

Project - Mapping the life and work of Arno Schmidt

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```
library(knitr)
library(dbplyr)
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:dbplyr':
##
##     ident, sql

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union

library(foreign)
library(ggrepel)

## Loading required package: ggplot2

library(haven)
library(kableExtra)

## Warning: package 'kableExtra' was built under R version 4.0.5

##
## Attaching package: 'kableExtra'

## The following object is masked from 'package:dplyr':
##
##     group_rows

library(tidyr)
library(tidyverse)

## -- Attaching packages ----- tidyverse 1.3.0 --
```

```

## v tibble  3.0.6      v stringr 1.4.0
## v readr   1.4.0      vforcats 0.5.1
## v purrr   0.3.4

## -- Conflicts ----- tidyverse_conflicts() --
## x dplyr::filter()      masks stats::filter()
## x kableExtra::group_rows() masks dplyr::group_rows()
## x dplyr::ident()       masks dbplyr::ident()
## x dplyr::lag()         masks stats::lag()
## x dplyr::sql()         masks dbplyr::sql()

library(tidygeocoder)

## Warning: package 'tidygeocoder' was built under R version 4.0.5

library(ggplot2)
library(maps)

## Warning: package 'maps' was built under R version 4.0.5

##
## Attaching package: 'maps'

## The following object is masked from 'package:purrr':
## 
##     map

library(ggrepel)
library(rnaturalearth)

## Warning: package 'rnaturalearth' was built under R version 4.0.5

library(rnaturalearthdata)

## Warning: package 'rnaturalearthdata' was built under R version 4.0.5

library(rgdal)

## Warning: package 'rgdal' was built under R version 4.0.5

## Loading required package: sp

## Warning: package 'sp' was built under R version 4.0.5

## rgdal: version: 1.5-23, (SVN revision 1121)
## Geospatial Data Abstraction Library extensions to R successfully loaded
## Loaded GDAL runtime: GDAL 3.2.1, released 2020/12/29
## Path to GDAL shared files: C:/Users/sched/Documents/R/win-library/4.0/rgdal/gdal
## GDAL binary built with GEOS: TRUE

```

```

## Loaded PROJ runtime: Rel. 7.2.1, January 1st, 2021, [PJ_VERSION: 721]
## Path to PROJ shared files: C:/Users/sched/Documents/R/win-library/4.0/rgdal/proj
## PROJ CDN enabled: FALSE
## Linking to sp version:1.4-5
## To mute warnings of possible GDAL/OSR exportToProj4() degradation,
## use options("rgdal_show_exportToProj4_warnings"="none") before loading rgdal.
## Overwritten PROJ_LIB was C:/Users/sched/Documents/R/win-library/4.0/rgdal/proj

library(readr)
library(maptools)

## Warning: package 'maptools' was built under R version 4.0.5

## Checking rgeos availability: TRUE

library(ggspatial)

## Warning: package 'ggspatial' was built under R version 4.0.5

library(sf)

## Warning: package 'sf' was built under R version 4.0.5

## Linking to GEOS 3.9.0, GDAL 3.2.1, PROJ 7.2.1

library(osmdata)

## Warning: package 'osmdata' was built under R version 4.0.5

## Data (c) OpenStreetMap contributors, ODbL 1.0. https://www.openstreetmap.org/copyright

library(rgeos)

## Warning: package 'rgeos' was built under R version 4.0.5

## rgeos version: 0.5-5, (SVN revision 640)
## GEOS runtime version: 3.8.0-CAPI-1.13.1
## Linking to sp version: 1.4-5
## Polygon checking: TRUE

library(igraph)

## Warning: package 'igraph' was built under R version 4.0.5

##
## Attaching package: 'igraph'


```

```

## The following object is masked from 'package:rgeos':
##
##     union

## The following objects are masked from 'package:purrr':
##
##     compose, simplify

## The following object is masked from 'package:tibble':
##
##     as_data_frame

## The following object is masked from 'package:tidyverse':
##
##     crossing

## The following objects are masked from 'package:dplyr':
##
##     as_data_frame, groups, union

## The following objects are masked from 'package:stats':
##
##     decompose, spectrum

## The following object is masked from 'package:base':
##
##     union

library(ggraph)

## Warning: package 'ggraph' was built under R version 4.0.5

##
## Attaching package: 'ggraph'

## The following object is masked from 'package:sp':
##
##     geometry

library(leaflet)

## Warning: package 'leaflet' was built under R version 4.0.5

library(htmlwidgets)

## Warning: package 'htmlwidgets' was built under R version 4.0.5

```

Geocoding

```

# locations_lived <- read.csv("./Arno Schmidt_locations_lived.csv")
#
# locations_lived <- locations_lived %>%
#   tidygeocoder::geocode(city = location_current, country = country_current, method = 'osm',
#   full_results = TRUE, custom_query= list(extratags = 1))
#
# locations_lived_filtered <- locations_lived %>%
#   select(i..address, state_original, state_current, country_current, country_original, location_current)
#
#write.csv(locations_lived_filtered, "Arno Schmidt_locations_lived_latlong.csv")

# locations_referenced <- read.csv("./Arno Schmidt_locations_referenced.csv")
#
# locations_referenced <- locations_referenced %>%
#   tidygeocoder::geocode(city = location_current, country = country_current, method = 'osm',
#   full_results = TRUE, custom_query= list(extratags = 1))
#
# locations_referenced_filtered <- locations_referenced %>%
#   select(state_original, state_current, country_current, country_original, location_current, i..location)
#
#write.csv(locations_referenced_filtered, "Arno Schmidt_locations_referenced_latlong.csv")

locations_lived <- read.csv("./Arno Schmidt_locations_lived_latlong.csv")
locations_itinerary <- read.csv("./Arno Schmidt_itinerary.csv")
locations_referenced <- read.csv("./Arno Schmidt_locations_referenced_latlong.csv")
works <- read.csv("./Arno Schmidt_works.csv")
locations_works <- read.csv("./Arno Schmidt_locations_2.csv")

```

Some preliminary EDA analysis

