

# MLTI Summer Institute 2015: The Art of Refraction




---

Ruben R. Puentedura, Ph.D.

## Session 2: *Connecting the Dots*

Primary 21C Lens: Cross-Disciplinary Knowledge & Synthesis  
Primary Toolset Focus: Visualization

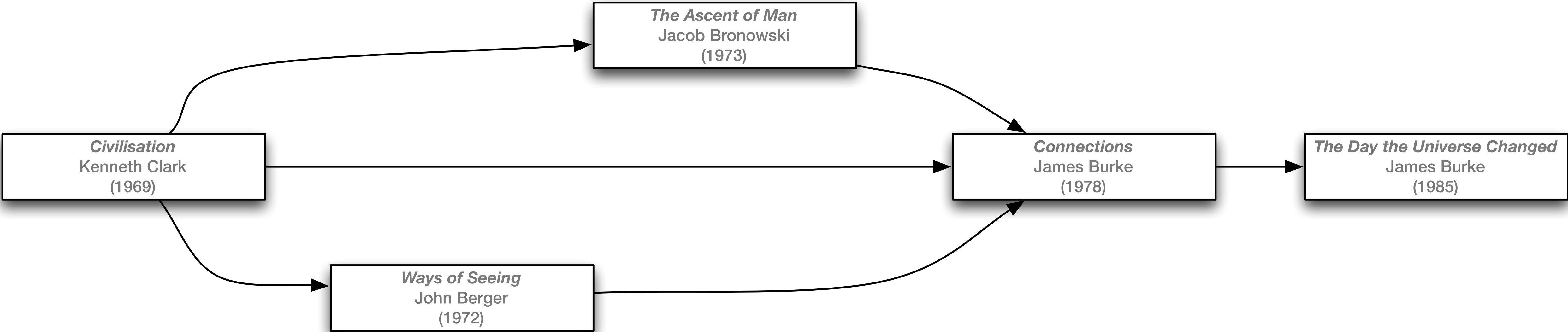


Social	Mobility	Visualization	Storytelling	Gaming
200,000 years	70,000 years	40,000 years	17,000 years	8,000 years
  				 













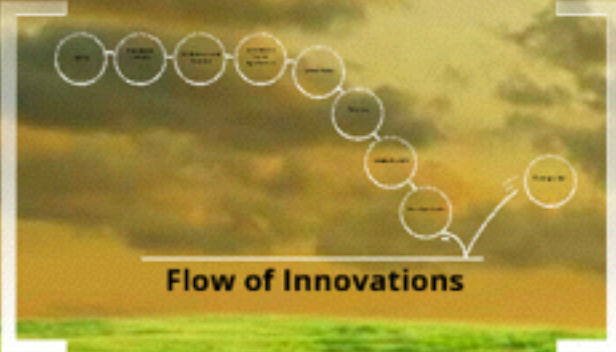


## CONNECTIONS - # 4 FAITH IN NUMBERS

## "The Road Ahead"

**Content**

Reviews  
Editorial Board  
Editorial Board  
Key points & questions

[illegible]

## CONCEPT MAP



## CRITICAL THINKING

- The solution to a problem can always be found from the lessons learnt in history, i.e Fall of Roman Empire
- Advancement is inevitable in life. Changing scenarios change the requirements and lead to evolution
- Evolution is never planned; its impossible to plan, indeed
- The history shows, technical development has been a game of musical chairs; its always about the right timing and the right problem- if you have it, you move further! An Example - The Romans (worn out cloth in abundance; hammers to make paper)
- The book boom - expanded knowledge; the internet boom- knowledge everywhere- These innovations were on the same line, just very different in scale





## James Burke Connections Episode 4

Science historian [James Burke](#)'s ten part series *Connections* traces the progression of technology from ancient to modern times. According to Burke, every invention comes from putting the right pieces of already available technology together to build something new. By tracing the history of technology through a series of "triggers," each one of which sets off the next, Burke demonstrates how technology is an interconnected web and how one seemingly unrelated innovation leads to another.

