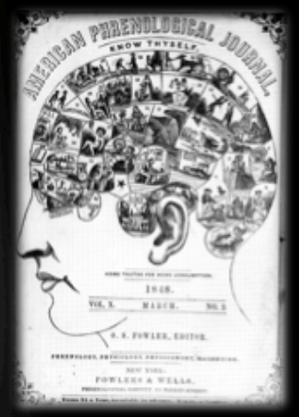
Shot Through with Light

Illuminating the Medical Body









Intro

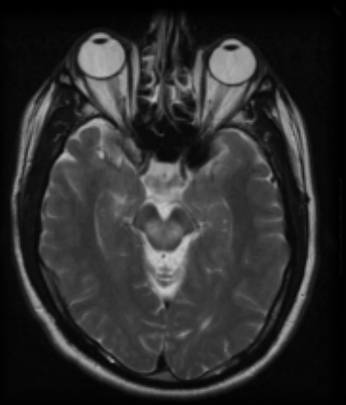














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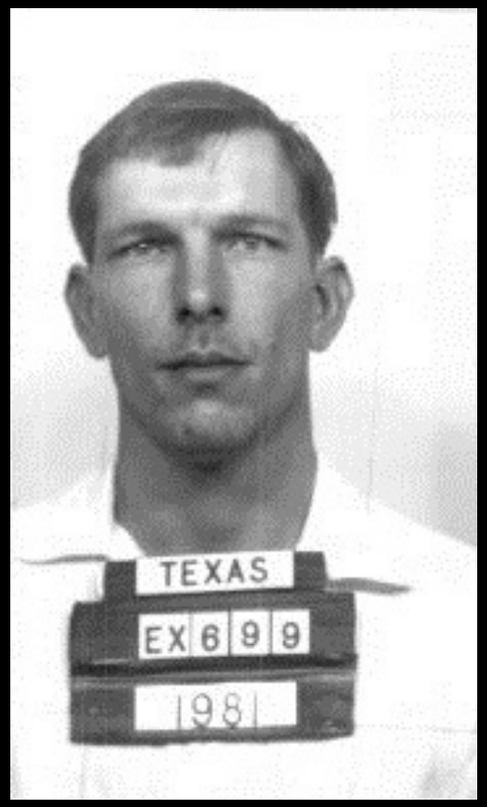



ALIAS: MAN

I was born Joseph Paul Jernigan, on January 31, 1954. I was executed in Waco, Texas, on August 5, 1993, for killing a 75 year-old guy, Edward Hale. I found out his name at the trial. He caught me trying to steal his microwave and we got into it. Right before they injected me, a Chaplain said I should consider donating my body.

I was the 63rd inmate executed after they brought back the death penalty. My brother watched, but no last words came to me as the poison pushed into my body.

I thought my eyeballs would go to some old lady, and my heart to some guy. I found out after I died that, instead, I won the competition. I was deemed the most healthy male specimen by The National Library of Medicine.

I don’t know too much about medicine. But aren’t you curious about where your data comes from?

I never seen my own insides before.

I am your first complete digital human data set. The Visible Human Project, Male Archive. 15 gigabytes of information. Let loose on your internet in 1994.

Free at last.



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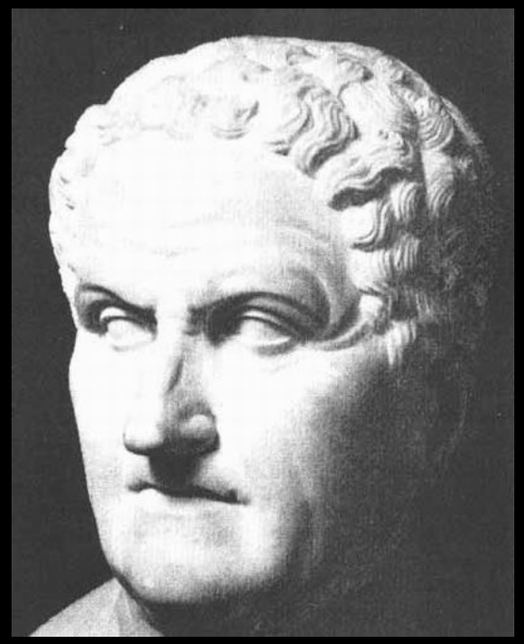


Galen

I don’t mean to be suspicious of science or medicine. We need to see in order to know. But we need to be skeptical to know that what we see may blind us.

Galen of Pergamon. In 145 C.E. his father had a dream in which Asclepius commanded him to send Galen to study medicine.

