details. Protective layers were especially interesting to attempt to feminize, because active rain jackets and pants have a very established, standardized look as a result of tried-and-true functionality; hard-shell fabrics, taped seams, zipped pockets, storm flaps and Velcro-closures on ankles and wrists do not leave much freedom of design, and in order to perform outdoor activities including bike commuting in poor weather, such heavy-duty garments are indeed needed. However, reframing transport cycling as a not a serious athletic pursuit but a rather casual activity where the person may choose to participate in light rain but very well opt for public transport and an umbrella in heavy downpour enabled me to redesign protective shells with much more freedom of design.

The quilting details were a way for me to hint at femininity without using overt feminine symbols. It was partly inspired by Louise Bourgeois' later works with textiles, particularly *Ode à l'oubli* (2002-2004). The juxtaposition of quilting, an activity



Select works from Louise Bourgeois' *Ode à l'oubli* (2002-2004).

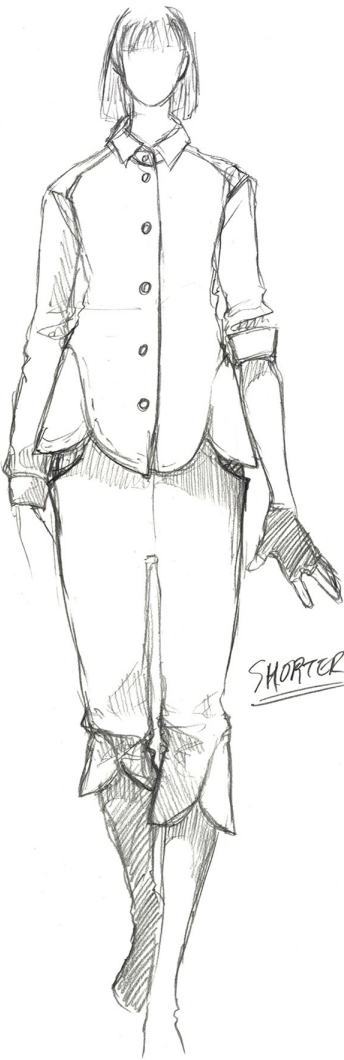
commonly and historically seen as 'a woman's work', with cycling, as a 'masculine' practice, fascinated me; Bourgeois's intimate observation of her own womanhood throughout her career as an artist has long been a source of inspiration.

As for the identity of being a cyclist, I sought to mitigate the problem of being caught between incompetent or too competent appearances by streamlining the special 'cycling' features down to the necessary, and do away with some of very specialized, heavily identifiable features, or find ways to cleverly hide and reveal them, so that the garments could work with a wider variety of styles and spaces.

7.5 Features, Details & Fabrics

Fabric choices, too, were somewhat dependent on personal preference; cottons, particularly in its knit or DWR-treated form is now frequently seen in active or cycling wear markets, however I personally chose not to use cottons in favour of synthetics with special activewear features. Silks and linens were kept out of the design process entirely due to their unsuitability for active wear. I intended to remain aware of my duties as a young designer entering the profession at a crucial stage where considerations for sustainability must be taken, not only in cycling apparel industry but in fashion as a whole; however, sourcing sustainable active fabrics proved a difficult task for me as an individual with limited purchasing powers.

In trying to balance function and versatility, where the two conflicted, I made efforts to be rational in my decisions in deciding which of the two had more impact on the particular garment. If the appearance of the garment had to suffer greatly for only a little bit of added convenience, or convenience to only few people, I prioritized the visual appeal, and vice versa. Elasticized back pockets on jerseys was one such occasion where the feature was done away; most commuter riders carry a