```

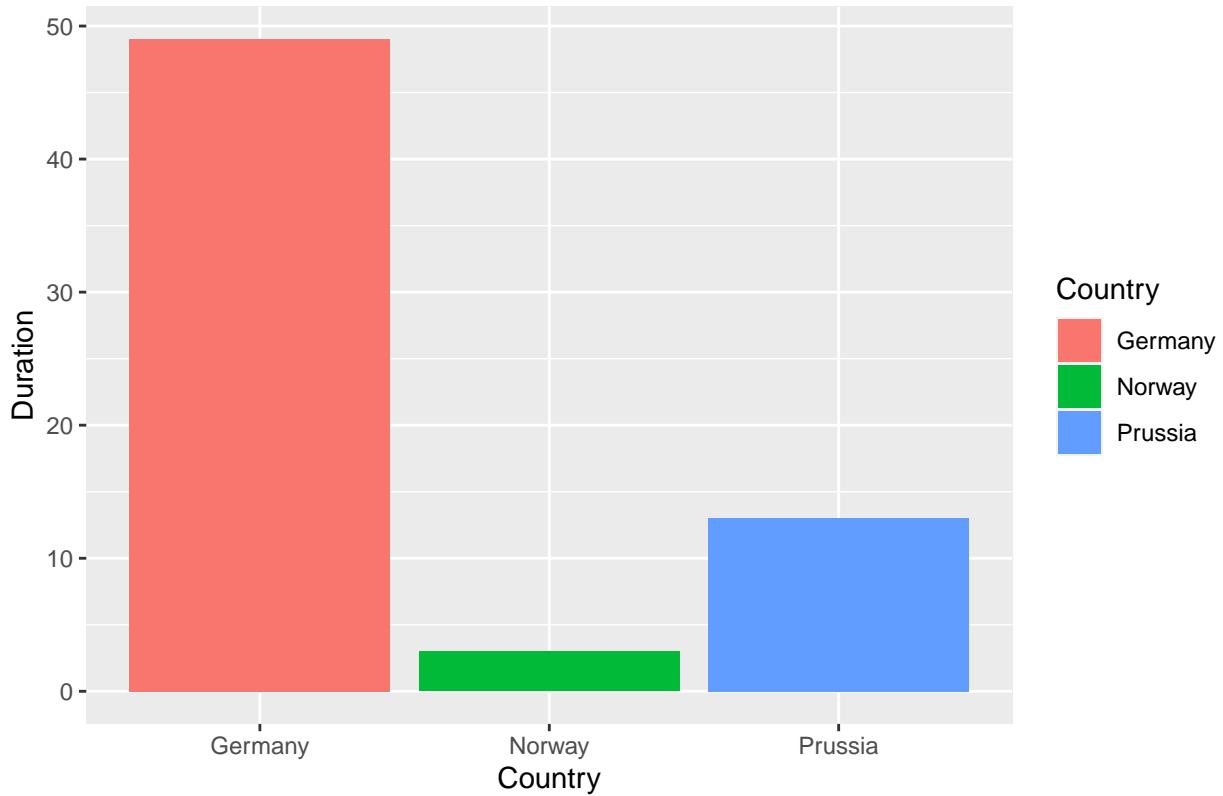
locations_lived <- locations_lived %>%
  mutate(duration = moved_out - moved_in)

locations_lived_duration <- locations_lived %>%
  filter(duration != 0)

ggplot(data = locations_lived_duration, aes(x=country_original, y=duration, fill = country_original)) +
  geom_bar(stat = "identity") +
  labs(title = "Duration per country", x = "Country", y = "Duration", fill= "Country")

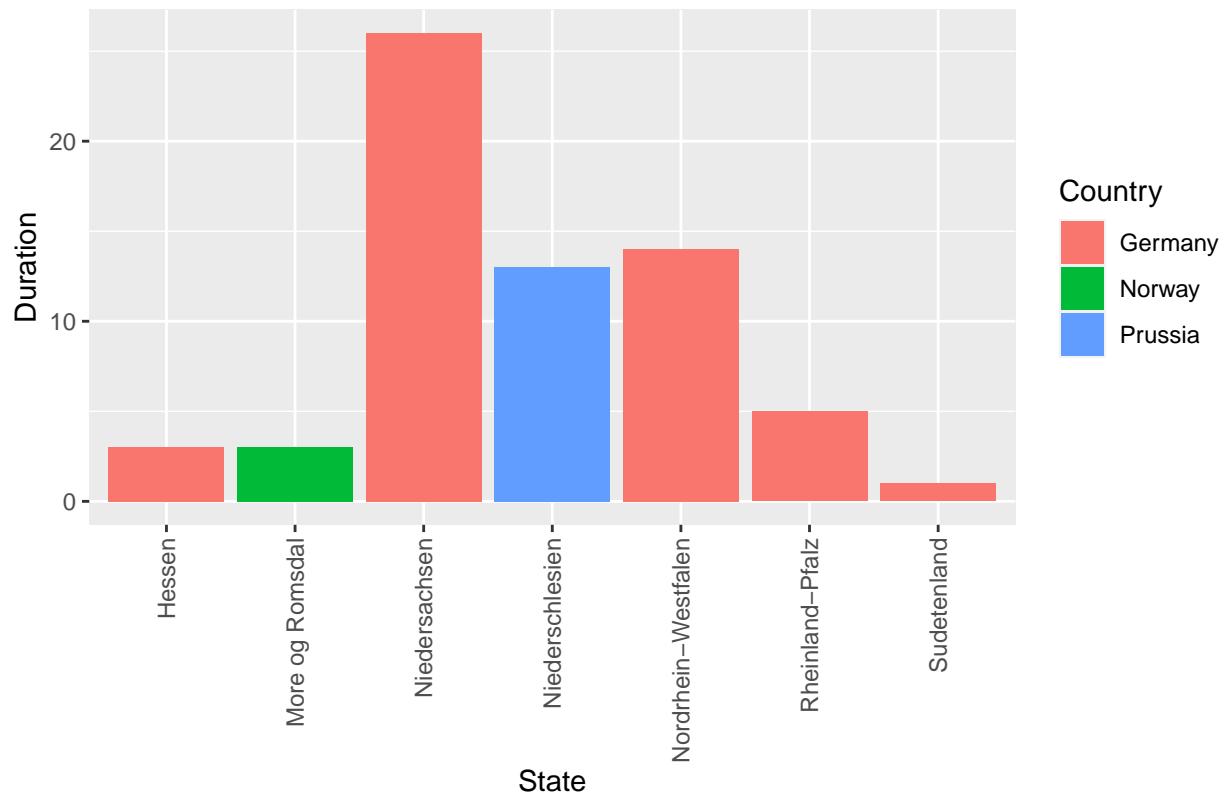
```

Duration per country



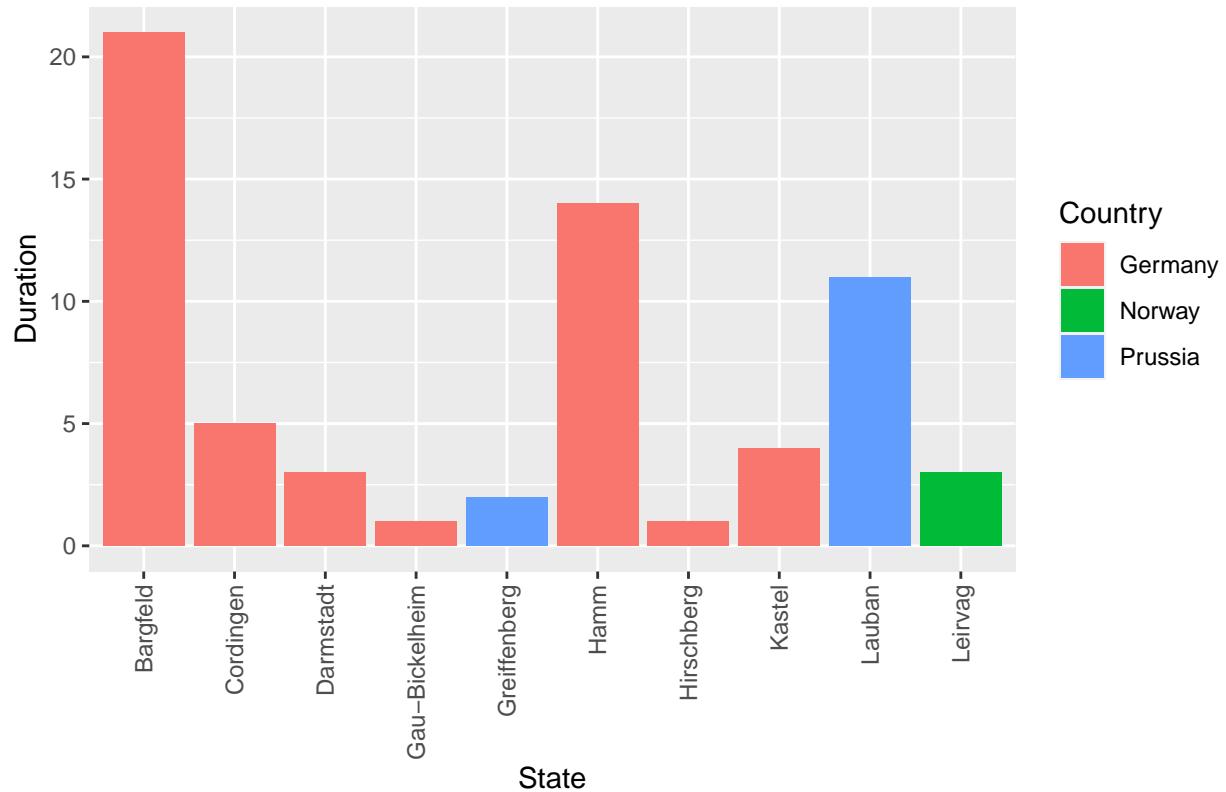
```
ggplot(data = locations_lived_duration, aes(x=state_original, y=duration, fill = country_original)) +  
  geom_bar(stat = "identity") +  
  labs(title = "Duration per state", x = "State", y = "Duration", fill = "Country") +  
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```