Wounds, said Galen, are windows into the body, but he wanted to see more. Open the house of the body.

But Roman law prohibited the dissection of humans, so he looked for human traces in pigs and primates.

Vivisection. All those flayed animals.



Galen performing a vivisection.

Philosopher and physician, both. Galen wrote a treatise *That the Best Physician is Also a Philosopher*. He brought together the divergent ideas that you have to experiment and be active (empricism) in order to know, *and* that you can learn from established teachings (rationalism).

In order to diagnose one must observe and reason, said Galen, radically breaking with his contemporaries.

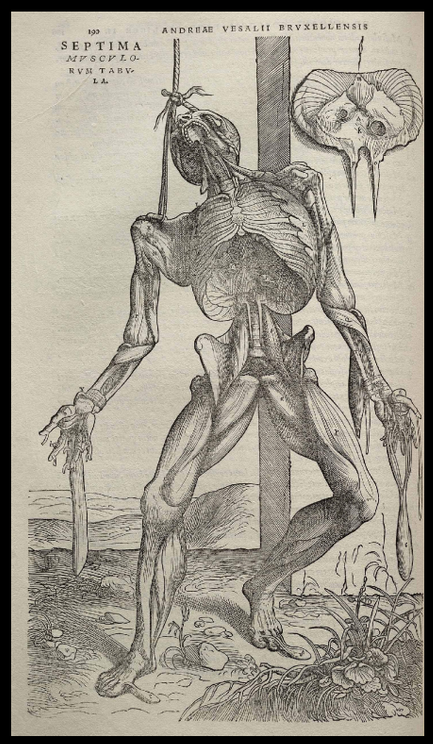
Prognostication over mysticism and divination.

Physicians stopped looking after that.
For 1400 years.

BACK



frontispiece. Andeas Vesalius .
De humani corporis fabrica, 1543



Vesalius

In 1543, challenging 1400 years of Galen's anatomy, Vesalius performed a public dissection of the body of Jakob Karrer von Gebweiler, a notorious criminal from Basel.

The Basel Skeleton is the oldest surviving anatomical preparation.

The frontispiece to Vesalius's 7 volume *de humani corporis fabrica* shows a public performance. The corpse, a female prostitute - another criminal interloper - is opened, displayed by Vesalius for all to see.

The primitive barber-surgeons, and Galen's animals are cast to the foot of the table, while Vesalius presides:

> "When I undertake the dissection of a human pelvis I pass a stout rope tied like a noose beneath the lower jaw and through the zygomas up to the top of the head... The lower end of the noose I run through a pulley fixed to a beam in the room so that I may raise or lower the cadaver as it hangs there or turn around in any direction to suit my purpose; ..."

We who have been hung outside of the social body, and dissected. So that you can know yourself.

Drawn from the fabric of the human body.

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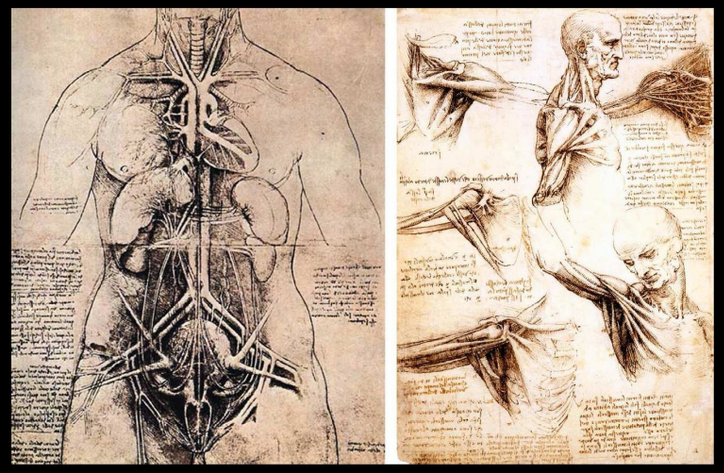

Leonardo da Vinci. Anatomical Study, 1510



Pierre Poncet, Andreas Vesalius



Rembrandt. Anatomy Lesson of Dr. Nicolaes Tulp, 1632

Early Modern Art

Vesalius's investigations in anatomy occurred in a Renaissance spirit of discovery that did not recognize a division between art and science.

Leonardo da Vinci, from the late 15th into the 16th century, used drawing to explore science and anatomy, proceeding from observation to understanding. Leonardo was given permission to dissect human corpses at the Hospital of Santa Maria Nuova in Florence, and was preparing a study on anatomy at the time of his death.