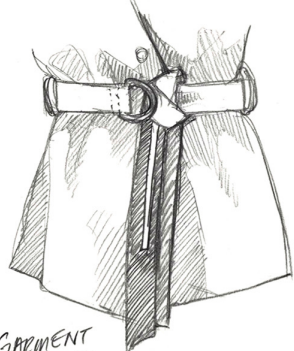
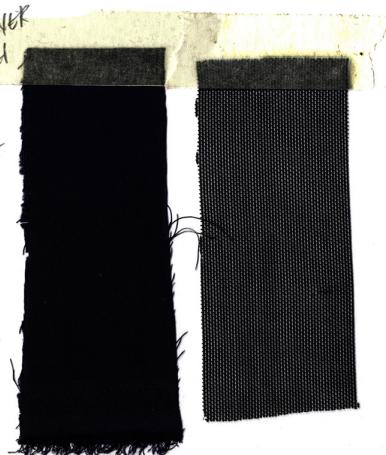


SHORTER



SECOND LAYER
IN MESH

BACK PLEAT



GARMENT
BELT
W/ REF. STRIP
- CAN BE WORN TO THE BACK

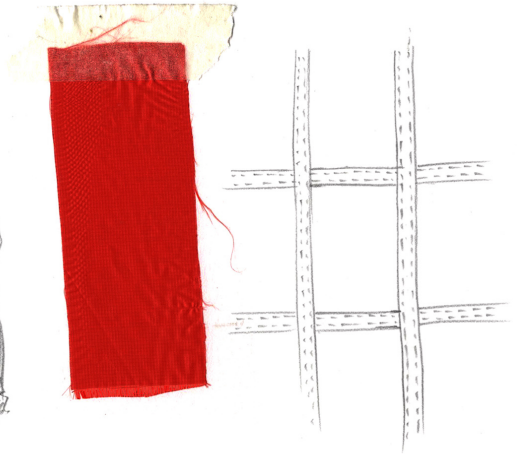
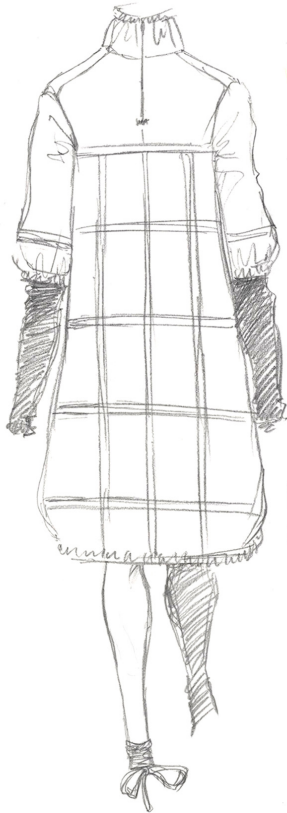
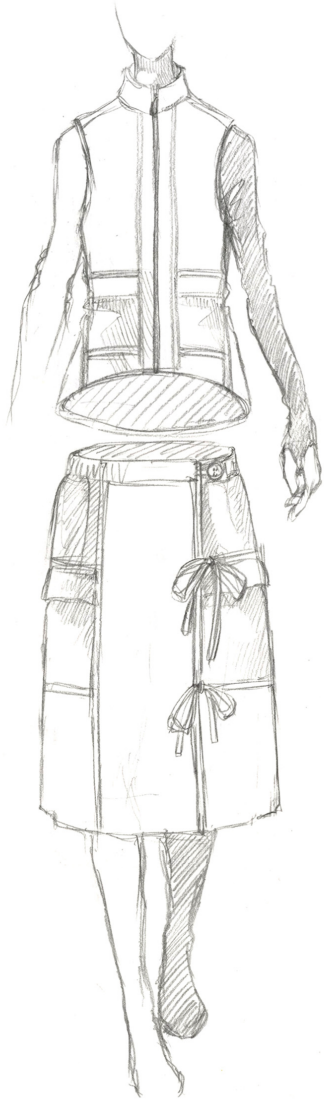


JERSEY



HEM minimum
160 cm width
KNEE LENGTH
OR LONGER





HEM MIN. 160 CM,
ELASTIC CUT TO 100-120 CM



bag or a purse eliminating the need for such pockets, and they label the garment as decidedly 'cycling jersey' rather than simply a 'top'.

