

# SCHOLAR'S SHOWCASE

Western



SPRING 2017



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# Contributors

## Senior Editors-In-Chief

Linda Fei  
Naciza Masikini

## Managing Editors

Marisa Coulton  
Tiffany Yep

## Artistic Directors

Lisa-Monique Edward  
Jason He

## Executive Producer

Rebecca Smith

## Publishers & Design Consultants

Sam Munro  
Laura Naus

## Artistic Contributors

Sindi Dragusha  
Lisa-Monique Edward  
Gabrielle Foss  
Maria Lorene Glanfield  
Jason He  
Annie Mak  
Naciza Masikini  
Rebecca McLaren  
Erica Yarmol-Matusiak

## Writers

Erin Anderson  
Katie Chen  
Kevin Fan  
Linda Fei  
Jaswanth Gorla  
Elena Kum  
Courtney Mann  
Naciza Masikini  
Dorsa Mavedatnia  
Isaac Rigby  
Kyleen Wong

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# Swan Song: Letter from the Editors

LINDA FEI & NACIZA MASIKINI

Over the last four years, the Scholar's Showcase has been in a constant stage of change; an evolution of sorts, much like the one, we as students experience throughout our undergraduate career. We are always cognizant of the stages in development but the magnitude and the weight of the growth isn't felt until we take the time to reflect. We are not the same people, who first stepped foot on Western's campus; idealistic, tentative, naïve, scared, or the sum of these and more. We may be more cynical or critical or wise, our optimism may have wavered. We definitely have wavered, discovered that we are stronger or weaker than we thought but we persevered and journeyed to self development, understanding and awareness. It isn't easy. We can't promise that change gets easier, but we can promise that change makes us better. As we close this chapter, we are grateful for the lessons learned. Although we cannot predict the future, we can make the commitment to you to change, to do better and to be better - and we hope you do too.

## Whisper in the Wind

PHOTOGRAPH BY ANNIE MAK



# Dehumanization for Classification

An Excerpt

ERIN ANDERSON

Thomas King's use of the word Indian in his micro fiction "A Short History of Indians in Canada" provides a direct connection to his overarching metaphor of Indians as migratory birds. Used ironically, this metaphor draws attention to the ways in which Indigenous peoples are categorized by the established order: with the same methods used for classifying animals. I intend to demonstrate how this classification dehumanizes Indigenous peoples by examining how King's use of irony and humour challenges the notion that such a basic system can classify an entire race of people.

The foremost way King employs humour and irony to introduce his controversial ideas is demonstrated in how he describes Indigenous peoples, or rather how the other characters describe them. By opting for the politically incorrect term, Indian, King immediately grabs the reader's attention. Using the bird metaphor, it becomes apparent that there is a power imbalance between the Indigenous peoples and the people who aim to classify them: "Amazing, says Bob. How can you tell? By the feathers, says Bill. We got a book" (King 204). The city worker's response demonstrates very little concern for the well-being of the injured parties, the Indians flying into the skyscrapers. Bill and his partner, Rudy, know nothing about the Indians besides what can be found in the guidebook, designed as an authority on how they should be categorized. The city workers do not feel it is important to understand the Indians. They simply classify them, before deciding their fate: "The dead ones we bag... The live ones we tag... Take them to the shelter. Nurse them back to health. Release them in the wild" (King 205). Neither the city workers nor the businessman in the story seem distressed by the situation, just as very few people concern themselves with the effects of industrialization on wildlife. While birds are known for their stunning colours and unique attributes, they represent an obstacle to the goals of capitalism, rendering them useless. This demonstrates the effectiveness of King's comparison between birds and Indians, similarly viewed as inconvenient.

Barrier

PHOTOGRAPH BY NACIZA MASIKINI





# Deep-sea Gigantism:

An Excerpt  
JASWANTH GORLA

The depths of the sea present extreme conditions that drive the evolutionary change of its inhabitants. The low-light conditions of deeper waters drastically lowers the amount of energy available to sustain populations. The energy sources that are available are scarce and sparse. Intuition would make it easy to believe that deep-sea organisms would benefit from smaller body sizes to lower their energy demands. But almost paradoxically, many organisms display a larger body size than their shallow-water relatives, where food is abundant. This evolutionary phenomenon, known as deep-sea gigantism, has been observed in many deep-sea species. How could deep-sea gigantism have originated? And is it a product of convergent or divergent evolution?

The deep-sea species of *Volvarina*, a gastropod, is significantly larger than its shallow-water counterparts. Its larger body size allows the

deep-sea variant to cover more area in its search for food, increasing the amount of resources that it has access to. If the gastropod is unsuccessful in its search, its large body size also allows it to survive for longer periods of time without feeding.

For more immobile organisms, such as *Cycloclopeus carpenteri*, a larger size provides a different solution for the same problem. The protist forms an endosymbiotic relationship with algae, which provide it with energy through photosynthesis. However, very little light can penetrate deep waters, limiting the light available for its inhabitants. A larger body size creates more surface area to accommodate more endosymbionts while also providing them with a greater amount of light for use in energy production. In this unique case, the protist indirectly benefits from its own gigantism through the prosperity of its endosymbiont.

