The Future: Web Maps

Will web maps take ~~over the world~~?

James Whitacre
GIS Specialist
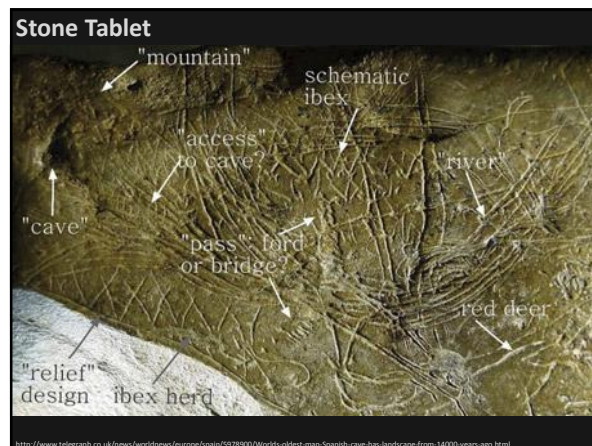University of Illinois, Main Library, Scholarly Commons

What are Web Maps…

- Any map you view on a web browser!
  - Static (i.e. one scale resembling print) OR
  - **Dynamic (i.e. multi-scale and pan-able or 'slippy')**

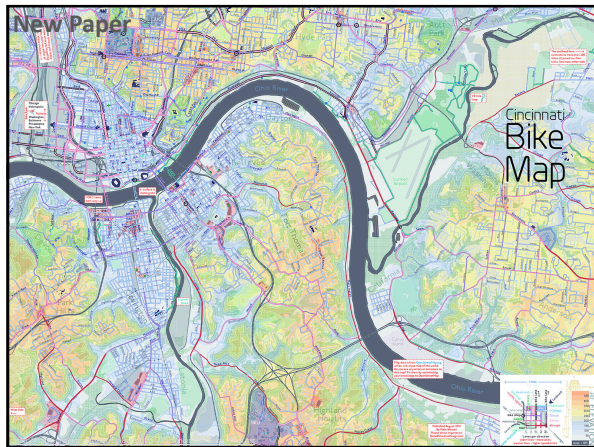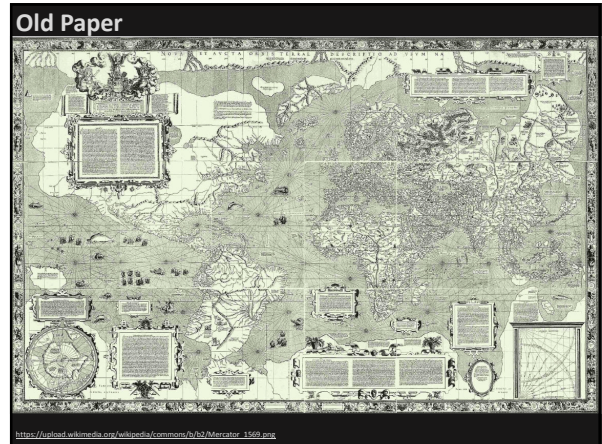- Require substantial GIS server technology and web programming to create

What are Web Maps…

- Often us GIS processing, such as routing, to let the user interact with the map

- Uses location-based technologies like GPS to help people navigate

- **Major** new trend in cartography

Where Did they Come From…

- Maps have been a normal part of human life for centuries…maybe forever!

- Maps have always been drawn or visualized on the latest technology available…

Cave Walls

http://www.utexas.edu/courses/classicalarch/images1/lion.jpg

Stone Tablet

"mountain"
schematic ibex
"access" to cave?
"river"
"cave"
"pass" ford or bridge?
red deer
"relief" design   ibex herd

http://www.telegraph.co.uk/news/worldnews/europe/spain/5978900/Worlds-oldest-map-Spanish-cave-has-landscape-from-14000-years-ago.html

