

# *Climate, Cows, and Cars*

*A not-too-serious exploration of the effects that Western lifestyle choices have on our health and our world*





# *Special Thanks*

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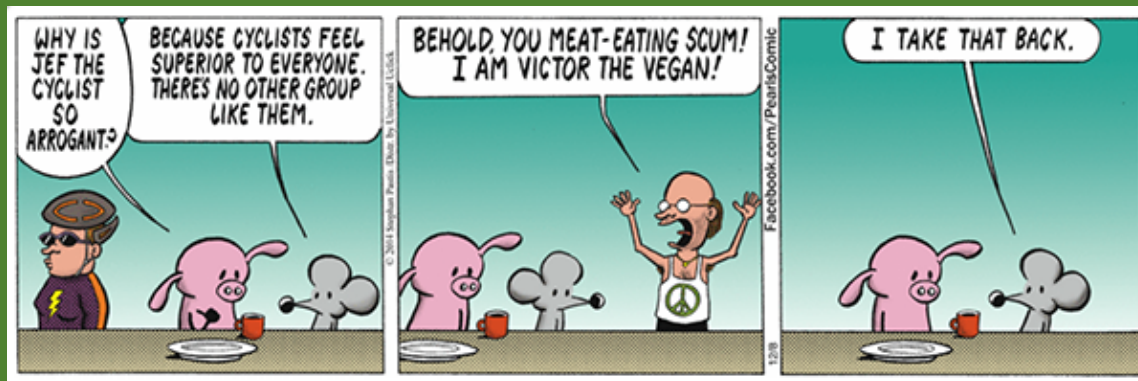
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## Prelude

*Which lifestyle choice does more to combat Climate Change, a carfree lifestyle, or a vegan lifestyle?*



© Stephan Pastis

Like you I've often asked that eternal question: How can I become even more of a holier than thou, pain in the butt eco-maniac? I was already car-free (and will remind you immediately), composted my food waste, and wore sweaters in the house during winter.

But then it occurred to me – going vegan was the solution!

But I wondered though.....was this going to *actually* help the planet more than boycotting [ExxonMobil](#)? At first it didn't seem possible. Throughout my life the cars and roads and factories had always been labelled as the largest environmental threat to our future. The question was so intriguing that it led to a year of intense research into the many ways in which these choices shape our lives.



What I discovered, was that the question was far more complex than I could have imagined.

(Spoiler alert: they both have a really big impact on the climate.) I welcome you to join me in this exploration so that you too, can make choices that will ease your conscience and allow you to live a healthier, happier life.



“ Every revolutionary idea evokes three stages of reaction:  
‘It’s impossible.’  
‘It’s possible, but it’s not worth doing.’  
‘I said it was a good idea all along.’

The original question of which decision has a higher impact was originally raised in 2006 when the UN commissioned a report, titled [‘Livestock’s Long Shadow.’](#) The report stated that the raising of domestic animals for food was the larger contributor to greenhouse gas emissions. But they didn’t simply claim that livestock were more damaging than driving, the UN report claimed that the animal products industry was more destructive than *all the world’s transportation combined*.

The first thing that I found was that shortly after the UN’s report was published, Dr. Frank Mitloehner [challenged their findings](#). Dr. Mitloehner pointed out errors in the data which made me think that the folks at the UN could be mistaken. Like Dr. Mitloehner, I was sceptical of what sounded like outlandish claims. However without funding, a giant laboratory, or a scientific degree I needed a large pool of resources to draw from in order to know for certain.



Thanks to the magic of the internet, there are in fact....millions of documents & scientific studies to help understand this complex issue. But don’t worry, I’ve done all the research and calculations for you.