The matter of reflectivity was particularly a concern. Even though some consider it nearly essential in 'cycling' clothing, and it can be used as a design detail, even in more successful cases it has the potential to be read as the distinguishing feature that pigeonholes a garment into the sportswear category. For example, if a streamlined pair of cycling-friendly pants has a reflective piping on a part that cannot be hidden, regardless of how well it may photograph well in a commercial or marketing perspective, in real life, a consumer may be reluctant with wear it with a tailored blazer to a workplace. There are numerous other options for increasing visibility other than reflective features being directly integrated into the garments. In well-lit urban settings, wearing white garments, shoes, or accessories may suffice; reflective vests, sashes, pant clips, reflectors on pins or key-rings are all readily available and adds customized reflectivity, and bike lights after nightfall are usually required by law in most places. Furthermore, reflective fabrics and trims that currently exist in the market tend to deteriorate faster than other textiles. Therefore, in my collection, I experimented with integrated reflective strips in some places where I felt it could be hidden easily, but reflectivity was not the primary concern in the design process.

Safety in cycling clothing (other than reflectivity) comes from the clothes' ability to work with the bicycle without causing accidents. Possible scenarios for accidents caused by clothing include, but are not limited to:

- Skirts getting caught underneath the saddle, making the rider's feet unable to easily reach the ground when stopping;
- Long design details such as garment belts, ribbons, scarves getting caught in the chain or wheel spokes, bringing the bike to an unexpected halt or pulling the rider off the seat;
- Pant leg getting caught in the chain, bringing the bike to a halt (or damaging the pants);
- Hoods limiting the rider's ability to look to the side and/or back, causing collision with other traffic.

Other important concerns in designing were comfort and modesty. Cycling women too, like all women, are subjected to judgment, sexualization, and objectification; while I believe in complete freedom of self-expression through clothing in that a woman deserves respect and safety regardless of how much of her own body she decides to show, I personally chose to design for the majority of women who concern themselves with exposure and society's perception of them.

7.6 Garment Evaluation

This section details the qualities of each garment that makes the piece cycling-friendly. I tested the garments' suitability for cycling by wearing the clothes



My personal safety gear. Helmet, portable 'turtle' lights, and detachable reflector.

out on short rides, by myself or by other dedicated female cyclists. As a result, some pieces were exempted from the final line-up of garments due to their restricted range of motion (particularly in mounting or dismounting diamond-frame bicycles), or causing an unreasonable feeling of being too warm even in moderate temperatures.

BASELAYERS: LEGGINGS & JERSEY

The next-to-skin layers are made from a highly wrinkle-resistant, breathable, and quick-drying polyester knit. The leggings have no inseam, and are cut high in the waist to eliminate any gap between tops and bottoms to keep the rider warm and prevent skin chafe from other layers of clothing or backpacks. It also feature stirrup straps; keeping ankles covered provides better body temperature maintenance in cold or windy conditions without raising the core temperature.

The top, or 'jersey', has slightly offset shoulder seams to prevent discomfort caused by overlapping seams when layering. It features elongated sleeves and longer back to accommodate the riding posture. The neckline is raised as done in traditional cycling jerseys, but is gathered with a light elastic for a feminine detail. The silhouette of the top, with an elastic gathering at the back waist, is again reminiscent of traditional jerseys with gathered pockets at the back, but without the bulk and more versatility to work as a layering underlayer.