Vesalius used art to realize and disseminate his vision. His *de fabrica* corpus contained over 250 illustrations.

Rembrandt, almost 100 years later, continues the tradition, painting the dissection of the body of Aris Kindt, executed by hanging earlier that day. Shadows are cast over Kindt's inert body; Rembrandt's chiaroscuro illuminates the anatomists as they consult a book in the foreground, likely Vesalius's text. *(Dis)regarded*.

Vesalius died shipwrecked in the Ionian sea. Rumour has it he had himself been deemed a criminal for performing a dissection on a Spanish aristocrat whose heart was still beating.

corpus, body, book… what hides in the shadows to give light to your knowledge?

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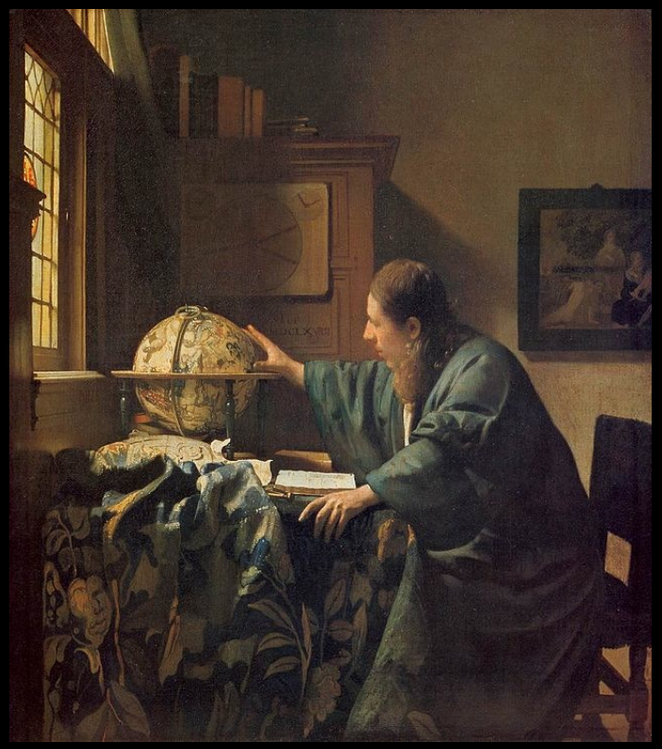
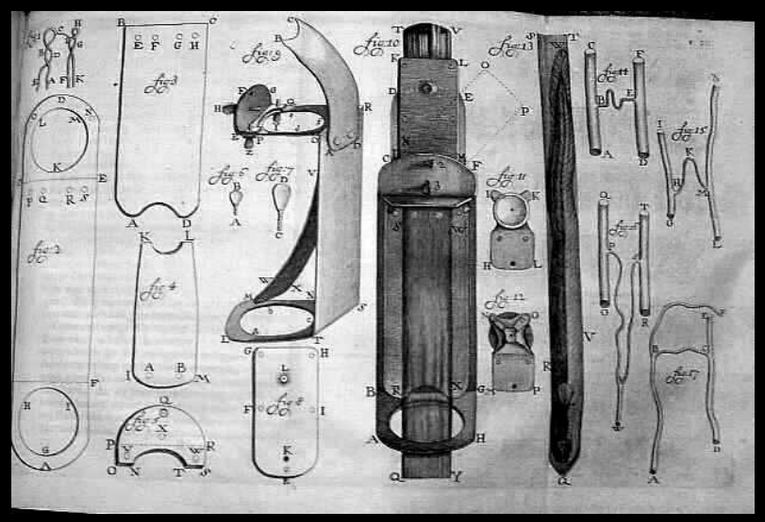
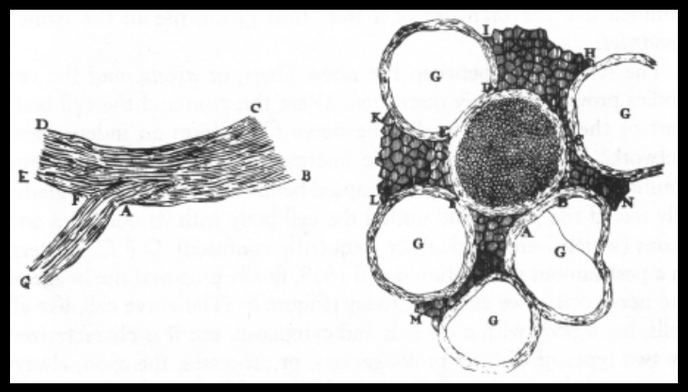


Johannes Vermeer *The Astronomer,* 1668



Henry Baker. Van Leeuwenhoek's microscopes, 1755



van Leeuwenhoek. longitudinal and cross section of a nerve, 1719

Microscope

Galileo Galilei's invention was called the microscope in 1625. He called it the *occhiolino* or little eye.