Duration per state



```
ggplot(data = locations_lived_duration, aes(x=location_original, y=duration, fill = country_original)) +  
  geom_bar(stat = "identity") +  
  labs(title = "Duration per location", x = "State", y = "Duration", fill = "Country") +  
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```

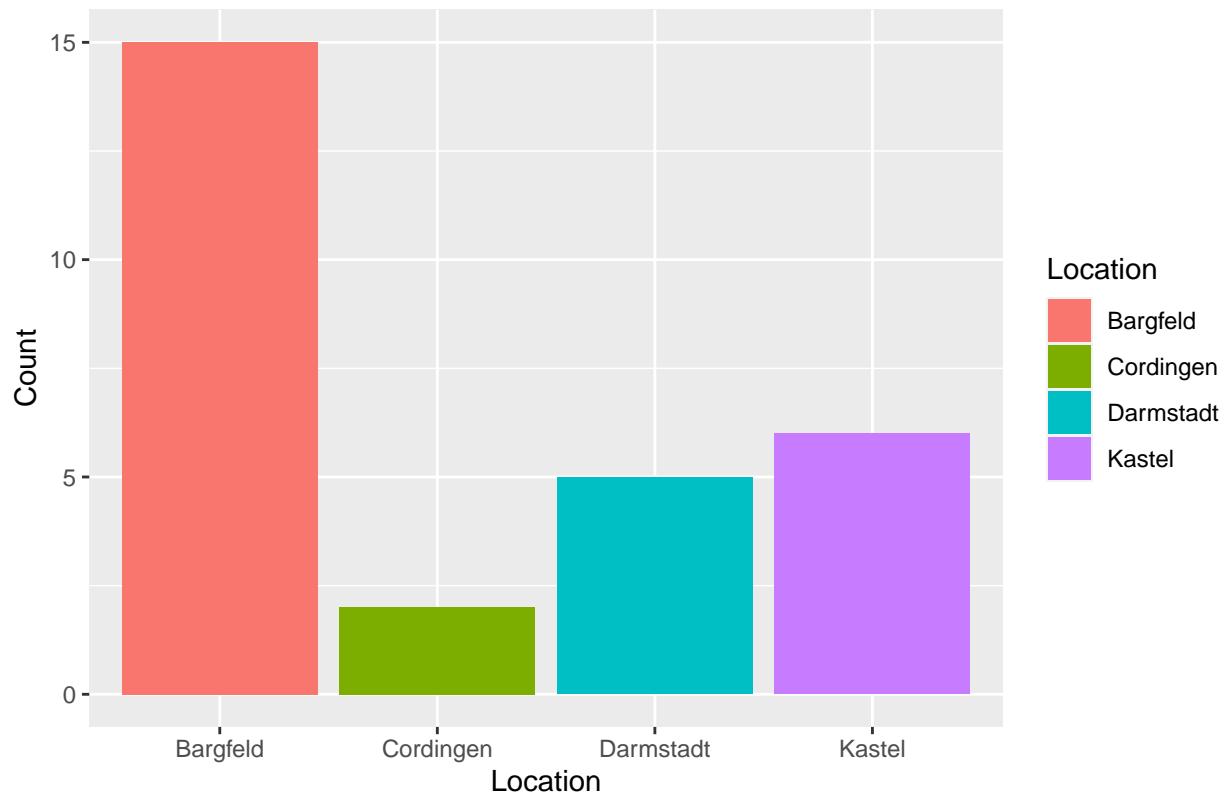
Duration per location



```
locations_works_bargfeld <- locations_works %>%
  filter(location == "Bargfeld")