## Denial

**The dinosaurs didn’t believe in climate change either.**

Despite all the research on our current climate situation, there are plenty of people in the United States who believe that Climate Change either isn’t happening, or isn’t caused by people. A PEW research poll confirms that [nearly half of U.S. residents believe](#)



[this](#) (and not all of them work in Congress). If you put yourself in the shoes of an oil company CEO (not so easy I admit) and ponder the danger that such knowledge poses for them, it’s possible to understand their motivation. This is why support for climate



change denial comes from the [Koch Brothers](#), [oil companies](#), and the coal industry. ([link](#)) ([link](#)) On the other hand, the case for human-caused climate change is supported by [97% of the scientific community](#). While our current era of superstorms makes denial increasingly difficult, many people are not aware that some companies [knew](#) about the threat of climate change in the mid 1980s. Some climate scientists even warned Lyndon Johnson about this 50 years ago! ([link](#))

## *The Oil Industry is Certainly Willing to 'Win Ugly'*

### What IS Climate Change?

But what exactly IS Climate Change? Throughout the world, people are becoming more concerned about it, yet most people seem to be either dis-empowered, or confused about how to make a difference (hint, recycling isn't the answer). To put it simply, Climate Change is a general increase in world temperatures due to heat-trapping gases (the aptly-named 'Greenhouse Effect'). The term 'Global Warming' is less accurate because what scientists predict is not for warming across the globe (as a recent U.S. politician, who [brought a snowball into the Senate](#), demonstrated).



“It’s much easier to come up with a compelling story if you can make up whatever you want, then if you have to stick to the truth.”

[Derek Muller](#)

The increasingly radical fluctuations in weather patterns which have caused drought, heat waves, and more intense flooding would be better described as 'Global Weirding,' or 'Climate Chaos.' Higher global temperatures mean more energy, that energy gets released in the form of more powerful superstorms which cause enormous damage to populations all over the world. ([link](#)) Humans (especially the well-off) are able to stay afloat more easily than poor populations and wildlife which is why individual choices are progressing faster than national policy.





## *Prelude - citations*

1. Wikipedia - Environmental record for ExxonMobil
2. LEAD (Livestock, Environment, and Development) (2006). 'Livestock's Long Shadow,' produced through the Food and Agriculture Organization of the United Nations
3. Pitesky, M. E., Stackhouse K. R., Mitloehner F. M. (2009). "Clearing the Air: Livestock's Contribution to Climate Change" originally published in '[Advances in Agronomy](#)'
4. Views on climate change by key demographics - Pew Research Centre
5. Jane Mayer, "Koch Pledge Tied to Congressional Climate Inaction" The New Yorker 06/30/2013
6. David Adam, "Oil Firms Fund Climate Change 'Denial'" - The Guardian 01/27/2005
7. Brian Merchant, "How the World's Biggest PR Firm Helps Promote Climate Change Denial" - Motherboard 08/05/2014
8. Steve Hanley, "InfluenceMap.org Tracks Fossil Fuel Lobbying Efforts" Gas2.org 04/11/2016
9. NASA 'Statement on Climate Change from 18 scientific associations'
10. 'Neela Banarjee, "[Oil Industry Group's Own Report Shows Early Knowledge of Climate Impacts](#)" Inside Climate News 02/05/2016
11. Dana Nuccitelli "Scientists Warned the US President About Global Warming 50 Years ago Today" The Guardian 11/05/2015
12. Eric Lipton "Hard-Nosed Advice from Veteran Lobbyist: 'Win Ugly or Lose Pretty'" The New York Times 10/30/2014
13. Steve Mirsky "Climate Skeptic Senator Burned after Snowball Stunt" Scientific American 03/02/2015
14. Derek Muller "Climate Change is Boring"
15. "Warmer Oceans Could Produce More Powerful Superstorms" Phys.org 01/19/2016

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## Benefits

There are a huge number of advantages that come with both a [vegan diet](#) and a [car-free lifestyle](#). Both choices help us to enjoy longer, more stress-free lives while reducing our impact on the land. A vegan lifestyle improves energy levels, nutrition, heart health, and our immune system. In fact there are so many advantages that they would easily overwhelm this essay. You can save time by just watching ‘[Forks Over Knives](#)’ for a quick overview. Or, [here](#) are just five things that would happen if everyone ditched meat & Dairy.