Galileo built on the work of lens makers from the Netherlands, and Dutch Draper Antonie van Leeuwenhoek continued this National tradition by using his handcrafted microscopes to make the first microscopic observations of blood, spermatozoa, and muscle.

Van Leeuwenhoek remained secretive about his process of lens construction, of which he wrote, "I only keep [it] for myself." Standing over his fire he burned and shaped glass into lenses.

Some say that many of the Old Masters used novel contemporaneous visual apparatus to create their masterpieces. Johannes Vermeer, born four days after van Leeuwenhoek, reportedly modelled his famous paintings *The Astronomer* and *The Geographer* after van Leewenhoek.

Territory. Interiority. From the heavens, to vaster, uncharted inner worlds.

Science: mystery; revelation: secret; seen: unseen

In 1981 van Leeuwenhoek's original specimens were found intact in the archives of the Royal Society of London.

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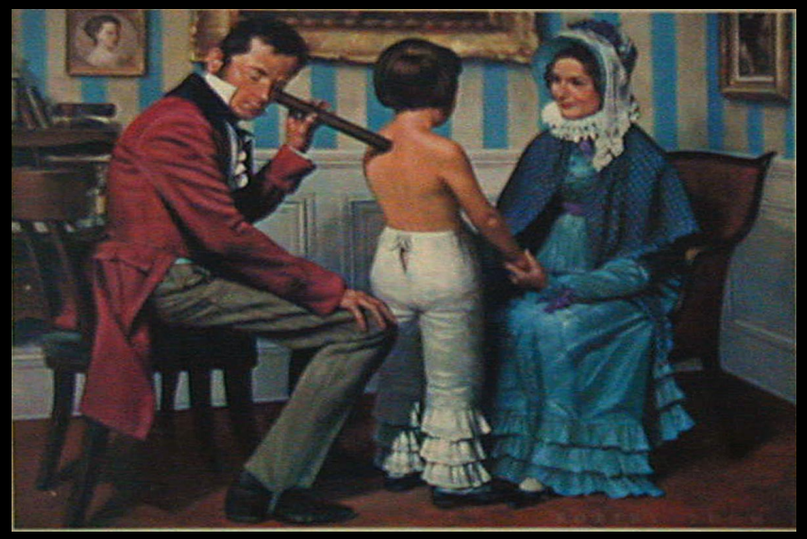

René-Théophile-Hyacinthe Laennec (1781-1826) with stethoscope



Normal Heart Sounds

Normal S1 and S2

Best with headphones.

Stethoscope

Hippocrates notes in his *De Morbis*, that by putting his head to his patient's chest he can hear revealing sounds.

If we evolved increasingly refined means for seeing the body, we have also found ways to gain clinical distance from it.

In 1816, René-Théophile-Hyacinthe Laennec, a French physician, was examining a lovely young woman. Embarrassed about placing his head on her chest for auscultation, he remembered a game he played as a child. He rolled papers together into a cylinder and placed it against the woman's chest, rewarded with an amplification of the sounds transmitted to his ear through the tube.

Technologies of knowledge often take the physician farther and farther from the patient.

Laennec's own tuberculosis was diagnosed with a stethoscope, by his nephew. As Laennec lay dying he bequeathed his stethoscope to his nephew, calling it, "the greatest legacy of my life."

The instruments we create to chart our death.



