A VIEW FROM THE INTERSECTION OF ART AND TECHNOLOGY

View From the Intersection of Art and Technology

I. My Journey
II. The Art of Technology
III. The Technology of Art
IV. Technology in Support of Art
V. Where Do We Go From Here?

I. My Journey

(The Early Years)

- Talent recognized early – Humane Society Poster

My Journey

(The Early Years)

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- Original oils by 6th grade

My Journey

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- Saturday classes - Carnegie Institute - 8th grade

My Journey

(The Early Years)

- Talent recognized early – Humane Society Poster
- Original oils by 6th grade
- Saturday classes - Carnegie Institute - 8th grade
- High School – Arbitrary nature of Art revealed.

  -Sophomore -Yearbook Cover

  -

Decision Time !!!

What do you want to be when you grow up???

Artist ? No?
“Lots of people can draw” “The starving Artist”
Parental support gave way to the need for security from children of the depression.

Then what?
Chemistry
Chemical Engineer

My Journey

(The Early Years)

- Talent recognized early – Humane Society Poster
- Original oils by 6th grade
- Saturday classes - Carnegie Institute - 8th grade
- High School – Arbitrary nature of Art revealed.

  -Sophomore -Yearbook Cover

  -Senior - 1st place in Chemistry - Jr. Academy of Science regional and state finals.

My Journey

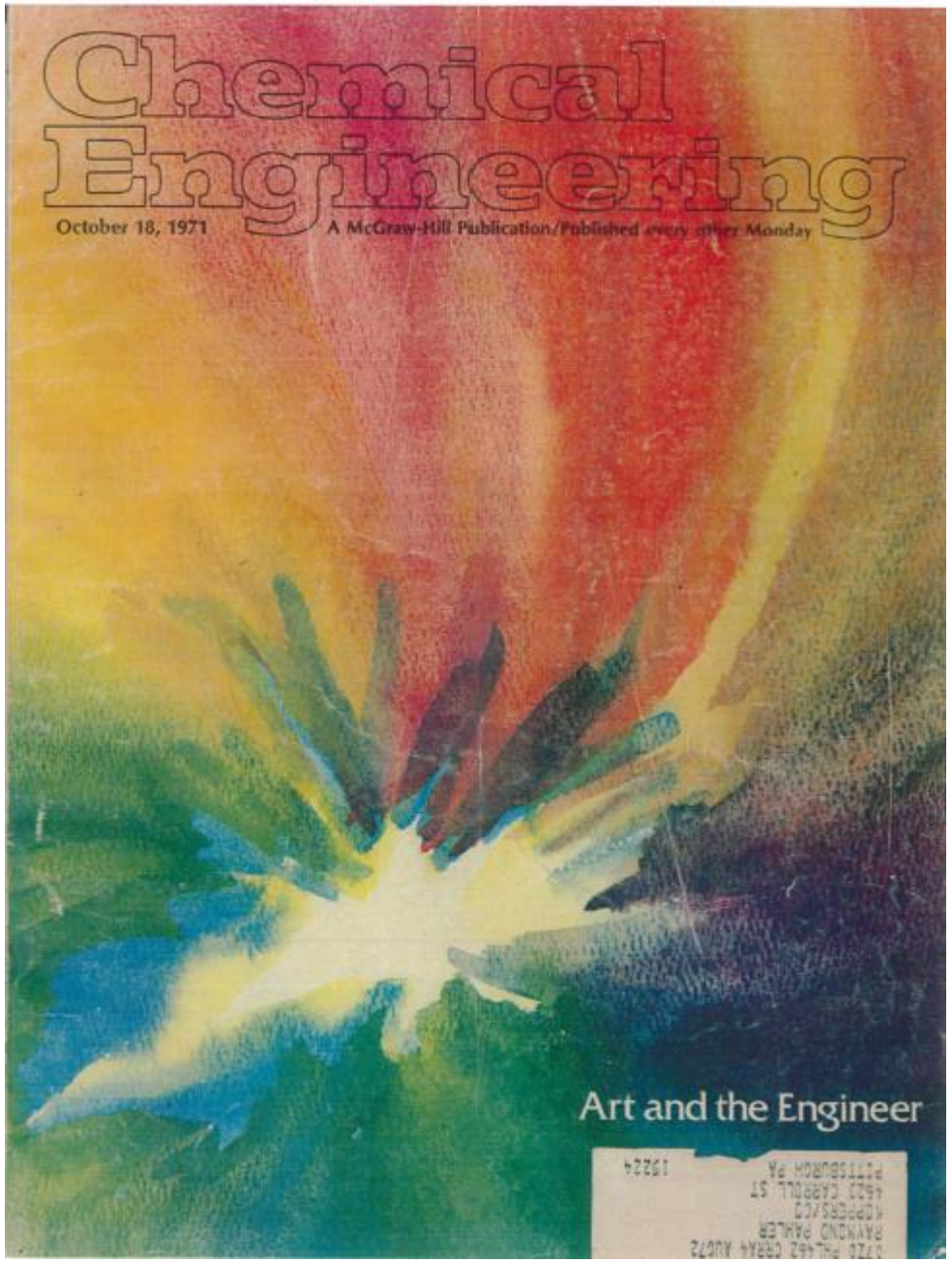
(Higher Education)

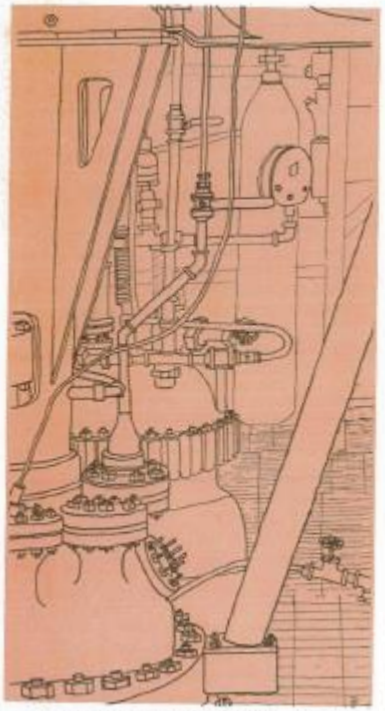
- Pitt – majored in Chem E and minored in Art. Studied sculpture with Virgil Cantini.

My Journey

(Higher Education)

- Pitt – majored in Chem E and minored in Art. Studied sculpture with Virgil Cantini.
- Went to work for Koppers Co. Began a career in “Plastics”
- Wrote article for Chemical Engineering Magazine “Art and the Engineer”





FREEHAND sketch of process equipment—Fig. 1

Process Equipment –
Graphite on Paper

Relationship of art with Technology –
steel, string, wood

ABSTRACT: relationship of art with technology—Fig. 3

Reaction of Propionaldehyde and Sodium Hydroxide to form Beta Hydroxy, Alpha Methyl Valeraldehyde - Watercolor

My Journey

(Higher Education)

- Pitt – majored in Chem E and minored in Art. Studied sculpture with Virgil Cantini.
- Went to work for Koppers Co. Wrote article for Chemical Engineering Magazine “Art and the Engineer”
- Joined US Navy- sold paintings for extra $

  - Went to ODU for Master of Engineering in Mechanical Engineering. Student by day, Sailor at night.

  - Got married.

  - Had twins

My Journey

The Engineer - Artist

- Koppers - Arco Polymers – Pittsburgh
- Third Child

My Journey

The Engineer - Artist

- Koppers - Arco Polymers - Pittsburgh
- GE Plastics – Mt. Vernon, IN
  - BOD Evansville Artists Guild
  - Started Gallery
  - Began doing prints B/W

B/W Prints

James Geddy House and
Silversmith Shop-Williamsburg VA
Graphite – R. H. Pahler

Peyton Randolph Lodging –
Williamsburg VA
Pen & Ink – R. H. Pahler

My Journey

The Engineer - Artist

- Koppers - Arco Polymers - Pittsburgh
- GE Plastics – Mt. Vernon, IN

  - BOD Evansville Artists Guild
  - Started Gallery
  - Began doing prints B/W then color

Color Prints

Morning Carriage Ride – Williamsburg VA – color print – R. H. Pahler

My Journey

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- GE Plastics – Mt. Vernon, IN

  - BOD Evansville Artists Guild
  - Started Gallery
  - Began doing prints B/W then color
  - Studied Watercolor with Jerry Baum at ISUE

Watercolors

Brittany Landscape – R. H. Pahler - Watercolor

My Journey

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  - Started Gallery
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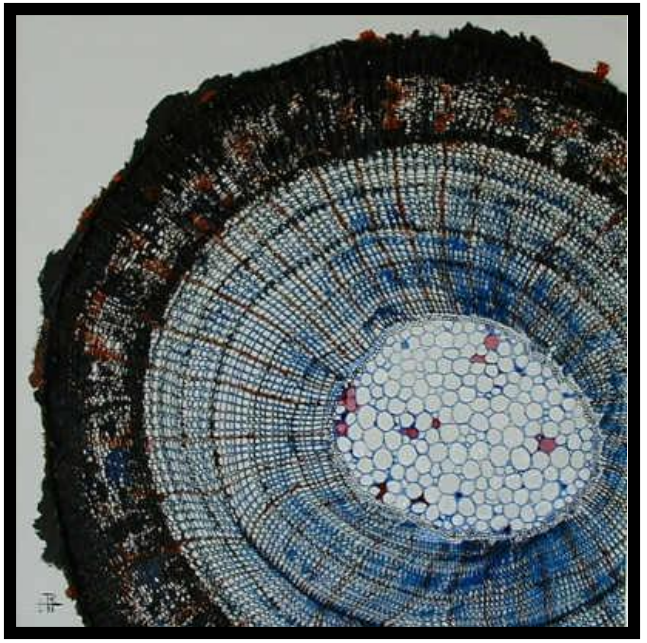
  - Studied Watercolor with Jerry Baum at ISUE
  - Engineer by day – Artist at night / weekends.
  - Began TechArt series

TechArt

Cell 01 – R. H. Pahler - mixed media



Twig Cross Section – R. H. Pahler –mixed media

My Journey

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  - Started Gallery
  - Began doing prints B/W then color
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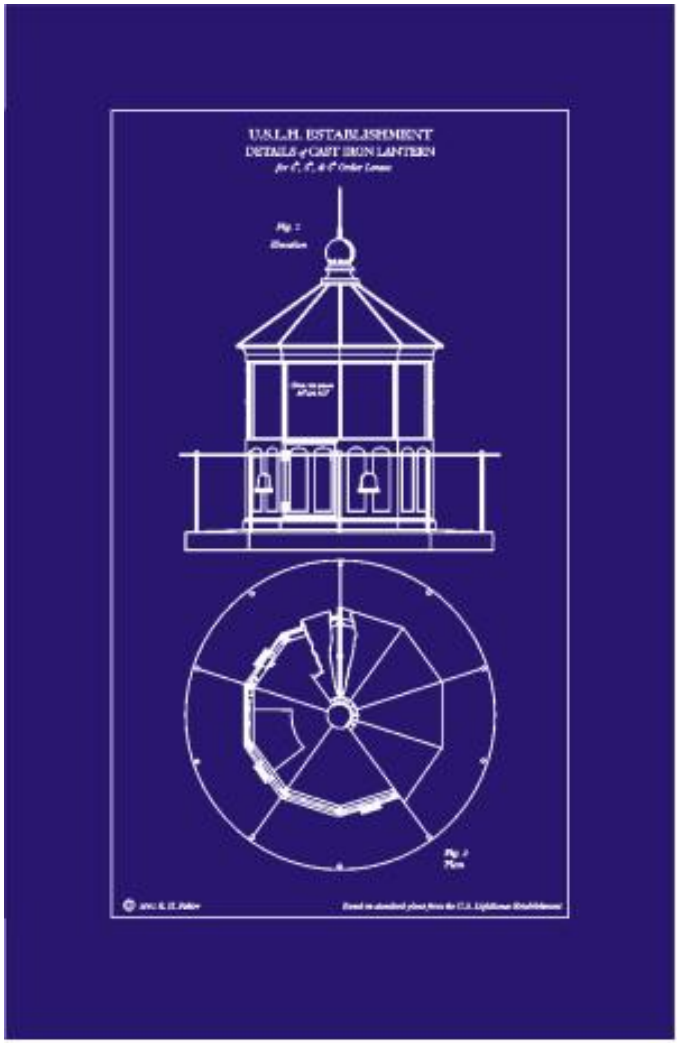
  - Engineer by day – Artist at night / weekends.
  - Began TechArt series
- Career Focus – Wood Working – Computer Art

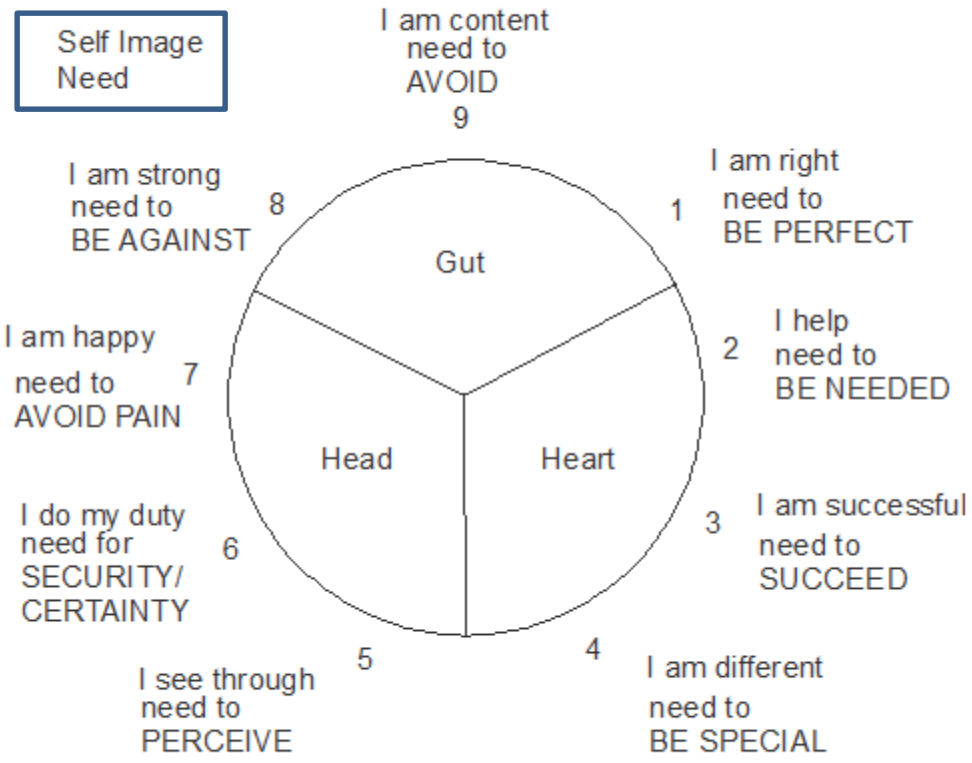
Computer Art



Cast Iron Lantern Detail – R.H. Pahler
Computer Print

How Can Art and Technology be such big parts of the same person?

The Enneagram



From: Discovering the Enneagram by Richard Rohr - 1991

The Enneagram

TYPE	SELF-IMAGE	AVOIDANCE	TEMPTATION
ONE	I AM RIGHT	VEXATION	PERFECTION
TWO	I HELP	SUPPRESSING NEEDS	HELPING OTHERS
THREE	I AM SUCCESSFUL	FAILURE	EFFICIENCY
FOUR	I AM DIFFERENT	ORDINARINESS	AUTHENTICITY
FIVE	I SEE THROUGH	EMPTINESS	KNOWLEDGE
SIX	I DO MY DUTY	DOUBT	SECURITY
SEVEN	I AM HAPPY	PAIN	IDEALISM
EIGHT	I AM STRONG	WEAKNESS - SUBORDINATION	JUSTICE
NINE	I AM CONTENT	CONFLICT	SELF-DEPRECATION

From: Discovering the Enneagram by Richard Rohr - 1991

The Enneagram

With wing NINE Intolerant Impersonal Just	ONE Unredeemed Normal Redeemed	With wing TWO Hypocritical Controlling Compassionate
With wing ONE Judgmental Ambitious Encouraging	TWO Unredeemed Normal Redeemed	With wing THREE Calculating Adapted Friendly
With wing TWO Malicious Attractive Sensitive	THREE Unredeemed Normal Redeemed	With wing FOUR Arrogant Pretentious Intuitive
With wing THREE Manic Addicted to success Winning	FOUR Unredeemed Normal Redeemed	With wing FIVE ******** Enigmatical Creative
With wing FOUR Hopeless Delicate Inspired	FIVE Unredeemed Normal Redeemed	With wing SIX Distrustful Blocked Diligent
With wing FIVE Arrogant Lawful Expert	SIX Unredeemed Normal Redeemed	With wing SEVEN Panicky Morose Warm-hearted
With wing SIX Addicted to acknowledgment Defensive Happy	SEVEN Unredeemed Normal Redeemed	With wing EIGHT Greedy ******** Capable of leadership
With wing SEVEN Explosive Enterprising Magnanimous	EIGHT Unredeemed Normal Redeemed	With wing NINE Cold-blooded Softly dominating Kind
With wing EIGHT Vindictive Sensual Soft and strong	NINE Unredeemed Normal Redeemed	With wing ONE Arbitrary Self-contented Pure

Figure 18: The Wings

From: Discovering the Enneagram by Richard Rohr - 1991

The Enneagram

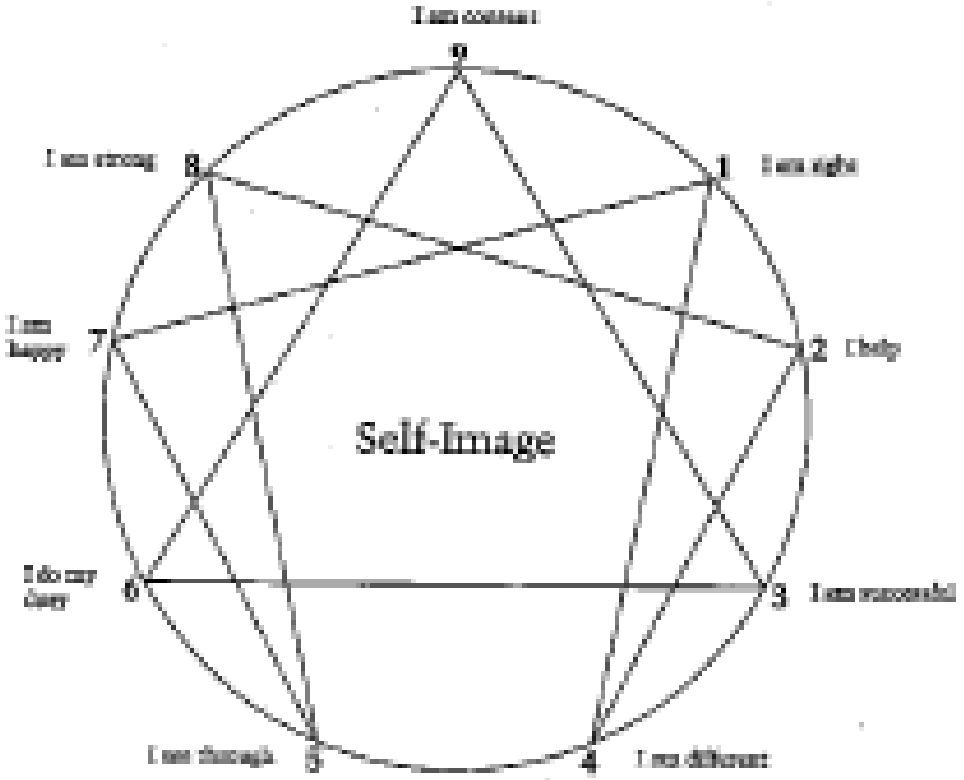


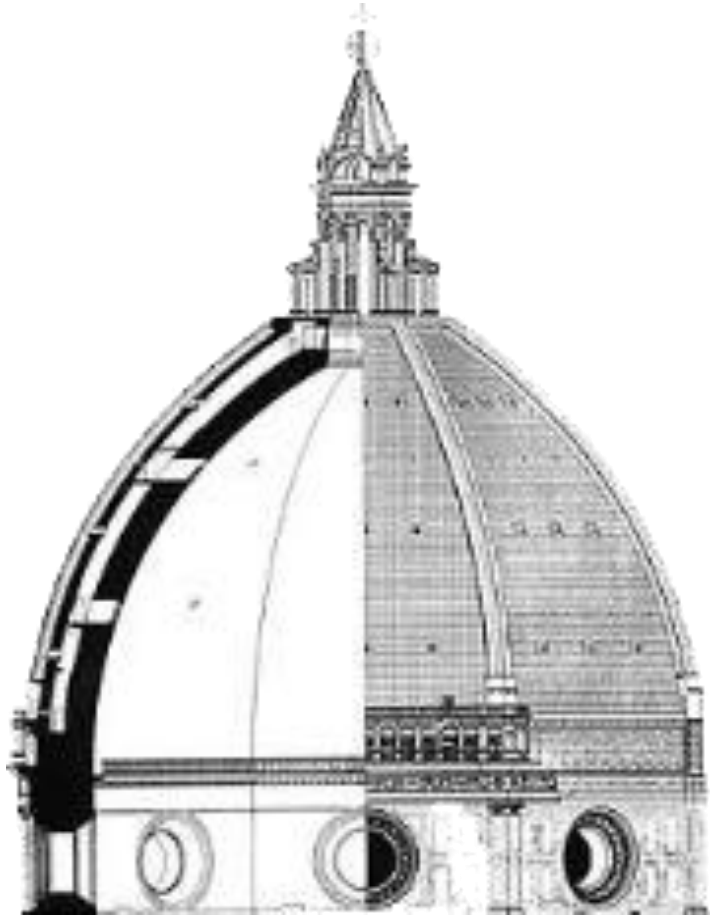
Figure 11: Self-Image

From: Discovering the Enneagram by Richard Rohr - 1991

Before there was Engineering…

Factoid: the oldest engineering school in the world is in France. It started as the French Corps of Bridges & Roads in 1716 and in 1747 became ERPC and in 1775 became known as ENPC and is still teaching some 1100 engineers per year.