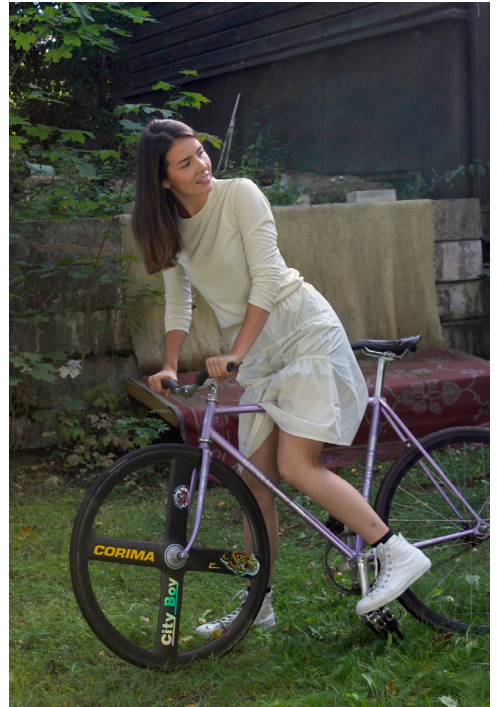
TROUSERS

For the silhouette, I chose a simple, slim but not tight shape that can work in both casual and dressy-casual situations. Both pairs of trousers have the same base cut that I have carefully considered for cycling. The cut has a wide 'yoke' at the waist, to provide the wearer with more comfort and support than of a typical narrow waistband that may dig into skin while in typical riding position of being



Discarded prototypes. They were too close to what is already available in the market, or I found the ideas to be too cumbersome or gimmicky.

bent forward; the back is cut higher than the front to provide sufficient coverage; the front pockets are omitted, as they are seldom used for practical purposes in women's trousers but can sometimes bunch up and cause discomfort to the rider in fitted waistlines; the back pockets are placed high on the back so that any placed item will stay in place while cycling without the need for any additional closure; finally, the pant legs are slim enough not to require a pant clip. The trousers have a reflective strip in the inner hem for 360-degree visibility.



Photos from the garment test day.
The white dress above, for example, was omitted from the final collection line-up due to its inability to enable easy, comfortable dismount.
Some other pieces too were cut from the collection for various reasons.





Both pairs of the trousers are made with four-way stretch woven polyester fabrics that are wrinkle-resistant and water-resistant. I experimented with two ways of making the everyday trouser more comfortable for cycling: the first pair has no inseam, to completely eliminate chafing and a more tricot-like feel, while the second pair has a discrete gusset inserted at the crotch for further enhanced mobility.

DRESS

I thought a long time about developing a prototype for a 'cycling' dress. I thought about how such an item would look and how 'functional' it could be, and how it would be realized without becoming a *neither-here-nor-there*, unattractive dress. In the end, I decided instead to simply create an 'everyday,' highly wearable dress in what I see as an ideal shape of dress for cycling in a comfortable fabric.

The resulting dress features a high-cut neckline, a racer back, and pockets. The length is long enough not to get caught under the seat and pose danger when braking, and the hem is very wide to enable easy dismount even from diamond-frame bikes. The fabric is wrinkle- and water-resistant, quick-drying stretch polyester, and is heavy enough to rest against the rider and the frame of the bike instead of flying up in moderate or moderately high winds.

SKIRT

Similar considerations applied to the skirt as the dress; the hem is wide, the length passes the seat, and the fabric is wrinkle- and water-resistant with a good weight for riding in windy conditions. The skirt features a single discrete zipped pocket and a reflective strip that can be covered or fully visible by changing the direction of one of the pleats at the waistband.

BUTTON-FRONT SHIRTS & MATCHING SHORTS

The two shirts are a simple reinterpretation of a classic item in a water- and wind-resistant polyester woven fabric with a slight stretch. Both shirts feature a back pleat, long back, and elongated sleeves to better accommodate cycling posture, and the back facing yoke is made from a breathable mesh fabric for enhanced ventilation than in traditional shirts. The black shirt represents a slightly more formal version with a flat button placket, belt loops and a matching garment belt, which contains a reflective strip on one side; the dark blue shirt has a separated placket and more feminine design details. The dark blue shirt has a matching pair of shorts, which are my interpretation of Rain Legs, the product that protects the upper thighs of the cyclist in light rain. The scalloped hem makes the shorts much more feminine than Rain Legs, while providing similar protective functions. The shorts are cut loose, and can be worn over leggings or slim trousers.