### Episode Overview

The fourth episode of *Connections* shows us how Europeans transitioned from the [Middle Ages](#) to the [Renaissance](#). When the Roman Empire fell, Western civilization was once again splintered; people were not sharing ideas or striving for knowledge as they once had. However, increased commercialism and international markets, which originated shortly before the onset of the [plague](#) and later flourished when survivors were made rich with inheritances, fueled international communication. The invention of the printing press eased the spread of knowledge to set off a revolution of innovation and chain of invention.

### Jump to Episode

1. [The Trigger Effect](#)
2. [Death in the Morning](#)
3. [Distant Voices](#)
4. [Faith in Numbers](#)
5. [The Wheel of Fortune](#)

### Fast Facts

Fact:	Written and presented by James Burke
Fact:	Directed by Mick Jackson
Episode length	50 minutes
Fact:	First aired in 1978
Network	<a href="#">BBC</a>
Fact:	Shot at over 150 locations in 19 countries <sup>1</sup>

### Recommended For You

[James Burke](#)





By [Marcin Wichary](#) via Wikimedia Commons

This modern model of the Analytical Engine is housed at the Science Museum in London.

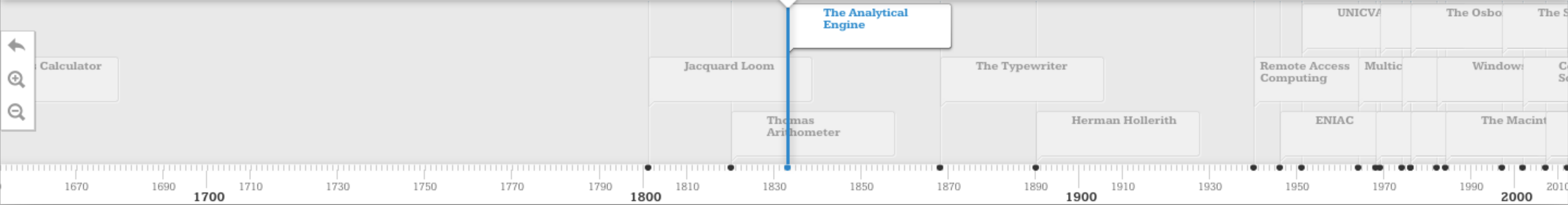
1833

# The Analytical Engine

Charles Babbage designed but was never able to produce a working model but it is significant in that it relied upon punched cards for data and programs and would employ a language similar to modern assembly language complete with loops and conditional branching (for the nerds out there).