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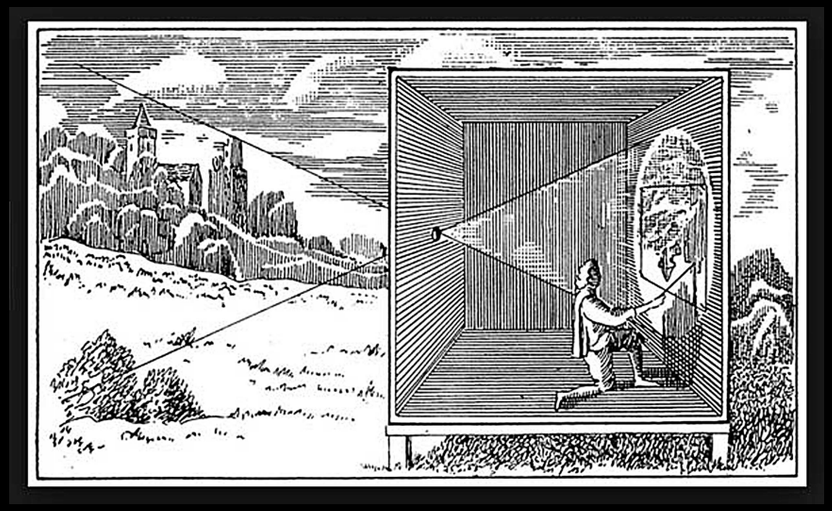
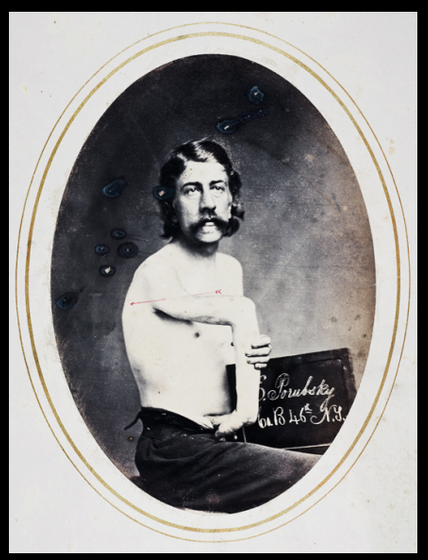


Camera obscura



Darwin. *The Expression of Emotions in Man and Animals*, 1872.



Dr. R.B. Bontecou, 1863

Medical Photography

Familiar with the writings of Arab scientist Ibn Ibn al-Haytham, Leonardo da Vinci made extensive study of optics, and provided the first description of the camera obscura in 1502. With such instruments of seeing, man becomes sovereign, sitting above, apart from, and in judgement of the objects he observes.

This "objectivity," made later 19th century advances in photography appealing to scientists and physicians.

Darwin, described photography as "the best means for observation, as allowing more deliberation." His *The Expression of Emotions in Man and Animals* (1872), was one of the first scientific books ever published with photographic illustrations.

Foucault exposes how this medical gaze is not only turned on the object - it *forms* the observer/ physician. The physician becomes expert and judge: *examining the case* before him or her. Fixing the diseased, the abnormal.

Reed. B. Bontecou, a physician and soldier from New York, took his camera to the American Civil War (1861–1865).

Shooting wounded soldiers.
Shock of flash.
Modern trauma of being exposed.