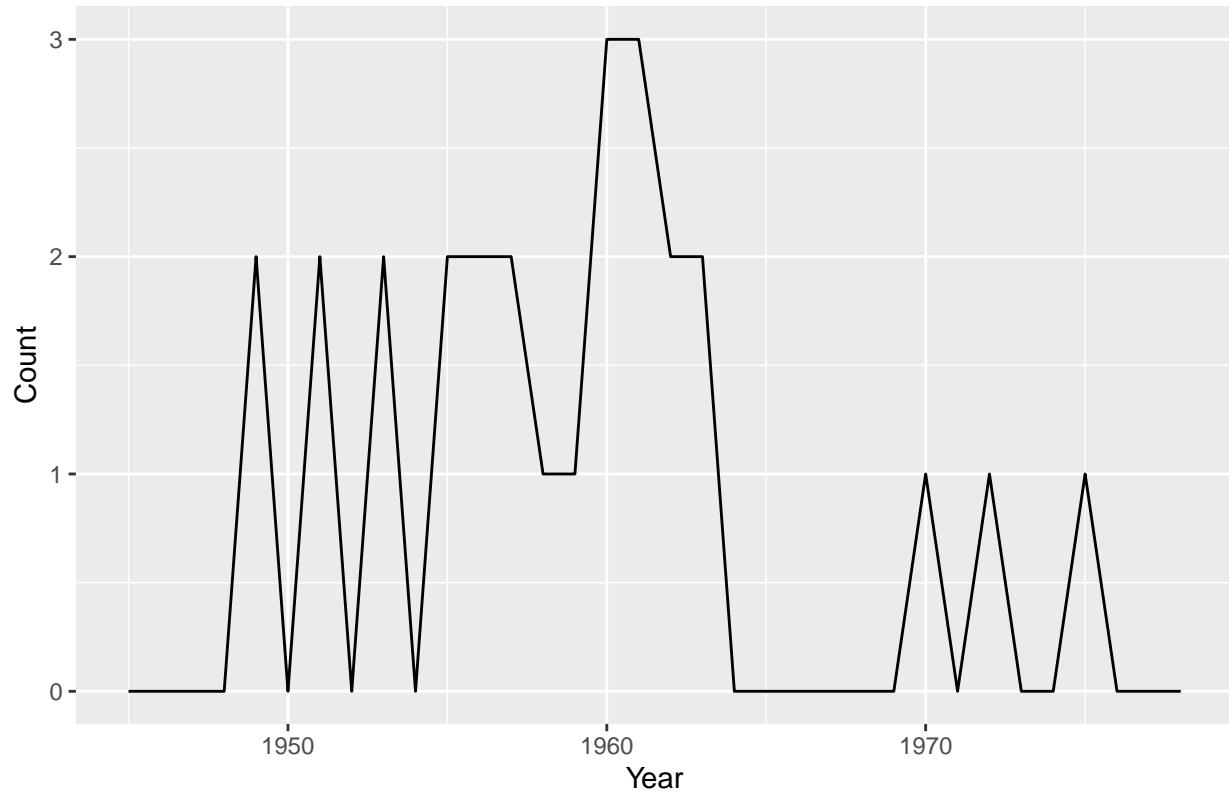
ggplot(data=locations_works, aes(x=location, y=title, fill = location)) +
  geom_bar(stat="identity") +
  labs(title = "Works per location", x = "Location", y = "Count", fill = "Location")
```

Works per location



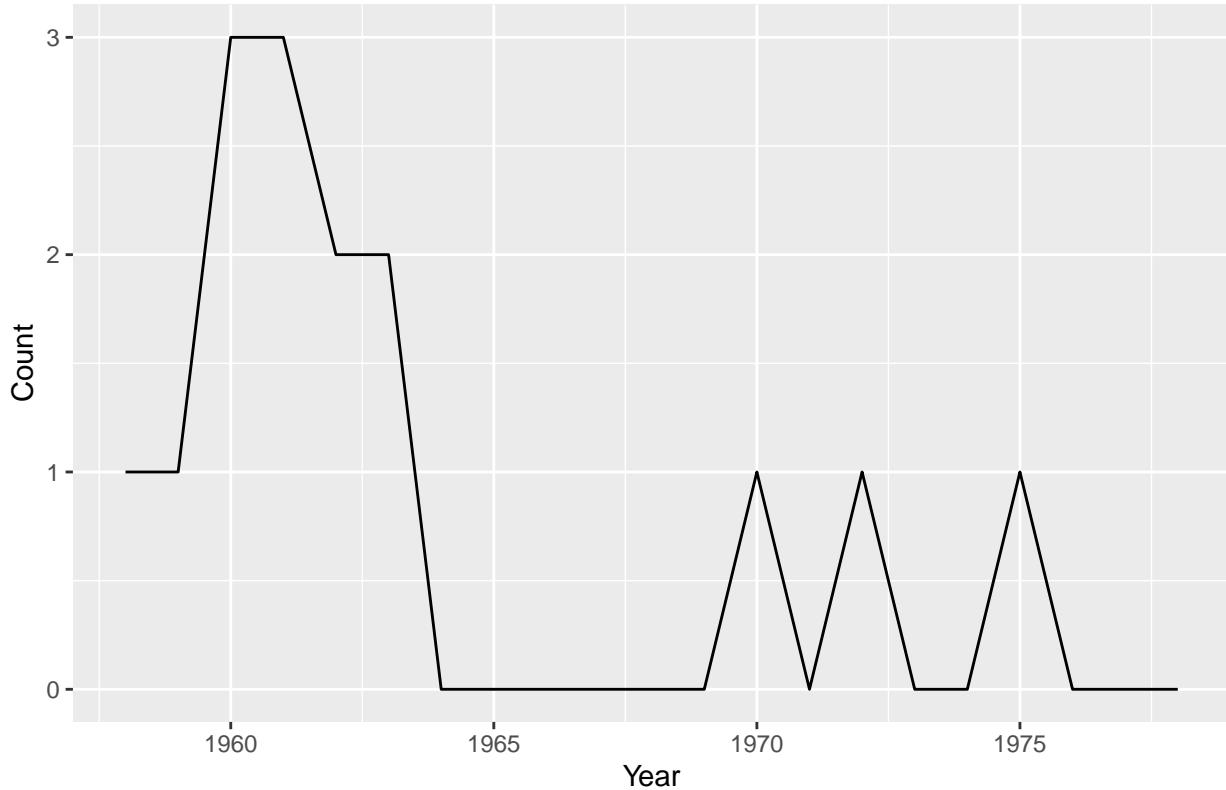
```
ggplot(data=locations_works, aes(x=year, y=title)) +  
  geom_line() +  
  labs(title = "Productivity over time", x = "Year", y = "Count")
```

Productivity over time



```
ggplot(data=locations_works_bargfeld, aes(x=year, y=title)) +  
  geom_line() +  
  labs(title = "Productivity in Bargfeld over time", x = "Year", y = "Count")
```

Productivity in Bargfeld over time



```
locations_referenced_joined <- locations_referenced %>%
  left_join(works, by = c("work_referenced"="id"))

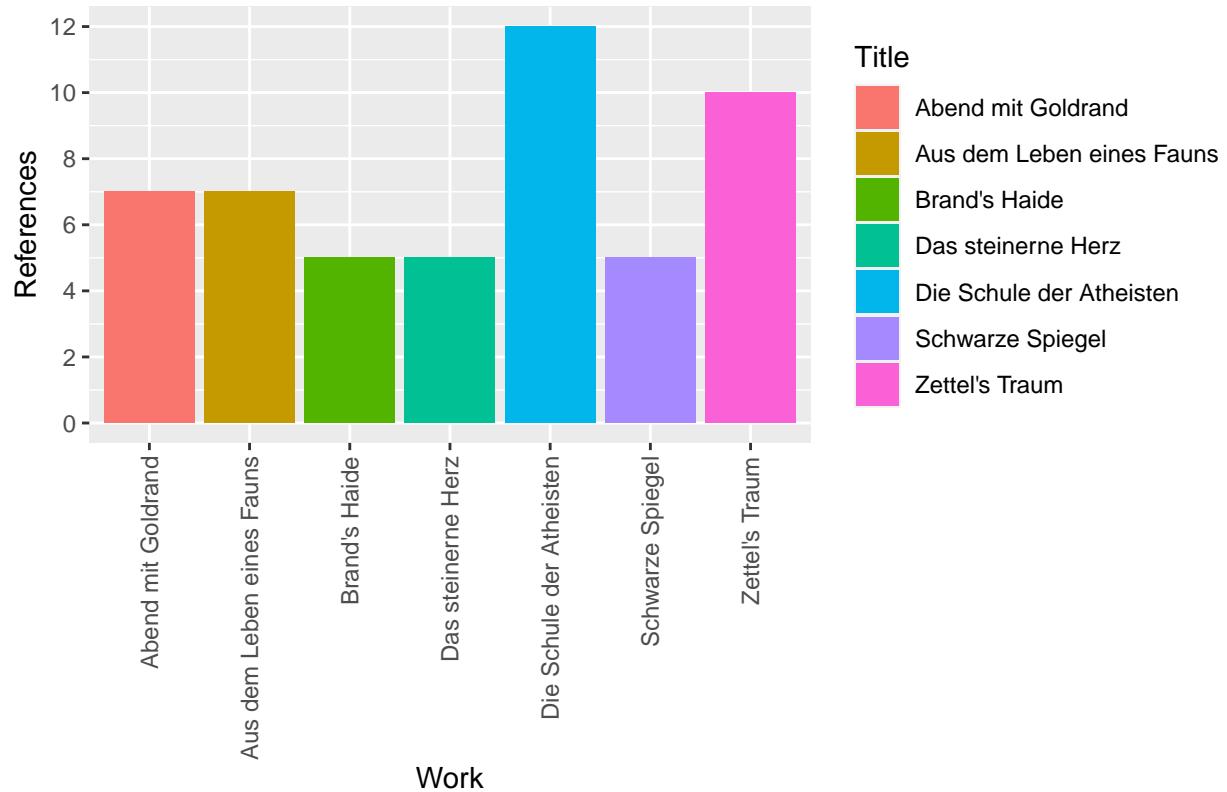
locations_referenced_joined_count <- locations_referenced_joined %>%
  add_count(title, name = "count_title") %>%
  distinct(work_referenced, .keep_all = TRUE)