1868

The Typewriter





StoryMap JSCreateGigapixelAdvancedExamplesHelp

Map OverviewBack To Beginning ↶

ates of  
ca

New Vienna

Lynchburg

Hillsboro

Leesburg

Greenfield

Frankfort

Bainbrid

Waverly

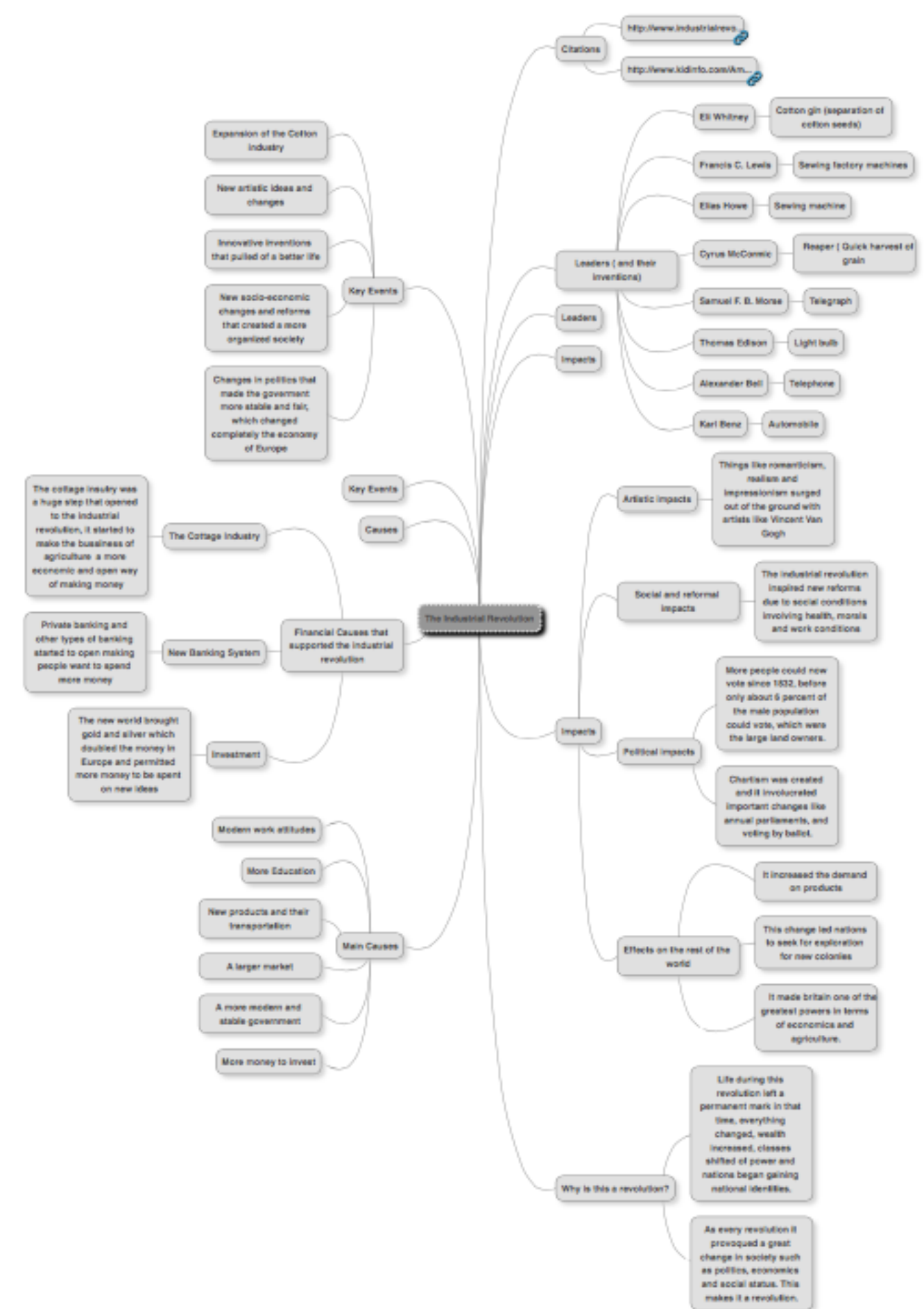
Pike

41st & 42nd Congress newly elected

# 1870: FINALLY COUNTING EVERYONE

This census was the first to record the names and other personal information of all African-Americans, including those who were formerly enslaved. In researching your African-American ancestors, moving backward from the present, the 1870 federal census may be the last census in which you are able to identify these ancestors by name. The 1870 census often even serves as a powerful tool in identifying former slave owners, a necessary step for anyone desiring to reclaim the heritage of their enslaved ancestors.