This is an excerpt from a video by Emily of Bite Size Vegan fame. See the full video [here](#)

Eating plant-based also prevents the ‘dulling of the senses’ caused by overloading the taste buds. People who switch to plant-based meals find that flavours are richer, more varied, and more delicious as the taste-buds heal. ([WPD81](#))

And while Emily’s video on the right is used mainly to give you a smile, it does feel in my own opinion, that eating vegan really has the potential to improve our lives in a huge number of ways. ([link](#))

*Do vegans have a spam folder?*

## Looking Great

What has always impressed me is the youthful shine that shows on the faces of people who eat healthy and stay active. I’ll never forget a trip that I took years ago with a young couple, climbing through a small mountain area. I felt a bit of struggle trying to keep up with these young 20 year olds and felt my own age as we climbed the hills. It was only a year later when I ran into one of them again that I found that he was in fact 30 years old. Since then I’ve noticed that vegan eaters and active cyclists look, so much younger than other people of the same age. ([link](#)) ([WC198](#))





Compared to a plant-based diet however, the health benefits of living car-free are less well known ([not as many Netflix movies about it](#)). Clearly the increased exercise of walking, bicycling or even using public transit (which involves walking) will improve our lives. ([link](#))

The exercise boosts ones mood, improves connection with neighbourhoods, and provides many other benefits.

(I cover this in more detail [below](#).)



## Social Connections

“Cities are books that you read with your feet.”  
Quintin Cabrera

But there's more to it than that. As just one example, every 10 minutes commuting without a car results in 10% more social connections. ([link](#)) These social connections provide enormous benefit to our well-being. They fight depression, [improve democracy](#), and increase sharing. ([link](#)) ([link](#))

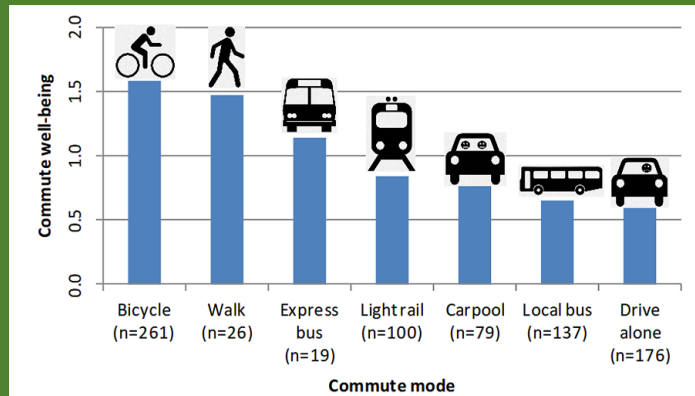
Seeing the street as a place rather than a through-way, helps foster a greater sense of community and connection within our neighbourhoods. ([link](#))

([link](#)) When people travel by foot or by cycle, we get to enjoy spur-of-the moment conversations, we might ask someone on a date, or see a rainbow. I've had a beautiful wealth of experiences that I often realize would be impossible were I traveling alone within an enclosed vehicle.



“When you ride a bicycle, you're part of a neighbourhood.  
When you're in a car, your just passing through.”