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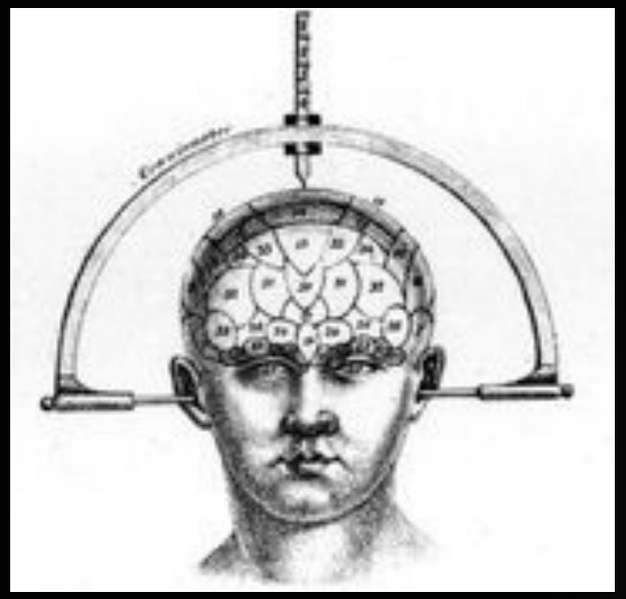
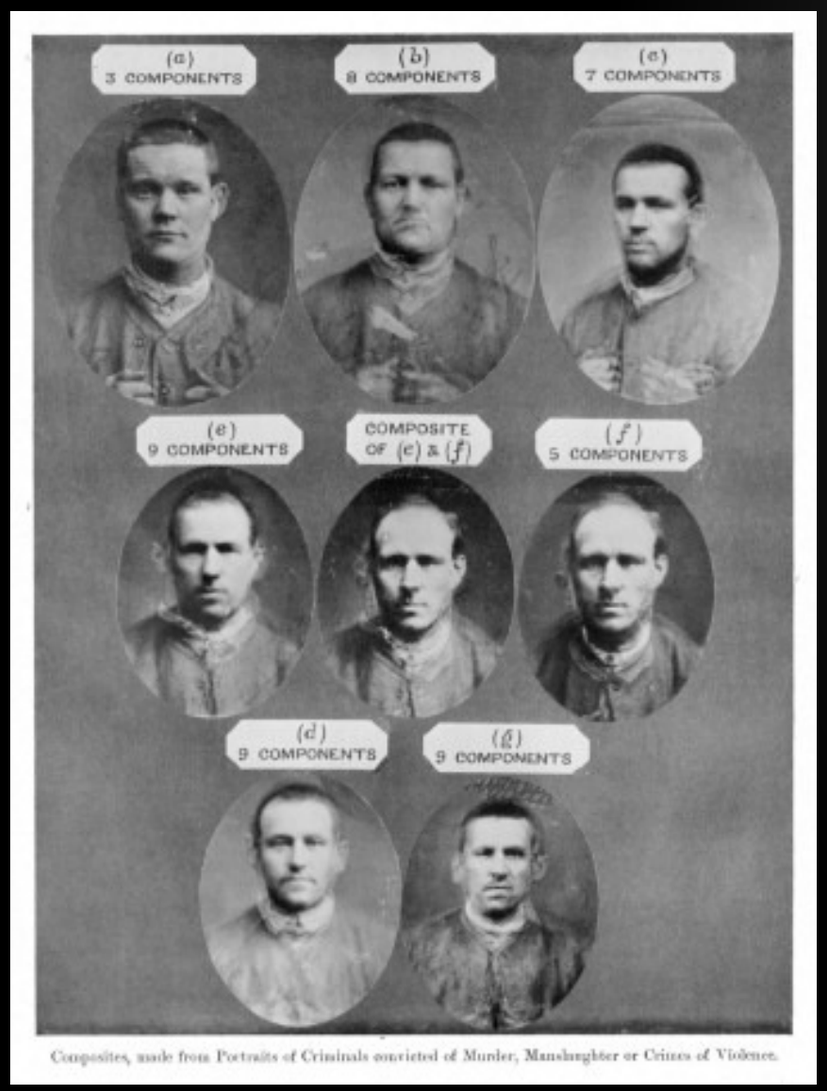




Composites, made from Portraits of Criminals convicted of Murder, Manslaughter or Crimes of Violence.

Phrenology

Nowhere did medical observation and measurement, in the form of nascent neuroscience, come together with photography in moral judgement, as in the study of phrenology.

Franz Joseph Gall advanced the idea that mental faculties and individual characteristics were localized in areas of the brain. The skull, in a metaphor akin to the glove to hand, could be palpated and measured to gain an understanding of personality and character.

Photographs of various groups, such as criminals, were amalgamated to create composites of degenerate ‘types’.

Captured on film.

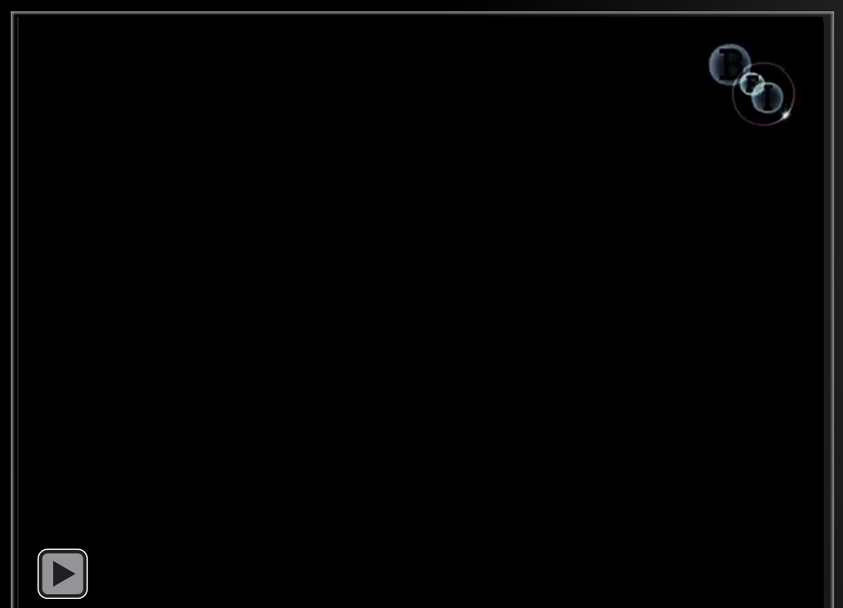
Although phrenology is now considered a pseudoscience, it did lead to a characterization of the “brain as the organ of the mind,” and paved the way for later neuroscience.