Brunelleschi's Dome



The Dome of Santa Maria del Fiore

Free standing dome spanning 143'6"

Starting at 170' and going up from there

Fillipo Brunelleschi
Goldsmith, Clockmaker

Many people who are 5's with 4 wings

Brunelleschi

Leonardo

and the list goes on.

Art, like beauty, is in the eye of the beholder.
There are no absolutes in Art.

II. The Art of Technology

- **ART**

  - visual arts

  - two, three or more dimensions

  - art made from materials

  - Drawing, Painting, Sculpture, Photography, Fine Art, Commercial Art, Decorative Art, etc.

The Art of Technology

- **Technology**- the making, modification, usage, and knowledge of tools, machines, techniques, crafts, systems, and methods of organization, in order to solve a problem, improve a pre-existing solution to a problem, or achieve a goal or perform a specific function.
- *Techne* – Art, Skill, Craft, and *–logia*- study of

Architectural Renderings

Posey County Courthouse – R.H. Pahler
Pen & Ink on Vellum

Architectural Renderings

Mt. Carmel, IL Depot (1905) – R.H. Pahler
Graphite on Illustration board

Structural Drawings

Solitude, IN – R.H. Pahler – Pen and Ink on vellum

Industrial Landscape

Sand & Gravel Pit – Paducah, KY- R.H. Pahler - Watercolor

Industrial Landscape

GE Phenol Plant Sunset – Mt. Vernon, IN – R.H. Pahler
Oil on Panel

Industrial Landscape

Agnes Mae at Uniontown Locks and Dam, IN
- R. H. Pahler – Graphite on Illustration Board

Process

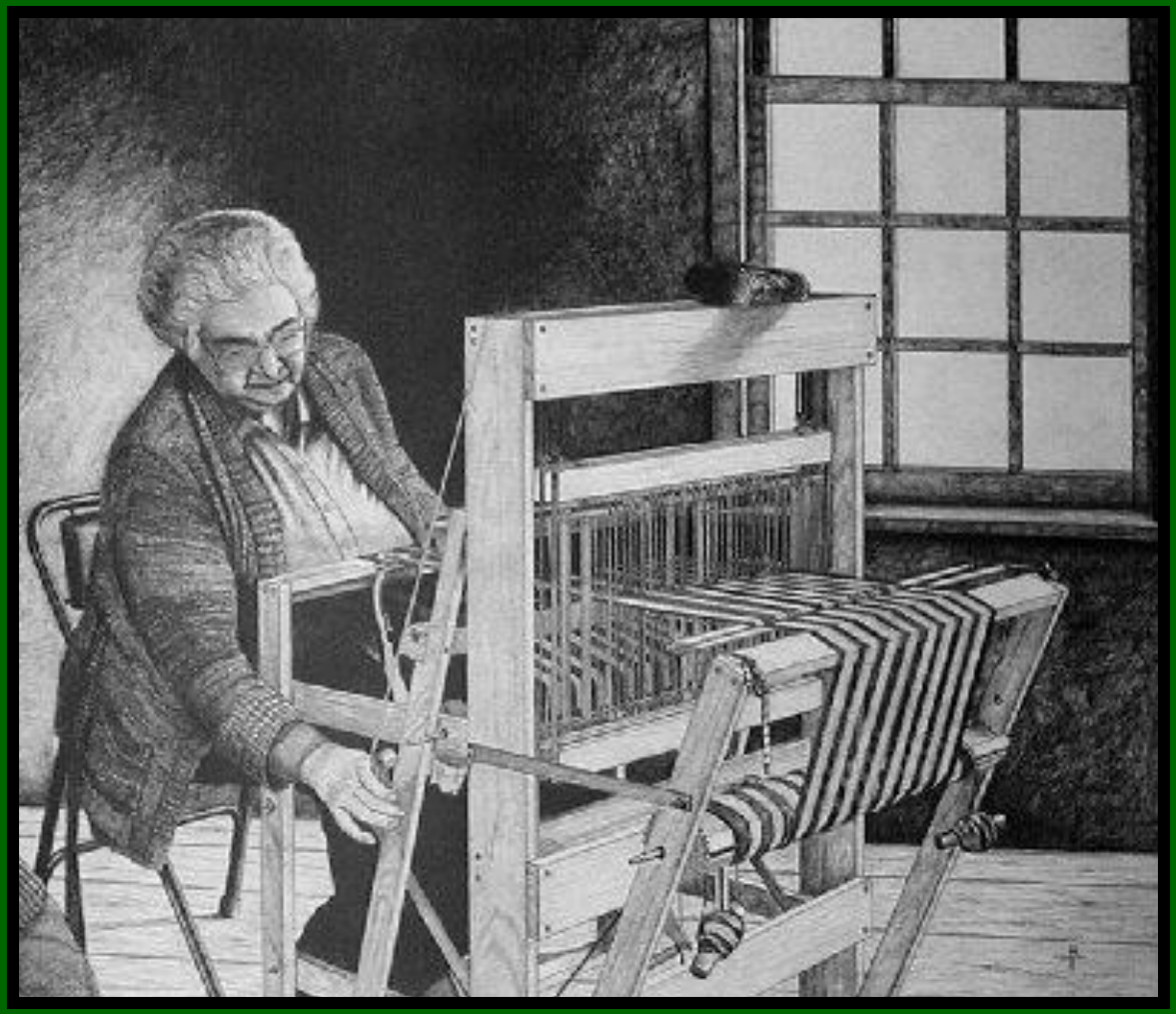
Blacksmith Apprentice – Williamsburg, VA - R. H. Pahler
Watercolor

Steel Manufacturing Process

The Pour – R.H. Pahler - Watercolor

Making Steel – R. H. Pahler - Watercolor

Process

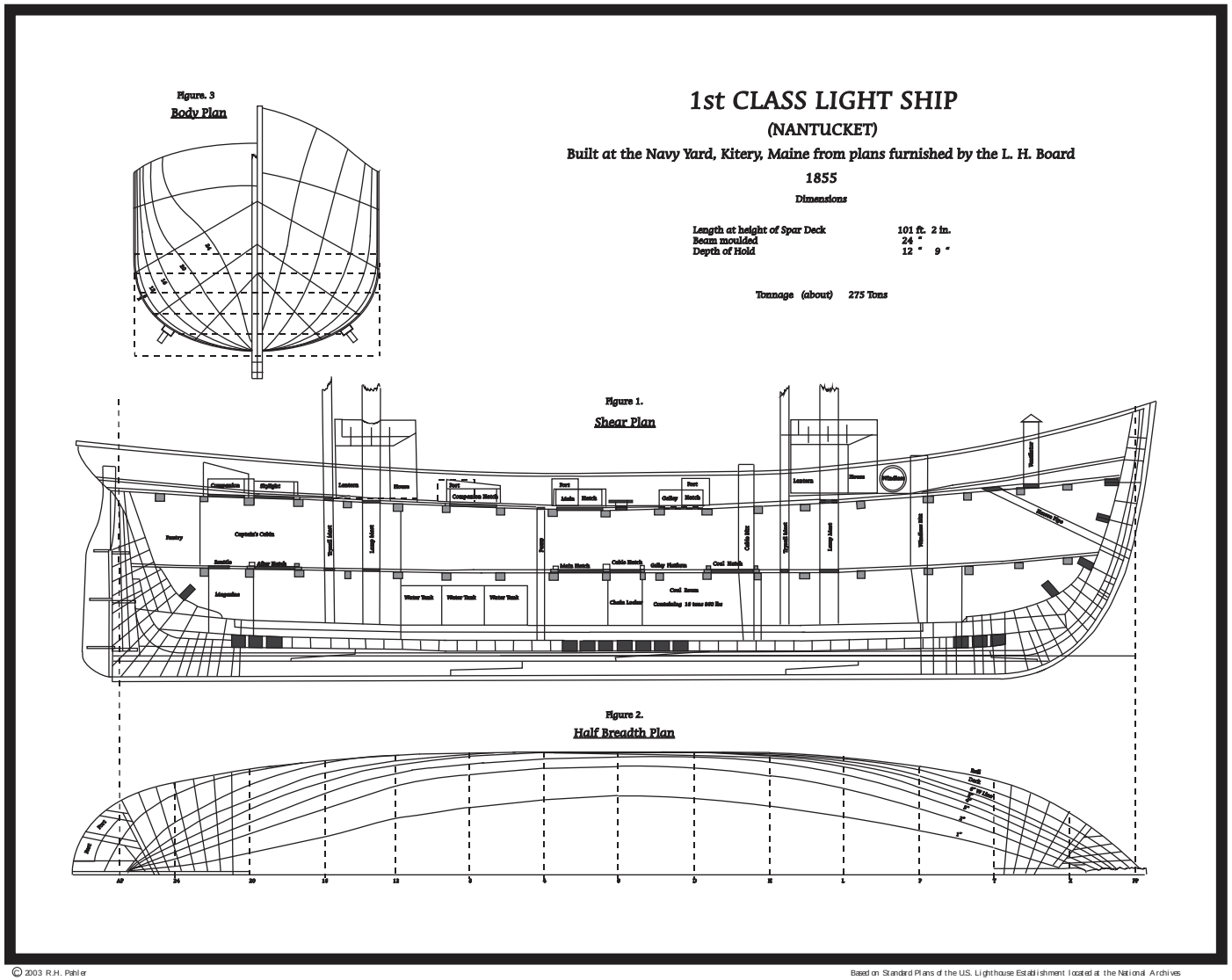


The Weaver – R. H. Pahler – Graphite on Illustration Board

Botanical Illustration

Thistle – R. H. Pahler - Graphite

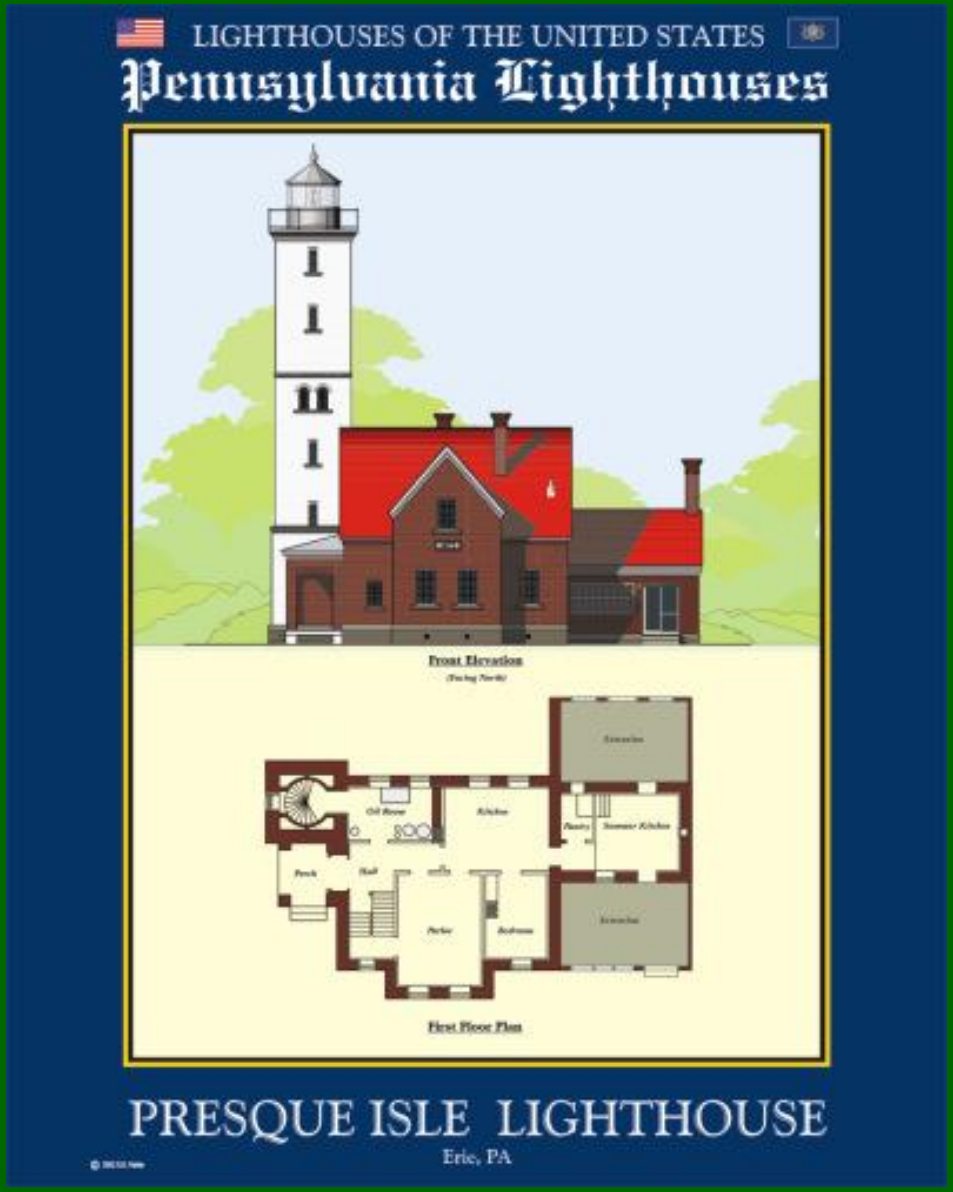
Engineering Drawing



Based on Standard Plans of the U.S. Lighthouse Establishment located at the National Archives

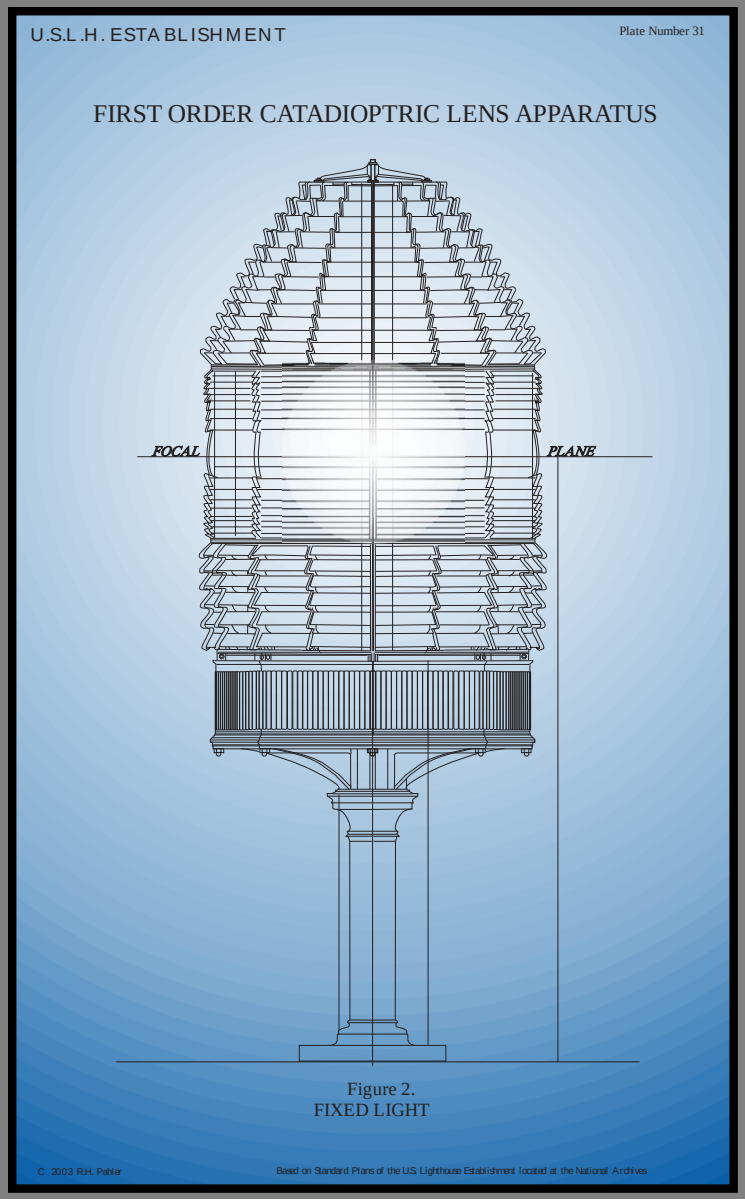
Nantucket – R. H. Pahler - Computer Print

Engineering Drawing

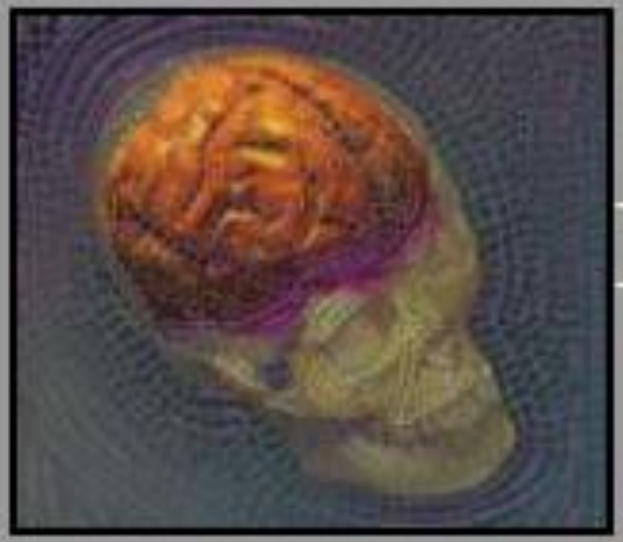


Presque Isle Lighthouse – R. H. Pahler – Computer Print

Engineering Drawing



First Order Catadioptric Lens Apparatus – R. H. Pahler – Computer Print



Medical Illustrations

Craig Luce, MS, CMI

Metabolic Science in Art

A Juried Student Exhibition at the Intersection of Metabolic Science and Art

Application Deadline: October 15, 2013
http://art.unt.edu/forms/juried-student-art-exhibition-theme-metabolic-science

UNT on the Square

Exhibition: November 8 - 23, 2013

Reception: Friday, November 8, 6-7:30pm
Free & Open to the public.

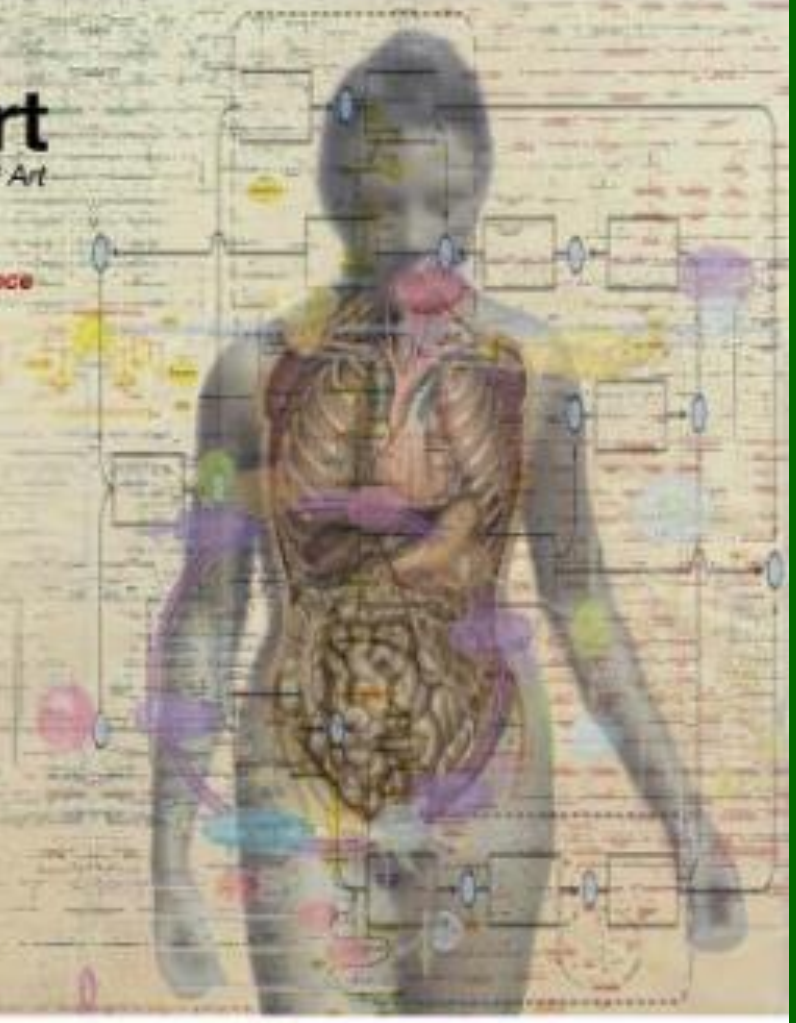
This exhibition shows creative responses to research in metabolic science. The Jurors, Dr. Guido Verbeck in the Department of Chemistry and Andrew DeCaen in the Department of Studio Art have organized students around this theme in an effort to promote cross-pollination of ideas and collaboration from different disciplines. Students were encouraged to create new ways of understanding by responding to the difficult information surrounding metabolic processes and disorders such as diabetes. Scholarships for a selection of the students showing in the exhibition will be announced at the reception.

