WEEK 25: Equity (Maps) *April 13, 2022*

This week's questions to consider:
Is there only one way to represent countries on a map? I've never thought about it before. Does it matter? Also, since we're looking at world maps, is it okay to use the expression "developing nation" or "third world country"? I think no, but can you clarify?

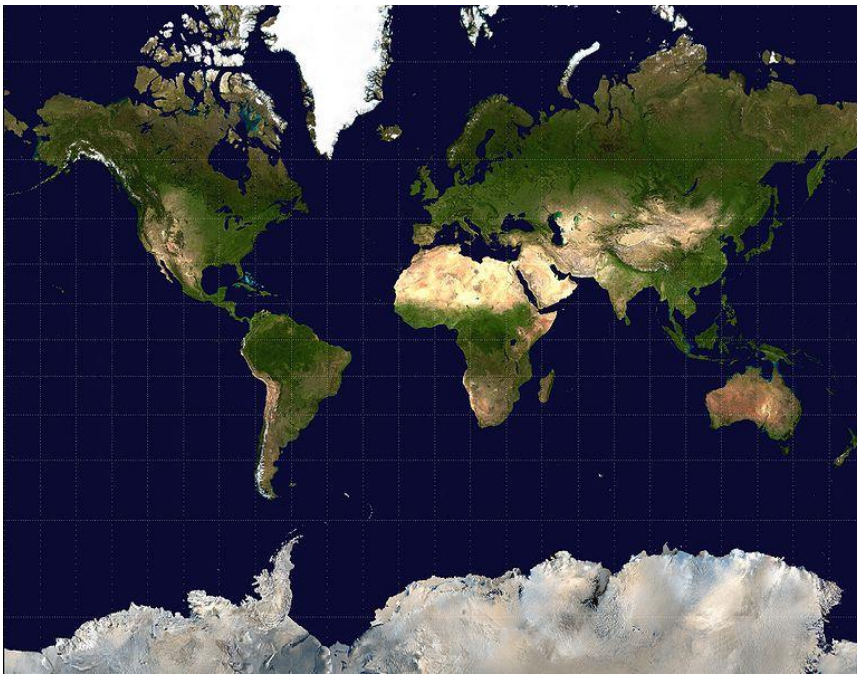
Pro tip: Sometimes the information we've taken as factual has its roots in bias. It's good to take a moment every now and then to re-examine what we do and how we view the world. Also, the most commonly used maps in media and in school are skewed, which creates bias, so we should offer more representation based on what we are trying to communicate.

As we grow up, we tend to view the map of the world as a static thing, with countries being defined by lines and colours as represented on that map. In New Brunswick, we tend to only see one example of a two-dimensional map, and we don't really talk about what it means. This example is represented in school, in maps on the walls, in journalism, and textbooks, and we don't really talk about it explicitly.

It is impossible to represent a three-dimensional sphere as a two-dimensional rectangle without affecting the map itself. So, it will always show some kind of distortion. That's the nature of spheres and rectangles.

The version we are all most familiar with is called the Mercator projection.

<u>The Mercator Projection</u>



Source: https://commons.wikimedia.org/wiki/File:Mercator-projection.jpg

This two-dimensional representation of the surface of the Earth was first presented by a Flemish cartographer of the same name (Mercator) in the late 1500s.

It was adopted as the standard map projection for navigation because it represents north as up and south as down and preserves local direction and shape, which makes navigation more doable.

The Mercator Projection is the most popular map and has been adopted as kind of the standard map.

Africa's land mass is 30.4 million km^2 and Greenland's surface area 2.1 million km^2. Antarctica's is about 14.2 million km^2. So, the continent of Africa is about 15 times larger than the country of Greenland. And Africa is twice as large as Antarctica. Now look at them on the Mercator Projection map. Interesting distortion, yes?

An important side effect of projecting a three-dimensional globe on a two-dimensional map specific to the Mercator projection is that as we get further from the equator, scale is affected. As we increase in latitude, getting closer and closer to the poles, there is an inflated representation of landmasses. That's why the relative size of Africa compared to Greenland is so distorted.

Africa is 15 times larger than Greenland, though on the Mercator projection is appears to be roughly of the same size, if not smaller. Africa is also twice as large as Antarctica, though on the map, you could fit several Africas into the Antarctica as it exists there, on that map.

Now, is there a solution to this wild distortion? Naturally, of course there is. We can look at a globe instead. We have the technology to include gifs into online journalistic articles that compare statistics from one country to the next. There also exist other projections, which we can use if we are determined to compare countries in a two-dimensional way.