Propensities localized by phrenologists:

Adhesiveness; Alimentiveness; Amativeness;
Acquisitiveness; Causality; Cautiousness;
Combativeness; Concentrativeness; Constructiveness;
Destructiveness; Ideality; Love of life;
Philoprogenitiveness;
Secretiveness







The X Rays, 1897



“The Chess Players” Marcel Duchamp, 1910

X-Rays

In 1895 Wilhelm Röntgen, a German physicist, noticed a faint shimmer of rays that escaped through an apparently opaque covering. He called these electromagnetic rays X-rays.

He took the first picture using XI rays of his wife Anna Bertha’s hand. Seeing her skeleton in the image, she called out, “I have seen my death.”

In addition to revolutionizing medicine, X-ray photographs took hold in the public’s imagination. It was the first glimpse inside the living body.

Motion pictures, which were newly available at the time, must have contributed to radical shifts in perspective. Sequences of pictures created the illusion of movement, sequence, temporality, while X-Rays dismantled it.

Modern art of the time played obsessively with these ideas of transparency, multiplicity, and interiority.



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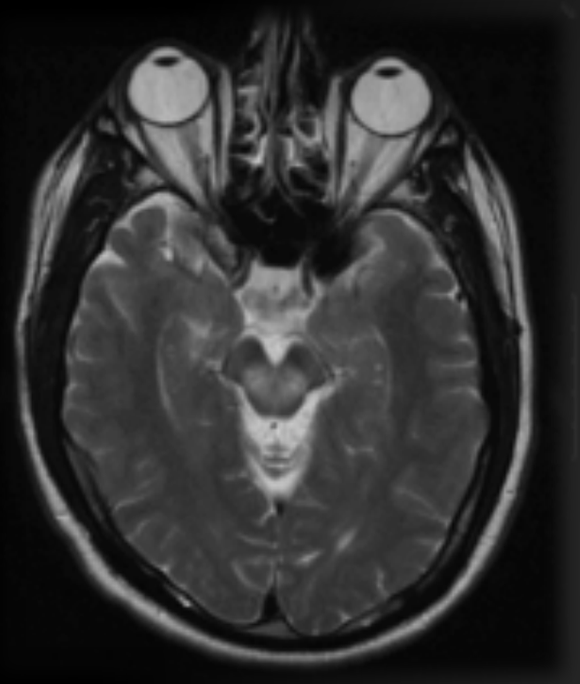
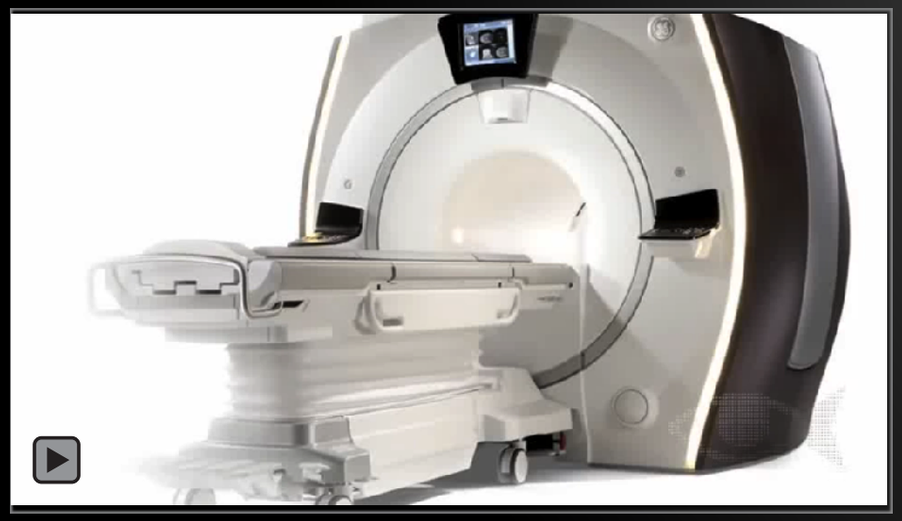




Magnetic Resonance Imaging

Yes you are magnetic. You draw me in to your cocoon-like chamber, promise to resonate with the thrum of my elemental nature. You pick up my excited atoms.