locations_referenced_joined_count_2 <- locations_referenced_joined %>%
  add_count(location_original, name = "count_location") %>%
  distinct(location_original, .keep_all = TRUE)

locations_referenced_joined_count_top <- locations_referenced_joined_count %>%
  top_n(5, count_title)

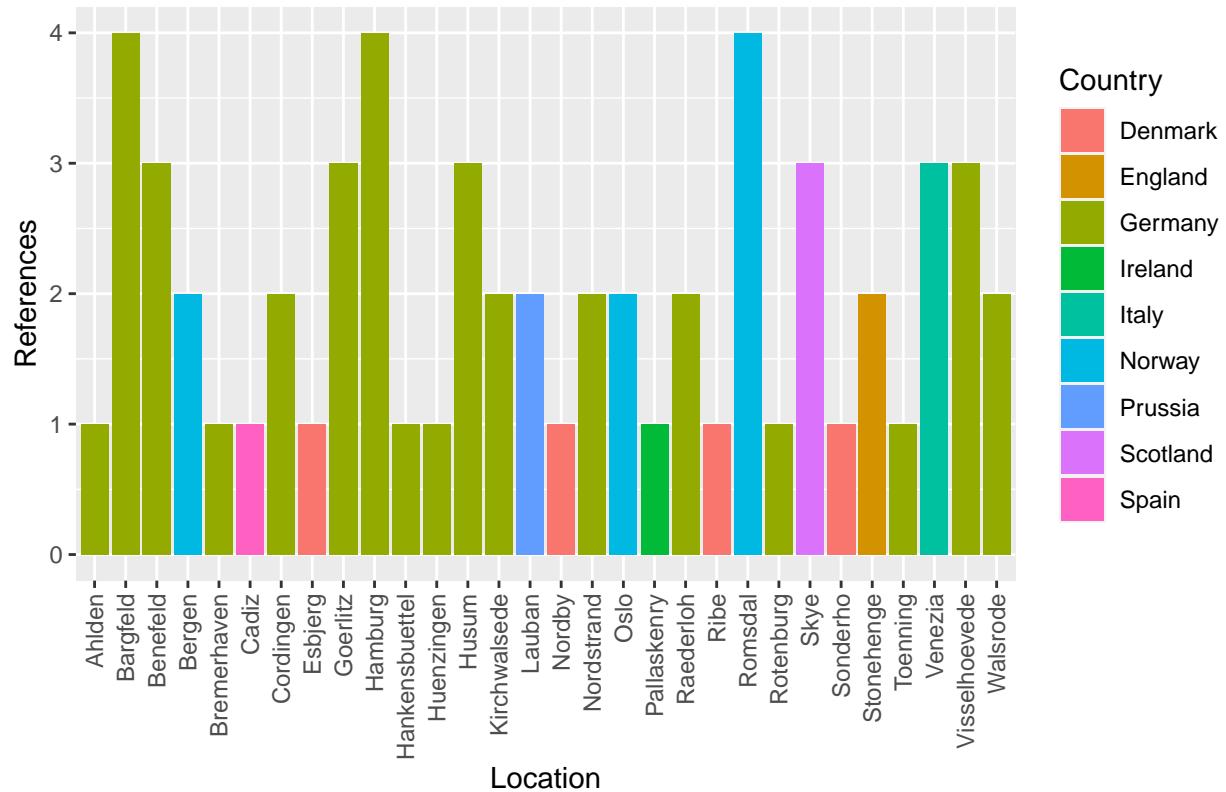
ggplot(data=locations_referenced_joined_count_top, aes(x=title, y=count_title, fill = title)) +
  geom_bar(stat="identity") +
  labs(title = "Works with most references", x = "Work", y = "References", fill = "Title") +
  scale_y_continuous(breaks = scales::pretty_breaks(n = 7)) +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```

Works with most references



```
ggplot(data=locations_referenced_joined_count_2, aes(x=location_original, y=count_location, fill = count_location)) +  
  geom_bar(stat="identity") +  
  labs(title = "Locations and their references", x = "Location", y = "References", fill = "Country") +  
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```

Locations and their references



Creating maps

```
world <- ne_countries(scale = "medium", returnclass = "sf")

rivers <- readOGR("./layer.riverData", "ne_50m_rivers_lake_centerlines")

## OGR data source with driver: ESRI Shapefile
## Source: "C:\Users\sched\Documents\Uni\Digital Humanities\UE - Intro to GIS\Project\layer.riverData",
## with 462 features
## It has 32 fields
## Integer64 fields read as strings: ne_id

## Warning in readOGR("./layer.riverData", "ne_50m_rivers_lake_centerlines"):
## Dropping null geometries: 461

rivers_f <- fortify(rivers)

lüneburg <- readOGR("./Lüneburger Heide", "Lüneburger Heide")

## OGR data source with driver: ESRI Shapefile
## Source: "C:\Users\sched\Documents\Uni\Digital Humanities\UE - Intro to GIS\Project\Lüneburger Heide"
## with 1 features
## It has 11 fields
## Integer64 fields read as strings: tessellate extrude visibility drawOrder
```

```

## Warning in readOGR("./Lüneburger Heide", "Lüneburger Heide"): Z-dimension
## discarded

lüneburg_f <- fortify(lüneburg)

## Regions defined for each Polygons

bundesländer <- readOGR("./Bundesländer", "DEU_adm1")

## OGR data source with driver: ESRI Shapefile
## Source: "C:\Users\sched\Documents\Uni\Digital Humanities\UE - Intro to GIS\Project\Bundesländer", layer
## with 16 features
## It has 9 fields
## Integer64 fields read as strings:  ID_0 ID_1

bundesländer_f <- fortify(bundesländer)

## Regions defined for each Polygons

theme_set(theme_bw())
waterColor = "lightsteelblue2"