RAIN SKIRT SUIT

The set is made in a water- and windproof lightweight nylon, and feature taped seams and covered quick-access pockets. This light protective vest and skirt would keep the rider's core dry in warm conditions with light precipitation, or the vest can be worn underneath another layer hard- or soft-shell layer for additional protection in harsh conditions. The vest has a high neck, low-cut back and a storm flap in the back, lined in stretch mesh for enhanced movement and ventilation. The skirt is a wrap, and it can be worn over any item of clothing without dismounting the bicycle in case of sudden rain, and protects the upper thighs of the rider from the weather.

RAIN DRESS

With this piece, I wanted to design and create a more fitted, feminine take on the 'emergency' rain capes that sells in stores, usually for a low price. I envisioned a light protective garment that would pack small that can be pulled out and thrown on while riding, in case of light rain. The 'rain dress', made of a lightweight waterproof nylon ripstop fabric, features a high neck, half sleeves and cut at knee-length, and is designed to protect the core part of the rider. Ideally, the seams would be finished with seam-sealing tape to ensure waterproofness; however, this prototype is not taped due to difficulties in sourcing lightweight tape that would not affect the appearance of the whole garment.



RAIN HOODIE & PANTS

This set is perhaps the most specialized 'sports' clothing from the collection. The set, consisting of a light water-resistant hoodie and matching pants, presents a new take on weather protective gear. I chose the colour white for the specific reason that most protective garments available on the market is made in dark colours with small reflective features. The sheerness of the fabric, particularly with overlaps in the pockets and the underlayer in the pants, adds visual complexity and femininity. The hood, keeping in mind my personal experience of having my vision limited by large hoods, is cut small and is elasticized around the edge to ensure that it stays in place. The hoodie also features zipped pockets and a soft gathered neckline. The pants have buttoned pockets and a short underlayer.

RAIN PULLOVER

The idea to create a protective layer came from Elly Blue's comment in her book (2012) that she had taken to wearing sweaters instead of jackets for ease of movement (p. 28). The fabric is woven polyester, but with enough stretch to resemble a heavyweight knit; it is water- and wind-resistant and backed in microfleece. The pullover is cut without a shoulder seam for more comfortable layering.

7.7 Reflections

7.7.1 Successes

What I feel is my biggest success in developing this small collection of my own idea of 'cycling apparel' is in creating products that do not yet exist in the market, both in terms of real-life applicability of the clothing, and also in the aesthetic aspect of clothing that has been previously marketed as 'cycling apparel.' There are many approaches to designing and marketing cycling apparel for women, but so far they have mainly fallen into one of two categories: hyper-feminine, or sporty. Transport cycling, in order to be as popularized as it deserves to be – in my own humble opinion – needs to be perceived as easy and ordinary as walking or taking public transport, and cycling clothing needs to accommodate as many styles of women as ordinary clothing. I believe that as time goes on, and as more women find themselves accustomed to the habit of commuting by bike, women will naturally learn that the clothes they love for their everyday life can easily work on bikes. Designing and making moderately specialized 'cycling apparel' with a new aesthetic is only to encourage them to take the first ride by giving them the confidence that wearing specially designed clothing can give one to perform a specific activity, and by helping them realize that such clothing do not have to look a certain way.

The protective garments, while they are admittedly still in the prototype phase given my lack of ability to source perfect finishings or components, present a happy medium between necessary functionality and a softer aesthetic. They will not perform as well as the tried-and-true, heavy-duty weatherproof gear that already exist in the outdoor apparel market; however, they will work for women who wish to stay dry and protected on short bike commutes in 'less-than-ideal' weather conditions.

I was successful in finding new ways to convey femininity in sportswear. Using the sheer quality of lightweight waterproof fabrics to build layers, and incorporating soft, fine gathering as a design detail into the already-needed functionality of retaining body heat give the garments a subtle, feminine look without resorting to the colour pink or flower prints.