UNT on the Square

UNT on the Square
109 North Elm Street
Denton, TX 76201

Gallery Hours:
Monday - Friday, 9am - 12pm & 1pm -5pm,
Thursday Extended hours until 8 pm
Saturday 11am - 3pm
Sunday: Closed

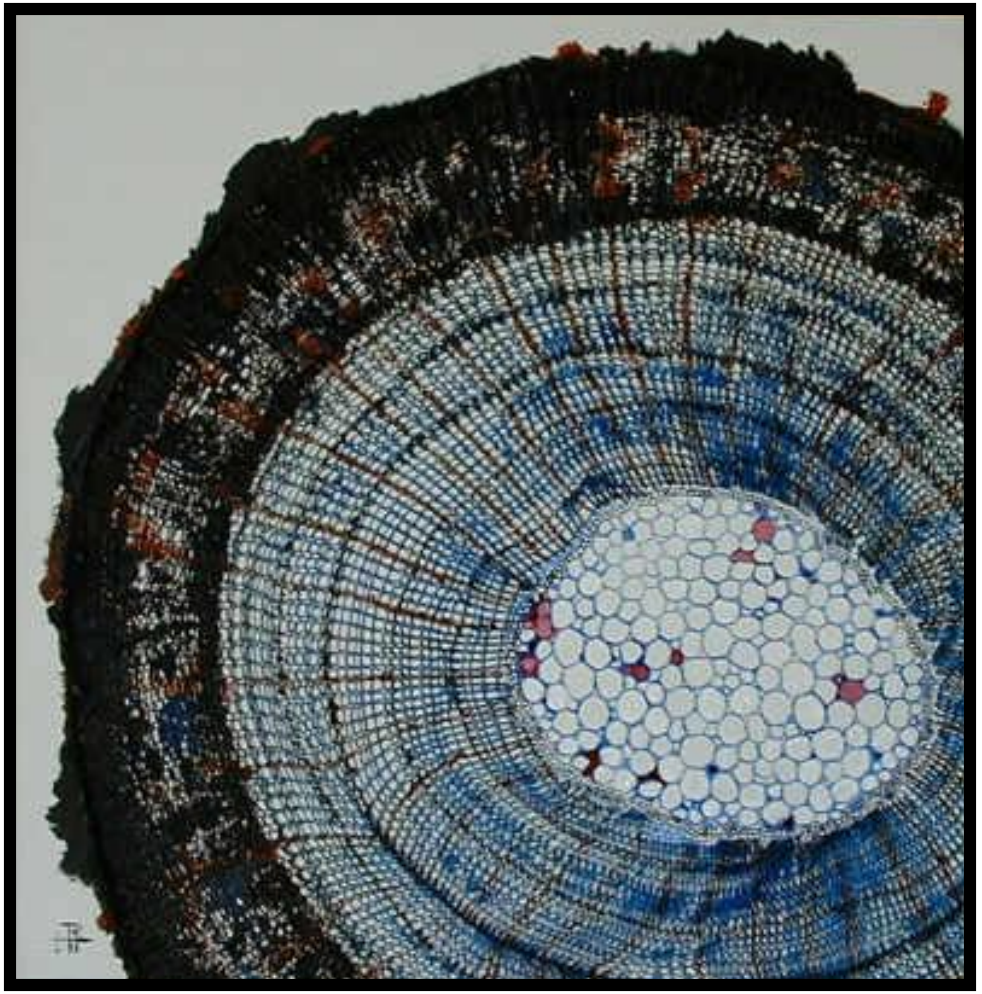
Funded and sponsored by generous support from:
the Office of the Provost, the Institute for Advancement of the Arts, the College of Visual Arts and Design, the College of Arts and Sciences, and the Department of Chemistry.



TechArt

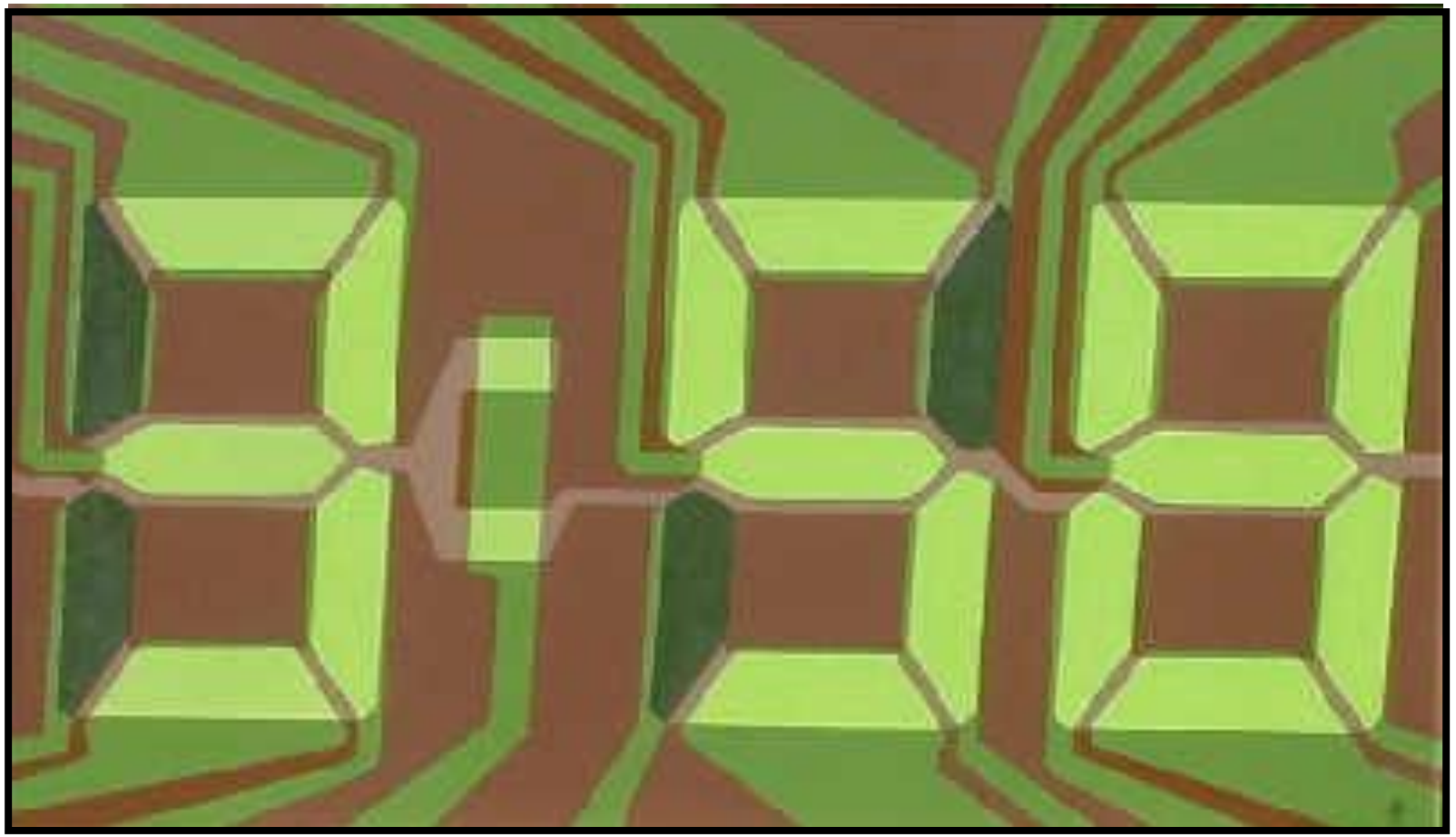
Cell 01 – R. H. Pahler - mixed media

TechArt



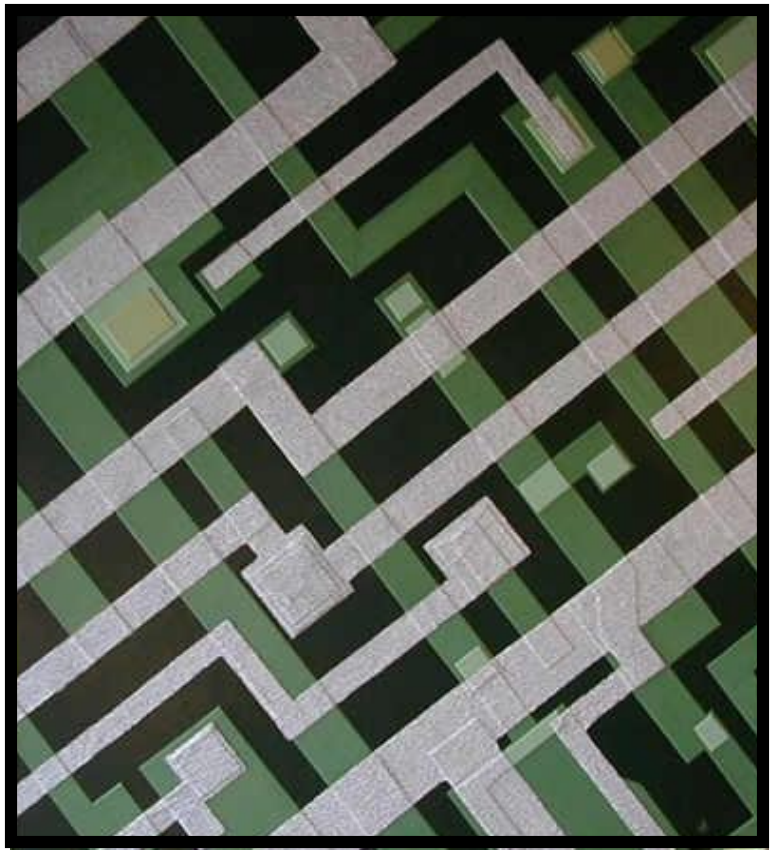
Twig Cross Section – R. H. Pahler –mixed media

Tech Art



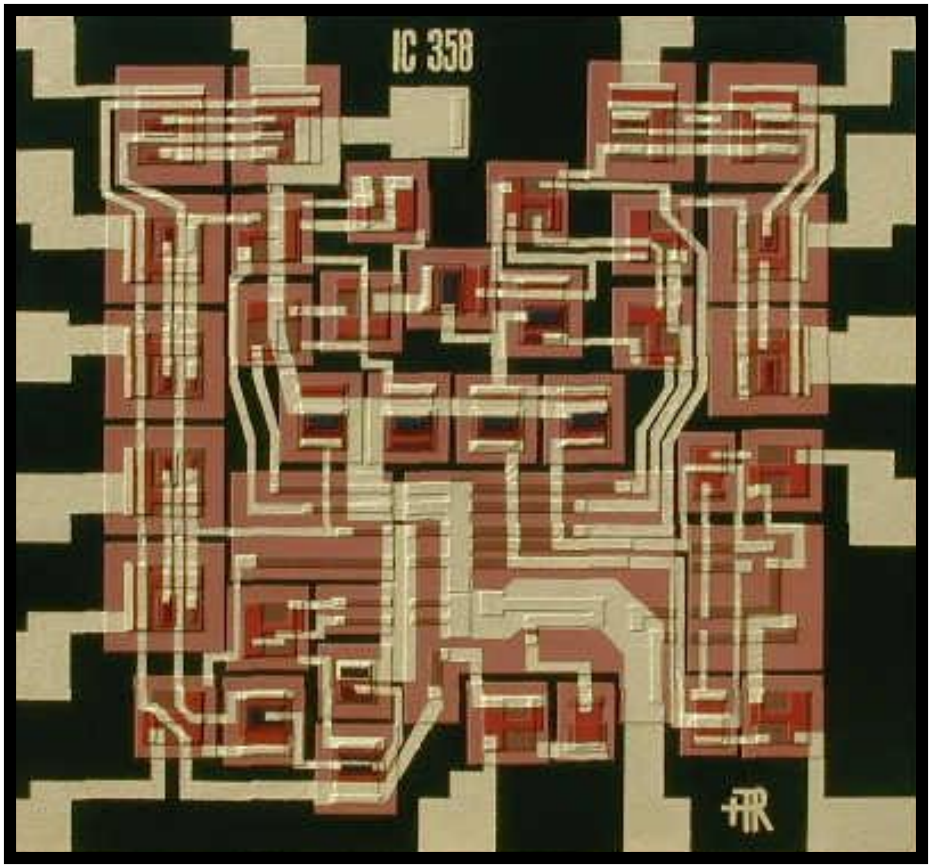
3:58 – R. H. Pahler – Mixed media

Tech Art



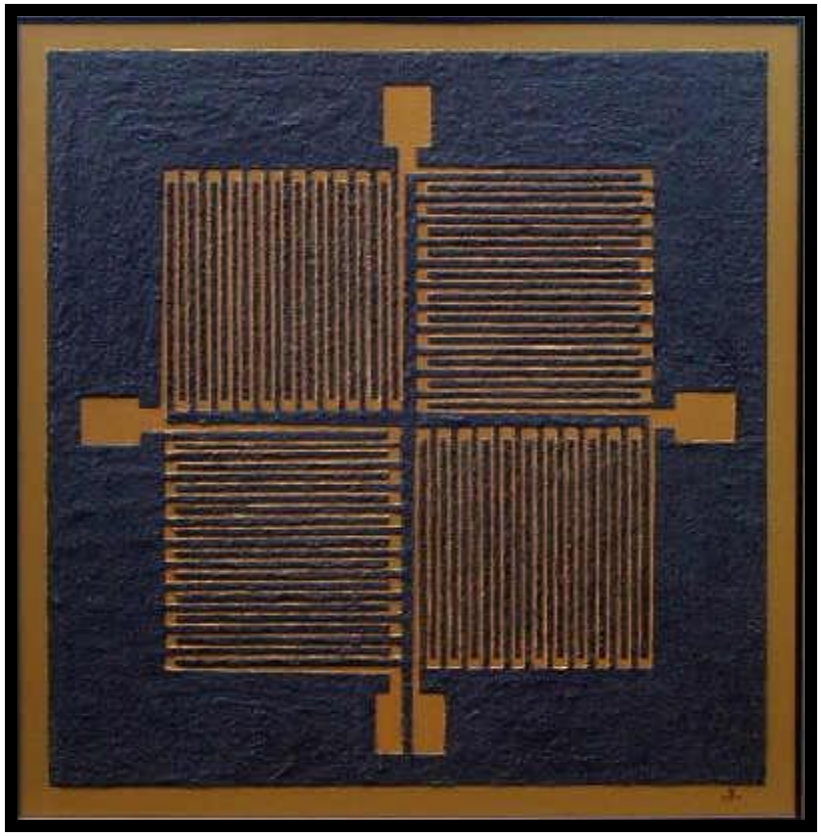
IC in Green and Silver – R. H. Pahler –
Mixed media

Tech Art



IC 358 – R. H. Pahler – Mixed media

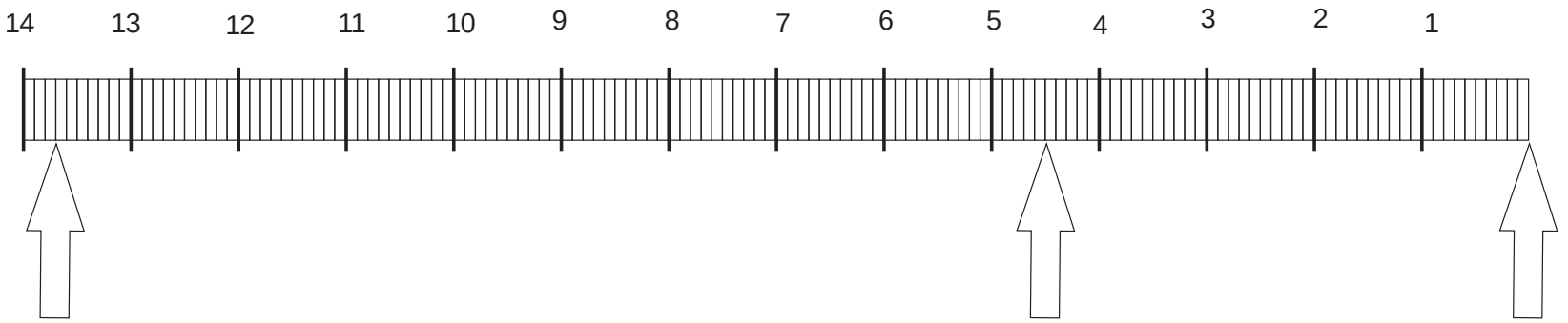
Tech Art



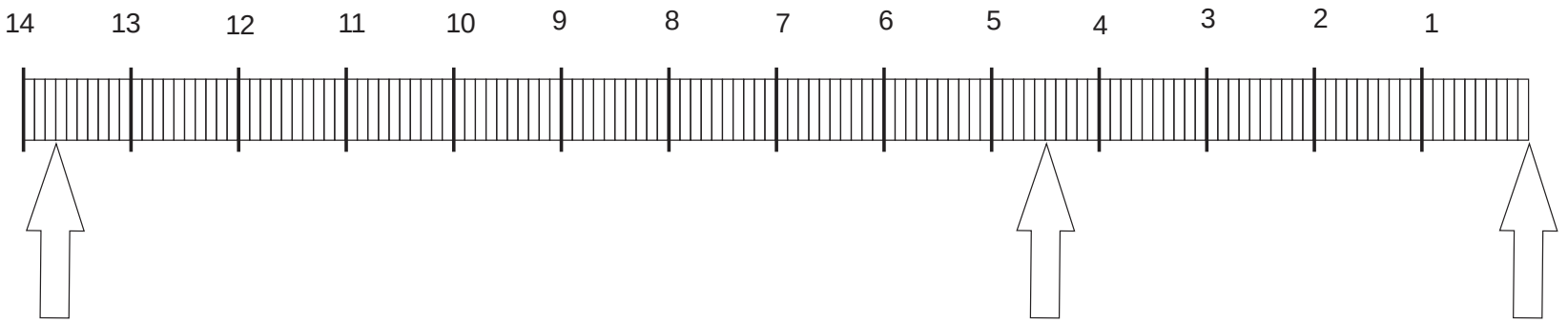
Strain gauge – R. H. Pahler –
Mixed media

III. The Technology of Art

BILLIONS OF YEARS



BILLIONS OF YEARS



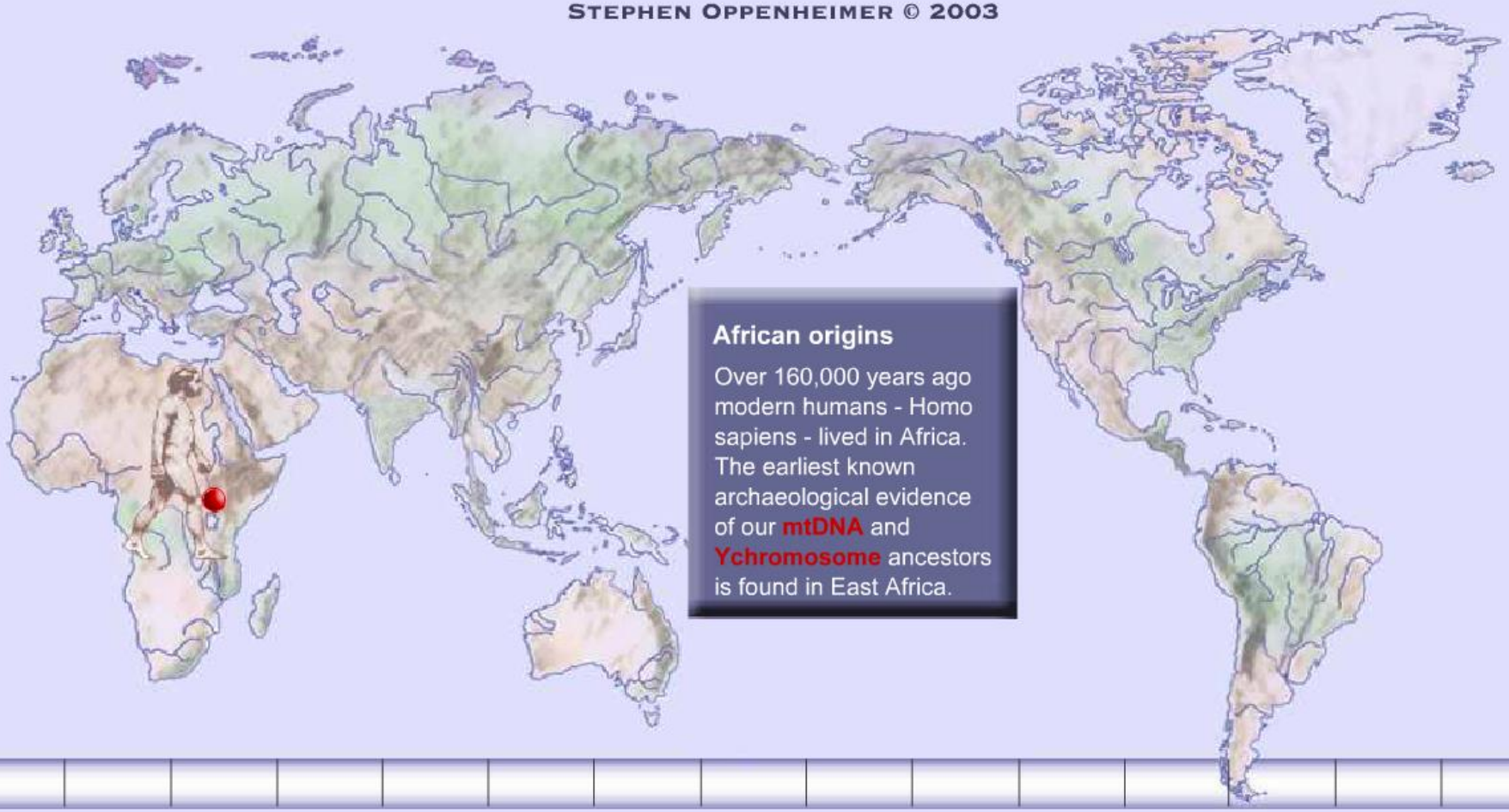
Big Bang

Earth Formed

Today

Genus - Homo

'JOURNEY OF MANKIND' INTERACTIVE TRAIL ADAPTED FROM 'OUT OF EDEN' / 'THE REAL EVE', STEPHEN OPPENHEIMER © 2003



Pre150k 140,000 130,000 120,000 110,000 100,000 90,000 80,000 70,000 60,000 50,000 40,000 30,000 20,000 10,000 0