## Session 3: *A Picture Plus (a Few) Words Is Worth a Million Words*

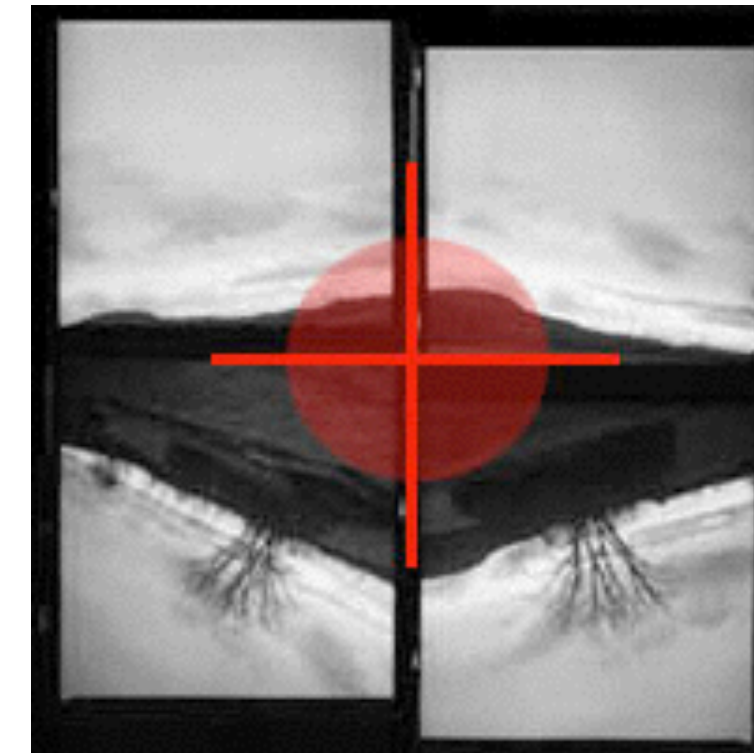
Primary 21C Lens: Life & Job Skills

Primary Toolset Focus: Digital Storytelling