Fall

PHOTOGRAPH BY JASON HE



A vibrant underwater scene featuring a variety of colorful coral and sea anemones. In the foreground, there are several bright red and orange sea anemones. Behind them, there are clusters of white and pinkish-purple coral. The background is dark, with more colorful marine life visible in the distance, creating a sense of depth and a rich, diverse ecosystem.

# The Impact of Social Class on Population Health

An Excerpt

ISAAC RIGBY

Poverty creates unrelenting stress due to the mental trauma of constantly feeling poor. A study conducted by Nancy Adler (as discussed in Sapolsky, 2005) confirmed that subjective rankings of low SES status or “feeling poor” corresponded to higher levels of stress hormone and illness. Constantly worrying about paying bills and feeding your family takes a physical toll. A sense of subjugation or lack of control is also detrimental. The Whitehall study provided evidence that low end jobs with high demands and little autonomy produce higher rates of illness (CCSU, 2004).

Furthermore, heightened stress levels in the poor are observed where large levels of income inequality in a district accentuates the class divide.

According to Harvard researcher Ichiro Kawachi, a noticeable gap in SES leads to diminished social capital or trust between members of a community that correlates with poor health (as discussed in Sapolsky, 2004). This data provides overwhelming evidence that social class greatly influences our health. The variation in illness and disease detected along the social gradient is proof that medicine alone cannot ensure our good health. To improve outcomes, we must treat poverty and decrease the financial inequity currently rampant in our society. This can only be accomplished by changing our approach to the distribution of resources and services. Policies that create social justice would do more to bolster population health than a simple hike in health care spending.

## Underwater Paradise

PHOTOGRAPH BY SINDI DRAGUSHA





Enclave

PHOTOGRAPH BY ERICA YARMOL-MATUSIAK





# Julie Mangoes

PANTING BY LISA-MONIQUE EDWARD

## The Fight for Employment: a brief analysis of Unemployment and Intersectionality.

An Excerpt  
DORSA MAVEDATNIA

An intersectional approach is not taken when considering the unemployment of women in the United States, but rather employment, race and sexuality are thought to be distinct from each other. Both African-American and transgender women greatly intersect among many dimensions and it is immoral to talk about one issue without considering the how different classes of people are affected. Whilst examining African-American women, it becomes evident that they are the only group of people in the United States whose unemployment rate has not improved between 2013 to 2014 (Bassett 2014). According to the National Women's Law Centre's analysis of data, "The overall unemployment rate dropped from 7.2% to 6.1% between August 2013 and August 2014, and women's unemployment rate dropped from 6.2% to 5.7%. During that same time however the unemployment for Black women

remained stagnant at 10.6%," (Bassett 2014). Similarly, transgender women face discrimination in the workplace as the unemployment rate of transgender people is 14%, double the national unemployment rate (Day 2013). Jeffery Parsons wrote in his novel, Contemporary Research on Sex Work, "Transgender women often experience socioeconomic disadvantage, including low income and higher unemployment rates...which are likely to contribute to their decision to engage in exchange sex [to earn money]." (Parsons 2005). The inequality that both of these groups face can be linked to discrimination; Not all women are given an equal right to economically succeed. Despite the fact that both groups have very different past experiences, they both are faced with similar discrimination in a country where equality is supposedly upheld.



# Freer than (the Land of the) Free Land

NACIZA MASIKINI

Better than  
Freer than  
in the freer than free land  
vive la France  
God save the Queen  
in the freer than free land  
Milder than  
The land of the free  
Freer than  
in the freer than free land  
More tolerant than  
More accepting than  
in the freer than free land  
Too much of a woman  
in the freer than free land  
Too Black  
To be free  
in the freer than free land  
I am too much of me  
to be free  
in the freer than free land

Stacks

PHOTOGRAPH BY SINDI DRAGUSHA





# Necessity

PAINTING BY REBECCA MCLAREN



# 3D Real-Time Ultrasound: An Emerging Imaging Modality

ELENA KUM

For years we have lived under the spectre of cancer. It has presented a clinical challenge for doctors, and a scientific challenge for many researchers. But with new technological advancements in the area of interventional oncology, patients may soon have access to personalized therapies of some of the most difficult-to-treat cancers.

Dr. Aaron Fenster, director and scientist at Robarts Research Institute's Imaging Laboratory at Western University, is developing real-time MRI/ultrasound fusion technology that can precisely guide biopsies and targeted radiotherapies for treatment against liver, breast, gynaecological, and prostate cancers.

"The technologies we are developing are focused on image-guided intervention—basically using imaging to guide focal therapy instead of relying on radical surgery or irradiating large areas of tissue," says Dr. Fenster. "The concept is to be able to guide a small catheter or needle

toward the tumour site, and deliver heat or radioactive seeds that destroy the tumour directly."

While the concept of brachytherapy may seem simple, the imaging technology is highly complex, involving physics, mathematics, robotics, software engineering, and the medical sciences.

"We took a conventional ultrasound machine and attached to it a motorized device that manipulates the transducer. At the same time, we collect ultrasound images into our computer and have developed software to build a 3D image in real-time out of those obtained images," explains Dr. Fenster.

The minimally-invasive therapy allows for patients to experience fewer side-effects and return to their daily lives much quicker. As well, the technologies developed in Dr. Fenster's lab are on its way to becoming available worldwide.