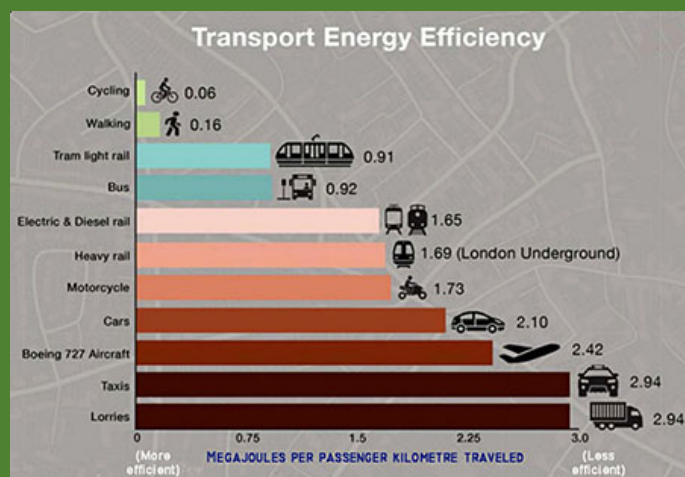




Commute Well-Being study by Oliver Smith PhD.  
Portland State University

the highest “happiness quotient” of all transportation modes. [\(link\)](#) Smith surveyed over 800 commuters using various modes about their level of satisfaction.

## Efficiency

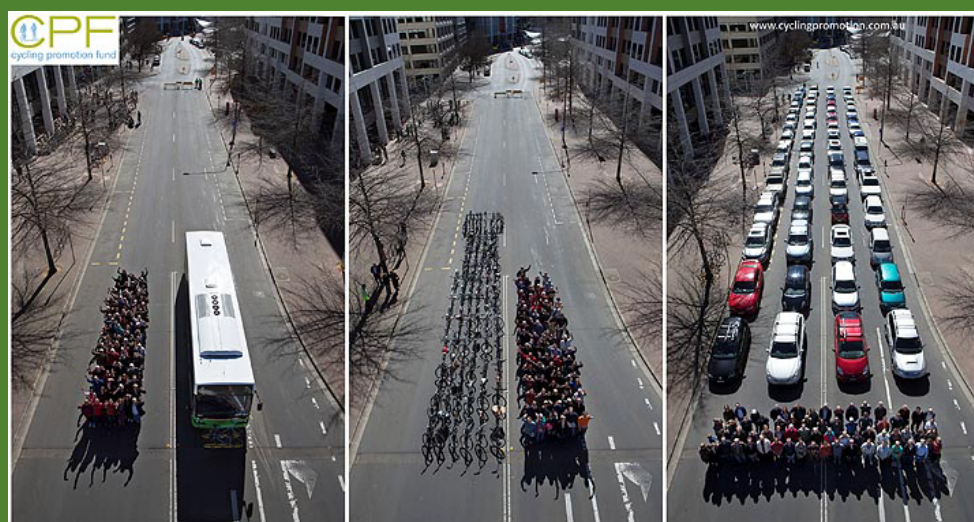


Data: Sustainable Transport and Public Policy,  
[David Banister](#), Univ. of Oxford

This improved connection to our neighbourhood plays a big part in our overall happiness not only while we’re traveling, but after we reach our destination too. [\(link\)](#) The fresh air, the relaxed pace and the freedom from traffic all play a large part in lowering stress levels. There’s sound research to support this. [\(link\)](#)

According to Dr. Oliver Smith at Portland State University, bike commuters were found to have

Another huge advantage to both lifestyles is efficiency. Both in terms of space (see below) and energy needed. It might not surprise you to learn that automobiles are the least efficient machines that we have for moving us around. A car has an efficiency of [roughly 20%](#) from oil well to passenger kilometre (or mile). On top of that, less than 1% of the energy used by a car is actually needed to carry a person. [\(link\)](#) By contrast, a human on a bicycle has an efficiency estimated between [700](#) and [1000](#) miles per gallon. With a bicycle, our food is our fuel, which means that we can eat (within reason) anything that we want.



Cycling Promotion  
Fund - Australia





The scenery is always nicer on bikeable roads. How many times have you seen a landscape photograph of a parking lot?

“Pedestrian and bicycle traffic use fewer resources and affect the environment less than any other form of transport.”