7.7.2 Difficulties & Challenges

Aesthetics posed a big challenge in the design process. I searched for clues behind the cycling apparel industry's failure to appeal to female consumers in deeper dialogues of gender and transport identities; my research questions did not revolve around the idea that the clothes on offer may simply not be *beautiful enough*, but rather, asked *why* they were not perceived as beautiful, speculating the answer as the conflicting interactions between the ideas of femininity, competence, and 'cyclist status' made visible in the clothing.

Cycling apparel has long had an easily identifiable aesthetic; their peculiar 'look' is rooted in the function they are designed to serve, and because functionality remained a priority in my design process, it was not always easy to depart from the

standard looks of the industry. Still, I wanted to challenge myself to depart from the traditional aesthetics of sportswear by adding decorative elements in ways that are not overtly feminine, and stripping away some of the very specialized features that are only useful to a highly dedicated cyclist. In essence, I sought to minimize the features that may make the wearer feel out of place once she was off her bicycle.

Finding the balance between cycling apparel and more traditional womenswear proved particularly challenging. Blogs and books on stylish cycling are filled with images of women riding in non-specialized clothing, or going even further, women on refined bicycles in their Fashion Week or special occasions get-up. My take on the challenge was to maintain a position of legitimacy in specialized clothing through the discourse found in the research portion of this study as well as my personal preference to wear technical fabrics, and to envision a wardrobe where my designs would work harmoniously with existing garments, while enhancing the cycling experience for the wearer.

Finding suitable materials for the garments posed some difficulties as well. Even though in the current textiles market, technical textiles themselves are not entirely difficult to come across, there are limitations in colours, textures, and prints. There was a Not only the fabrics themselves, but also in finishing materials and trims.





























8 CONCLUSIONS

The main thing is, whatever you choose to wear riding, like women before us, never mind what others think about it. Until they walk a mile in your skin they don't get an opinion. Riding is its own reward. You are on your own bike with the wind in your face, and that's what really matters: Be comfortable, be safe.

- "Fox", *Dames on Frames*, 2008: 26

Designing clothing for female cyclists is a complex task. There are practical criteria to be met – proper cycling apparel must keep the cyclist comfortable during, and even after the ride. The different garments all serve a purpose, and these purposes may include (but are not limited to):

- Allow for the range of motion comfortably;
- Help control body temperature, be able accommodate changing conditions, and help protect the rider from the elements;
- Minimize skin chafing;
- Increase the visibility of the wearer;
- Last against abrasion, wear, stains, and stand up to cycling conditions.
- Cause no bodily harm to the rider, nor interfere with the moving bike.

As with fashion as a whole, there is no one 'right' way to design for the female cyclists. It is important for the designer to consider the general trends of contemporary aesthetics to design pieces that would work with the women's existing wardrobe, because it is unlikely that a woman, no matter how dedicated she is to her cycling practice, will have and wear an entire wardrobe of designated cycling clothing. Even specialized apparel designers should maintain the attitude that transport cycling can be done in everyday clothing in order to design clothes that can be successfully integrated into the wearer's life; the role of specialized cycling apparel is not to *enable* cycling, but rather to *enhance* it. Overly specializing *lifestyle*-cycling garments with an array of road-race clothing features can alienate the item from its purpose.

Based on the insights found in this study, the delicate balancing of identities looms large in designing for the female cyclist. In motor-dominated societies, the visible 'cyclist' identity is marginalized and stigmatized; the fact that most of the cyclists are male, and the persisting preconception that cycling is a predominantly male practice, pose problems to those with female identities who dare to veer into this sphere. Cycling is never *just* cycling; the shared roads are "an arena of identity formation, where transport

modes have complex, differentiated implications for social identities.” (Aldred, 2012: 253) Clothing is a way for an individual to interact with the world, delivering messages about the wearer’s identities whether or not the wearer intends to. In this context, *female cyclists* represent somewhat of a double jeopardy where both of their identifiers are challenging. Displaying *too much* and *too little* of a cyclist identity is problematic; visible femininity, too, holds a double implication – it can at times be interpreted as incompetence and vulnerability, but for some, it means strength and pride.