"The benefit of ultrasound is it's an inexpensive modality that can enable real-time scanning. Its cost-effectiveness means that it can be introduced in clinics and health-care facilities worldwide." Dr. Fenster's team has also developed other patents—including visualization software of 3D ultrasound images and robotic needle-position systems—that have been licensed to companies and commercialized for world-wide distribution. Two of the lab's latest prototypes—image-guidance systems for breast and gynaecological brachytherapy—are set to begin clinical testing within three months.

Although 3D ultrasound fusion technology is not yet available in a clinical setting, it holds great promise for oncologic treatment. These emerging technologies have the potential to revolutionize delivery of cancer treatment in the future.

## The Mountains of Labrador

PHOTOGRAPH BY GABRIELLE FOSS







# Childhood

PHOTOGRAPH BY JASON HE

This photograph is of Miao children, wearing their cultural clothing after school.





# Effects of Healthism on Women's Conceptualizations of Food, Exercise and Health

KYLEEN WONG

Over the last few centuries, the astounding progress of modern medicine has led to the development of new approaches to health. Scholars argue that the success of medicine in managing disease and illness has raised expectations of health, wellbeing, and quality of life, such that people believe they "are entitled to a life free of disease, but also free of symptoms, with the social, psychological and physical all in harmony" (Greenhalgh & Wessely, 2004, p. 201-202). Under the new public health discourse of healthism, it is assumed that individuals can achieve this optimal health status by constantly monitoring and managing their wellbeing by investing in choices and practices that enhance health and prevent illness (Wright, O'Flynn, & Macdonald, 2006). Individuals are held morally responsible for the prevention of illness by knowing and avoiding risk factors associated with ill-health (Wright, O'Flynn, & Macdonald, 2006). Healthism is related to consumerism with regards to its focus on the individual through patient-centred medicine, shared decision-making, and partnerships (Greenhalgh & Wessely, 2004). Emphasis on individual responsibility in prevention of illness leads to self-surveillance through medical testing and managing one's body through dieting and exercising (Broom, 2008). The health benefits associated with this work typically justify the legitimacy of these practices without a nuanced examination of the larger social implications of healthism (Broom, 2008).

Healthism can be understood through a Foucauldian analysis. Within this approach, the body is situated in the social operation of power; the body is a "site where cultural meanings are inscribed through the way the body moves, through the shape of the body, through clothing, makeup, and other forms of adornment" (Wright, O'Flynn, & Macdonald, 2006, p. 708). Social context influences the way cultural healthism messages are interpreted and embodied. In particular, gender differences shape the way that women take up healthism discourses and how they monitor and regulate their bodies to consciously or unconsciously conform to western feminine ideals. This paper will explore how the larger hegemonic discourse of healthism affects women's perceptions of food, exercise, and health. Food and exercise as body practices are intimately connected to health outcomes. Women's conceptualizations of these practices has important implication for women's wellbeing at the intersection of gender and health.

## Methods

Articles were retrieved online from Western Libraries collection of 730 databases. In gathering articles for this paper, the key words "ethnography", "qualitative", "women", "healthism", "food", and "exercise" were searched. Only peer-reviewed journal articles with full-text available online were retained. Of the resulting 110 articles, only those situated in western contexts were included to increase relatability and comparability of findings. Studies were ethnographic and qualitative in nature, and drawn from sociology, health studies, and feminist studies.

## Findings

### Healthism dictates personal responsibility for maintaining health and body shape


Healthism discourses perpetuate the notion that people are capable of controlling their health and thus responsible for optimizing their health. Contemporary conceptions of health and fitness posit that body shape, as an indication of health, can and should be controlled through bodily practices (Wright, O'Flynn, Macdonald, 2006). There is a moral imperative attached to the responsibility for maintaining health and body shape; it is not simply unhealthy to be fat, but also morally wrong (Lee and Macdonald, 2010). In particular, women are disproportionately subject to patriarchal pressures to conform to certain feminine

## Shedding Light on Mental Health

PHOTOGRAPH BY GABRIELLE FOSS







# Peace

PHOTOGRAPH BY ANNIE MAK

ideals that are ubiquitous in the food, fashion, cosmetics, and media industries. Health interventions for weight loss as a means to regulate body shape have reinforced a culture of thinness and contributed to potentially harmful dieting practices among women (Germov & Williams, 1996). Presented from a position of benign medical authority, healthism discourses of weight loss are difficult to challenge.

Body shape can be transformed through diet and exercise. Fitness, healthy eating, and exercise habits were important in relation to maintaining a healthy weight (i.e. slim body shape). Specifically, personal responsibility was tied to bodily practices of eating and exercising properly and sufficiently. In Wright, O'Flynn, and Macdonald's (2006) study, participants defined eating well as a individual choice to be made between consuming lots of vegetables and fruit in opposition to eating foods high in sugar and/or fat.