Jan Gehl - 'Cities for People'

On top of the efficiency of space and fuel, bikes and walking also cause less damage to the road itself. I'm sure you can think back to the many times you were inconvenienced by having to wait for, or detour around a road resurfacing project. Well these are more than just inconvenient. They cost A LOT of money. Resurfacing an arterial road costs roughly \$1 million per mile. ([link](#))

Compared to cars and trucks, a bicycle causes an infinitely small amount of damage. Using an 'average' 4000lb car as the baseline you can see the huge difference.

Vehicle Type	Average Weight (lbs)	Comparative Damage
Hummer H2	8,600	21.37
Average Car	4,000	1.0
'Smart Car'	1,800	0.0410
300lb Man on a Bicycle	350	0.00006

[source](#)



The efficiency of a vegan diet is mainly linked to the huge reduction in the amount of [land and food](#) used when raising animals to adulthood. Whether an animal is eating grass or corn, the amount of food needed to raise a cow vastly outweighs (no pun intended) the yield. In the United States, cattle will eat over 8.5 metric tonnes of food per year. Since they're killed after 18 months, that's about 13 tonnes of food needed per animal. And the return that a rancher gets is about 254 kilograms (560 lbs) of saleable meat. With a vegan diet on the other hand, the food goes directly to people where it gets turned into human energy. This means that more people can be fed on the same amount of grain, oats, rice, or potatoes.



*I'm not vegan because I love animals...  
I'm vegan because I REALLY hate plants.*

But since the main focus of this essay is on climate change, we will first take a look at the issues around Greenhouse Gases (GHGs).

According to the original UN report, the three gases which have the greatest impact on climate change are:

- - Carbon Dioxide
- - Methane
- - Nitrogen Dioxide

All three of these elements have a huge influence on our planet. You can see a detailed breakdown of each of the three GHGs, and their impact [here](#).





## *Benefits - citations*

1. Heather McClees, “5 Health Perks of Going Vegan” One Green Planet 03/11/2015
2. Orion Kriegman, “No Car, No Problem: The Benefits of Car-Free Living” Alternet 04/12/2010
3. Fulkerson L., Wendel B., Corry J., Boon A. “Forks Over Knives” Documentary Film
4. Mimi Bekhechi, “Five Things That Would Happen if Everyone Stopped Eating Meat and Dairy” FerocesMente
5. Dr. William Tuttle, [“The World Peace Diet”](#) pg.81
6. Health Sutra “Top 10 Benefits of a Vegan Diet”
7. Jeff Speck, [“Walkable City”](#) Farrar, Straus and Giroux 2012 Pg.198
8. Chris Bruntlett, ModaCity Communications and Marketing firm for Vancouver, B.C.
9. Lloyd Alter, “Study: Cycling Keeps you Young” Treehugger 01/06/2015
10. Nick Paumgarten, “There and Back Again” The New Yorker 04/16/2007
11. Tom Sandborn, “Isolation Bad for Democracy” Vancouver Courier 10/04/2012
12. Yvette Tendick, “Biking, a Gateway Drug to Social Awareness” StrongTowns 02/15/2016
13. Julie Croteau, “Social Ties are Good for Your Health” BeWell@Stanford Stanford Univ.
14. “Streets as Places: How Transportation Can Create a Sense of Community” Project for Public Spaces
15. Peter Walker, “Cities with Physically Active Residents More Productive as Well as Healthier” The Guardian 06/08/2015
16. Morris E. A., Guerra E., “Mood and Mode: Does How We Travel Affect How We Feel?” Momentum Magazine 03/29/2016
17. Transportation Journal 01/2015 summarized in Phys.org
18. Hilary Angus, “Pedaling Towards Happiness: 7 Mental Health Benefits of Riding Bikes”
19. Dr. Oliver Smith, “Commute Well-Being Among Bicycle, Car, and Transit Commuters in Portland, Oregon” based on data from ‘Transportation Research’ Part F. pg.167-175
20. Chu S., Majumdar A., “Opportunities and Challenges for a Sustainable Energy Future” Nature 08/16/2012
21. Amory B. Lovins, “DoD’s Strategic Energy Opportunities: More Fight, Less Fuel, Lower Cost, Safer World” Presentation to the U.S. Dept. of Defence Rocky Mountain Institute 2009
22. Wikipedia “Energy Efficiency in Transportation”
23. “Is there a way to compare a human being to an engine in terms of efficiency” 5 December 2000. HowStuffWorks.com. 10 March 2016
24. Cost figures provided by Florida Dept. of Transportation 06/2014
25. Meg Dunn, “Which Road Users Make the Greatest Demands on our Tax Dollars” Pedal Fort Collins 05/06/2016
26. Cassidy E. S., West P. C., Gerber J. S., Foley J. A., “Redefining Agricultural Yields: from Tonnes to People Nourished per Hectare” Environmental Research Letters Vol.8 Num.3 08/01/2013