# The Power of the Center(s)

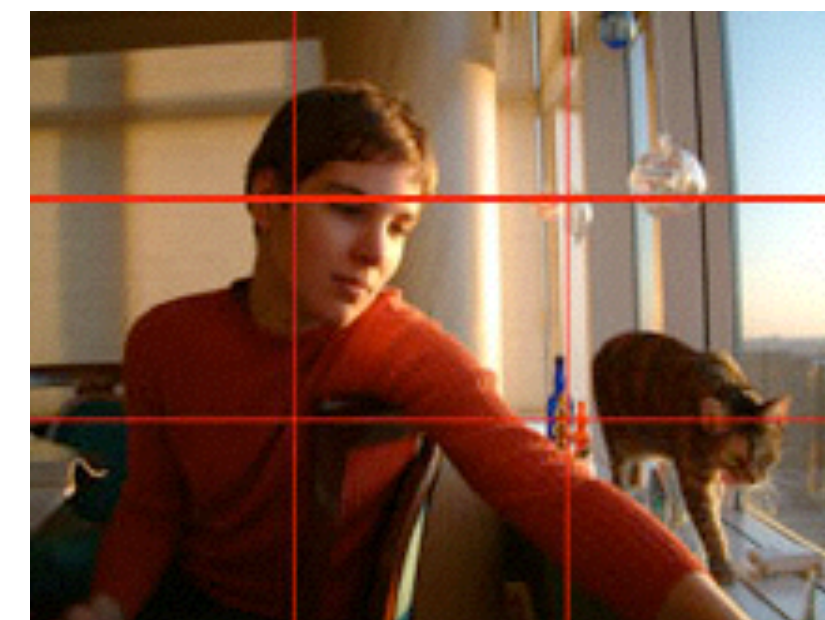
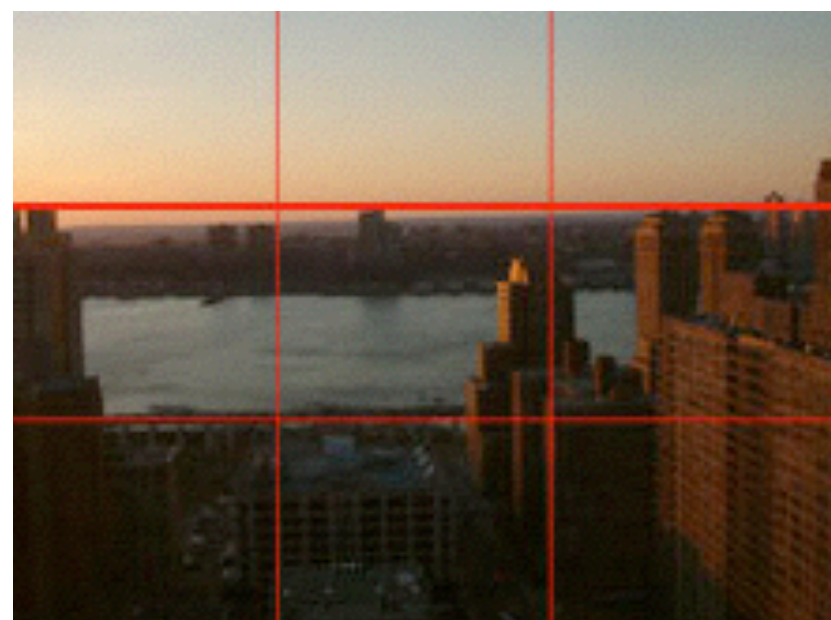
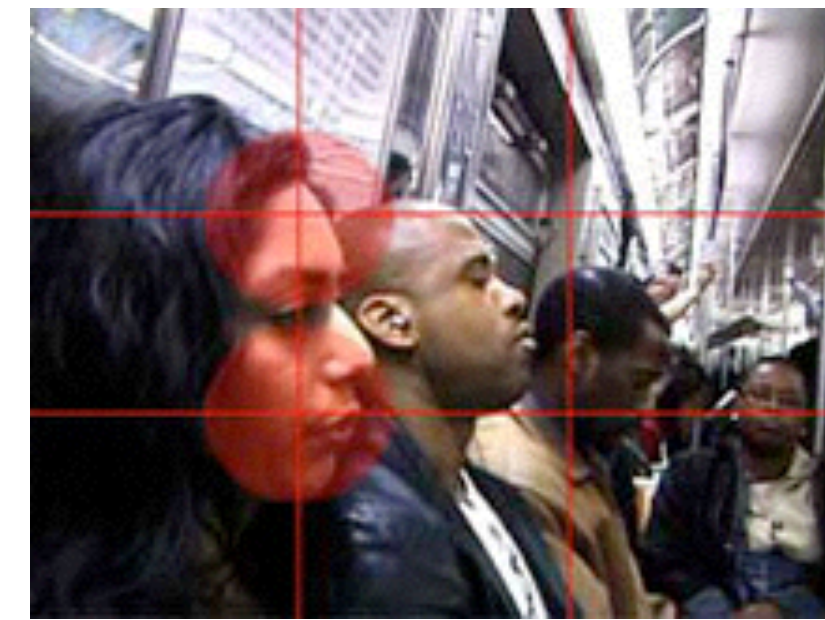
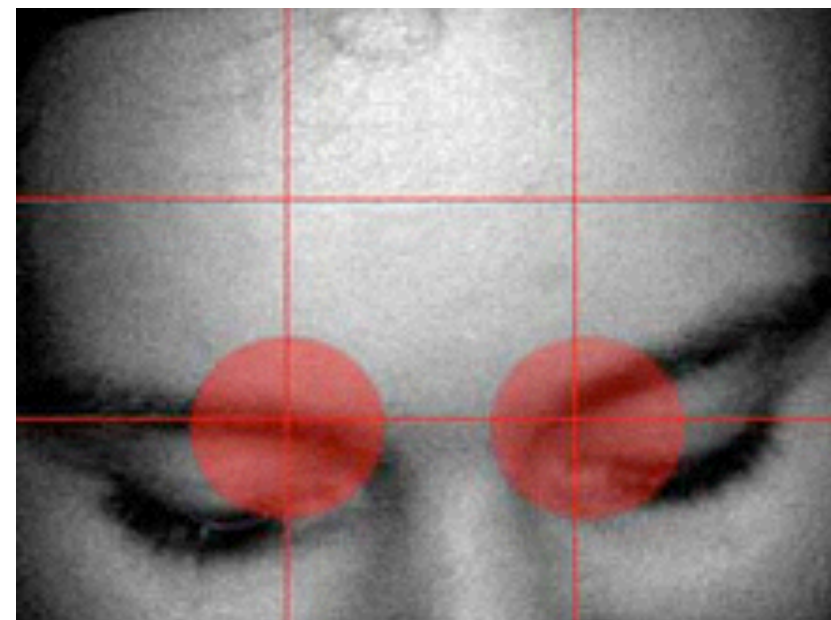
---