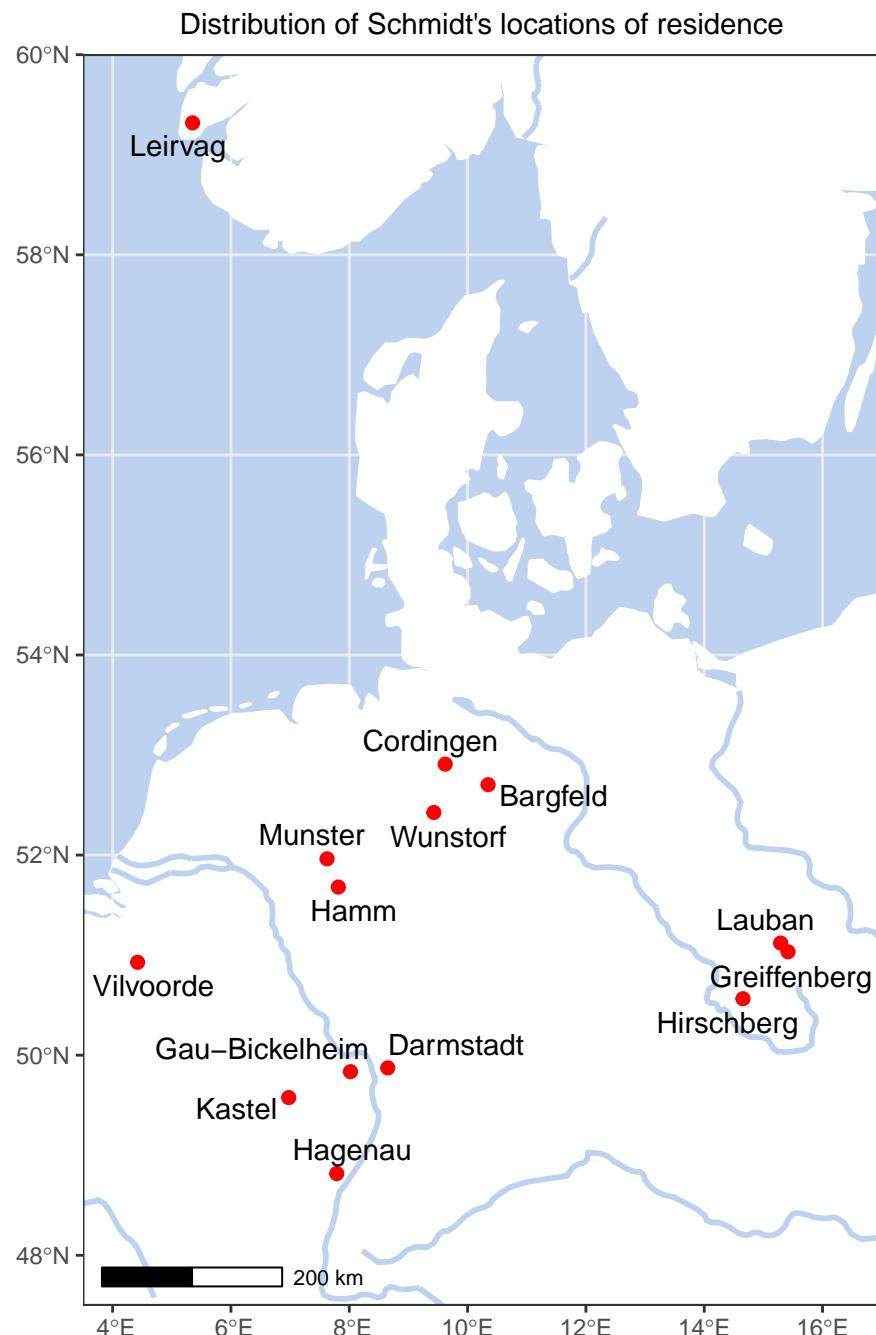
locations_lived_dupl <- locations_lived %>%
  filter(id != 6)

xlim=c(3.5,17); ylim=c(47.5,60)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +
  geom_point(data = locations_lived_dupl, aes(x=long, y=lat), color = "red", size = 2) +
  geom_text_repel(data = locations_lived_dupl, aes(x=long, y=lat, label = location_original), size = 4) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  annotation_scale(location = "bl", width_hint = 0.25) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  ggtitle("Distribution of Schmidt's locations of residence") +
  theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), hjust = 0))

## Coordinate system already present. Adding new coordinate system, which will replace the existing one

## Scale on map varies by more than 10%, scale bar may be inaccurate

```



```

locations_lived_1stperiod <- locations_lived %>%
  filter(moved_in >= 1914 & moved_in < 1938)
locations_itinerary_1stperiod <- locations_itinerary %>%
  filter(period == 1)

locations_lived_2ndperiod <- locations_lived %>%
  filter(moved_out >= 1940 & moved_out <= 1945 | location_original == "Cordingen")
locations_itinerary_2ndperiod <- locations_itinerary %>%
  filter(period == 2)

locations_lived_3rdperiod <- locations_lived %>%

```

```

filter(moved_out >= 1950 & moved_out <= 1979)
locations_itinerary_3rdperiod <- locations_itinerary %>%
  filter(period == 3)

xlim=c(3.5,17); ylim=c(47.5,60)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +
  geom_curve(data = locations_itinerary_1stperiod, aes(x = startlong, y = startlat, xend = endlong, yend = endlat), color = "black", size = 1) +
  geom_point(data = locations_lived_1stperiod, aes(x=long, y=lat), color = "black", size = 2) +
  geom_text_repel(data = locations_lived_1stperiod, aes(x=long, y=lat, label = location_original), size = 1, color = "black") +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  annotation_scale(location = "bl", width_hint = 0.25) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  ggtitle("Schmidt's itinerary from 1914 to 1938") +
  theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), color = "black"))

## Coordinate system already present. Adding new coordinate system, which will replace the existing one
## Scale on map varies by more than 10%, scale bar may be inaccurate

```

Schmidt's itinerary from 1914 to 1938



```

xlim=c(3.5,17); ylim=c(47.5,60)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +
  geom_curve(data = locations_itinerary_2ndperiod, aes(x=startlong, y=startlat, xend = endlong, yend =
  geom_point(data = locations_lived_2ndperiod, aes(x=long, y=lat), color = "black", size = 2) +
  geom_text_repel(data = locations_lived_2ndperiod, aes(x=long, y=lat, label = location_original), si
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  annotation_scale(location = "bl", width_hint = 0.25) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  ggttitle("Schmidt's itinerary from 1938 to 1945")
  
```

```

theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), ...))