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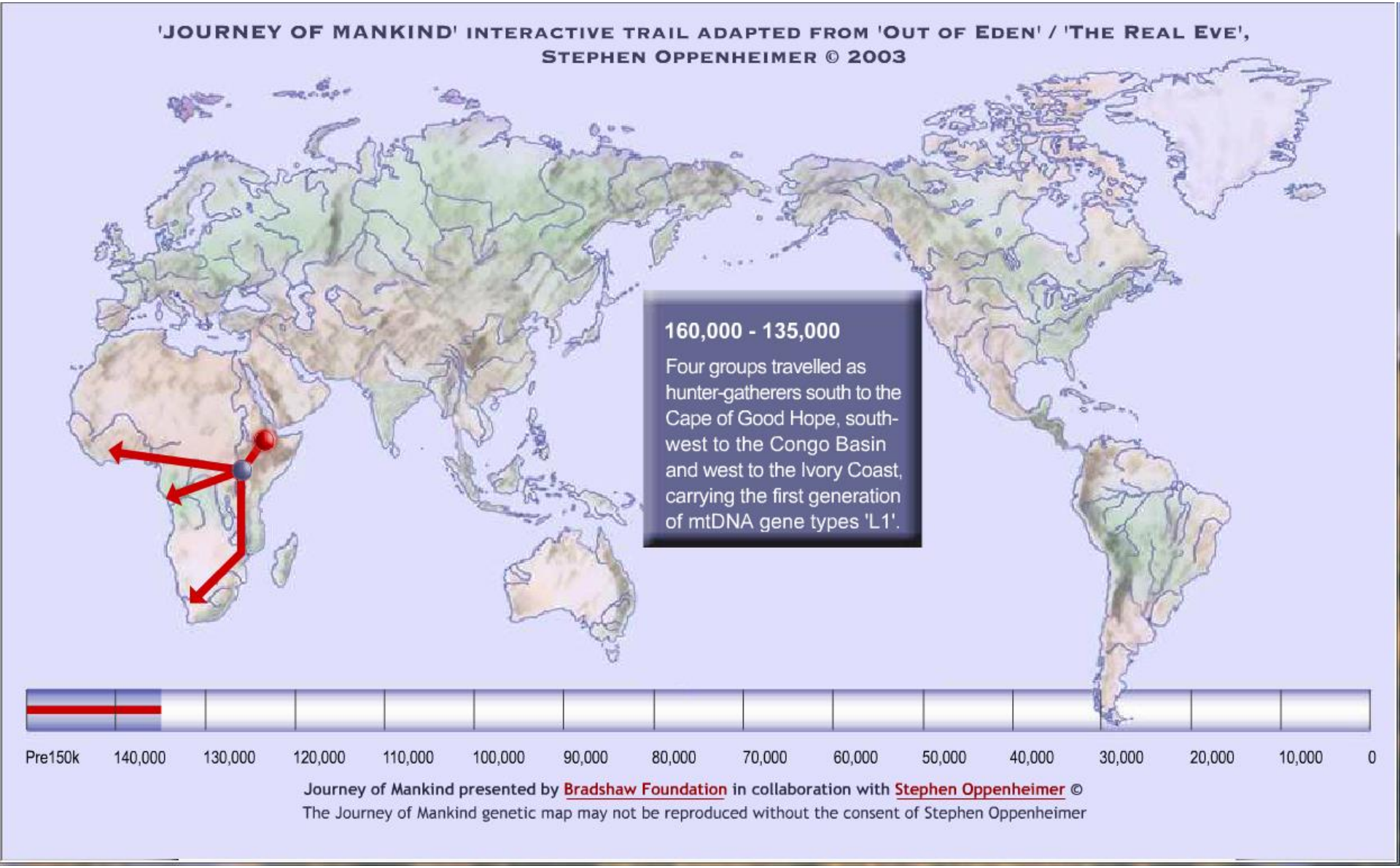

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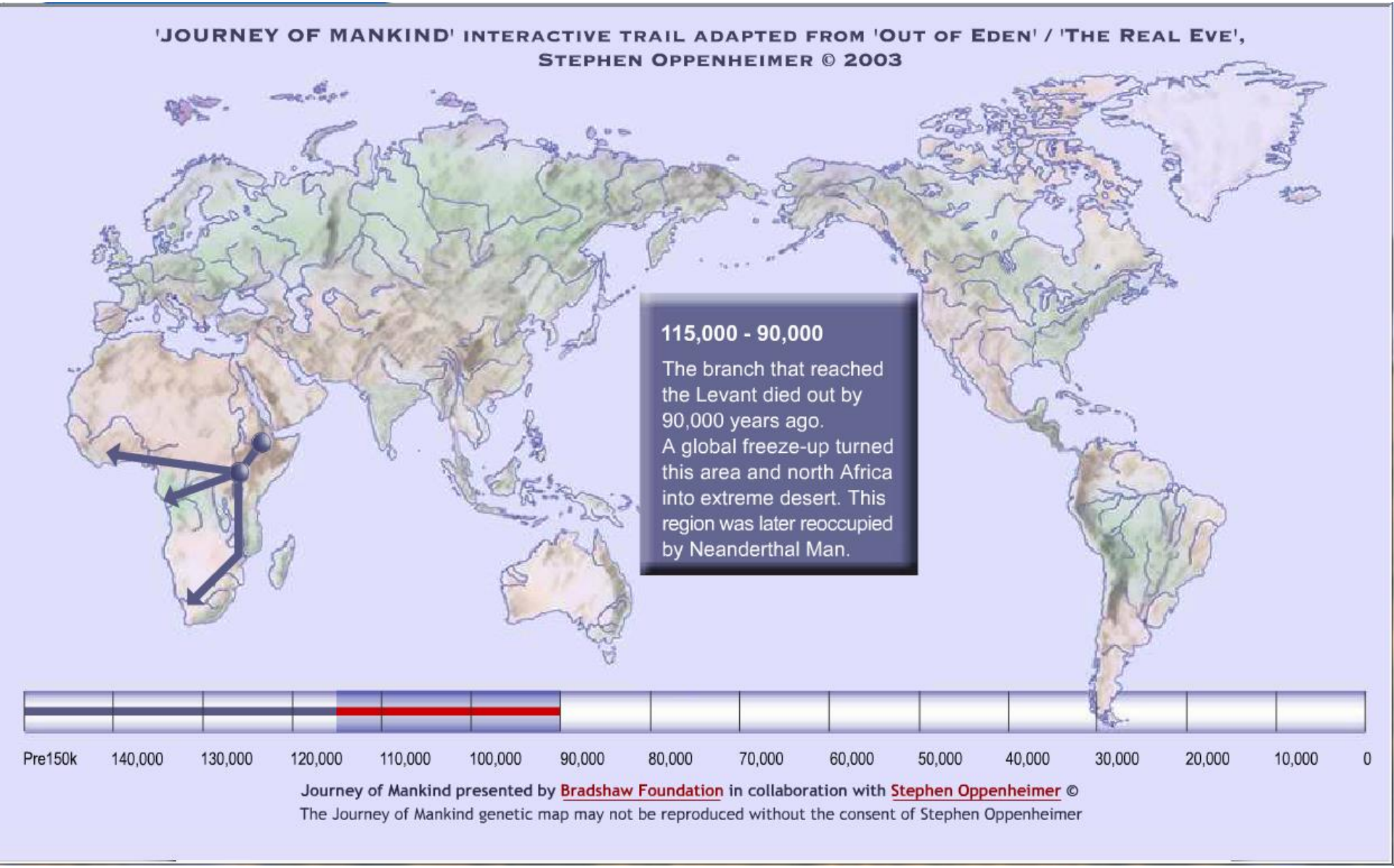

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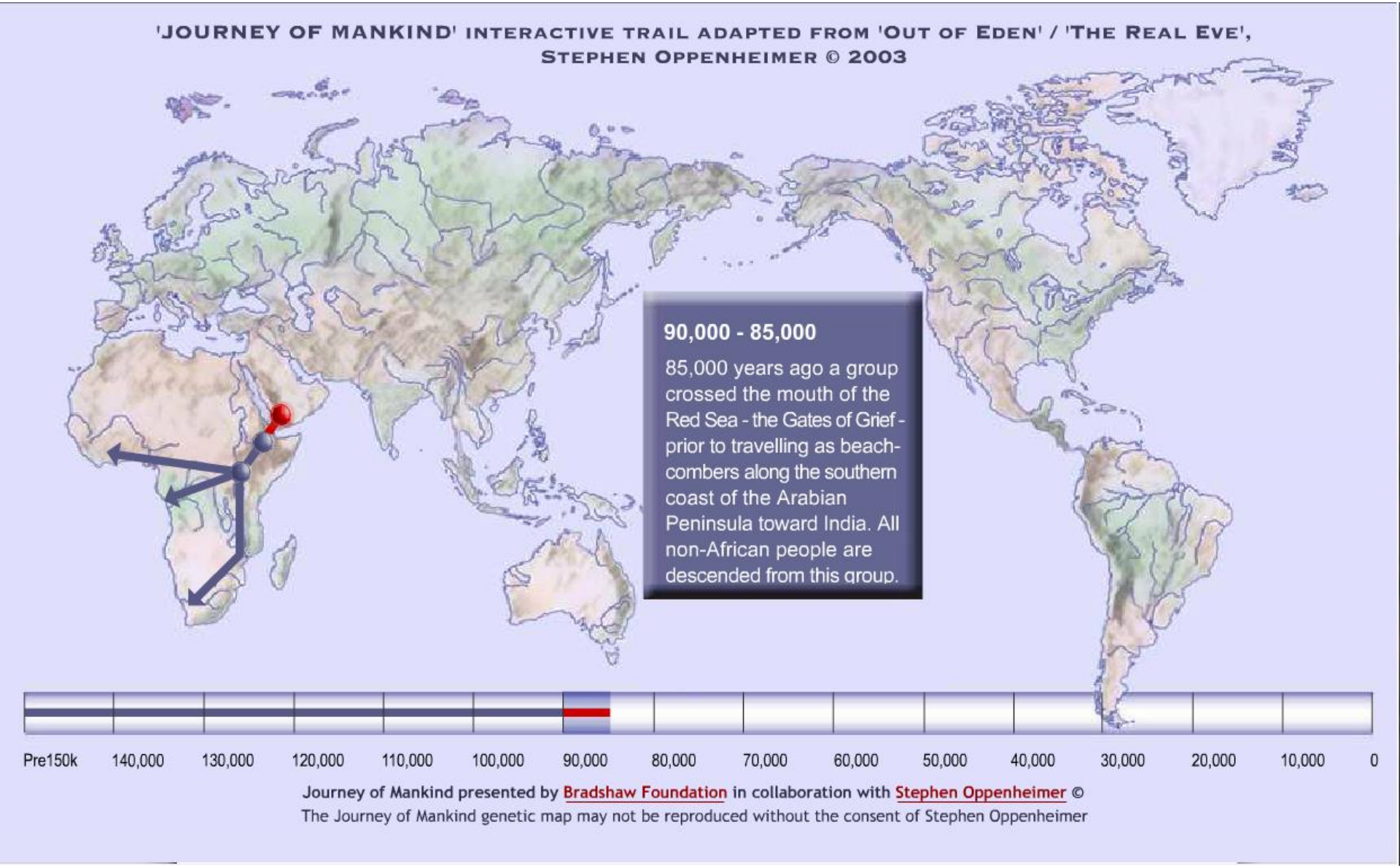
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90,000 - 85,000
85,000 years ago a group crossed the mouth of the Red Sea - the Gates of Grief - prior to travelling as beach-combers along the southern coast of the Arabian Peninsula toward India. All non-African people are descended from this group.
Pre150k
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
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40,000
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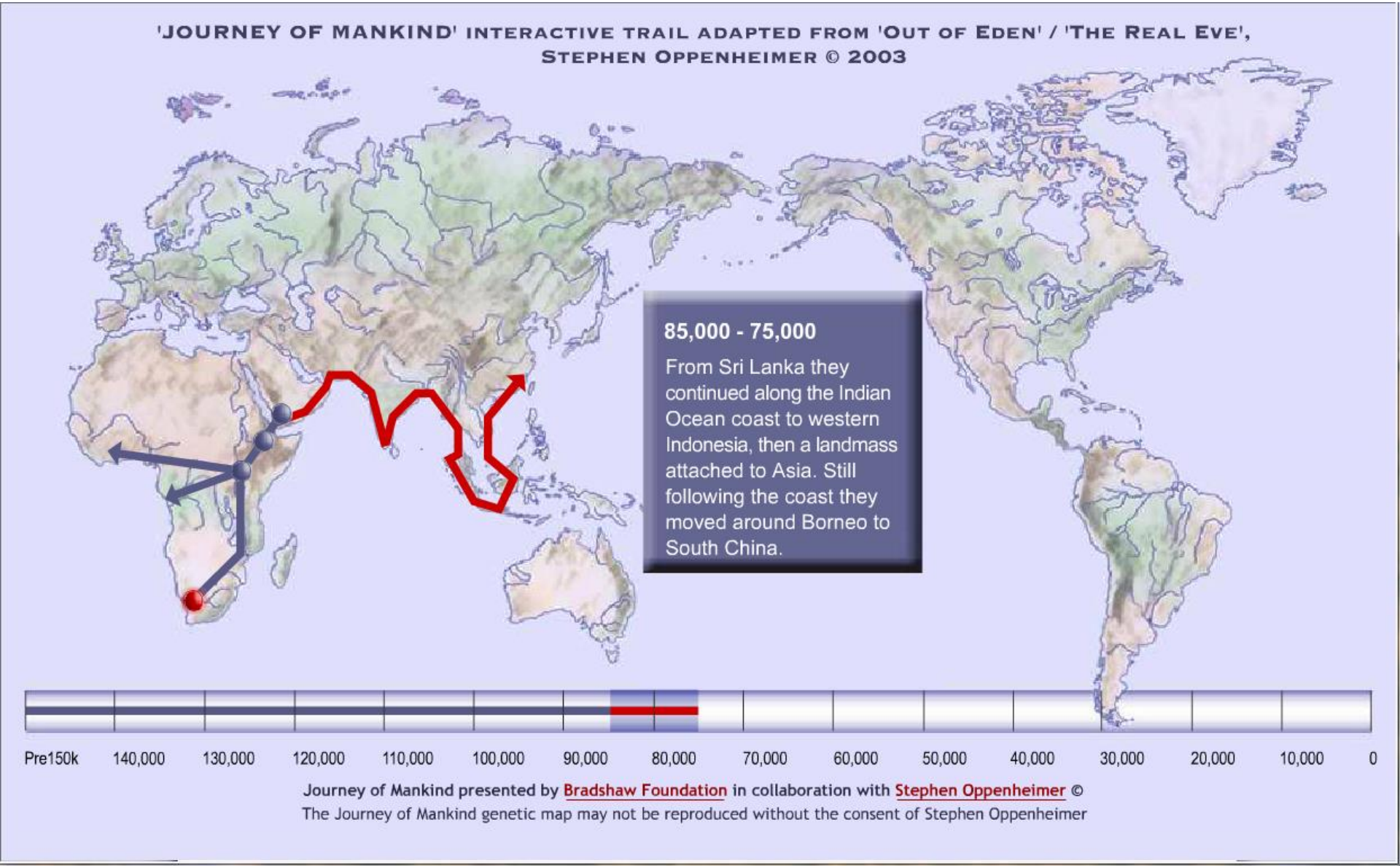

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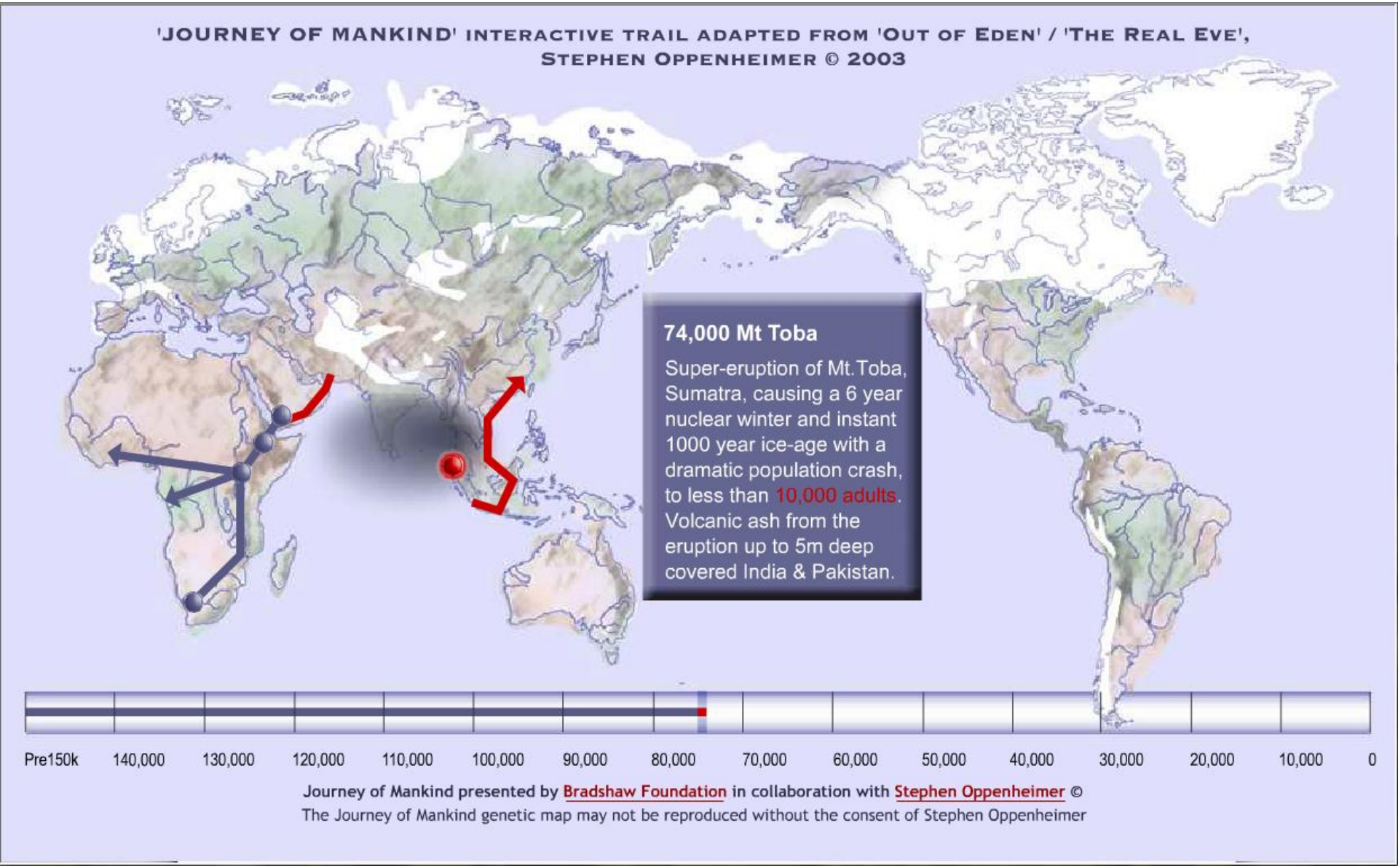

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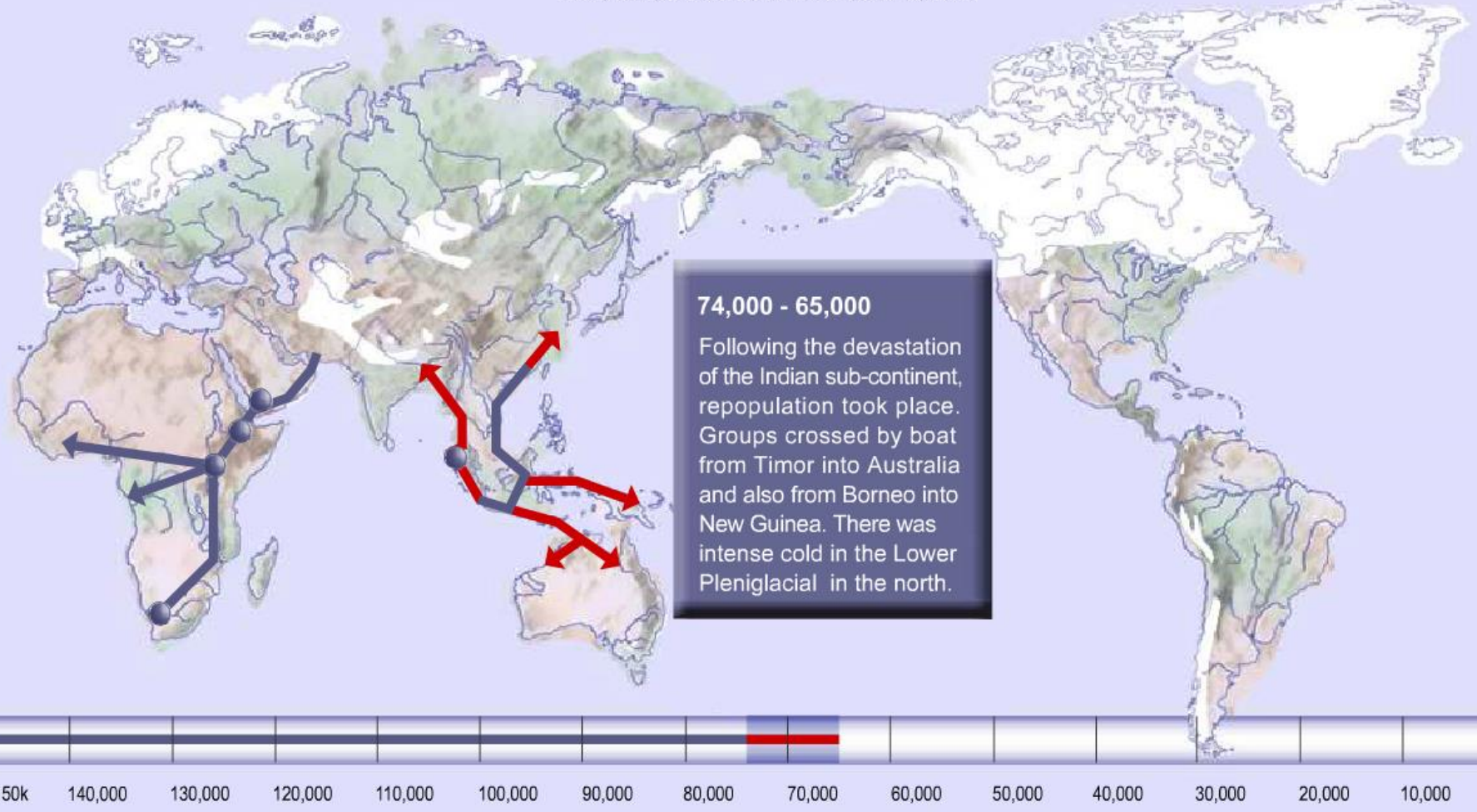