Exercise, as it is used to control body shape, can produce attractive bodies. Ellen, a Norwegian woman, described "a good-looking body... [doesn't] have to be trained, that's my opinion, but healthy. Healthiness" (Rysst, 2010, p. 77). Middle-aged women interviewed by Wray (2007) expressed a desire to make their bodies more attractive through exercise. One

woman, Zahira, said "[i]f you have a small stomach you are more attractive... if body is saggy I don't look or feel nice" (Wray, 2007, p. 138). In Australia, young women rationalized that being overweight was an outcome of eating too much food and/or not doing enough exercise, implying that weight gain resulted simply from a loss of self-control (Wright, O'Flynn, & Macdonald, 2006). For example, Martina said "I reckon that you should do more physical activities... because it doesn't really matter what you eat because you use up the energy" (Wright, O'Flynn, & Macdonald, 2006, p. 711). Controlling weight was assumed to be as simple as controlling food consumed with energy expended, a common misconception that underlies victim-blaming when individuals fail to maintain a slim body shape. Self-regulation of body practices is specifically linked to maintaining body shape. It is considered normal for women in western contexts to be on a diet, whether or not they are actually overweight (Germov & Williams, 1996). Regarding women's attitudes towards food, Germov and Williams (1996) cited a number of studies that found that women considered attainment of a certain image to be more important than health implications of consuming certain foods. For example, in one study a young woman named Karin talked about limiting her intake of food to achieve a certain body

shape. Missing hockey games made her feel "[j]ust terrible... you feel fat and you feel so oily. You know you haven't worked off any energy so, you feel heavy and just like you miss the little exercise you need to feel normal" (Wright, O'Flynn, Macdonald, 2006, p. 713). The importance of controlling her eating and exercising habits as a means of regulating her body size led Karin to associate feelings of guilt and irresponsibility with missing games. In response to an interviewer's question about why it was important to do more exercise and to be fit, Sally, a young Australian woman, answered "[s]o you don't get fat" and "so you look good" (Lee & Macdonald, 2010, p. 208). Sally equated looking good with "looking slim, looking healthy" (Lee & Macdonald, 2010, p. 208), making explicit the purpose of exercise as a body practice to achieve and/or maintain an attractive body shape. Awareness of healthism discourses does not necessarily lead to empowerment. Despite being aware of the influences of healthism, challenging the ubiquity of these discourses is difficult. One young woman, Chris, encapsulates the pervasiveness of societal messages that value slimness when she says: "[i]t's being on TV. It's sort of brain washed. It's always there. You've always had the skinny girls on the ads and things like that. It's just a thing. We've all been brought up with people being skinny and that's better.





# Romeo and Juliet

PHOTOGRAPH BY ANNKIE MAK

Not that I want to be anorexic of anything. But I wouldn't mind, like I would want to be taller. And in the width less than I am" (Wright, O'Flynn, Macdonald, 2006 p. 713). The cultural value of embodying what it means to be attractive by having a slim and toned body is difficult to entirely resist in western society. There is a self-evaluative perception that one can and should always be striving to be healthier and fitter. For example, participants in a recent study stated: "I always think I could do more..." and "I feel pretty good. Could be better. Could be substantially better but I feel really good about it..." (MacGregor & Wathen, 2014, p. 6). Participants accepted personal responsibility for the management of

their own health and further expressed a desire to "do more", though they already reported good or very good self-rated health status. In this sense, healthism can be viewed as a project of modernity and as an extension of the medicalization of health. Modernist reasoning dictates that with the knowledge and means to properly manage health one should be able to control health outcomes so as to enjoy the highest quality of life, which is a highly medicalized conceptualization of health. Despite knowledge of the effects of cultural influence on healthism discourses, individuals cannot divorce themselves from their cultural context. In western society, the modernist ideology of progress encourages people to strive

to do more and assigns moral blame to individuals who are unable to embody societal norms.

The do-diet. The do-diet exemplifies an attempt to resist the discourse of healthism with regards to regulating diet by reframing dietary restrictions as positive choices (Cairns & Johnson, 2015). Instead of focusing on prevention of illness by avoiding risk factors associated with ill-health, the do-diet is framed as an empowering anti-diet discourse of choosing health (Cairns & Johnson, 2015). The emphasis is on personal choice, yet the do-diet entails a balancing act between "extremes of self-control and consumer indulgence in an effort



to perform acceptable middle-class femininities" (Cairns & Johnson, 2015, p. 154). One participant, Joanne, commented "[n]ow they're trying to kind of counter [dieting] with trying to eat healthy and all that sort of stuff. But there is still a whole lot of discussion about weight and that sort of thing" (Cairns & Johnson, 2015, p. 162). Cairns and Johnson (2015) argue that the do-diet simply repackages feminine body ideals while obscuring the negative implications of healthism through postfeminist messages and consumer choice that are only accessible to white middle-class women. The do-diet requires careful calibration between openly restricting food choices (lest one be viewed as disempowered and overly image-obsessed) and entirely shirking personal responsibility for monitoring and controlling consumption (for fear of not embodying the healthy (i.e. slim) ideal) (Cairns & Johnson, 2015). Ultimately, the do-diet discourse underscores body discipline, expert knowledge, and self-control while making irrelevant the experiences of lower socioeconomic status women (Cairns & Johnson, 2015).