# The Rule of Thirds

---





# Lines of Direction

---





# Leading the Action

---





# Common Shots

---

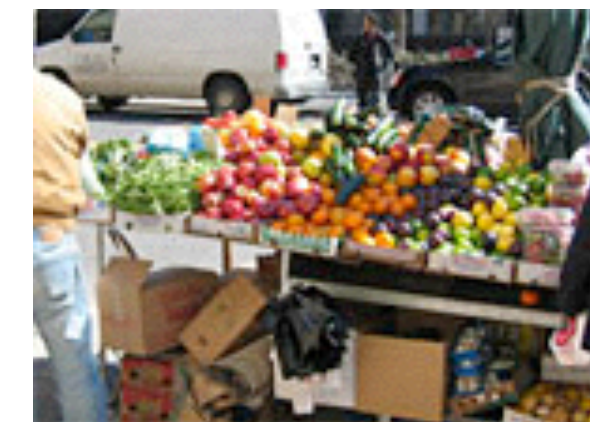
- Big Close-Up



- Close-Up



- Medium Shot



- Long Shot







Fotor



2048\*1536 / 0.63MB EXIF ▲

↶ Left ↷ Right + Zoom 🖼 Compare ↺ Reset All

Home

Mode:

Original

F / 22

F / 16

F / 8

F / 5.6

F / 4

F / 2.8

F / 2

F / 1.4

Scenes

Crop

Adjust

Effects

Borders

Tilt-Shift

Text

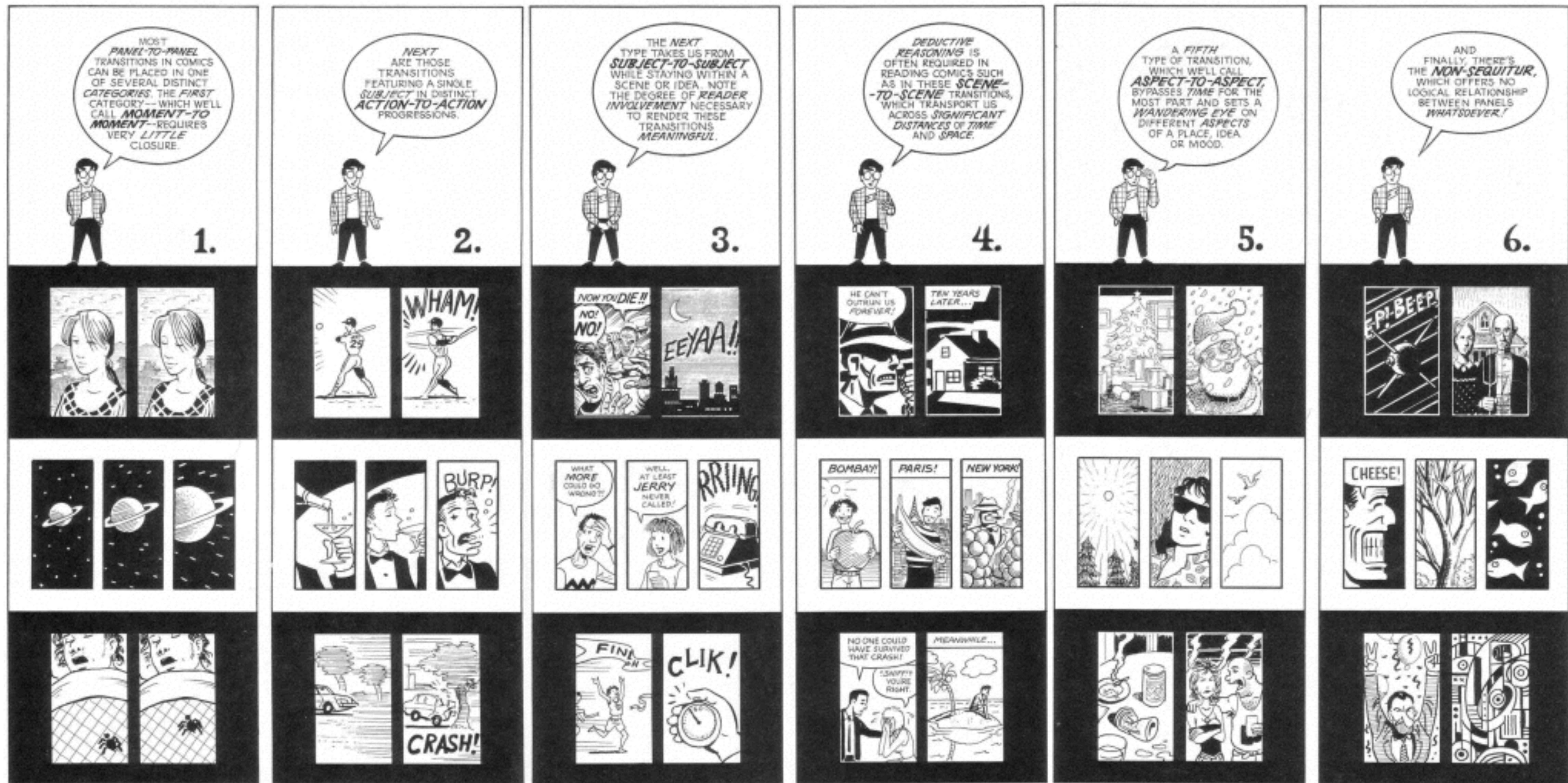
New

Export

Photographer's Summer Bundle

50%