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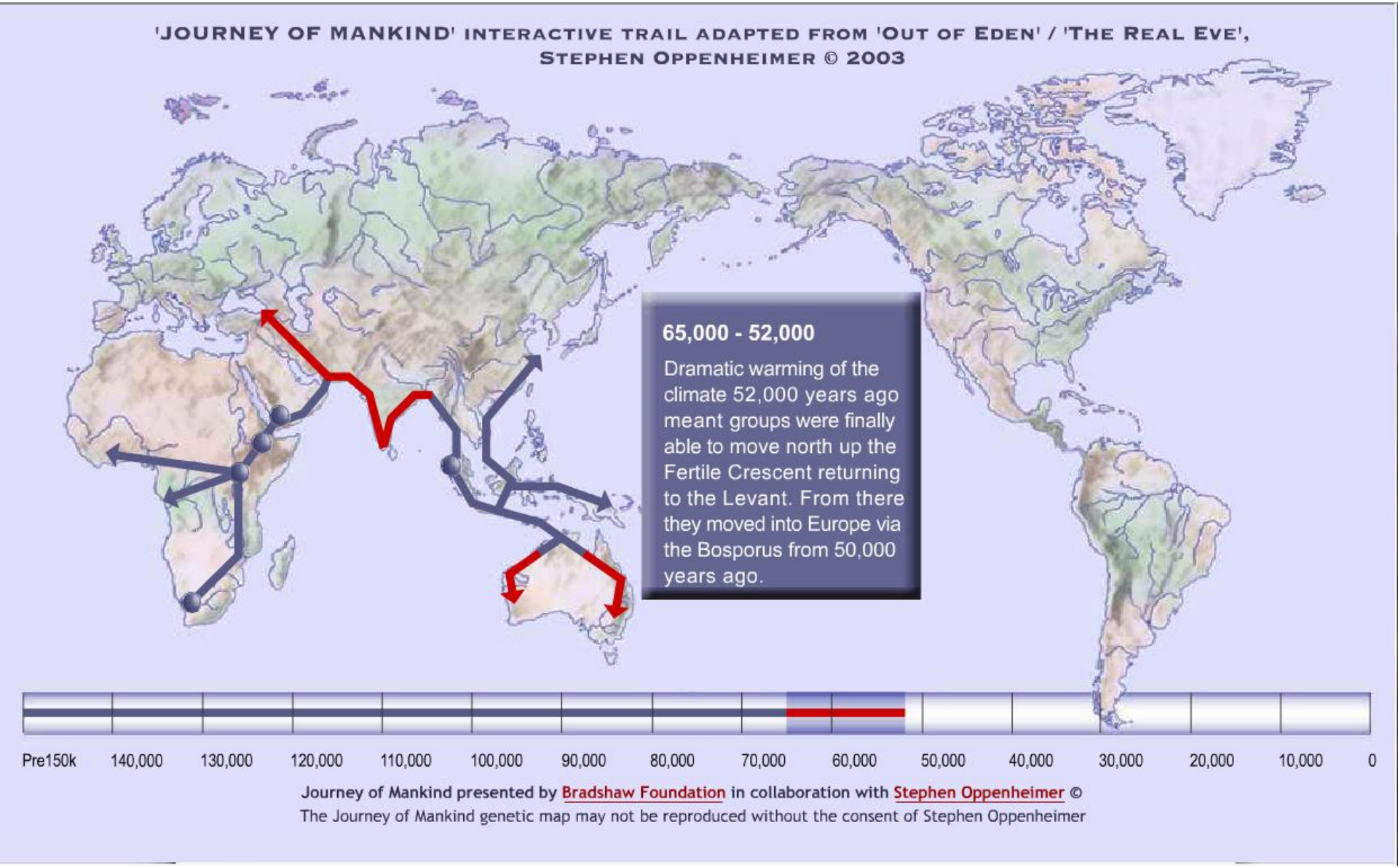

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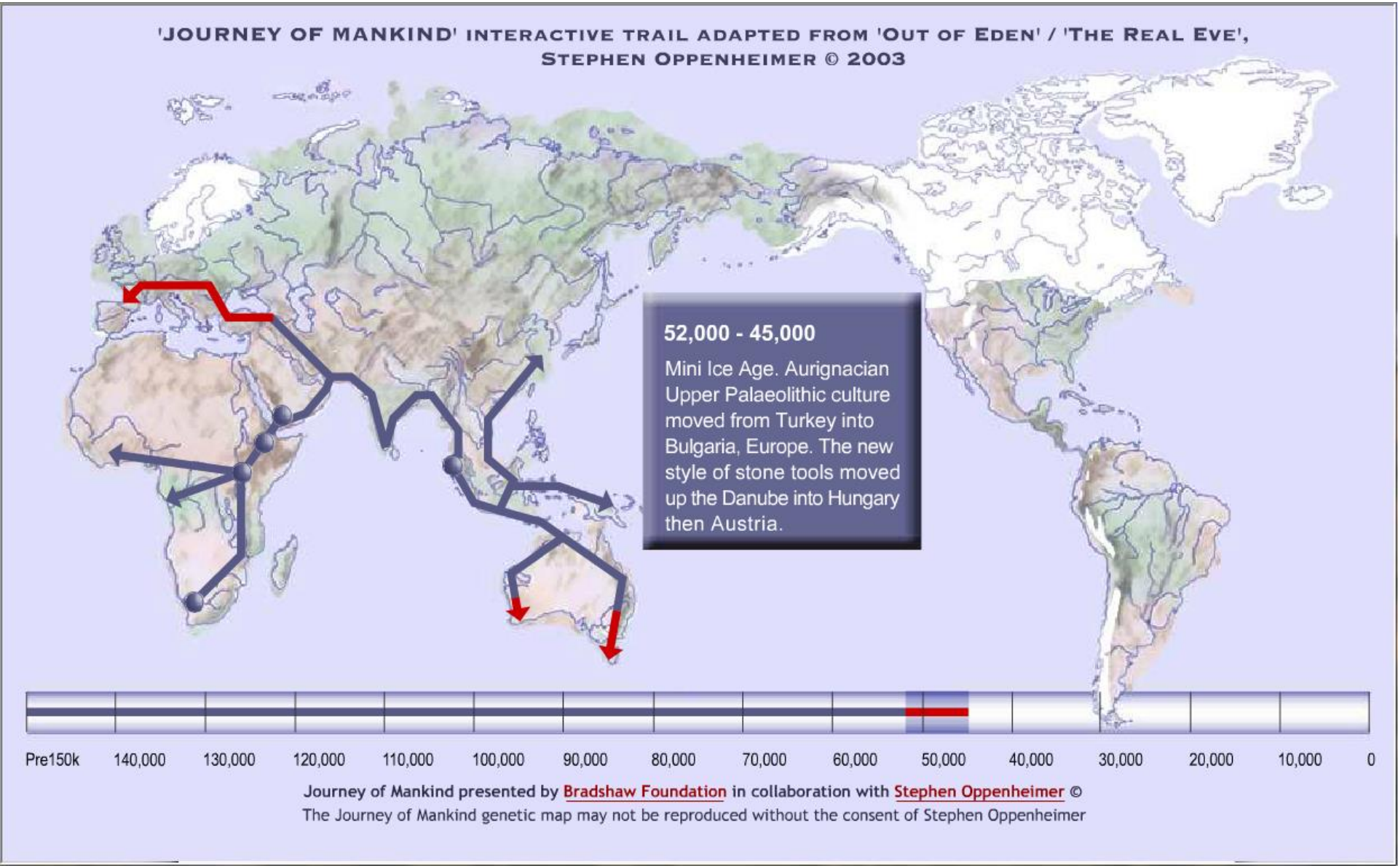
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STEPHEN OPPENHEIMER © 2003
52,000 - 45,000
Mini Ice Age. Aurignacian Upper Palaeolithic culture moved from Turkey into Bulgaria, Europe. The new style of stone tools moved up the Danube into Hungary then Austria.
Pre150k
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
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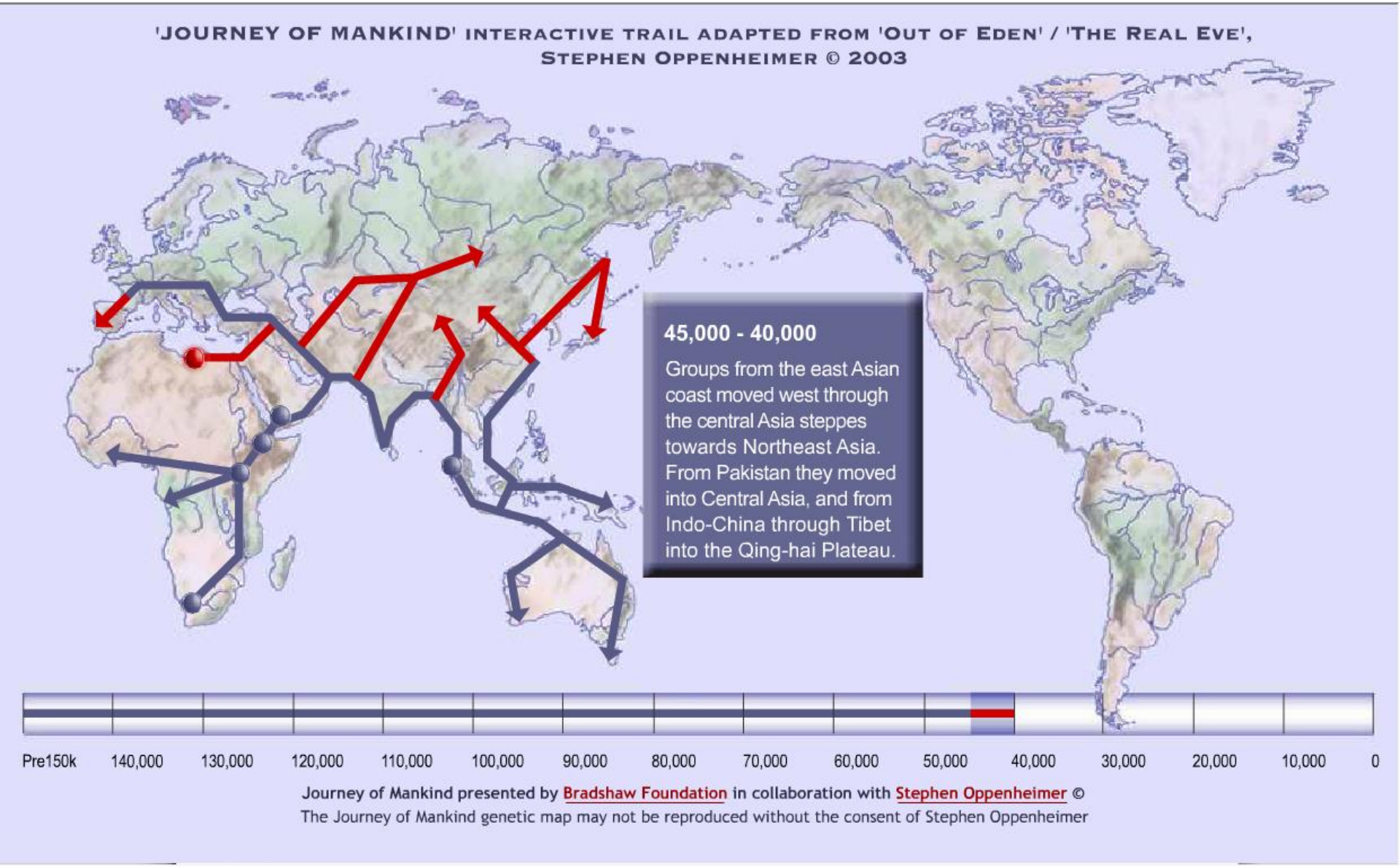

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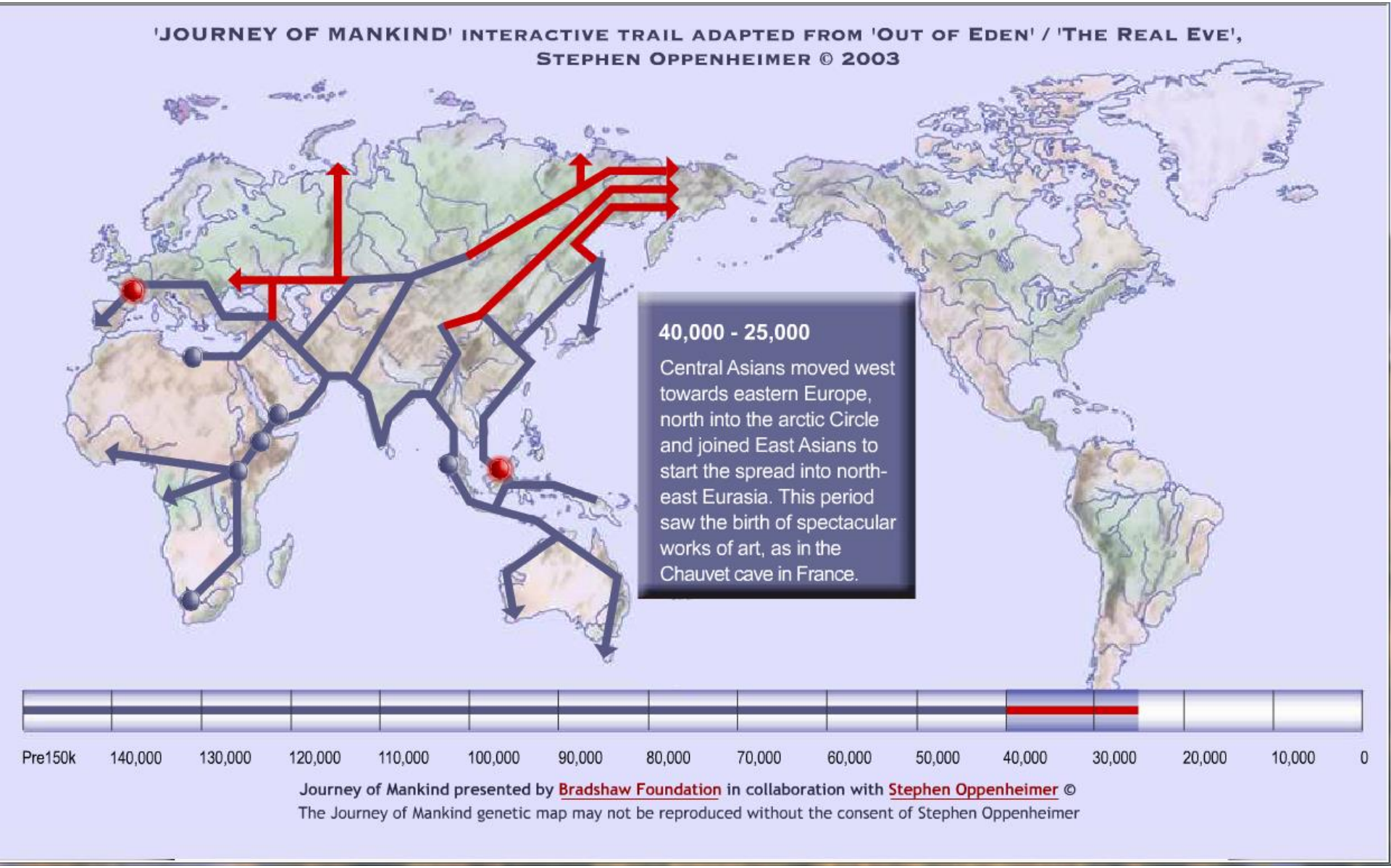

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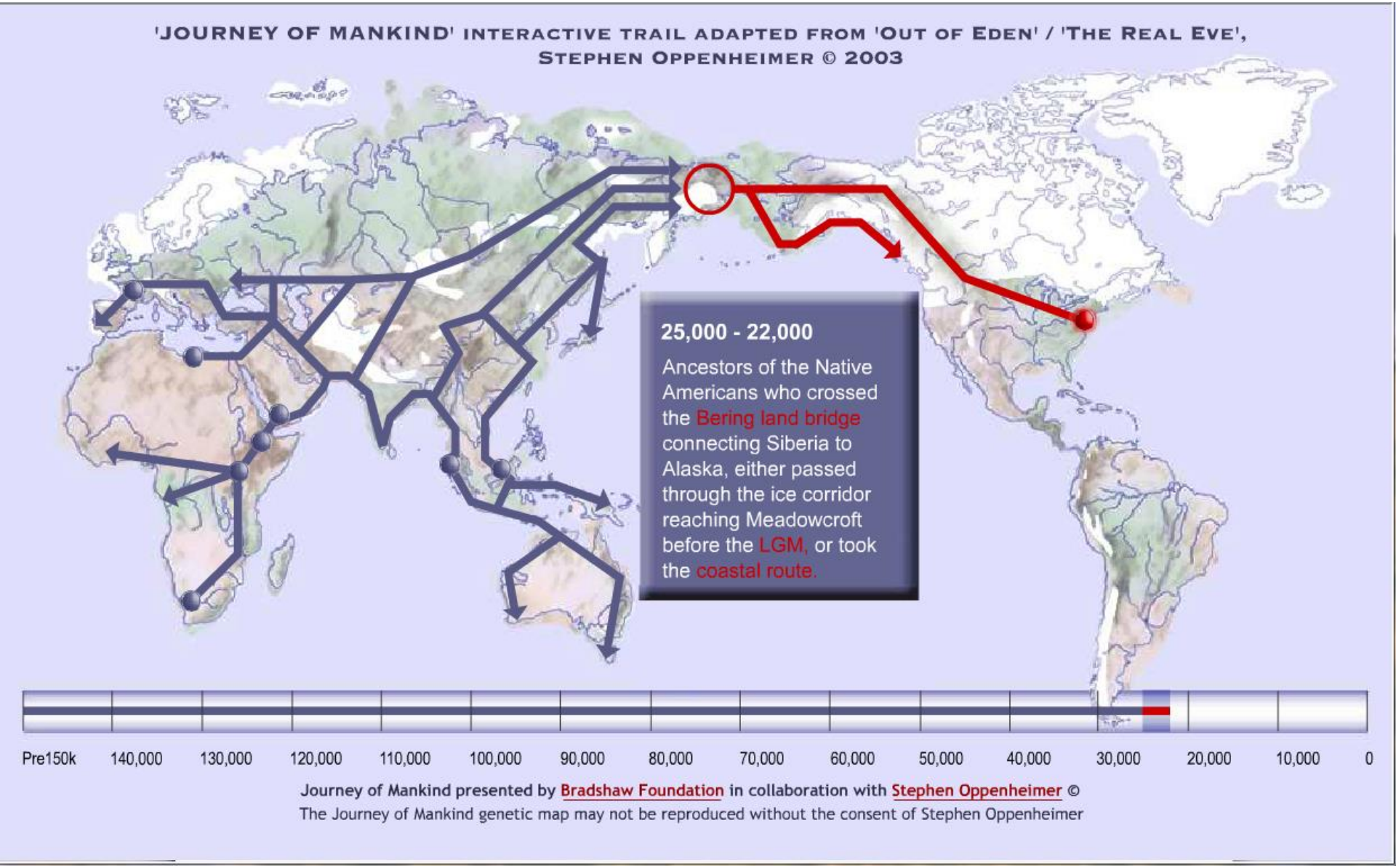