### **Healthism and intersectionality**

Healthism discourses tend to ignore the social context and inequalities that manipulate individual choices (Germov & Williams, 1996). Intersecting axes of social identity, such as race, location, and socioeconomic status, mediate the effects of healthism discourses on women's attitudes towards food, exercise, and health (Ristovski-Slijepcevic, Bell, Chapman, & Beagan, 2010; Lee & Macdonald, 2010; Dumas, Robitaille, & Jette, 2014). For example, a recent Canadian study found that black and white women took up obesity discourses differently and had different notions of what constituted a healthy body shape (Ristovski-Slijepcevic, Bell, Chapman, & Beagan, 2010). For black women, ideas about body shape and health were related to historic and contemporary racism, rejecting white ideals, and representing and belonging to the Black community (Ristovski-Slijepcevic, Bell, Chapman, & Beagan, 2010). In rural Australia, lack of formal exercise and sporting facilities resulted in young women engaging in predominantly informal physical activities, like walking and physical labour

(Lee & Macdonald, 2010). These young women were not seen as taking proper responsibility for managing their health because these informal activities were not perceived as legitimate forms of exercise (Lee & Macdonald, 2010). In a qualitative study of underprivileged women, none of the participants engaged in health practices or weight management with the intention of improving their future health (Dumas, Robitaille, & Jette, 2014). Instead, the women were focused on resolving day-to-day living issues related to their low socioeconomic status; they prioritized economic stability, family needs, and or healing from debilitating illnesses over investment in their own wellbeing (Dumas, Robitaille, & Jette, 2014). Clearly, social context influences women's take up of healthism discourses and mediates their health status.

### **Conclusion**

This paper has presented findings on how healthism discourses affect women's ideas about food, exercise, and health, and the relationships between these entities. Healthism assumes that individuals can optimize their wellbeing by taking responsibility for managing their health. In relating health to food and exercise practices, women tended to conceptualize body shape as an indicator of health that could be and should be managed directly through controlling diet and physical activity. Awareness of healthism discourses did not necessarily lead to empowerment because messages valuing a culture of slimness were ubiquitous. The do-diet attempted to resist the healthism inherent to diet restriction, but ultimately served to perpetuate unrealistic feminine ideals under the guise of postfeminist language and consumer choice. Additional individual factors must be considered because social identities and context mediates women's attitudes towards food, exercise, and health. These findings are important because they contextualize women's ideas about food, exercise, and health within the larger hegemonic discourse of healthism. By making explicit the links between the medicalization of health and attitudes towards food, exercise, and health, we can better understand how food and exercise influence health and vice versa in women's real lives. Qualitative research

on healthism discourses can inform the development of effective, useful, and appropriate interventions for women that target the relationships between food, exercise, and health. Ethnographic research has enriched these findings by providing an in-depth description of participants' lived experiences, which cannot be separated the phenomena of interest. However, this kind of data must be considered in conjunction with its limitations concerning validity. As a result of my research into healthism discourses surrounding food, exercise, and health, I have gained a broader theoretical understanding of my own attitudes toward these topics in my life. Before engaging in this research, I was already aware of the relationship between food, exercise, and health. Reflecting upon my own body practices, I realize how my seemingly autonomous choices to eat healthy foods and to do physical activity are largely shaped by healthism discourses about health management and personal responsibility. Though I can attest that I engage in these body practices to achieve optimal health, maintaining my body shape is also a significant reason for monitoring and regulating my diet and exercise habits. It is quite clear to me now that I subscribe to healthism discourses that are perpetuated in western society. However, I also recognize that my definition of achieving optimal health is premised on wellbeing and feeling physically, mentally, emotionally, and spiritually well. I opt to engage in body practices of eating well and staying active because these practices make my body, mind, and heart feel good. Regarding this distinction, it would be interesting to examine the literature on discourses of wellbeing and multi-dimensional wellness. Though discourses of healthism are difficult to dismiss entirely, I am optimistic that women's individual acts of resistance will constitute a larger societal renegotiation of this ideology.

References can be found at:  
[success.uwo.ca/scholars\\_showcase\\_magazine.html](https://success.uwo.ca/scholars_showcase_magazine.html)



# An Interview with Dr. Subrata Chakrabarti

LINDA FEI AND KEVIN FAN

Dr. Subrata Chakrabarti is a professor and Chair of the Department of Pathology and Laboratory Medicine at Western. His research focuses on the epigenetic mechanisms underlying chronic diabetic complications. In addition to his research, Dr. Chakrabarti also has clinical responsibilities as an anatomical pathologist and Chief of the Department of Pathology and Laboratory Medicine at London Health Sciences Centre. We had the privilege to sit down with him to discuss his research and career.

## UNDERSTANDING DIABETIC COMPLICATIONS

**Many causes for diabetic complications such as cardiomyopathy have been proposed and studied (including microangiopathy, autonomic neuropathy, metabolic alterations and altered ion homeostasis). Can you explain the causes and mechanisms behind diabetic cardiomyopathy, in terms that a first year undergraduate science student at Western can understand?**