# Let's Make



★ Featured



**Bandsaw blade storage box**  
by seamster in Tools



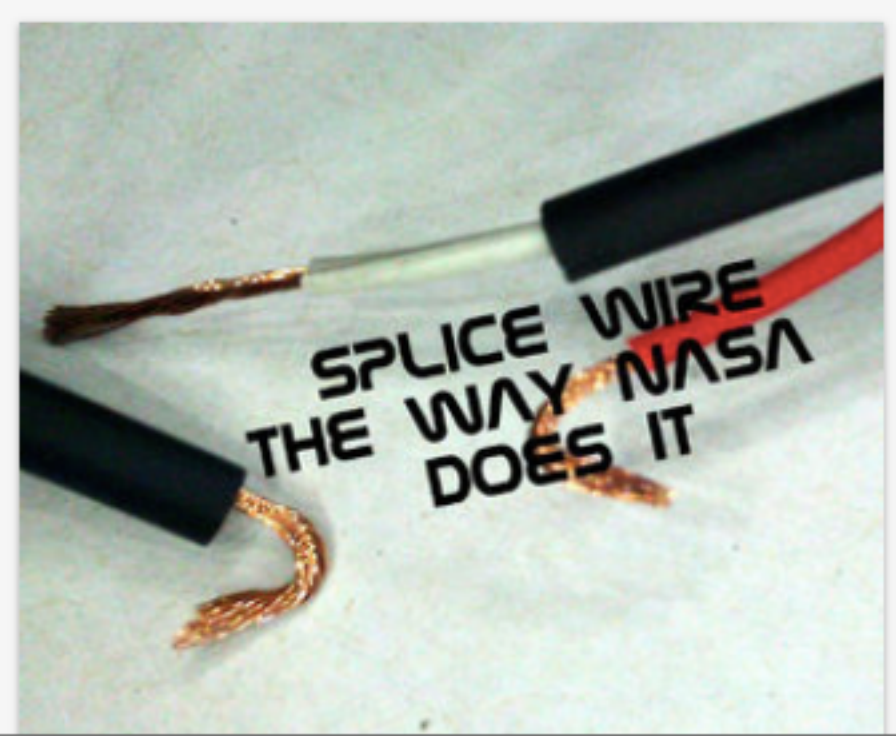
**Grilled Prawns**  
by Bhawya in BBQ & Grilling



**Making a Retro Organ Button Bracelet- The Organ Donor Pro...**  
by Chuck Stephens in Jewelry



**Crabbing Basics for Puget Sound**  
by lumpytrout in Fishing





# Hippasus

---



Blog: <http://hippasus.com/blog/>

Email: [rubenrp@hippasus.com](mailto:rubenrp@hippasus.com)

Twitter: @rubenrp

This work is licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 License.