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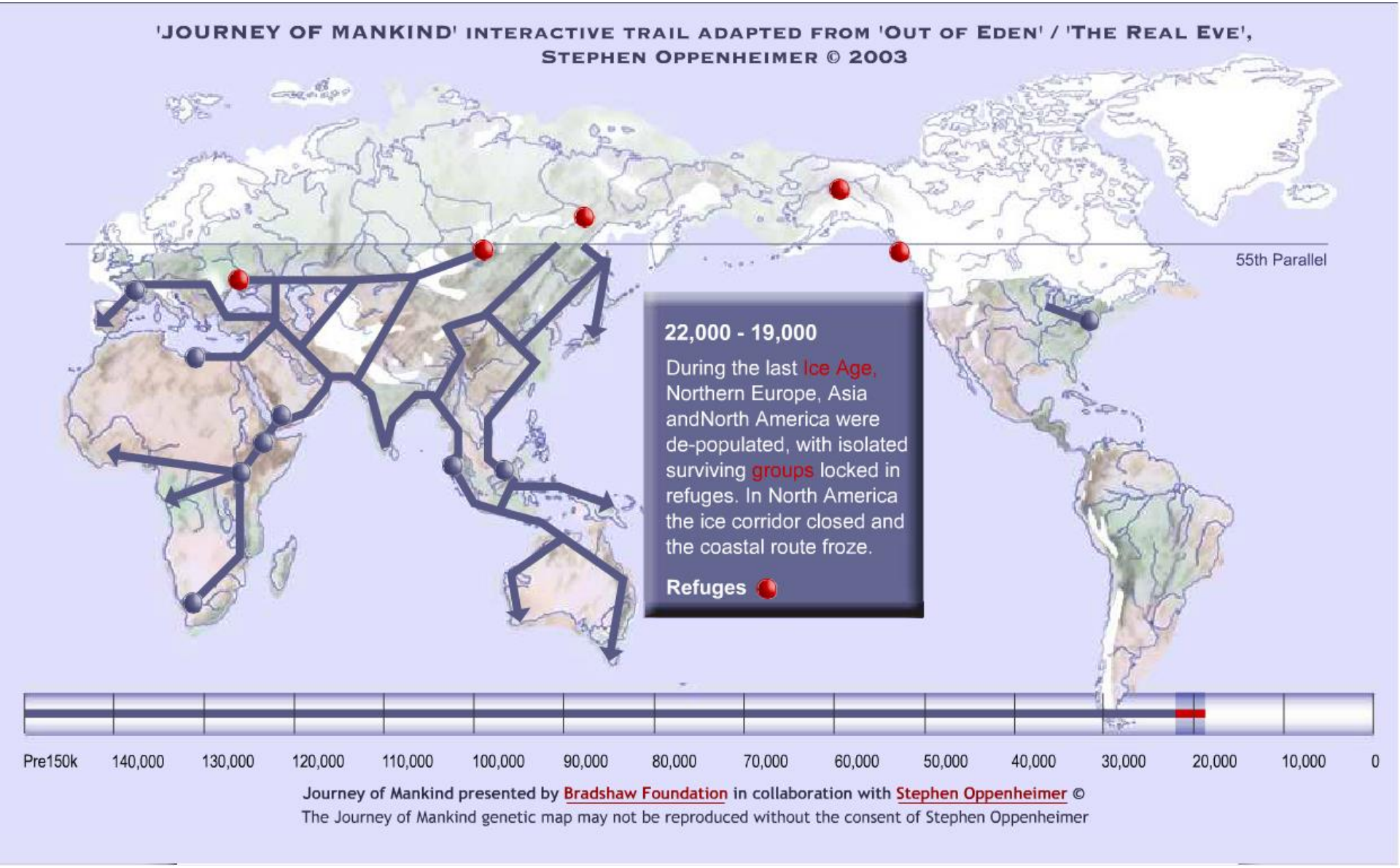
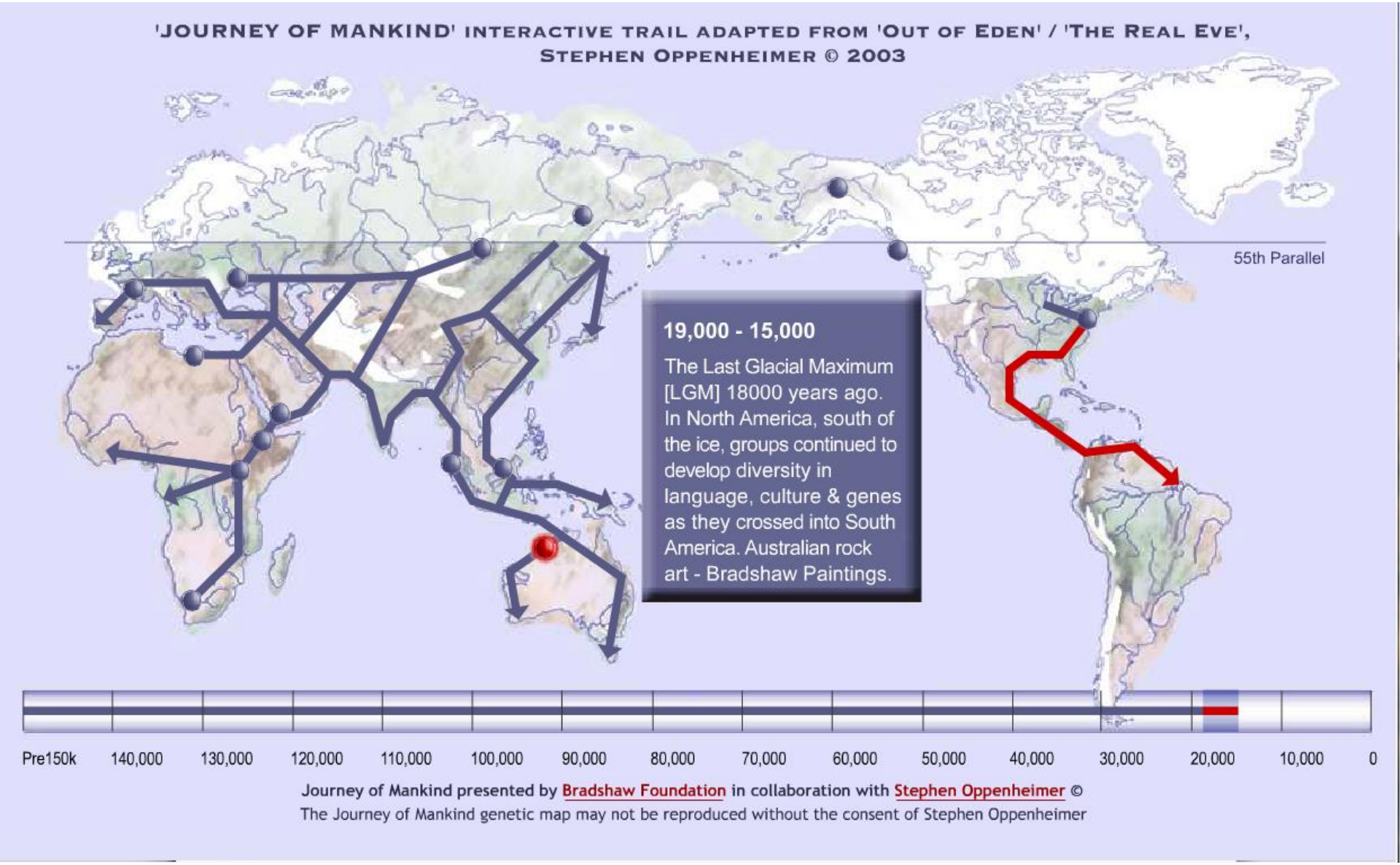
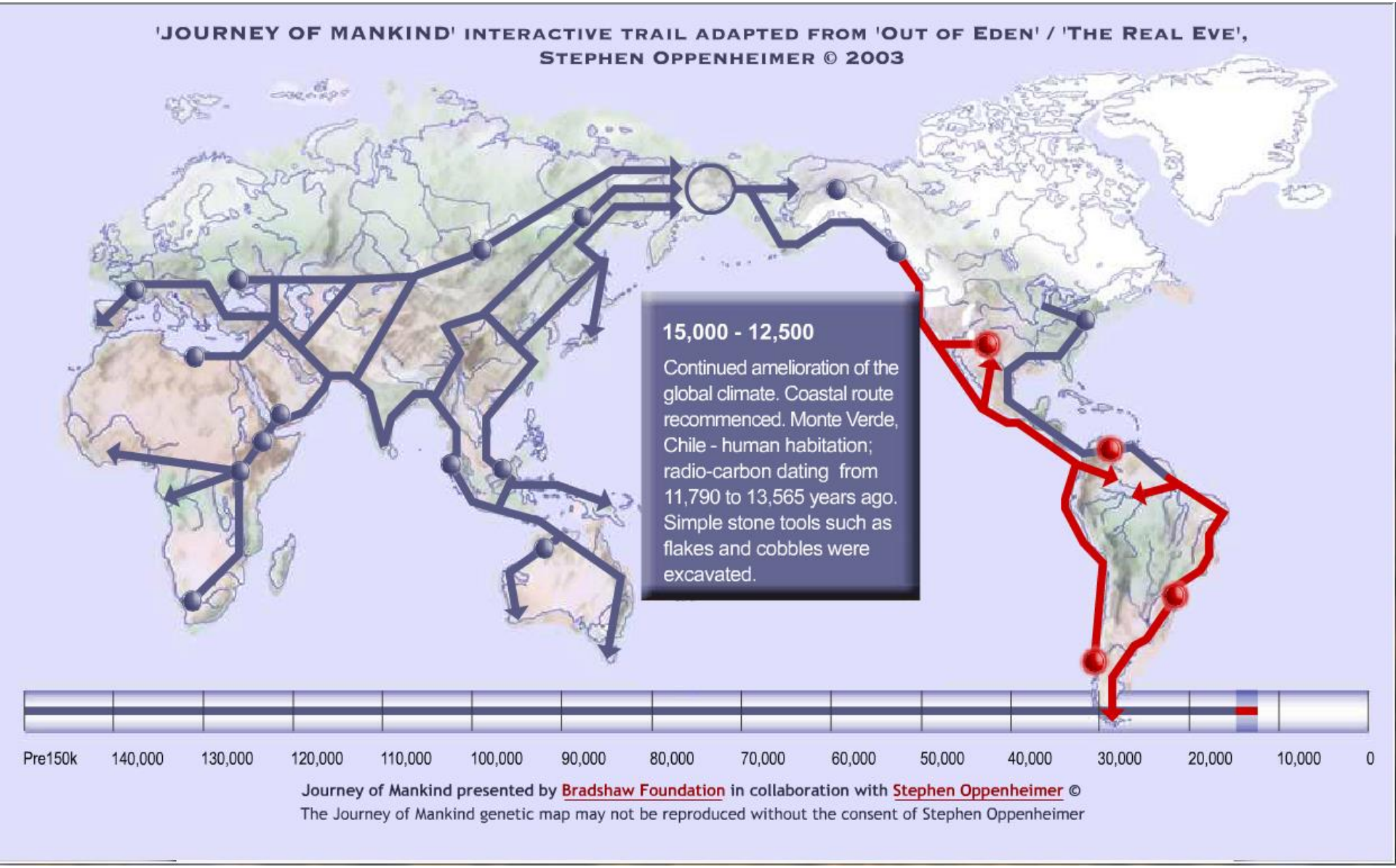

'JOURNEY OF MANKIND' INTERACTIVE TRAIL ADAPTED FROM 'OUT OF EDEN' / 'THE REAL EVE',
STEPHEN OPPENHEIMER © 2003
55th Parallel
22,000 - 19,000
During the last Ice Age, Northern Europe, Asia andNorth America were de-populated, with isolated surviving groups locked in refuges. In North America the ice corridor closed and the coastal route froze.
Refuges
Pre150k
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Journey of Mankind presented by Bradshaw Foundation in collaboration with Stephen Oppenheimer ©
The Journey of Mankind genetic map may not be reproduced without the consent of Stephen Oppenheimer



Journey of Mankind presented by Bradshaw Foundation in collaboration with Stephen Oppenheimer ©


'JOURNEY OF MANKIND' INTERACTIVE TRAIL ADAPTED FROM 'OUT OF EDEN' / 'THE REAL EVE',
STEPHEN OPPENHEIMER © 2003
15,000 - 12,500
Continued amelioration of the global climate. Coastal route recommenced. Monte Verde, Chile - human habitation; radio-carbon dating from 11,790 to 13,565 years ago. Simple stone tools such as flakes and cobbles were excavated.
Pre150k
140,000
130,000
120,000
110,000
100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Journey of Mankind presented by Bradshaw Foundation in collaboration with Stephen Oppenheimer ©
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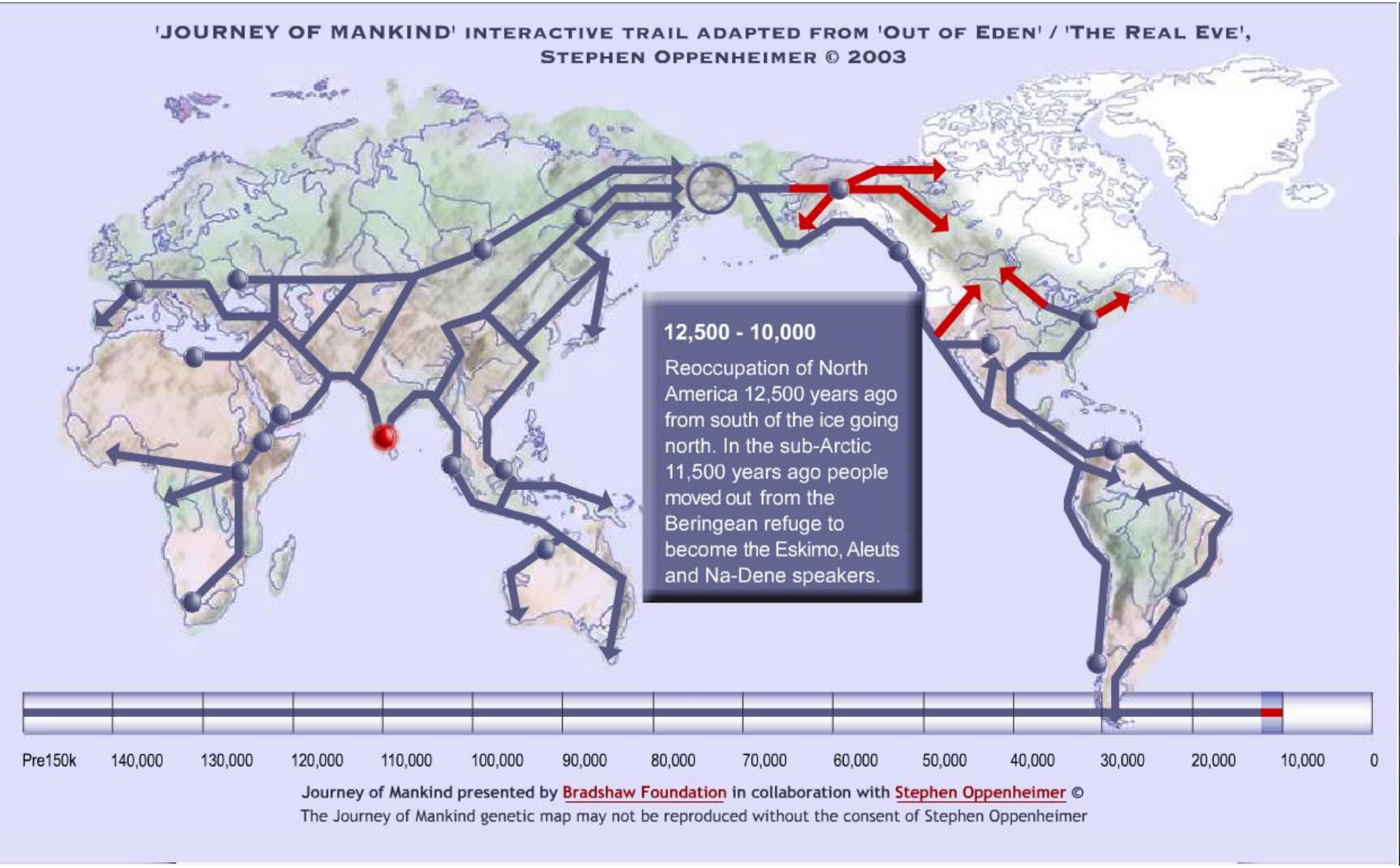
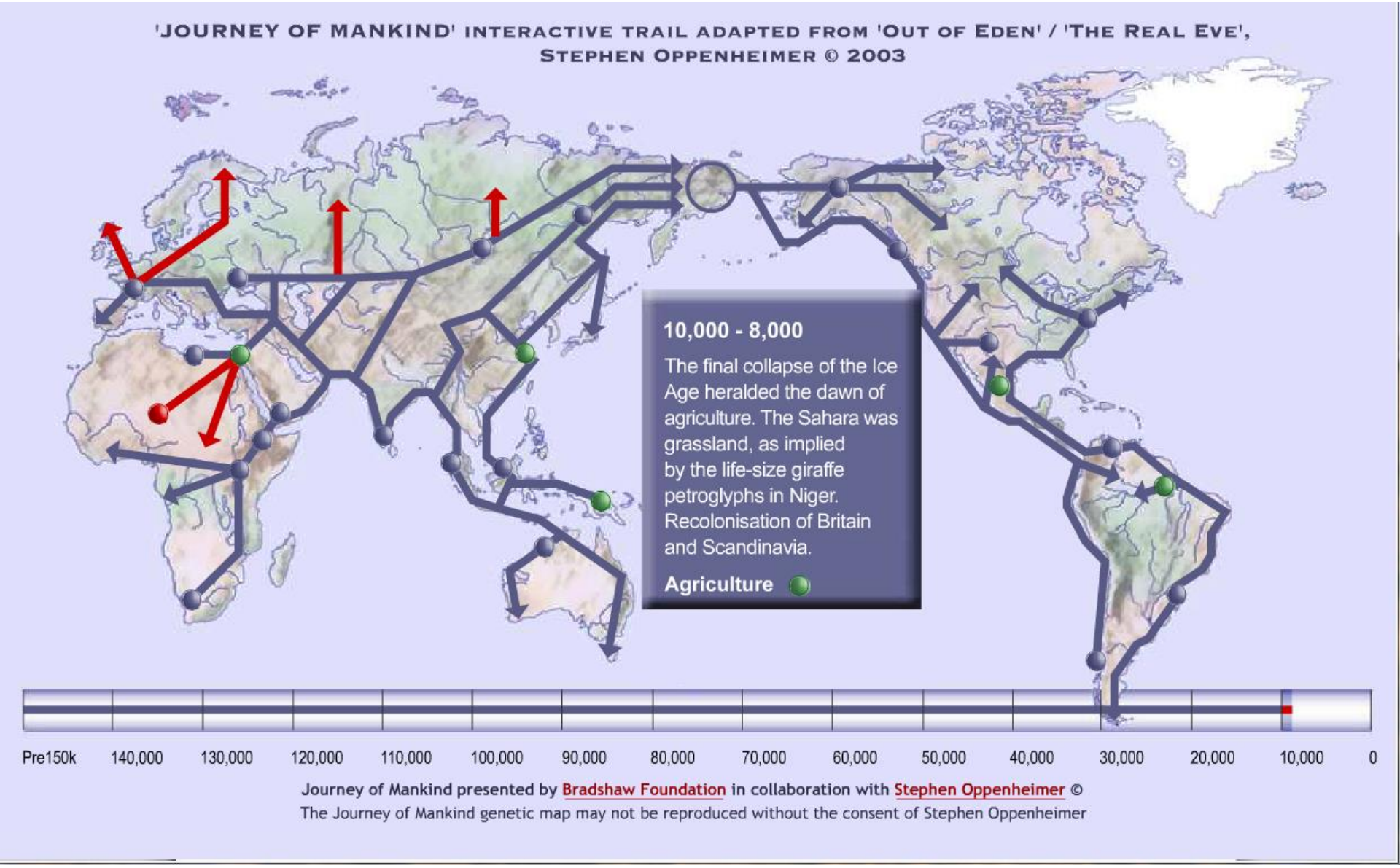


Journey of Mankind presented by Bradshaw Foundation in collaboration with Stephen Oppenheimer ©



Journey of Mankind presented by Bradshaw Foundation in collaboration with Stephen Oppenheimer ©

INTERNATIONAL BIGFOOT SIGHTINGS

4 Bigfoot “sightings” in Denton Co.
2017-2018

(Texas BFRO)

So when did Art begin?

What came first Art or Technology?

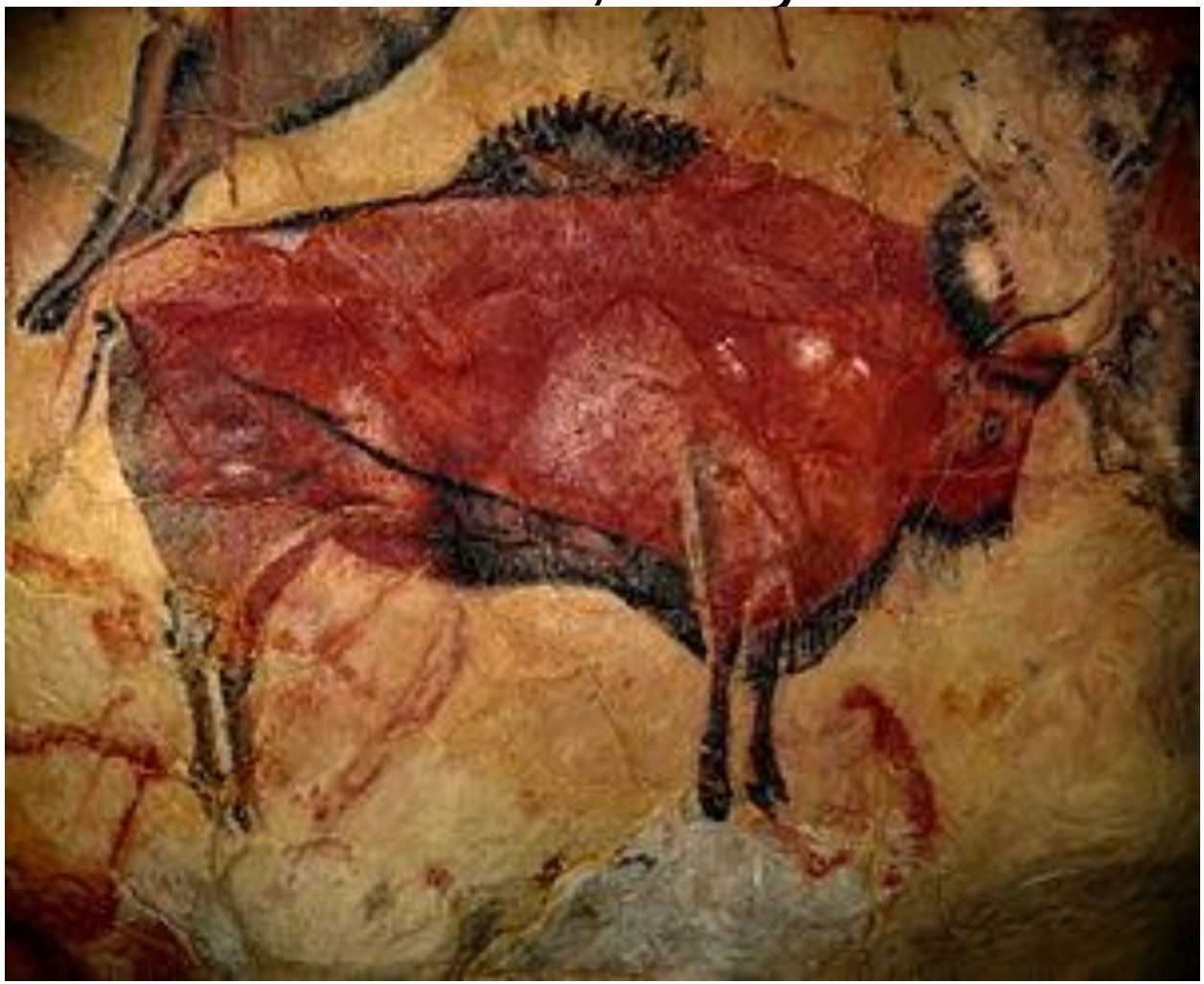
Sticks and Stones

Cave Painting

Cave of the Hands – Argentina dating back 2,500 years

Cave Painting

Altamira 15,000 yrs old.