You are to air what Xray is to bone. You illuminate my vulnerability, and the fragile invisibility of the network that makes me who I am.

Gone is the sturdy bone casing on the Xray film.
Replaced by a black void.

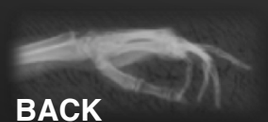
I need to rotate myself in my mind’s eye.

You render my soft tissues a Rorschach. Symmetry blotted into a kaleidoscope of layers.

A mandala for the 20th century.

I see my ancient, reptilian self, with the higher order parts of my brain.

> Our best machines are made of sunshine; they are all light and clean because they are nothing but signals, electromagnetic waves, a section of a spectrum, and these machines are eminently portable, mobile… People are nowhere near so fluid, being both material and opaque.
> Donna Haroway



BACK





The Virtual Human Project

As the NLM scientists sliced into me I disappeared.
Slices of frozen flesh so thin they fell away like dust.

With successive data points you ‘get’ me. Capture me
with your understanding, while I escape in slices.
You see me the way I never saw myself.

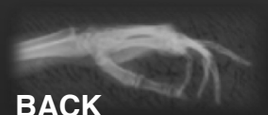
Is this some sort of redemption?
Have I made up for my crimes?

Surely it can’t escape you -
the oldest story in the newest technology.
Stretched out like Christ on a gurney.
Sacrificed to the state. To medicine.

Now I am made and re-made every day.

Resurrected as your data set. Drawn from the fabric of
the human body. Flesh made data. Data made flesh.

On your screen my presence shimmers.



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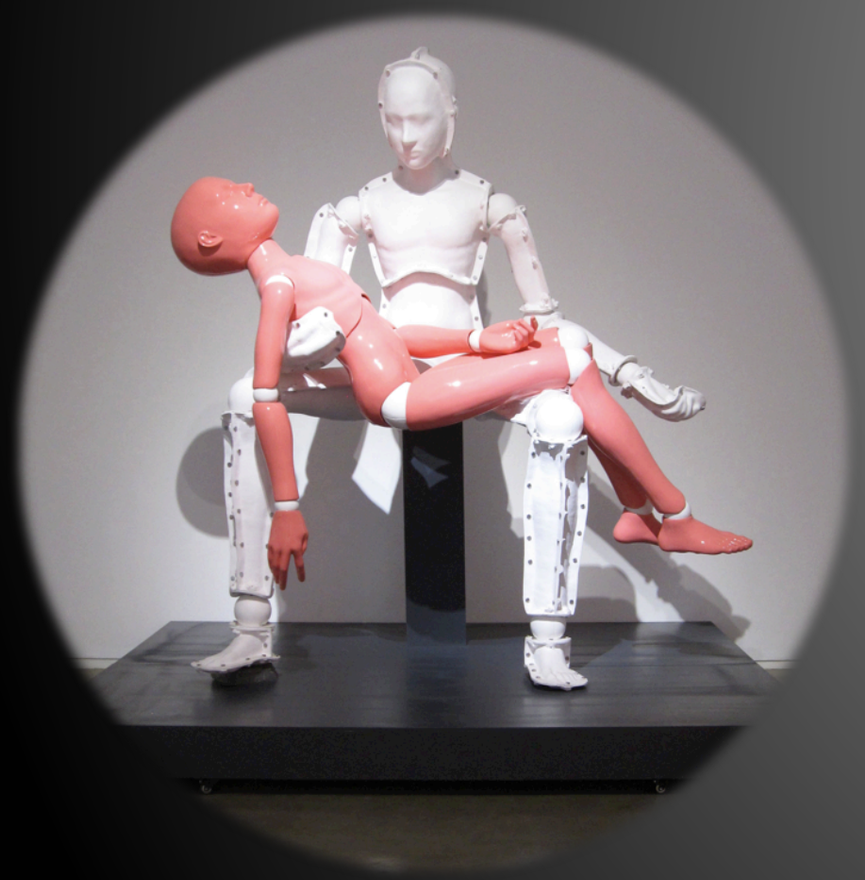
PostHuman

human. suffer. light. body. visible. seen. known.
drawn. rendered. disseminated. known.
discovered. charted. mapped. known.
apprehended. captured. known.
transduced. digitized. archived. known.
reproduced. modelled. simulated. known.
know. known. real. really real. really. known.



Lee Yong Baek. *Pieta*, 2008.

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Sources and credits

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Many texts have been consulted, consumed, masticated, and regurgitated in the formation of this work. Key texts include:

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