Papyrus

Old Paper

New Paper

Cincinnati
Bike
Map

Shower Curtain

Where Did they Come From…

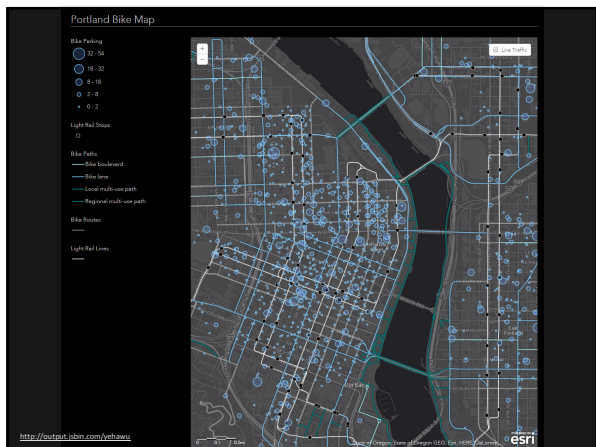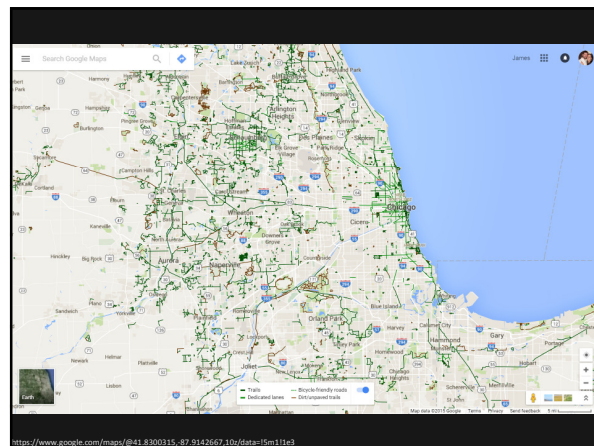- Maps have been a normal part of human life for centuries…maybe forever!

- Maps have always been drawn or visualized on the latest technology available…cave walls, stone tablets, papyrus, paper, shower curtains

- Maps on the web were a natural progression

Xerox PARC Map Viewer: world 0.00N 0.00E (1.0X)

Select a point on the map to zoom in (by 2), or select an option below. Please read About the Map Viewer, FAQ and Details. To find a U.S. location by name, see the Geographic Name Server.

Options:

- Zoom In: (2), (5), (10), (25); Zoom Out: (1/2), (1/5), (1/10), (1/25)
- Features: Default, All; +borders, +rivers
- Display: color; Projection: elliptical, rectangular, sinusoidal; Narrow, Square
- Change Database to USA only (more detail)
- Hide Map Image, Retrieve Map Image Only, No Zoom on Select,
- Place mark at (0.00N 0.00E), Reset All Options

1996 MapQuest formed

Portland Bike Map

Web Map Advantages

- Integrated into the web and apps
  One device? Many devices? Desktop? Mobile? It doesn't usually matter…web maps are integrated across all devices

- Maps easily and quickly respond to the user
  Many views, change views, north-up, face your direction
  Add a route, waypoint, find a place, find yourself!

Web Map Advantages

- Ask your map questions
  Where am I? Where is the coffee shop/bike rack/grandma's house? What is the closest fueling station and how much is gas/ice cream

- Navigate!
  Need turn by turn directions…your route is found for you!

- Where have I been?
  Use GPS to record and save activity and movement, including speed, direction, elevation, etc.

Bicycle data and Web Maps

- Bike friendly or specific routes, trails, roads

  Google added bike directions in 2010

- Bike Parking

Bicycle data and Web Maps

- Bike Share Programs and Repair Stations

- Difficult/Problem Biking Areas

- Elevation – to avoid hills!

  Interesting article: http://www.betterbybicycle.com/2014/09/how-accurate-are-google-maps-cycling.html

Good Bike Web Maps
...or at least decent maps

- **Google Maps Bicycle Layer**
  https://www.google.com/maps/@41.5267639,-89.1023656,9.04z/data=!5m1!1e3
  https://developers.google.com/maps/documentation/javascript/examples/layer-bicycling

- **Portland Bike Map**
  http://output.jsbin.com/yehawu

- **Melbourne Bike Grid**
  https://www.google.com/maps/d/u/0/viewer?mid=zkrlETnnrMC4.k01hIhWwUzFQ

- **Bikemap.net**
  http://www.bikemap.net/

Good Bike Apps
...or at least decent apps

- **MapMyRide**
  http://www.mapmyride.com/

- **Strava**
  https://www.strava.com/

- **BikeBrain** (I've never used this, but it looked cool...)
  https://itunes.apple.com/us/app/biologic-bikebrain-gps-bike/id424193629

- **Check this list out**
  http://road.cc/content/buyers-guide/158533-13-best-smartphone-cycling-apps-iphone-and-android

But I want to create my own Bike Web Map…

Creating Web Maps

- Do you know how to create websites?

- Do you know how to use GIS software?

- Do you know have access to web serves and GIS servers?

- Do you have all your bike infrastructure data collected? Routes, racks, etc.

Get Started Creating Web Maps

- **Esri ArcGIS Online**
  - http://www.arcgis.com/

- **MapBox**
  - https://www.mapbox.com/

- **CartoDB**
  - https://cartodb.com/

- **Mango Map**
  - https://mangomap.com/