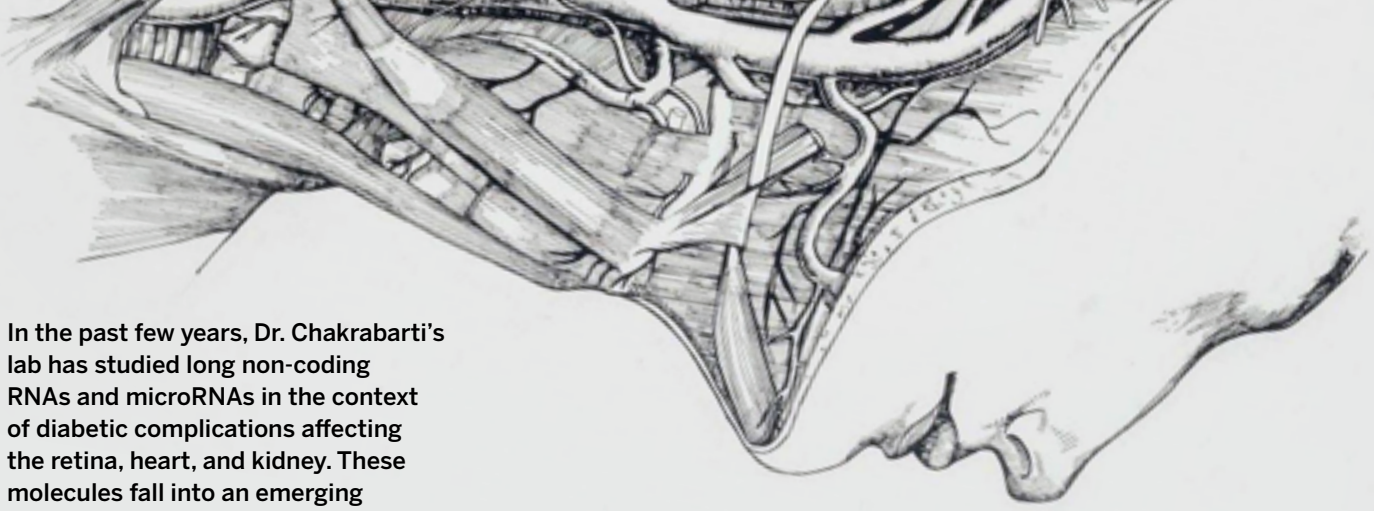
In simple, yet intuitive terms, Dr. Chakrabarti explains, "If you have a person with a high glucose in the blood, endothelial cells see it first and primary changes occurs in the endothelial cells, which signal to other cells. Glucose can enter endothelial cells without the need for insulin. Once glucose gets in there, it saturates the TCA cycle very quickly, then all the other mechanisms come into play. These mechanisms converge in the nucleus and change transcription and translation, and various types of DNA damage can happen."

## A Man

ILLUSTRATION BY MARIA LORENE GLANFIELD







**In the past few years, Dr. Chakrabarti's lab has studied long non-coding RNAs and microRNAs in the context of diabetic complications affecting the retina, heart, and kidney. These molecules fall into an emerging field called epigenetics, which is the study of how organisms alter and control their gene expression. How can understanding the epigenetics of diabetic complications affect patient treatment options?**

"One good thing about epigenetic changes is that you can reverse epigenetic changes more easily than DNA mutations. Epigenetics opens up a new area in identifying some of the personal susceptibility to diabetes. Finding and targeting an epigenetic change to bring it back to normal opens up a whole new area of treatment – both in prevention and pharmacotherapy."

Dr. Chakrabarti emphasizes that many epigenetic changes occur in diabetic complications and for therapy to be useful, research must be done to find the right epigenetic targets. In Dr. Chakrabarti's opinion, "To prevent and treat diabetic complications, we may have to target multiple mechanisms simultaneously."

**There are currently 11 million Canadians living with diabetes or prediabetes, and this is a tremendous burden on our health care system. In your view, how effective is our healthcare system in managing this disease, and how should we allocate resources between education, prevention and treatment?**

"In general, we are doing well with the research that we have," Dr. Chakrabarti begins. "Physicians are excellent disease managers. But most importantly, we need to focus on some sort of prevention. And one thing that goes a long way is lifestyle modification. However, it's easier said than done. It's neither just a physician's job, nor just a nurse's job—it's the job of our whole

society. Our cities are planned in a way that discourages physical activities but it is important to encourage physical activity and proper nutrition. We need to focus on prevention as well as conduct research on people living with these diseases. It's really not just a simple linear approach. It's much more complicated than that."

### **A CAREER AS A CLINICIAN SCIENTIST**

**What do you like the most about your job?**

Dr. Chakrabarti answers without hesitation, "Everything."

"It's never a dull moment. The clinical challenge is always there. Every patient is different." Dr. Chakrabarti elaborates, "I find students' questions the most interesting thing. And the most interesting part of research is when data challenges our hypothesis."

**Describe a typical day for you as a researcher, teacher, medical doctor, and Chair of the Department of Laboratory Medicine.**

Dr. Chakrabarti explains there is no "typical day" for him. Some days are heavier on clinical service and administrative meetings, while other days he spends more time working with his graduate research students.

**Tell us your thoughts about what insights clinician scientists can gain from exploring the intersection of research and clinical practice.**

With enthusiasm, Dr. Chakrabarti explains to us that "In diseases, there are cellular

and molecular mechanisms once you drill down."

Relating to his own career, he smiles and says, "It's fun. You get exposed to the disease, then you start asking questions." He believes that "it's everyday" that his clinical work inspires his research.

"I work as an anatomical pathologist to see changes under the microscope then ask why these changes are there."

However, Dr. Chakrabarti regretfully acknowledges that "Clinician scientists are a disappearing phenotype in North America. Because of lack of clinician scientists, we are lacking translation of research to clinical setting."