Ultimately, cycling apparel should serve the simple, everyday function of allowing the user to be comfortable and confident in their commutes. In terms of design, allowing for personal interpretations may be the most important action. The ways in which this can be done is up to the designer to decide, but with successful designs the wearer should be able to control for herself, at least to some level, how much of her gender and transport identity she decides to communicate through her clothing. There are numerous factors in clothing that determine whether it’s feminine (colours, cuts, decoration, and the type of garment itself) and whether it’s cycling apparel (reflective features, colours, and certain types of pockets) – the designer should carefully consider how to balance these features that the wearer is free to take the clothes and interpret it into her own life and style. While designing cycling apparel does not warrant the designer as much freedom as *prêt-à-porter* womenswear designers (largely due to the practical requirements), there is much left for interpretation.

The aim of this study was to provide insights on the conflict between cycling and women’s dress, closely examining the ways in which this conflict may be contributing to the massive gender gap in North American cycling cultures, and forming possible suggestions for designers to take in order to appease the issue.

Ultimately, it is about the joy of cycling – an act that should be enjoyed regardless of gender or identities. Well-designed cycling apparel in itself may not be able to directly raise female cycling levels; it can, however, help a woman enjoy the experience of cycling by keeping her dry, safe, and confident, and thus help her embrace the cyclist lifestyle. Its benefits are abundant; it is sustainable, healthy, cheap, and the sense of independence and strength that comes from cycling cannot be experienced in other forms of transit. Each and every woman has a community of people around her, and knowingly or unknowingly exercises an influence within her direct community; every dedicated, happy woman on a bike can be an inspiration for a friend, a family member, or a colleague to start biking, too.

Cycling can only fulfil its promise as a truly egalitarian practice when there are just as many women riding on the streets as there are men, and there is a long way to go. Despite the stigma against cycling in motor-dominated societies, the benchmark cycling survey performed in the United States also found that of those who have ridden a bicycle in the past year, 74% said they would like to ride more often (Breakaway Research Group, 2015). Safer infrastructure and shifting of hegemonies undoubtedly have a large role to play in this, but I hope to play my role as a fashion designer, by providing thoughtful insights on the role of clothing in the female cyclist’s interactions with the world, in making women feel that they’re welcome in cycling shops and on the roads, and to participate in this joyous practice.



The impact of design is greater than people tend to think. Since design deals with the things that are closest to us, with our immediate environment where we experience our humanity, visionary projects are also capable of giving us a new perspective on our humanity.

(Bakker and Shouwenberg, 2013: 380)

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- p. 32: left to right: Sugoi; Monton; Pearl Izumi
- p. 35: Martha Williams/Bike Fancy
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Julia van Os/Harper's Bazaar US; Pamela Hanson/Vogue UK
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- p. 38: Left: H&M x Brick Lane Bikes; Right: Oliver Spencer x Vulpine
- p. 39: Puma x miharayasuhiro; Acronym
- p. 41: top-bottom: Levi's; Outlier NYC; Iva Jean
- p. 42: Dongah Kim
- p. 44: top: Adam Katz Sindig/Le 21ème;
bottom: Nabile Quenum/Condé Nast
- p. 48: counterclockwise from top: Betabrand; B'twin; Rapha
- p. 49: left: Patagonia; right: Pearl Izumi
- p. 50: left: Altura; right: Rain Legs
- p. 51: Franz-Michael S. Mellbin/Copenhagen Cycle Chic
- p. 55: top-bottom: Vulpine; Vespertine; Betabrand
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- p. 59: top: Adidas by Stella McCartney;
bottom: Veilance by Arc'teryx via Norse Store
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APPENDICES

Appendix A. REFERENCED BRANDS

The referenced brands are listed in alphabetical order.