Red Bison – Cave of Altamira – Santander, Spain

Lascaux 20,000 years old

Chauvet – 22-38,000 yrs old

The Oldest Enigma of Humanity

The Key to the Mystery of the Paleolithic Cave Paintings

Bertrand David and Jean-Jacques Lefrère

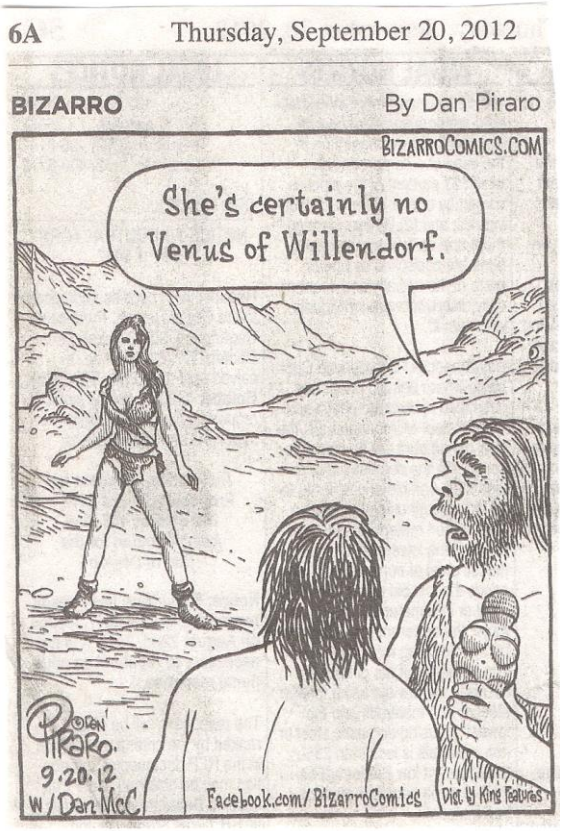
Translated by Molly Grogan

Why did they do this?
Who were the artists?

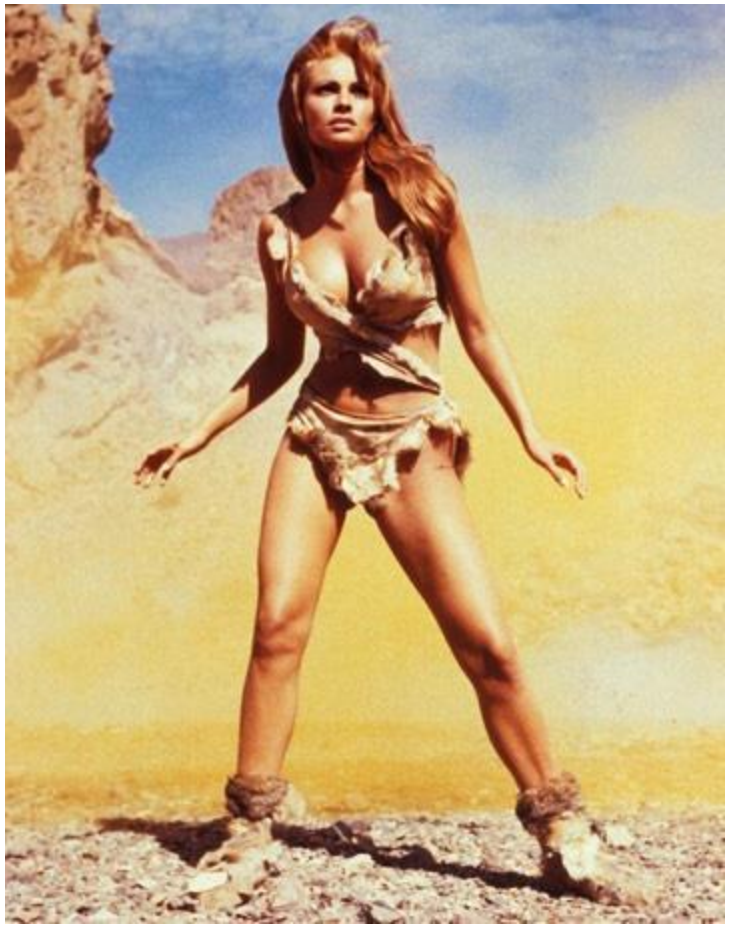
Venus of Willendorf

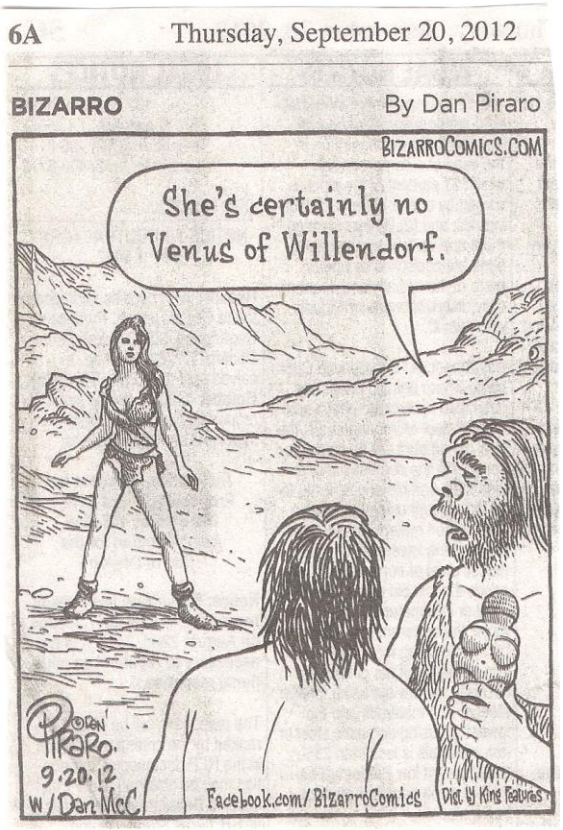
- Discovered in 1908 at a Site in Willendorf Austria - carved 22-24,000 years ago

Venus of Willendorf



Venus of Willendorf





Raquel Welch in 1966 movie **1 Million BC**

The First Sculpture: From hand axe to figure stone. Nasher Sculpture Center

Makapansgat Pebble 2.3 million years old –South Africa

Important Developments Affecting Art

- Language – 500,000 BC (words) – 50,000 BC(sentences)
- Pottery – 50,000 BC – 20,000 BC
- Fermentation - 10,200 BC
- Flock Management – textiles using animal fur – 10,000 BC
- Farming – 8,000 BC
- Textiles using Flax – Weaving - 7,500 BC
- Copper Smelting – 6,200 BC
- Cotton Cultivated – 5,500 BC
- Potters Wheel – 4,500 BC
- Bronze Manufacture – 3,800 BC
- Hieroglyphics – 3,400 BC
- Writing – Glass Production - 3,000 BC
- 1st Pyramid Construction – Architecture -2,630 BC

Important Developments Affecting Art

- Math developed – 2,000 BC
- 1st alphabet – 1,600 BC
- Silkworm domesticated – 1,500 BC
- Iron Age Begins - 1,400 BC
- Cast Iron Made – 550 BC
- Use of Coal as fuel – 300 BC
- Sundial Invented – 30 BC
- Water Powered Bellows and Iron Furnace – 30 AD
- Paper Production in China – 105 AD
- Gun Powder Invented – 225 AD
- Mechanical Clock – 723 AD
- Water and Steam Power – 1770 AD –First Industrial Revolution
- Lithography – 1798 AD
- Invention of Electric Motor – 1821 AD –Second Industrial Revolution

Important Developments Affecting Art

- Photography - 1839
- Light Bulb – 1879
- Fiber Optics - 1880
- Plastics – Bakelite 1907
- LED – 1927
- Transistor - 1948
- Laser – 1960
- Ink Jet Printer - 1976
- 3D Printer - 1984
- Computer - 1986
- Digital Camera - 1988

Glass

- Dale Chihuly – Dallas Abortetum -2013 Show

Tattoos

Otzi Man

Tattoos

Otzi Man

Contemporary

The Technology of Art Drawing

- **Tattooing** – From the original primitive ink or dye and pointed bones, to the development of pins and needles, tattooing persisted for many milleneum. With the advent of electricity and the vibrating needle as well as improvements in antisepsis, anesthesia, and ink technology, the art of the tattoo has reached its present level of perfection. In addition it has spawned the art of the temporary tattoo along with appropriate ink developments and, alas, laser tattoo removal.

The Technology of Art Drawing

- Pen & Ink – Ink goes back to at least 4000 BC. However, it can be a very complex material composed of solvents, pigments, dyes, resins, lubricants, solubilizers, surfactants, and fluorescers. The printing press and lithography required new ink development needing more of a paste. Pigmented inks which tend to be more light stable over time are preferred for artwork over dye based inks which tend to fade in sunlight. The key is to keep the pigments suspended in solution while in use. Advances in colors and additives for special effects have been made recently. The pen itself developed from a stick to a reed to a feather to a steel nib pen, to a fountain pen. Today, markers with felt tips provide many ways to be creative.
- Developments for ink for use in ink-jet printers is a current topic. Nano-tube carbon ink has been developed that allows an ink-jet printer to print a conductive surface.

The Technology of Art Drawing

- Charcoal/Graphite/Crayon/Silverpoint/Pencil – Drawing with charcoal is probably the oldest medium. As time went on and paper was developed, soft metal rods made of lead or silver were found to leave a thin but noticeable line on papyrus and later paper. In 1564 a graphite deposit was found in Borrowdale, England that made a mark darker than lead. It was soft and brittle and required a holder and so the wooden encased lead pencil was born. Today a wide variety of graphite hardnesses are available to the artist in convenient mechanical pencils. However, the ability to draw on an electronic tablet with a stylus, may spell the end to pencils and pen and ink.
- Developments with color pencils, watercolor pencils, and crayons of various sorts give the artist a much expanded range when using this medium.

The Technology of Art Drawing

Pyrography – derived from branding or heating up a metal bar and using it to burn an image in wood or leather. The invention of the electric soldering iron allowed much more control of the process and has enable much fine detail.

The Technology of Art Painting

- Paint is one of the earliest materials used for artwork going back to the cave drawings. The paint consists of a pigment for color, a binder for permanency, and some type of oil or similar material to make it flow. Although the chemistry of paint has improved tremendously with technology, the same basic components make up paint today, but also include driers, flow modifiers and the like. The number of specialty paints for metal, plastic, glass, etc. is staggering.
- Fresco Painting – where pigment is painted on a wet stucco surface.
- Encaustic – where pigment is mixed with hot wax and painted on to a wooden or canvas surface.

Pointillism

A case where painting inspired technology

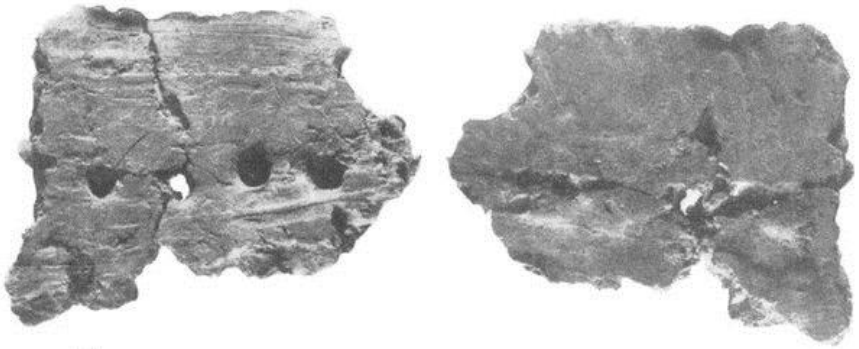
Impressionists Georges Seurat, Paul Signac

Sculpture
Clay

- Clay is one of the earliest materials used to make small sculptures as well as pottery. Improvements in firing technology helped to reach higher temperatures for more artistic effects with glazes. Today polymer clays are available that can air-harden, or never harden, or only harden when heated.
- Metal clay is a malleable material until heated when the result is a metallic material that resembles solid silver or gold.

Pottery

- Shards from China dating back 20,000 years

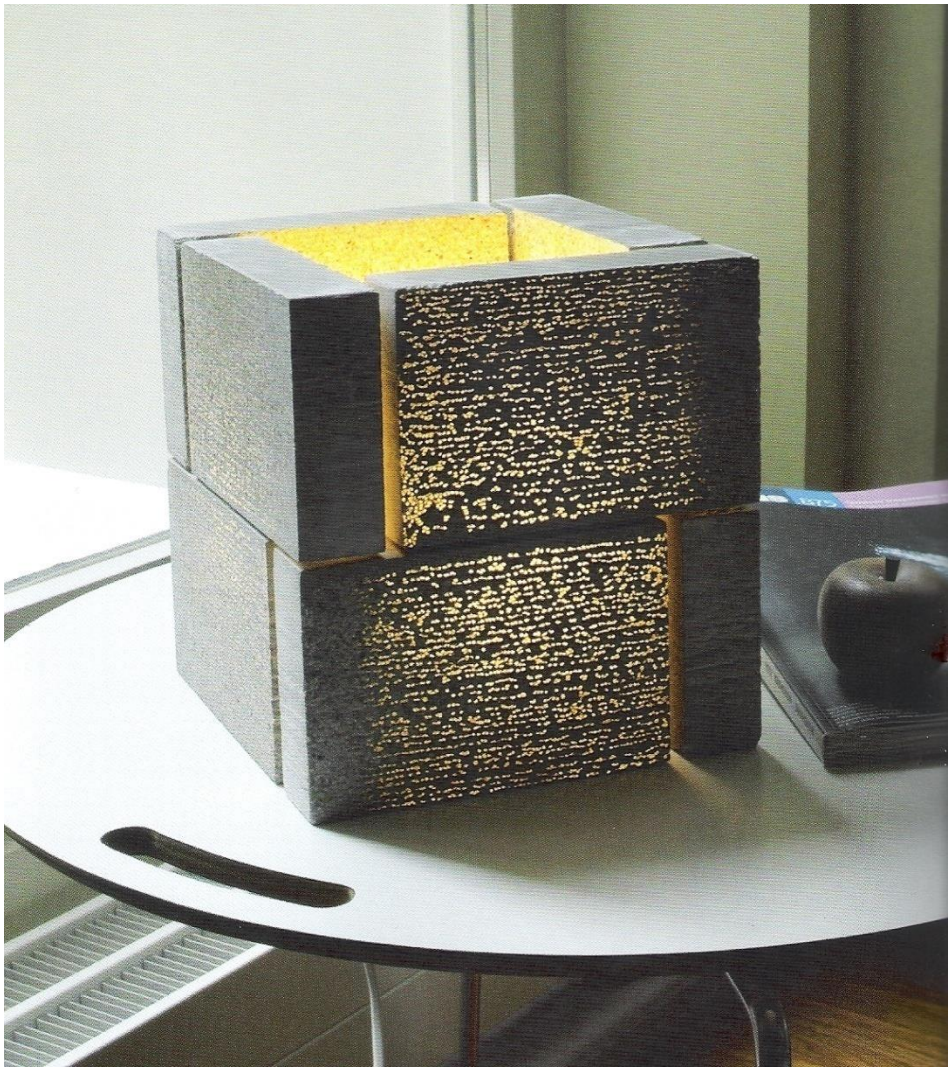


Contemporary Pottery

Sculpture
Plaster/Concrete

- The use of Plaster goes back at least 9000 years.
- Concrete dates back 5000 years – early form used in Pyramid Construction.
- Romans in 300 BC used material similar to what we use now.
- Currently used in molding furniture and other art forms in addition to its construtionuse.

See-through Concrete



Sculpture
Stone

- Stone hasn’t changed much over the years, but the methods of carving have benefited from the advent of power tools for chipping, grinding, and polishing. Advances in diamond cutting surfaces have helped speed up the process tremendously.

Sculpture
Paper

- Paper – began as papyrus which was used by the ancient Egyptians. The Chinese invented paper as we know it around 105 AD. Although paper is mainly used as the carrier medium for paint or ink, it can also be a medium for sculpture.

Paper Engineering

Hummingbird –
Calvin Nicholls

Sculpture
Metal/Wire

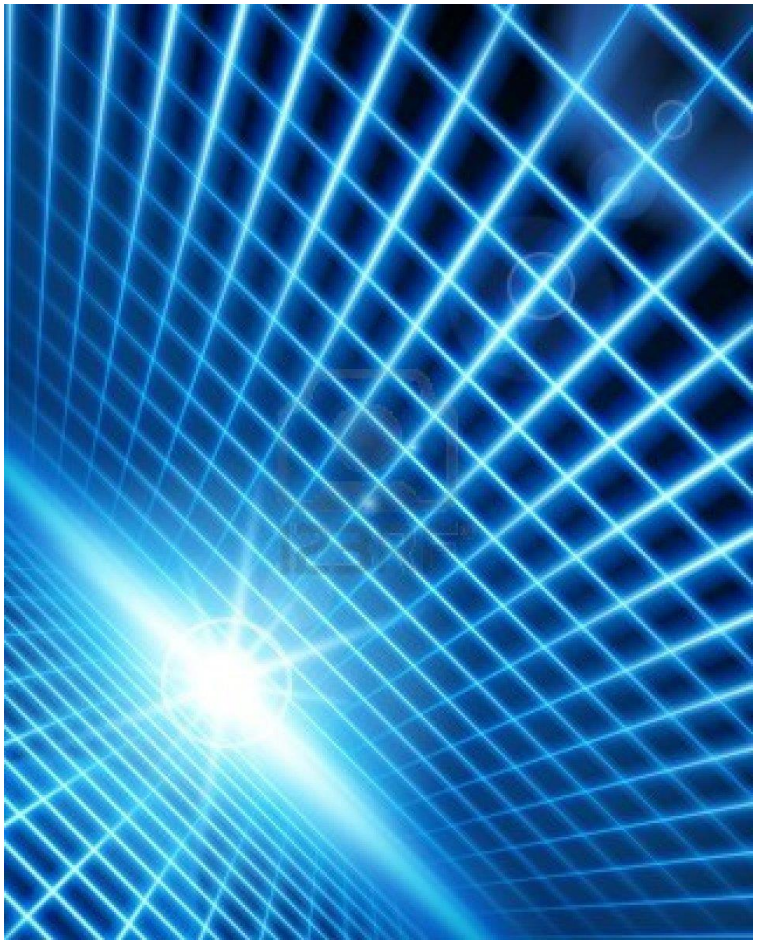
- Metal was used for jewelry and decoration as well as the tools to make them. Wire dates back to at least 1500 BC where a strip process was used.

Bird in Flight - Constantin Brancusi

Contemporary Wire Sculptures at Austin Ranch just north of Dallas

Sculpture
Light

Fiber Optics



Electroluminescent Light Wire

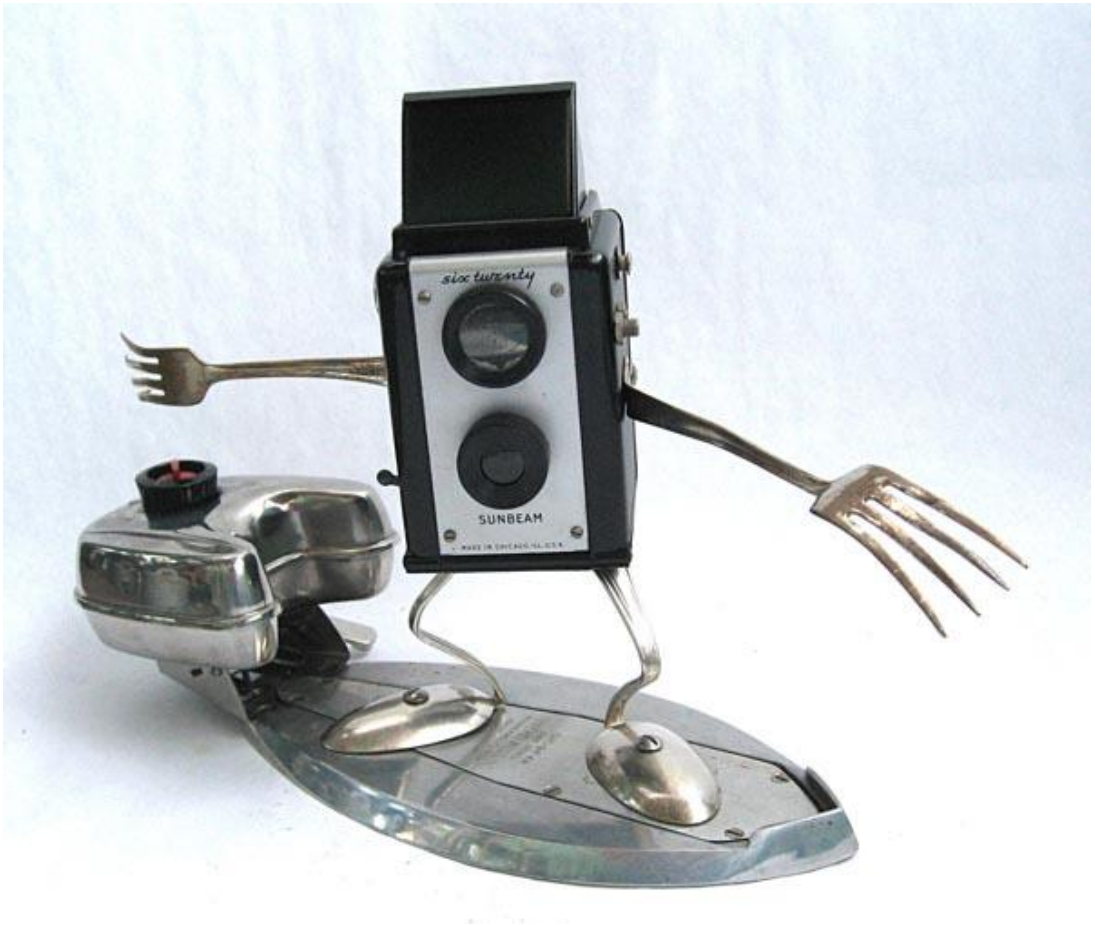
Sculpture
Plastic

- 1907 – Bakelite
- Light weight
- Strong
- Colorable
- Inexpensive
- Moldable
- Formable
- Insulator
- Polymers in everything !