### **FINAL THOUGHTS**

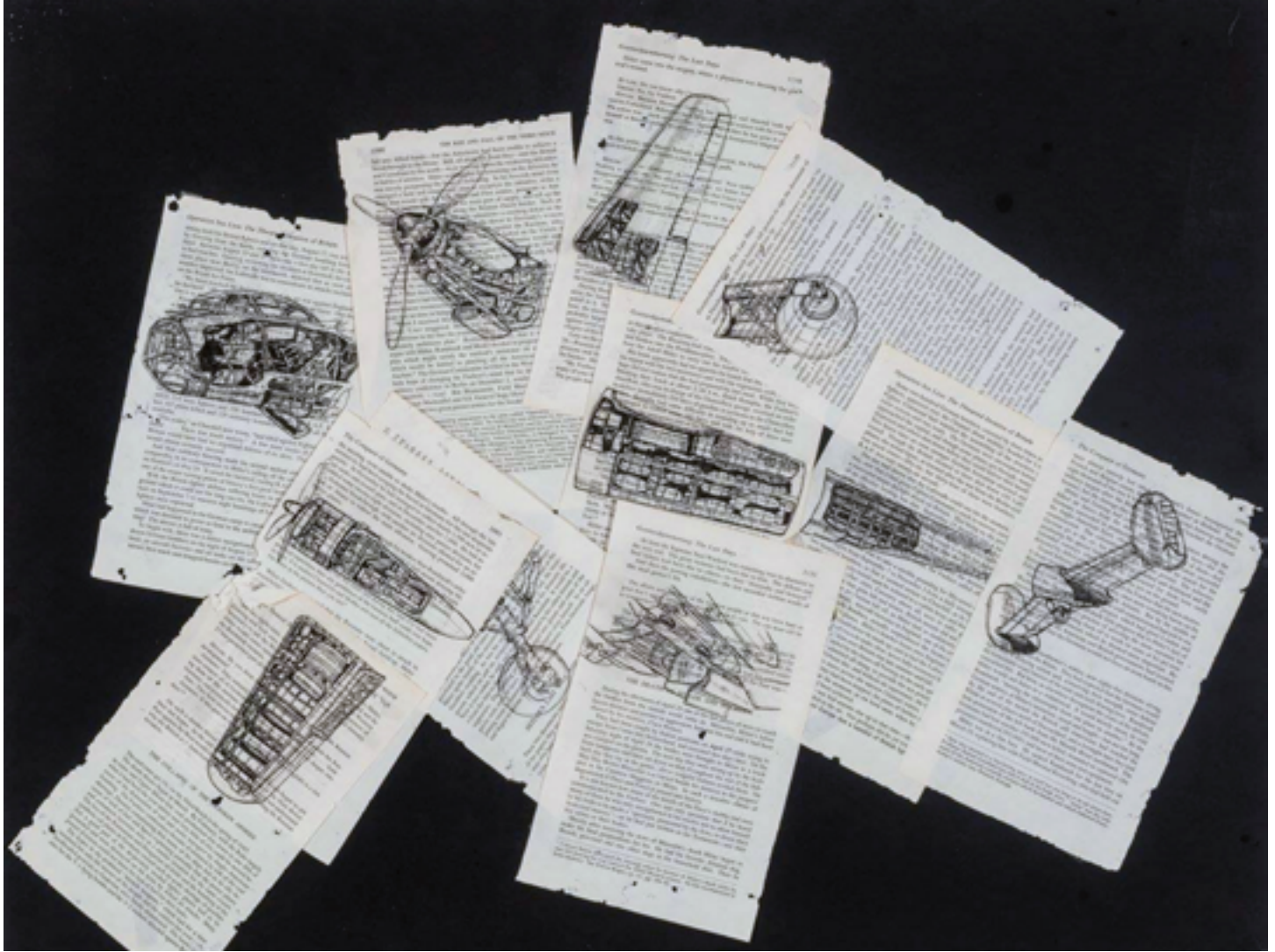
**What is one piece of advice you would give to an undergraduate student considering going into research and medicine?**

Taking a page out of *Nike's* book, Dr. Chakrabarti says, "Just do it."

"It's important to keep asking questions and work hard." Combining both clinical practice and basic research is difficult, and Dr. Chakrabarti maintains that, "One needs to have a thick skin. Everybody gets turned down by granting agencies and journals. But that's alright."

Dr. Chakrabarti leaves us with something to look forward to: "The ultimate joy is if you're working on a mechanism and 20 years down the line that same mechanism is being targeted for drug development. Life can't get better than that."





## Reconstruction of their Image

ART BY MARIA LORENE GLANFIELD

### Dragons, Dishonesty, and Daggers

An Excerpt  
BY KATIE CHEN

Game of Thrones has taken pop culture by storm. Its popularity is commonly attributed to the TV series, but as acclaimed as the HBO creation may be, there is one feature it could never truly replicate from the novels: the character's thoughts. In *A Game of Thrones* and *A Clash of Kings*, George R.R. Martin aptly utilizes internal thoughts to identify pivotal character changes, escalate dramatic tension, and draw parallels between seemingly disparate individuals.