Acronym

www.acrnm.com

Arc'teryx

www.arcteryx.com

Betabrand

www.betabrand.com

Castelli

www.castelli-cycling.com

Cyclodelic

cyclodelic.wordpress.com

H&M

www.hm.com

H&M x Brike Lane Bikes

about.hm.com/en/news/newsroom/news.html/en/hm-for-brick-lane-bikes.html

Iva Jean

www.ivajeans.com

Kit & Ace

www.kitandace.com

Levi's

www.levi.com

Levi's Commuter®

www.levi.com/US/en_US/features/commuter

Lululemon

www.lululemon.com

Monton

www.montonsports.com

Nau

www.nau.com

Oliver Spencer

www.oliverspencer.co.uk

Outlier

www.outlier.nyc

Patagonia

www.patagonia.com

Paul Smith

www.paulsmith.co.uk

Paul Smith 531

www.paulsmith.co.uk/eu-en/shop/mens/paul-smith-531

Pearl Izumi

www.pearlizumi.com

Puma

www.puma.com

Rain Legs

www.rainlegs.com

Rapha

www.rapha.cc

Shimano

www.shimano.com

Sugoi

www.sugoi.com

Sweaty Betty London

www.sweatybetty.com

The North Face

www.thenorthface.com

Vulpine

www.vulpine.cc

Vespertine NYC

www.vespertenyc.com

Appendix B. CYCLING APPAREL RESOURCES & STYLE BLOGS

This is by no means a comprehensive list. For cycling apparel resources, I focused on those that prioritize design-consciousness and urban cycling rather than on performance clothing. There are countless cycling and cycling style blogs in the web sphere; here I selected a few that focuses on or features a fair proportion of posts on women, that are still active (as of August 2016).

A note on Cycle Chic blogs: since the inception of Copenhagen Cycle Chic in 2006, many other bloggers in different cities and countries have followed suit in creating a photo blog that documents stylish urban cyclists as a form of bicycle advocacy. Here, only the original Copenhagen variant is cited; however, there are some tens of Cycle Chic blogs now, to varying degrees of popularity and activity.

All That I Want

www.allthatiwant.com

Amsterdamize

www.amsterdamize.com

Bike Style Life

www.bikestylepokane.com

Bike Pretty

www.bikepretty.com

Copenhagen Cycle Chic

www.copenhagencyclechic.com

Cyclechic

www.cylechic.co.uk

Discerning Cyclist

www.discerningcyclist.com

Let's Go Ride A Bike

www.letsgorideabike.com

Velorution

www.velorution.com

Terry Bicycles

www.terrybicycles.com

Appendix C. CYCLING ADVOCACY GROUPS

There are numerous cycling advocacy and education groups across North America, the United Kingdom and Oceania. Most major cities in these countries have their own advocacy groups; for brevity, I have only listed nation-wide efforts here, along with some groups that specifically focus on female cycling advocacy.

Alliance for Bicycling and Walking USA

www.peoplepoweredmovement.org

Bike Pure Australia

www.bikepure.org

Black Girls Do Bike USA

www.blackgirlsdobike.com

Cycling Embassy of Great Britain United Kingdom

www.cycling-embassy.org.uk

CycloFemme USA

www.cyclofemme.com

PeopleForBikes USA

www.peopleforbikes.org

Share The Road Canada

www.sharetheroad.ca

SusTrans United Kingdom

<http://www.sustrans.org.uk/>

The League of American Bicyclists USA

www.bikeleague.org

Women's Cycling Association USA

www.womenscyclingassociation.com

ACKNOWLEDGEMENTS

Esther Kim, *proofreader extraordinaire*

All my interviewees

Kirsi Niinimäki

Matti Liimatainen

The studiomasters

Otto Nissinen & Alexander Borlenko

Jenni aka Roope Hattu

Verna Tervaharju

Anna & Milja Tomi

Johannes Bergil

&

My family

My friends, near and far