

It's been a while. I hope you are all well. Shall we make some charts?

About this time last year, one of my life-long dreams came true when I was told that I could work from home indefinitely. One effect of this – I won't say downside – is that I don't get through as many podcast episodes as I used to. Only a select few podcasts make the cut, and one of those is *99% Invisible*.

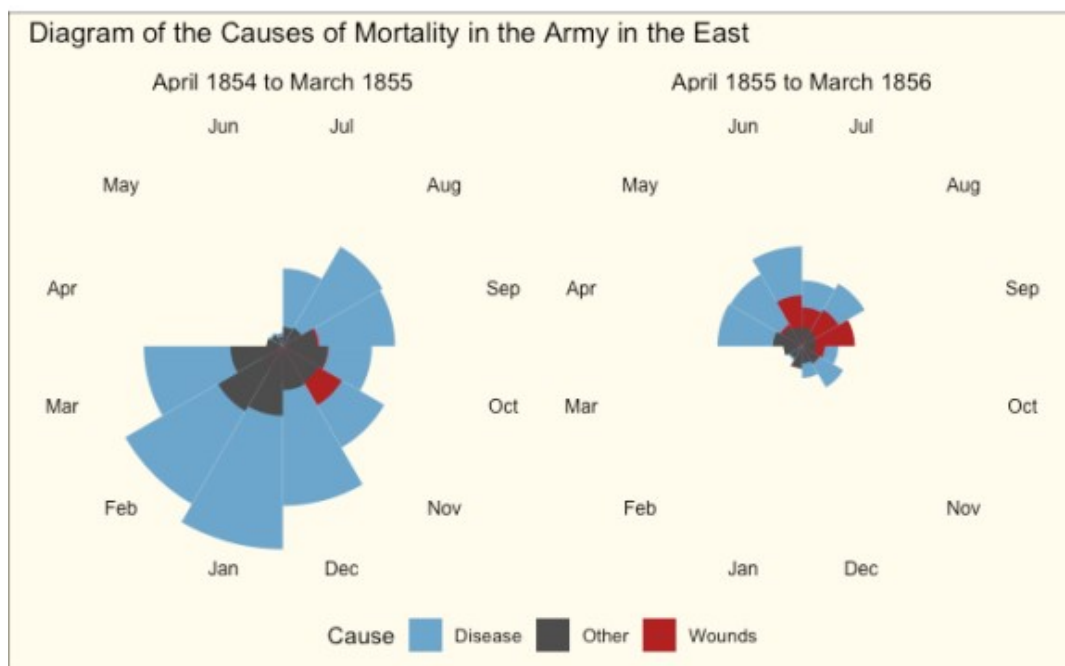
I first heard [Florence Nightingale and her Geeks Declare War on Death](#), an episode of the *Cautionary Tales* podcast, premiered as [a special episode](#) of *99% Invisible*. It discusses Nightingale's work as a statistician and in particular, her visualisation of mortality causes in the Crimean War using the famous "rose chart", or [polar area diagram](#).

I'm sure you're thinking: how can I explore that using R? The longer answer: take a look at my [Github repository](#), which includes [this report](#).

The shorter answer: a pretty good approximation of her chart can be achieved like so.

```
library(tidyverse)
library(histData)

Nightingale %>%
  select(Date, Month, Year, contains("rate")) %>%
  pivot_longer(cols = 4:6, names_to = "Cause", values_to = "Rate") %>%
  mutate(Cause = gsub(".rate", "", Cause),
         period = ifelse(Date <= as.Date("1855-03-01"), "April 1854 to March
1855", "April 1855 to March 1856"),
         Month = fct_relevel(Month, "Jul", "Aug", "Sep", "Oct", "Nov", "Dec",
"Jan", "Feb", "Mar", "Apr", "May", "Jun")) %>%
  ggplot(aes(Month, Rate)) +
  geom_col(aes(fill = Cause), width = 1, position = "identity") +
  coord_polar() +
  facet_wrap(~period) +
  scale_fill_manual(values = c("skyblue3", "grey30", "firebrick")) +
  scale_y_sqrt() +
  theme_void() +
  theme(axis.text.x = element_text(size = 9),
        strip.text = element_text(size = 11),
        legend.position = "bottom",
        plot.background = element_rect(fill = alpha("cornsilk", 0.5)),
        plot.margin = unit(c(10, 10, 10, 10), "pt"),
        plot.title = element_text(vjust = 5)) +
  ggtitle("Diagram of the Causes of Mortality in the Army in the East")
```



A couple of things to note in the code:

- The polar area diagram is just a bar (column) chart, projected onto polar coordinates
- Releveling of factors to get the months in the right place (can also be achieved using the *start* argument to `coord_polar`)
- `scale_y_sqrt` is required to make the smaller wedges visible
- `position = identity` is required to achieve the same relative wedge heights as seen in Nightingale's original chart