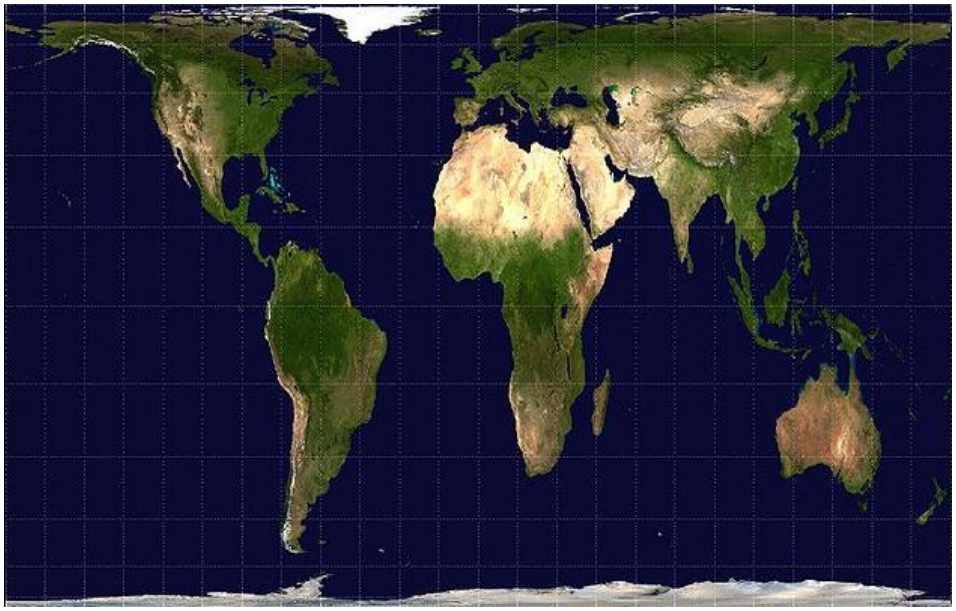
Let's look at some other maps!

The Gall-Peters projection

In this map, the shape of countries and continents is sacrificed, but the relative size of landmasses is accurate.

Seeing this map representation shows the relative size of the landmasses of the continents, which, if it is the first time you have seen it, can be a bit jarring.

It's one thing to say Africa is 15 times larger than Greenland, it's another to see it. Suddenly it makes no sense to call Africa a country. It's enormous!



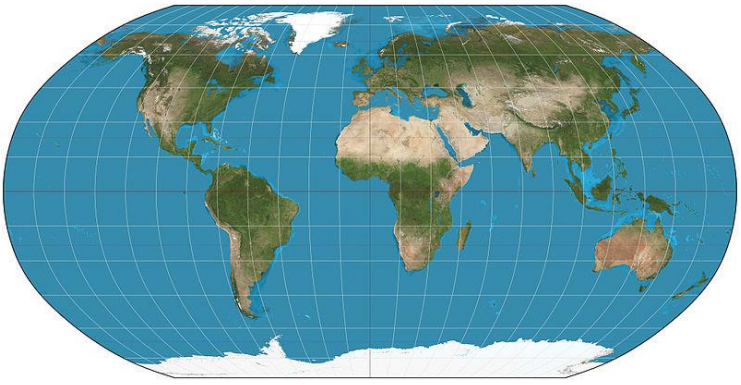
Source: https://commons.wikimedia.org/wiki/File:Gall-peters.jpg

The Robinson Map

This map is a little wrong in all the ways. Equal opportunity wrongness!

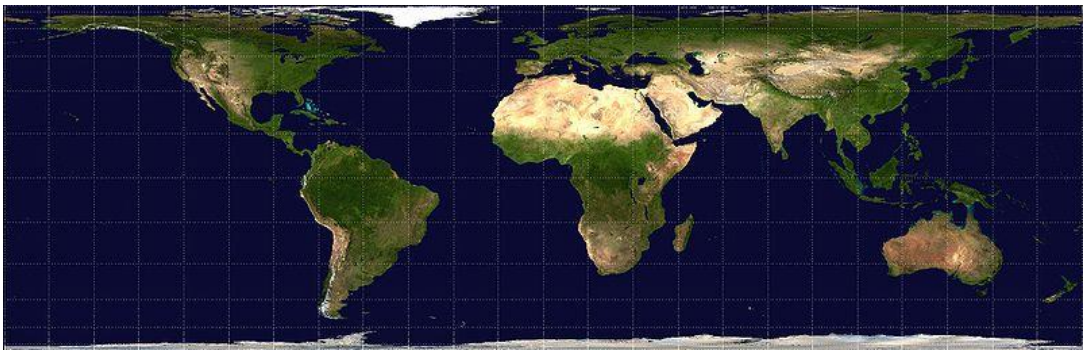
It was achieved using trial-and-error, and its purpose is to look representative of size and shape. Approximately.

It somehow… looks right.



Source: https://en.wikipedia.org/wiki/File:Robinson_projection_SW.jpg

The Lambert Cylindrical Equal Area projection



Source: https://commons.wikimedia.org/wiki/File:Lambert-cylindrical-equal-area-projection.jpg

On this map, the parallels and meridians are projected as straight lines intersecting one another at right angles.

That's why there are squares on this map.

Cartographers have mathematically heavy jobs, you know?

There are many, many more maps that show the world.

The point is that there are different maps available for different representational purposes. When the only map we use to compare things happening in countries are based on the one version we needed for navigating easily, that subtly implies things. As a side-effect, we exaggerate the importance of one country over an entire continent. It's a subconscious thing, but it's a thing.

If we're comparing areas, we should use a map that represents area proportionately. If we're comparing populations, we should use a map that represents populations proportionately. And if we are sailing the high seas… maybe we should be using more specialized equipment. (I'm not a sailor, though, so I have no recommendations.)

This is something to be aware of, so that we do not subconsciously create biases around the importance of different continents or nations. Similarly, referring to a country as a "third world country" is classist. Similarly, "developing country" can be triggering for those who come from that country. The way we represent varied countries leaves an invisible trail of biases throughout our collective psyche. It matters.

Recommended Resources:

Future Mapping Company | Top Ten World Map Projections
University of Wisconsin Map Library Site | The Robinson Projection
Guardian summary of some maps | World Maps

Mapping Meaning,

Your friendly neighbourhood Anti-Racism & Equity Coach
Therese Trofimencoff *(she/they)*