Throughout history, no singular shape has affected mankind in quite the ways in which the circle has. Its simplicity in shape has not only progressed possibly every modern invention in use today but also helped define countless theories and discoveries. The evolution from stone wheel to digital interfaces shows that circular design is highly adaptable, in large part due to its use throughout the natural world. As the world has evolved and inventions and discoveries were made, circular deign played a large role, in turn affecting social growth and population.

CIRCULARITY
ITS EFFECTS ON MATERIAL CULTURE +THE META PHYSICAL

10000 b.c.
5000 b.c.
1000 b.c.
500 b.c.
0
500 a.d.
1000 a.d.
1100
1200
1300
1400
1445
1500
1600
1700
1800
1850
1900
1925
1950
2000
2010

DISCOVERIES
QUOTES
INVENTIONS
THE INDUSTRIAL REVOLUTION

5000 b.c. - The earliest known **sundial** is found at the Knowth passage tomb in Ireland

3500 b.c. - The first **wheels** are formed from stone

3250 b.c. - Ancient Egyptians create **Sun Barges** to appease the Sun Gods Ra and Horus

3rd century b.c. - First mention of **football** in Chinese military training text (*Kickball*)

2nd century b.c. - The earliest known Chinese **metal coins** were discovered in a tomb near Xinyang

400 b.c. - Plato taught his students that **Earth was a sphere** - testifying that if man could soar high above the clouds, Earth would resemble a ball

Roman Empire: Lucian wore the radiate **crown** during cult of Sol Invictus

"The nature of God is a circle of which the center is everywhere and the circumference is nowhere."

-Empedocles (490 – 430 BC)

1088 a.d. - The Song Dynasty horologist and engineer Su Song invents the **astronomical clock-tower** of Kaifeng

1119 a.d. - The earliest recorded actual use of a **compass** via magnetized needle is found in Zhu Yu's book, *Pingzhou Table Talks*

13th Century - Functional **buttons** with buttonholes for fastening or closing clothing appeared first in Germany

1420 – Medieval paintings show the **draftes compass** used as a symbol of God's act of creation

13th century - Aztec Mythology believe Tonatiuh to be the **Sun God** leader of Heaven

1514 a.d. - Nicolaus Copernicus was the first to develop a mathematically predictive theory for a **heliocentric solar system**

"Human subtlety will never devise an invention more beautiful, more simple or more direct than does nature because in her inventions nothing is lacking, and nothing is superfluous."

Leonardo da Vinci (1452 - 1519)

"The wheel is come full circle."

-William Shakespeare (1564 - 1616)

"Printing, gunpowder and the compass: These three have changed the whole face and state of things throughout the world; the first in literature, the second in warfare, the third in navigation; whence have followed innumerable changes, in so much that no empire, no sect, no star seems to have exerted greater power and influence in human affairs than these mechanical discoveries."

- Francis Bacon (1561 - 1626)

"The Sun, with all the planets revolving around it, and depending on it, can still ripen a bunch of grapes as though it had nothing else in the Universe to do."

-Galileo Galili (1564 - 1642)

1543 a.d. - Publication of **Nicolaus Copernicus**' book *De revolutionibus orbium coelestium* (*On the Revolutions of the Celestial Spheres*) which proposed the **heliocentric solar system**

1584 - Isaac Newton coined the term **centripetal force** in his discussions of gravity in De Motu Corpzrum

1637 - Descartes is first to give a complete explanation for the appearance of **rainbows**

17th Century - the first telescopic astronomical observations performed by Galileo Galilei, who proposed the the **planets revolved around the sun**

1608 a.d. - The earliest evidence of working **telescopes** were the refracting telescopes that appeared in the Netherlands

17th century - Advancements in engineering led to **cannonballs** made of iron

1803 a.d. - John Dalton develops the first theory of **atomic structure**

1800 a.d. - the modern development of **batteries**, invented by the Italian physicist Alessandro Volta

1827 a.d. - Austrian-Czech constructor Josef Ressel had invented a screw **propeller** which had multiple blades fastened around a conical base

1826 a.d. - The first permanent images produced by Fox Talbot were created with a double convex **photographic lens**

1829 – Dalcrque, a French officer, invented the first spherical **bullet**

1845 a.d. - In England the engineer William Stanley developed the first **steel-period spider wheel**

1845 a.d. - Robert William Thomson invented and patented the pneumatic **bicycle tire**

1885 a.d. - John H. Mauren invents the **mason jar**

1878 a.d. - Thomas Edison had his first patent application for "improvements" in **Electric Lights** that year

1878 a.d. - Patent for what was to become the modern day **doorbell** was issued to Osbourn Dorsey

1876 a.d. - Johann Philipp Reis instilled an electric **loudspeaker** in his telephone

1894 a.d. - Alfred Vischer patented the first **sewing wheel** for a treadle style model

1890 a.d. - Tolbert Lanston's Monotype Corporation became the first **record** player

1878 a.d. - The first **Laserdisc** title marketed in North America was the release of Jaws 2