## Coordinate system already present. Adding new coordinate system, which will replace the existing one
## Scale on map varies by more than 10%, scale bar may be inaccurate

```



```

xlim=c(3.5,17); ylim=c(47.5,60)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +

```

```
geom_curve(data = locations_itinerary_3rdperiod, aes(x = startlong, y = startlat, xend=endlong, yend=endlat), color = "black", size = 1) +
  geom_point(data = locations_lived_3rdperiod, aes(x=long, y=lat), color = "black", size = 2) +
  geom_text_repel(data = locations_lived_3rdperiod, aes(x=long, y=lat, label = location_original), size = 1, color = "black") +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  annotation_scale(location = "bl", width_hint = 0.25) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  ggtitle("Schmidt's itinerary from 1945 to 1979") +
  theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), color = "black"))

## Coordinate system already present. Adding new coordinate system, which will replace the existing one
## Scale on map varies by more than 10%, scale bar may be inaccurate
```

Schmidt's itinerary from 1945 to 1979



```
locations_lived_germ <- locations_lived %>%
  filter(country_current == "Germany")

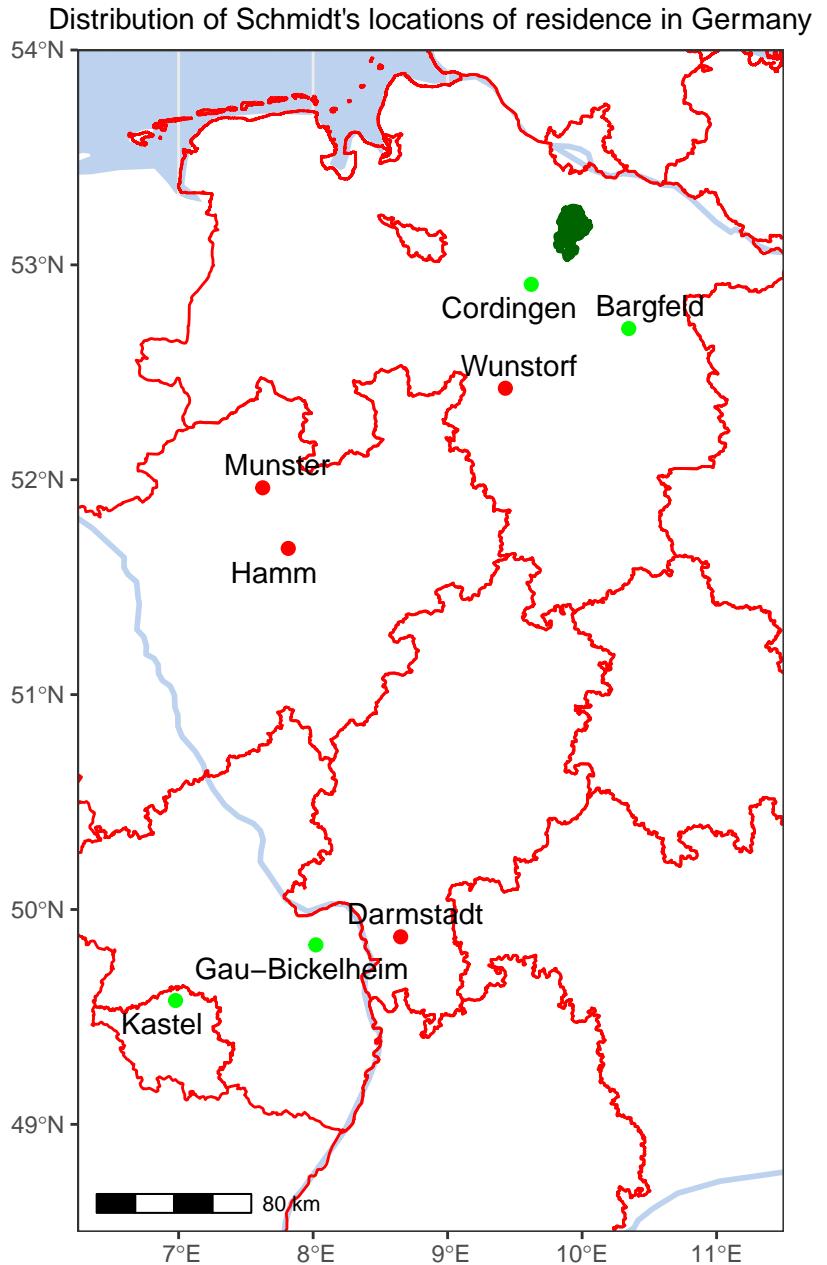
xlim=c(6.25,11.5); ylim=c(48.5,54)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +
  geom_path(data = bundesländer_f, aes(x = long, y = lat, group = group), color = "red", size = 0.5) +
  geom_polygon(data = lüneburg_f, aes(x = long, y = lat, group = group), color = "darkgreen", fill =
  geom_point(data = locations_lived_germ, aes(x=long, y=lat, color=category), size = 2) +
  scale_color_manual(name="Area", values = c("city"="red", "village"="green")) +
```

```

geom_text_repel(data = locations_lived_germ, aes(x=long, y=lat, label = location_original), size = 4)
coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
annotation_scale(location = "bl", width_hint = 0.25) +
ggtitle("Distribution of Schmidt's locations of residence in Germany") +
theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), h

```

Scale on map varies by more than 10%, scale bar may be inaccurate



```

locations_lived_leaflet <- locations_lived %>%
  mutate(popup = paste0(address, "<br> Arno Schmidt lived here from ", moved_in, " to ", moved_out))

locations_lived_leaflet_city <- locations_lived_leaflet %>%
  filter(category == "city")

locations_lived_leaflet_village <- locations_lived_leaflet %>%
  filter(category == "village")

locations_lived_leaflet_1stperiod <- locations_lived_leaflet %>%
  filter(moved_in >= 1914 & moved_in < 1938)

locations_lived_leaflet_2ndperiod <- locations_lived_leaflet %>%
  filter(moved_out >= 1940 & moved_out <= 1945)

locations_lived_leaflet_3rdperiod <- locations_lived_leaflet %>%
  filter(moved_out >= 1950 & moved_out <= 1979)

m <- leaflet() %>%
  addProviderTiles(providers$Stamen.Toner) %>%
  setView(lng = 11, lat = 52, zoom = 7) %>%
  addMarkers(data=locations_lived_leaflet_1stperiod, ~long, ~lat, popup=~popup, label=~location_original)
  addMarkers(data=locations_lived_leaflet_2ndperiod, ~long, ~lat, popup=~popup, label=~location_original)
  addMarkers(data=locations_lived_leaflet_3rdperiod, ~long, ~lat, popup=~popup, label=~location_original)
  addLayersControl(
    overlayGroups = c("1914-1938", "1938-1945", "1945-1979")) %>%
  hideGroup(c("1914-1938", "1938-1945", "1945-1979"))
#m

#saveWidget(m, 'map_locations_lived.html', selfcontained = FALSE)

locations_referenced_unique <- locations_referenced %>%
  select(-c(1, 11)) %>%
  distinct()