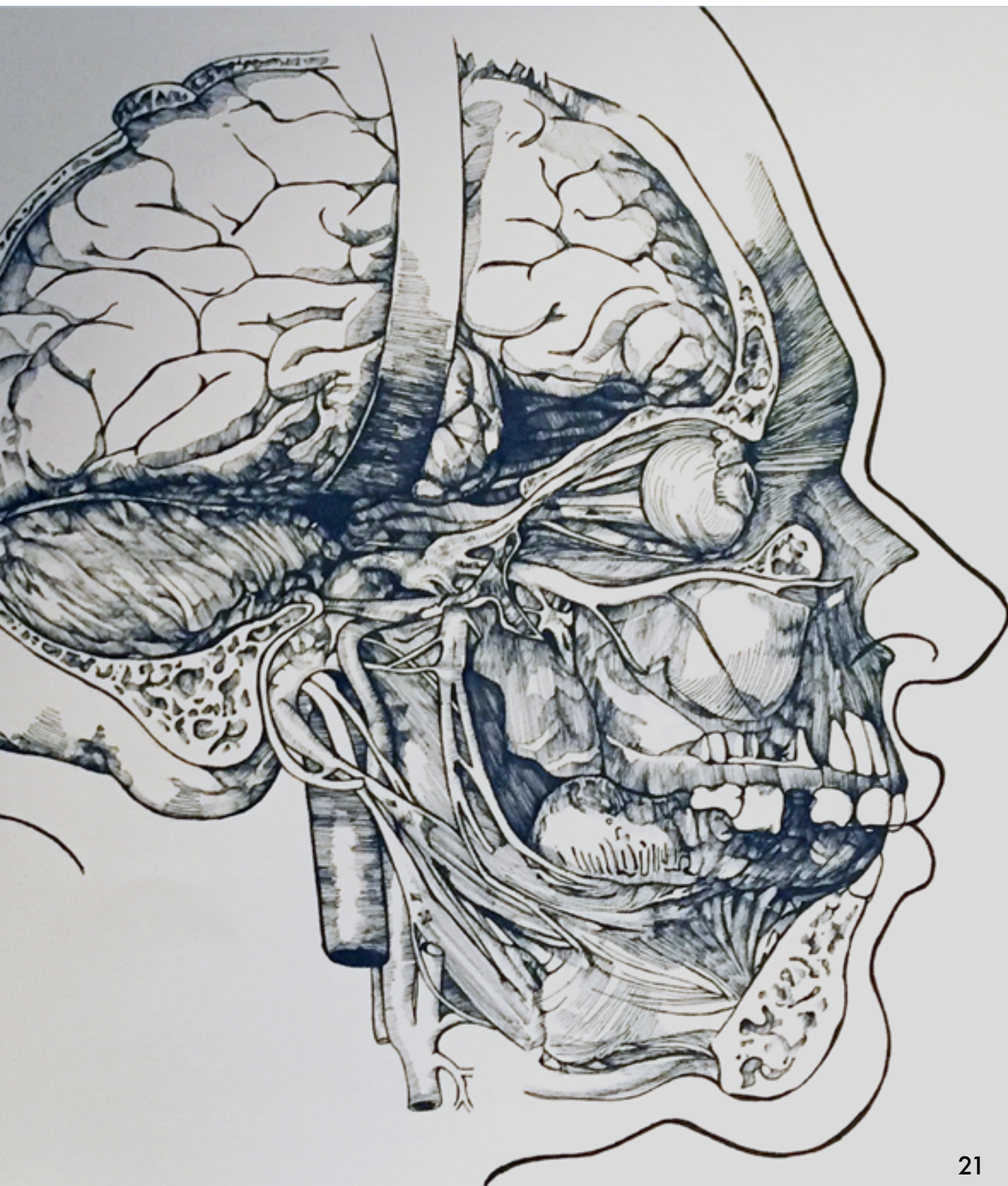
In Vaes Dothrak, as Drogo pours a pot of molten gold upon Viserys's head, Daenerys thinks, "He was no dragon. Fire cannot kill a dragon". This quote marks a critical turning point for Daenerys. Before her marriage to Drogo, she had seen herself as

a subordinate to be used by the true dragon, her brother Viserys, who could take her home to Westeros. As the marriage progresses, Daenerys slowly gains confidence and begins to stand her ground, which is exhibited by her first act of rebellion against Viserys's bullying in the Dothraki Sea. However, she still maintains constant respect for her brother, ordering custom clothing for him and believing that they are "both blood of the dragon." When Viserys dies, Daenerys' surprisingly apathetic thoughts reveal that she has completely dismissed her brother's authority. For Daenerys, this marks a pivotal shift from young girl to Khaleesi, as she stops perceiving herself as a pawn of her brother and realizes that she must take control of her own life.



# Inside the Mind

ILLUSTRATION BY MARIA LORNE GLANFIELD







# We and this Time Together

COURTNEY MANN

We -  
witnessed a slow departure of winter  
barely noticing the birth of spring.


And -  
in the wake of swift summer  
our frozen moments began to thaw.

This -  
heavy hot July air and  
sweet sweat bubbles kneading  
onto our porous skin reek  
of worn desperation.

Time -  
will soon recall it's mocking pace  
lunging in to slurp our days dry.

Together -  
now we stand in the cool air waiting  
for the leaves to fall again, knowing  
that I will not.



A photograph of a snowy landscape at night. In the foreground, there is a snow-covered ground with some rocks. In the middle ground, a small house with a porch is illuminated by warm lights. A person is standing in the snow in front of the house. To the right, a street lamp is on, casting a bright light. In the background, there are mountains and a dark sky with green aurora borealis visible.

# Dancing Lights

PHOTOGRAPH BY GABRIELLE FOSS





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Cover Photo

**Soap**

PAINTING BY REBECCA MCLAREN