## *Image Credits*

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4. 'Commute Happiness Chart' by Dr. Oliver Smith
5. 'Step It Up' U.S. Surgeon General and the Center for Disease Control
6. 'Transportation Energy Efficiency' Dr. David Banister University of Oxford
7. 'Cyclist in a Landscape' photo by the author
8. '70% US Grain fed to Farm Animals' image created by VeganStreet.com
9. 'Earth is the Only Planet with Chocolate' source unknown



## Greenhouse Gases

**W**arning! There's lots of data here, and the numbers are astronomical. After all, we're talking about the entire planet's atmosphere. So this should help give you a sense of the numbers:

1 Gigaton = 1,000,000,000 metric tonnes

The estimated weight of Mt. Everest = 3,400,000,000 metric tonnes

### Carbon Dioxide

Carbon Dioxide (CO<sup>2</sup>) has become the ruler by which all greenhouse gases are compared. It's mainly produced by the world's transportation systems, which send up roughly 6.8 gigatons of Carbon Dioxide (that's 2 Mt Everests) *every year*. ([link](#)) Carbon Dioxide is released through burning coal, oil, wood, and through deforestation. Similarly, the raising of livestock contributes to this figure mainly in the clearing of forests to graze animals, and in the use of fuels for transporting animals, feed, and supplies. ([link](#))

In terms of cost, I invite you to consider that each ton of CO<sup>2</sup> added to our atmosphere causes an estimated [\\$220 in economic damage](#) (I will let you, dear reader, examine the cost of almost 7 gigatons).



“You can't spell 'carbon,' without CAR.”

Jeff Speck



## Methane

While released in smaller amounts, methane is all the more troublesome since it has **72 times** the impact on the climate. For transportation, methane is released mainly in oil drilling, through 'flaring' or through pipeline leaks. ([link](#)) About 14% of the world's methane is released this way.

Grazing animals, on the other hand produce most of the world's methane. The combination of 'cow burps' with animal waste lagoons and animal feed results in roughly 15 gigatons of CO<sup>2</sup> equivalent per year. ([link](#))

That said, I want to make an important additional point. By comparison, rice production (the main plant-based source) contributes about 2.7 gigatons CO<sup>2</sup> equivalent per year. ([link](#)) I include this to point out that there are plant-based sources which have a big impact as well. According to Dr. Masanobu Fukuoka, a well-known permaculture farmer in Japan, rice farming can be done **less impactfully** by reducing the amount of time that rice fields are flooded.



## Nitrous Oxide

The third climate changing gas is Nitrous oxide. This potent gas is 300 times as damaging as CO<sup>2</sup>. So even though it is released in comparably small amounts, it still packs a big punch. Nitrous oxide is mainly produced by agriculture, with livestock contributing 1.5 megatons of CO<sup>2</sup> equivalent each year. ([link](#)) By comparison Nitrous oxide emissions from transportation are almost nil.





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