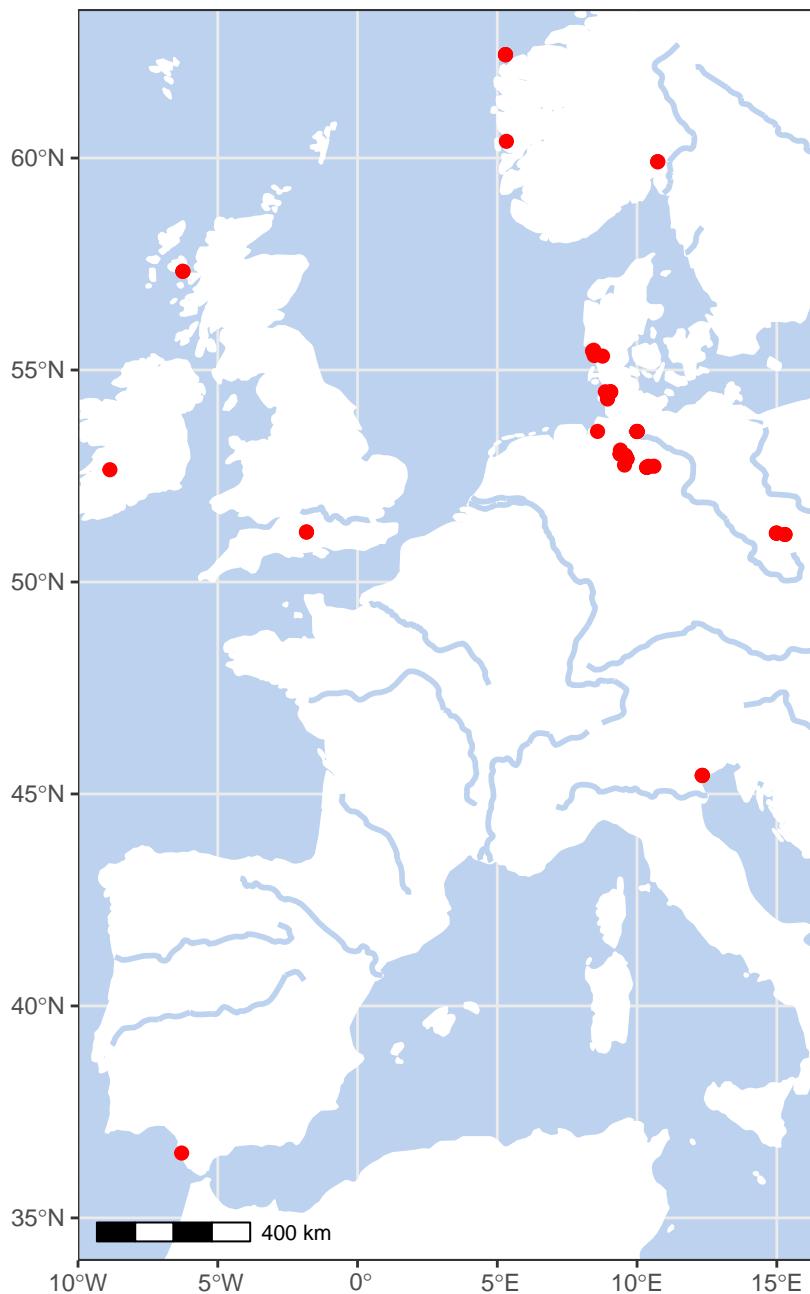
xlim=c(-10,16.5); ylim=c(34,63.5)
ggplot(data = world) +
  geom_sf(fill="white", color="white") +
  geom_path(data = rivers_f, aes(x = long, y = lat, group = group), color = waterColor, size = 1) +
  geom_point(data = locations_referenced_unique, aes(x=long, y=lat), color = "red", size = 2) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  annotation_scale(location = "bl", width_hint = 0.25) +
  coord_sf(xlim = xlim, ylim = ylim, expand = FALSE) +
  ggtitle("Distribution of Schmidt's referenced locations") +
  theme(panel.background = element_rect(fill = waterColor), plot.title = element_text(size = rel(1), vjust = 0))

## Coordinate system already present. Adding new coordinate system, which will replace the existing one

## Scale on map varies by more than 10%, scale bar may be inaccurate

```

Distribution of Schmidt's referenced locations



```

locations_referenced_joined <- locations_referenced_joined %>%
  mutate(popup = paste0(location_original, " is mentioned ", count_references, " times <br> <a href=",1,
  "locations_referenced_joined_ZT <- locations_referenced_joined %>%
  filter(title == "Zettel's Traum")

  locations_referenced_joined_AB <- locations_referenced_joined %>%
  filter(title == "Abend mit Goldrand")

  locations_referenced_joined_G <- locations_referenced_joined %>%
  filter(title == "Gadir oder erkenne dich")

```

```

locations_referenced_joined_B <- locations_referenced_joined %>%
  filter(title == "Brand's Haide")

locations_referenced_joined_S <- locations_referenced_joined %>%
  filter(title == "Schwarze Spiegel")

locations_referenced_joined_F <- locations_referenced_joined %>%
  filter(title == "Aus dem Leben eines Fauns")

locations_referenced_joined_H <- locations_referenced_joined %>%
  filter(title == "Das steinerne Herz")

locations_referenced_joined_K <- locations_referenced_joined %>%
  filter(title == "Kaff auch Mare Crisium")

locations_referenced_joined_W <- locations_referenced_joined %>%
  filter(title == "Windmuehlen")

locations_referenced_joined_KG <- locations_referenced_joined %>%
  filter(title == "Kundisches Geschirr")

locations_referenced_joined_P <- locations_referenced_joined %>%
  filter(title == "Piporakemes!")

locations_referenced_joined_WS <- locations_referenced_joined %>%
  filter(title == "Die Wasserstrasse")

locations_referenced_joined_U <- locations_referenced_joined %>%
  filter(title == "Die Umsiedler")

locations_referenced_joined_SA <- locations_referenced_joined %>%
  filter(title == "Die Schule der Atheisten")

m2 <- leaflet() %>%
  addProviderTiles(providers$Stamen.Toner) %>%
  addMarkers(data=locations_referenced_joined_ZT, ~long, ~lat, label=~location_original, popup=~popup, group = "Gadir oder erkenne dich (1949)", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_AB, ~long, ~lat, label=~location_original, popup=~popup, group = "Brand's Haide (1951)", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_G, ~long, ~lat, label=~location_original, popup=~popup, group = "Schwarze Spiegel (1951)", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_B, ~long, ~lat, label=~location_original, popup=~popup, group = "Aus dem Leben eines Fauns", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_S, ~long, ~lat, label=~location_original, popup=~popup, group = "Das steinerne Herz", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_F, ~long, ~lat, label=~location_original, popup=~popup, group = "Kaff auch Mare Crisium", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_H, ~long, ~lat, label=~location_original, popup=~popup, group = "Das steinerne Herz", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_K, ~long, ~lat, label=~location_original, popup=~popup, group = "Kaff auch Mare Crisium", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_W, ~long, ~lat, label=~location_original, popup=~popup, group = "Windmuehlen", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_KG, ~long, ~lat, label=~location_original, popup=~popup, group = "Kundisches Geschirr", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_P, ~long, ~lat, label=~location_original, popup=~popup, group = "Piporakemes!", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_WS, ~long, ~lat, label=~location_original, popup=~popup, group = "Die Wasserstrasse", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_U, ~long, ~lat, label=~location_original, popup=~popup, group = "Die Umsiedler", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))
  addMarkers(data=locations_referenced_joined_SA, ~long, ~lat, label=~location_original, popup=~popup, group = "Die Schule der Atheisten", overlayGroups = c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)"))

  hideGroup(c("Gadir oder erkenne dich (1949)", "Brand's Haide (1951)", "Schwarze Spiegel (1951)", "Aus dem Leben eines Fauns", "Das steinerne Herz", "Kaff auch Mare Crisium", "Windmuehlen", "Kundisches Geschirr", "Piporakemes!", "Die Wasserstrasse", "Die Umsiedler", "Die Schule der Atheisten"))

```

```
#m2  
  
#saveWidget(m2, 'map_locations_referenced.html', selfcontained = FALSE)
```