Sculpture
Kinetic

Fiesta – by David C. Roy

Sculpture
Found Art



Assemblage Robot - Brian Marshall

Sculpture
Molding/Casting

- Molding and casting go back to ancient days where plaster can be both the mold and the cast.
- Lost wax process was developed for making bronze statues.
- Today's polymeric materials for molding such as polyurethane and silicone are unprecedented. Polyurethanes, styrenics and silicones are also used for the cast.

Sculpture
3D Printing

- 3D Printing has been around since 1884, but recent developments have made them almost as inexpensive as ink-jet printers. This technology can do for sculpture what ink-jet printing has done for works on paper. This works by depositing layer upon layer of plastic until a 3D object has been formed.

MakerBot Replicator

Decorative Arts

- Jewelry – Some of the very earliest technologies such as glass and metal working were used to make ornamentation for the body and could be afforded only by the very rich. Jewelry making continues to expand with the use of new technologies like metal clay, polymer clay, and methods for cutting, polishing, and drilling precious stones. Synthetic materials are being used to replace the more costly natural ones, making jewelry more affordable for everyone.

Photography

- Photography began when light sensitive chemicals applied to a backing material were enabled to be “fixed” for a more or less permanent picture around 1836. Developments in film and optics continued until the advent of the digital camera in 1988. Subsequent improvements in detail and speed and ability to handle large amounts of data have made the film camera obsolete.

Fiber Art

- Textiles as art probably got their start with tapestries where different colored threads were woven into a mesh to create a visual effect.
- Today, while synthetic materials have taken over a large part of the cloth market, art objects tend to be made from the more natural materials, such as macrame.
- A new fiber art is evolving where fibers are machine sewn freehand into a plastic film which is water soluble. After the object is completed the film is dissolved somewhat giving the object it’s shape while it dries and the remaining polymer acts as a binder.

Prints

- Woodblock Prints
- Etchings
- Lithographic Prints
- Silk Screen Prints
- Giclee Prints
- Ink-jet/Laser/Phaser prints

Beyond 3 D
Light, Sound, 3D Visual, Motion

- Installation Art
- Fireworks

IV. Technology in Support of Art

The Use of Technology in authenticating and dating art

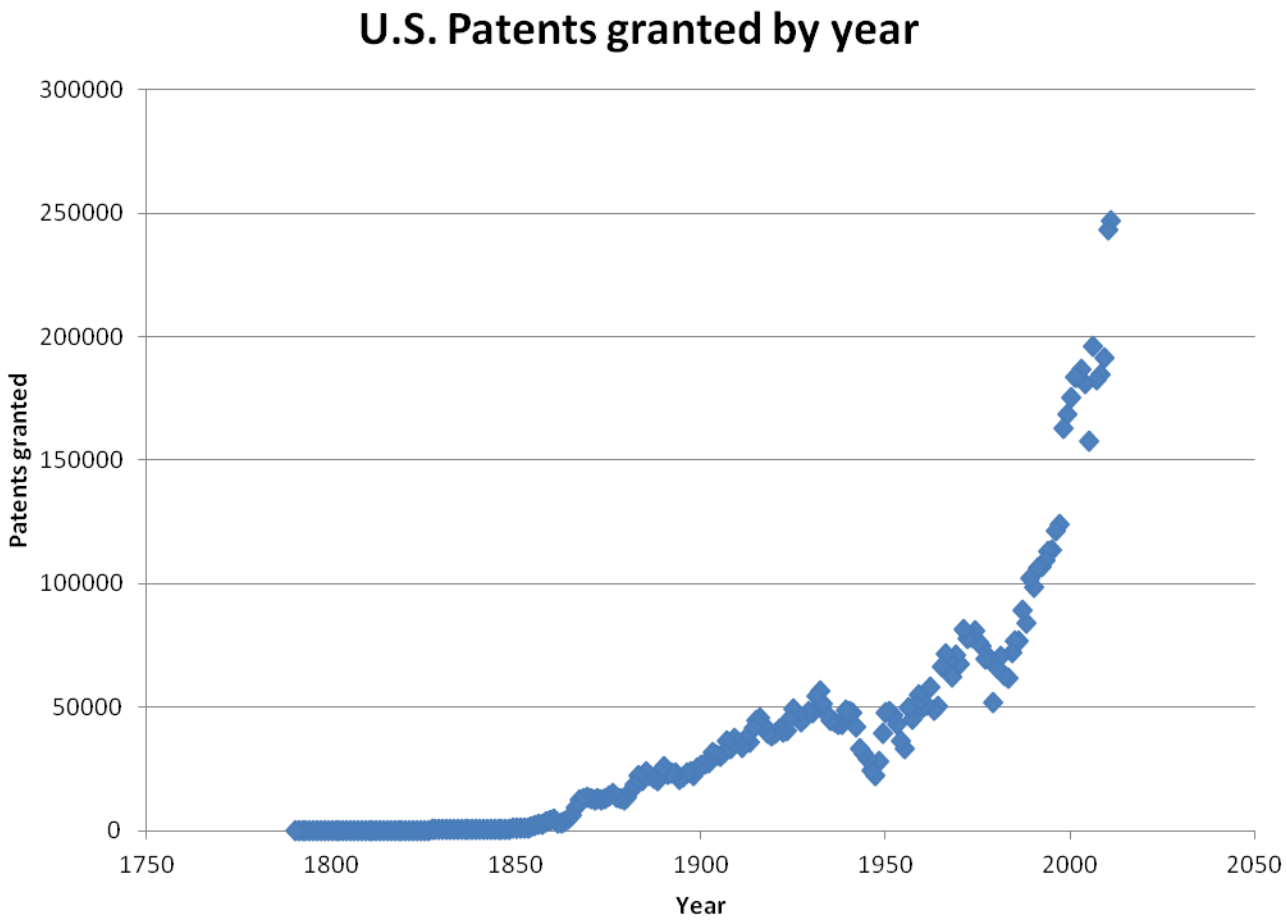
- Atomic Absorption Spectroscopy
- Gas Chromatographic Methods
- Liquid Chromatographic Methods
- Electron Beam microprobe Analysis
- Electron Spin Resonance Spectroscopy
- Emission Spectroscopy
- Image Processing
- IR Spectroscopy
- Light Microscopy
- Mass Spectroscopy
- Mossbauer Spectroscopy
- NMR Spectroscopy
- Nuclear Analytical Methods
- Optical Mineralogy
- PIXE Analysis
- Raman Spectroscopy
- Scanning Electron Microscopy
- Thermal Analysis
- X-ray Diffraction
- X-ray Fluorescence
- X-ray Radiography

Technology is used to clean and restore Art.

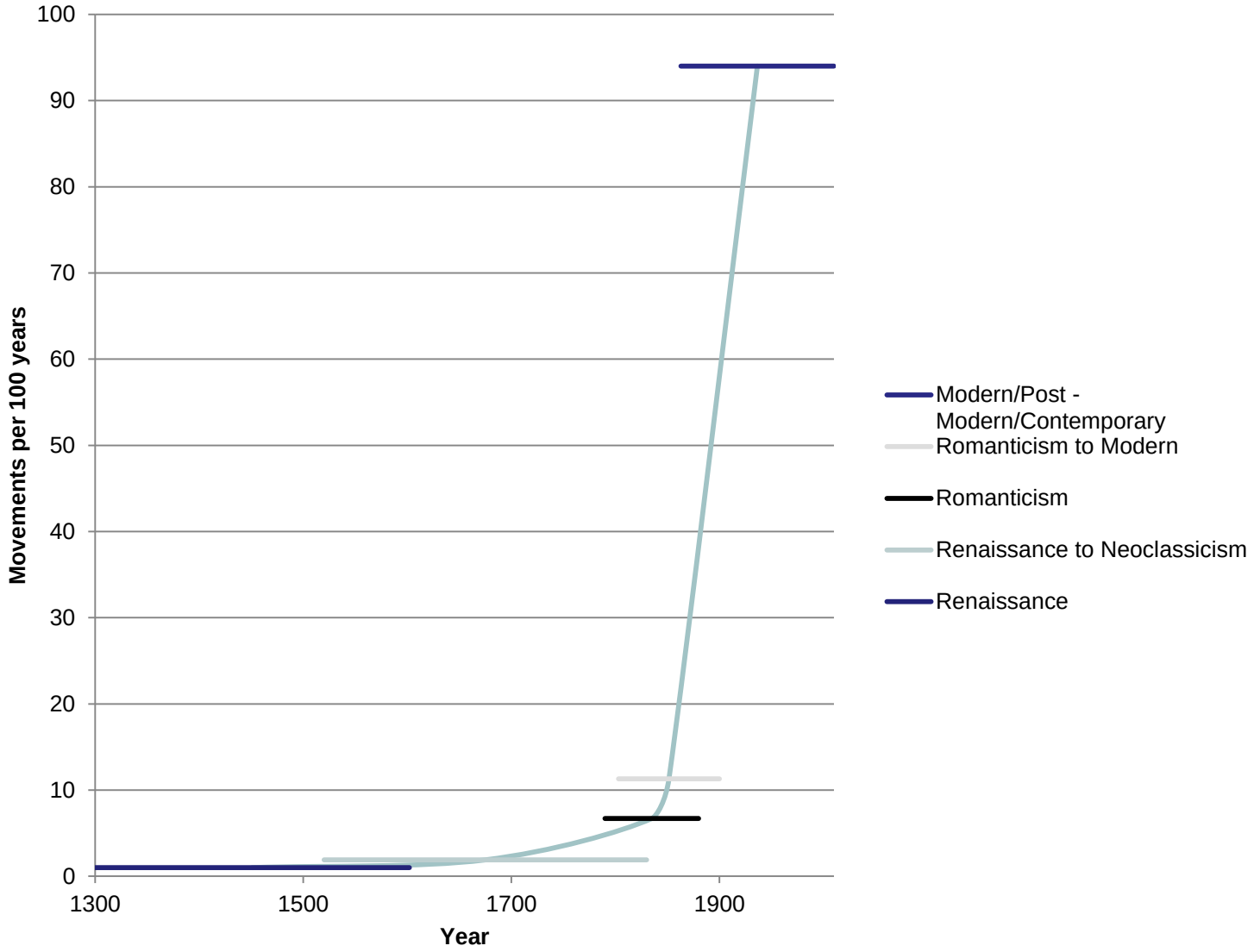
Summary

- Although I've covered a lot, this is not intended to be all inclusive. In fact I've just hit the highlights.
- But where do we go from here? If the past is any indication of the future…

Rate of Change of Technology



Art Movements /100 years Versus Time



What's Next ?

- Technology – will continue to increase exponentially and we may exceed our ability to keep up with it.
- Art – The expansion of the "Anything Goesism" movement. New Technology will inspire new directions in art.
- Will conventional art disappear in technology? (Bill Gates house)

In the fall of 1966, the first Festival of Art and Technology took place at the 69th Regiment Armory in New York City. In this festival, probably for the first time, engineers, artists, and dancers pooled their talents to come up with what might have been the admission that today's art is inseparable from science. The success of this project was questionable, but it has certainly made it clear that the art of the future will go hand in hand with science.

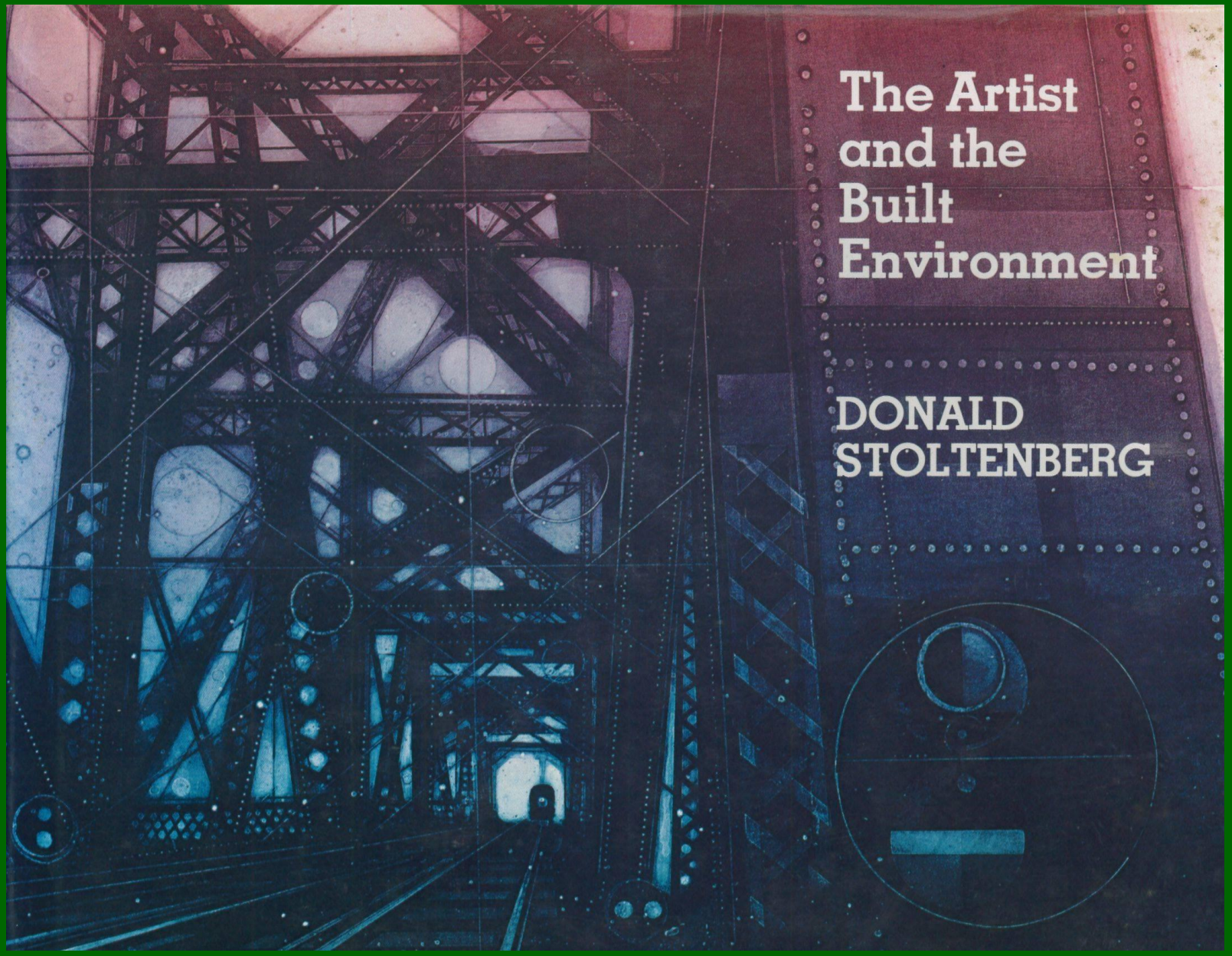
R.H. Pahler - Art & The Engineer - Oct. 1971

For Now

- The View from the Intersection of Art and Technology looks something like this.

Orange Co. Choppers

Paul Jr. Designs

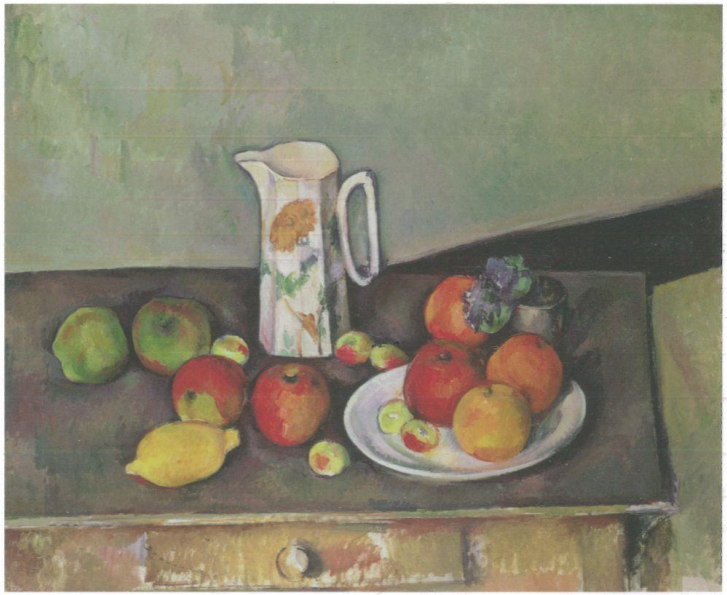

The Artist and the Built Environment
DONALD STOLTENBERG

IMPRESSIONISM AND THE MODERN LANDSCAPE

PRODUCTIVITY, TECHNOLOGY, AND URBANIZATION FROM MANET TO VAN GOGH

JAMES H. RUBIN

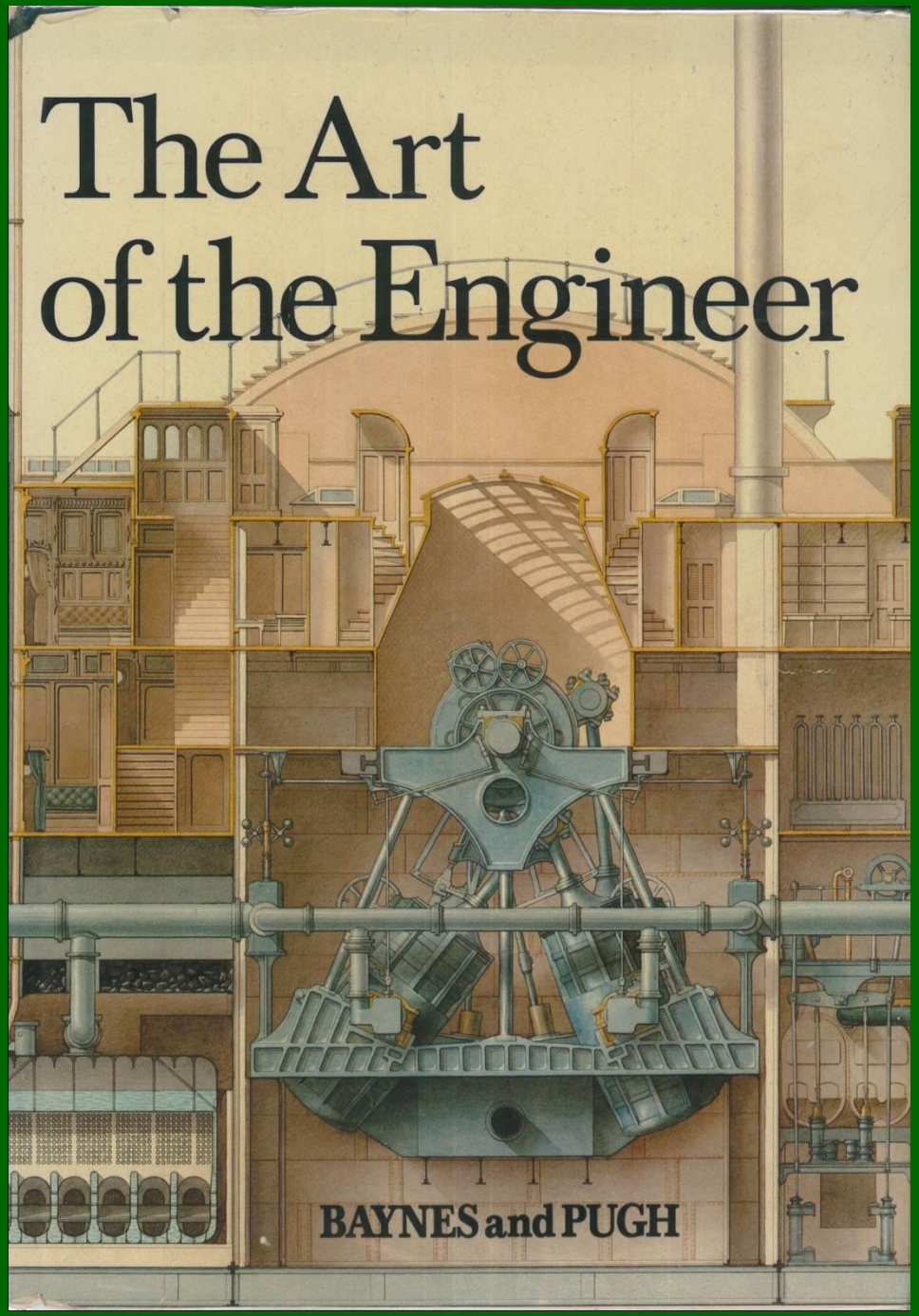
HIDDEN HARMONY



The CONNECTED WORLDS *of* PHYSICS *and* ART

J. R. LEIBOWITZ

The Art of the Engineer



BAYNES and PUGH

Thank You

Questions?