2001 a.d. - Apple Inc. introduces the iPod and the revolutionary **iPod click wheel**

1948 a.d. - Michelin introduced the **radial tire**

1963 a.d. - The first modern **trampoline** was built by George Nissen

1939 a.d. - The world's first **turboprop** was the Aerovodochody Cs-1 designed by mechanical engineer György Jendrassik

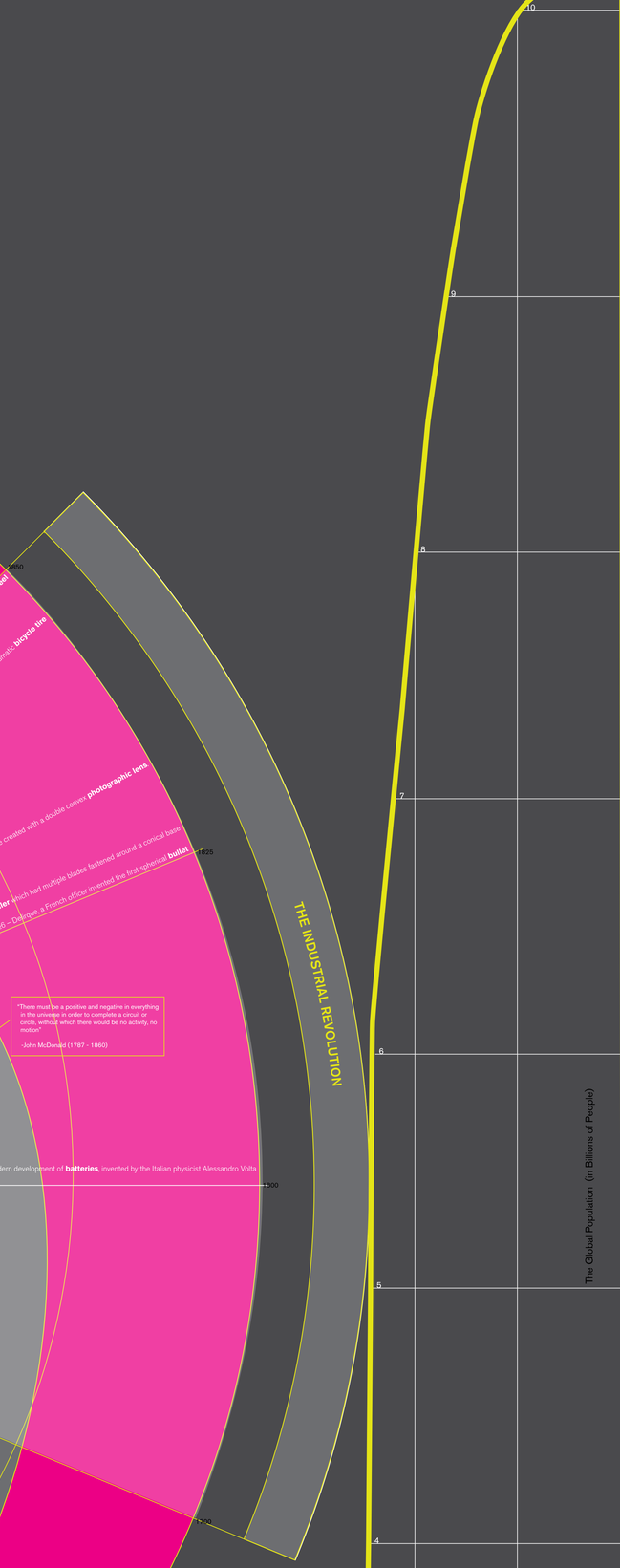
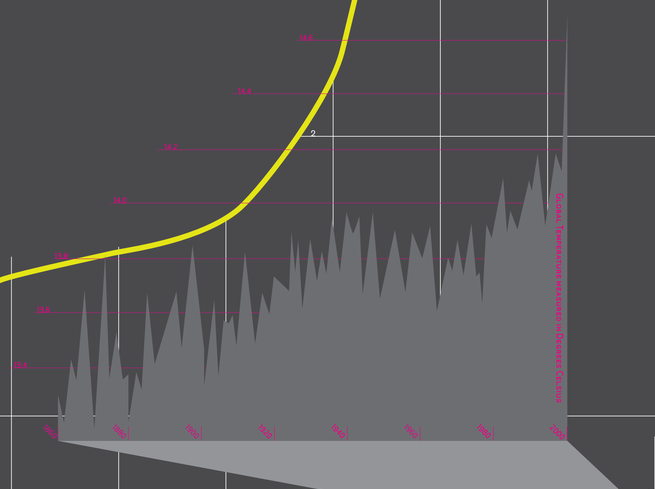
1890 a.d. - Very versatile **hairphones** started to commonly used for early radio work

"Look deep into nature, and then you will understand everything better."

-Albert Einstein (1878 - 1955)

"Make everything as simple as possible, but not simpler."

-Albert Einstein (1878 - 1955)

"There must be a positive and negative in everything in the universe in order to complete a circuit or circle, without which there would be no activity, no motion"

-John McDonald (1797 - 1860)