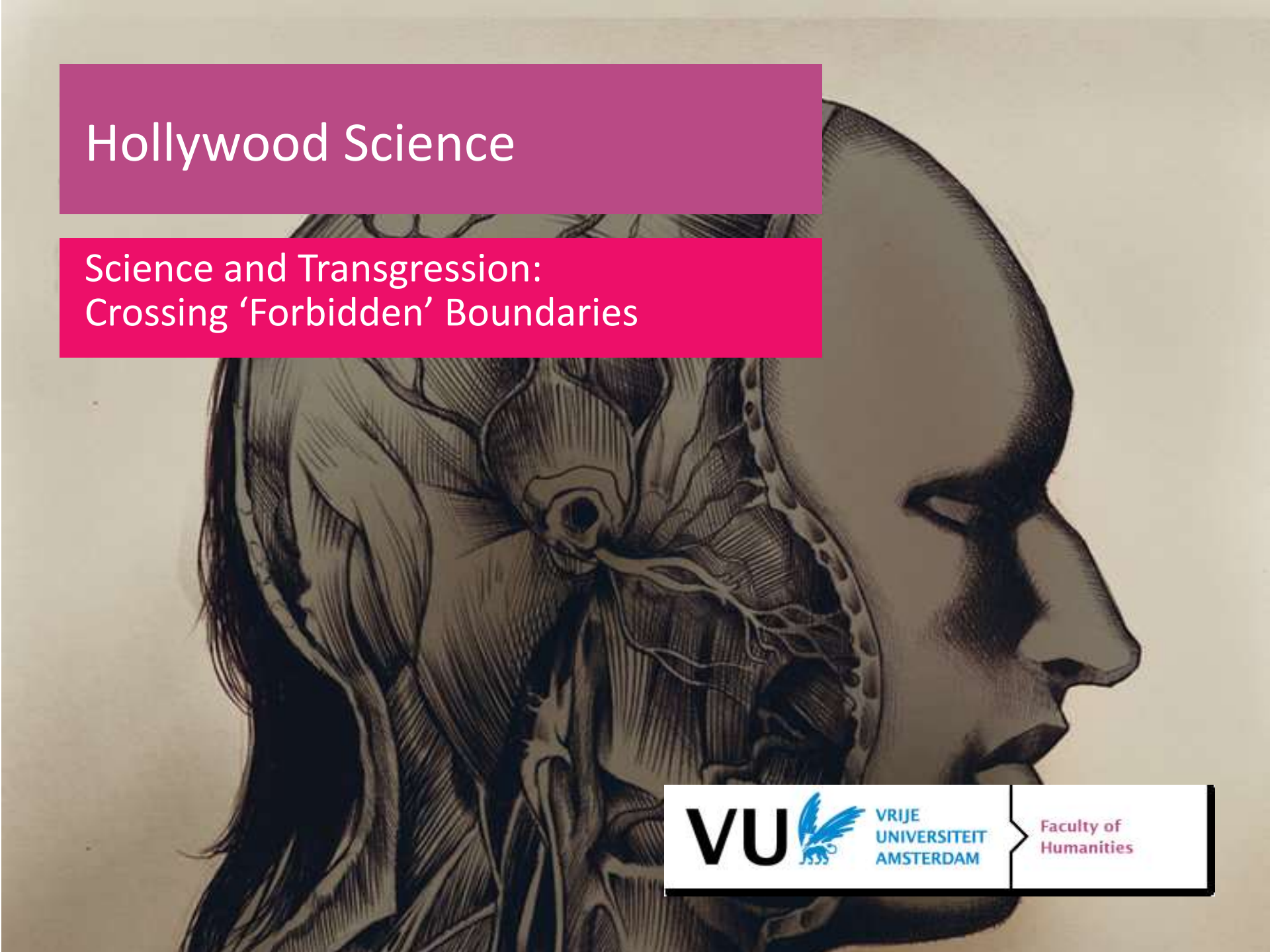
Hollywood Science

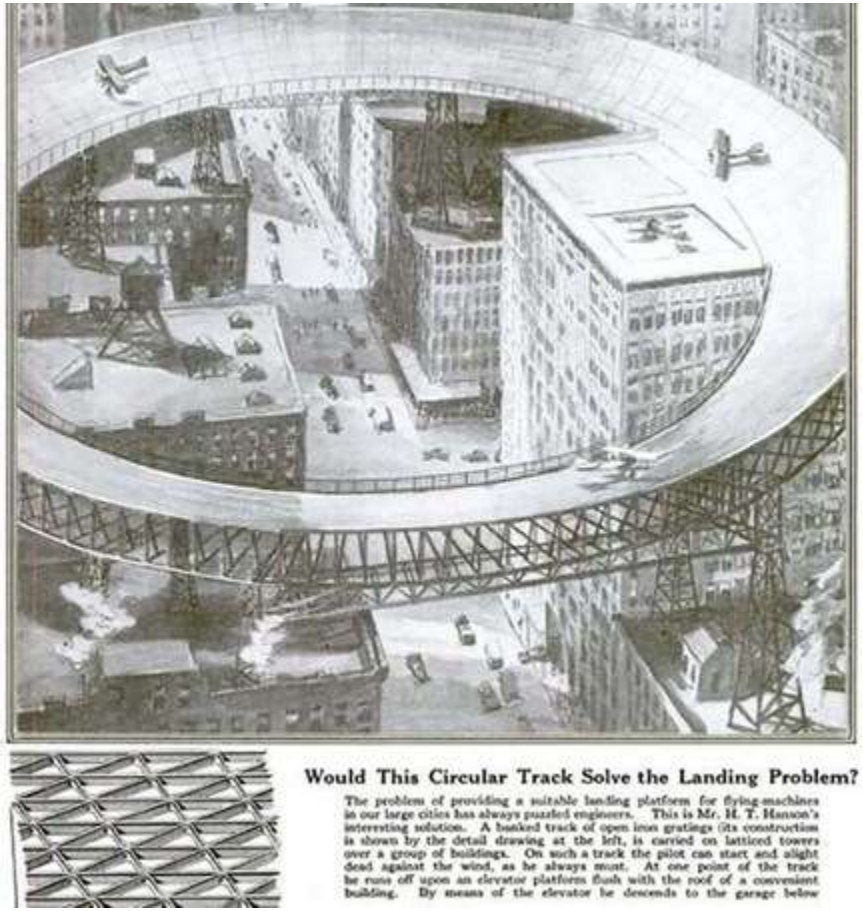
Science and Transgression: Crossing ‘Forbidden’ Boundaries



VU VRIJE UNIVERSITEIT AMSTERDAM | Faculty of Humanities

Science and Science-fiction: The Endless Runway

https://youtu.be/QIb8n4bn9-Q



Would This Circular Track Solve the Landing Problem?

The problem of providing a suitable landing platform for flying machines in our large cities has always puzzled engineers. This is Mr. H. T. Hanson's interesting solution. A banked track of open iron gratings (its construction is shown by the detail drawing at the left, is carried on latticed towers over a group of buildings. On such a track the pilot can start and alight dead against the wind, as he always must. At one point of the track he runs off upon an elevator platform flush with the roof of a convenient building. By means of the elevator he descends to the garage below

Popular Science Monthly published a circular runway concept in 1919 showing a circular track in Manhattan.

How Culture ‘relates’ to Science

Recap of key points of Lecture 1 and 2

- Culture **responds** to a fear of science with warning/cautionary tales
  - Fear of intelligent life from outer space
  - Superman-mad scientists, threats of the beam

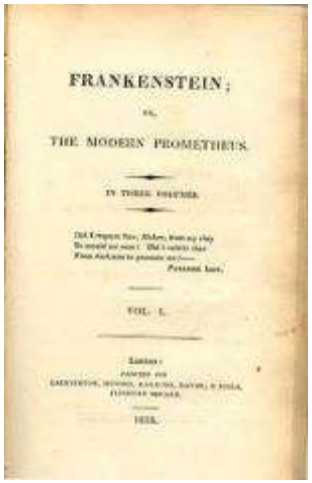
- Culture as **ways of interpreting / understanding** science and scientific developments.
  - Fantastic Voyage-images and fiction/stories to ‘visualise and imagine’ new discovery

The Modern Prometheus

One of the best examples of '**these 2 key points**' is Mary Shelley's novel

Frankenstein or the Modern Prometheus (1818)

often called the first **true** work of science-fiction.

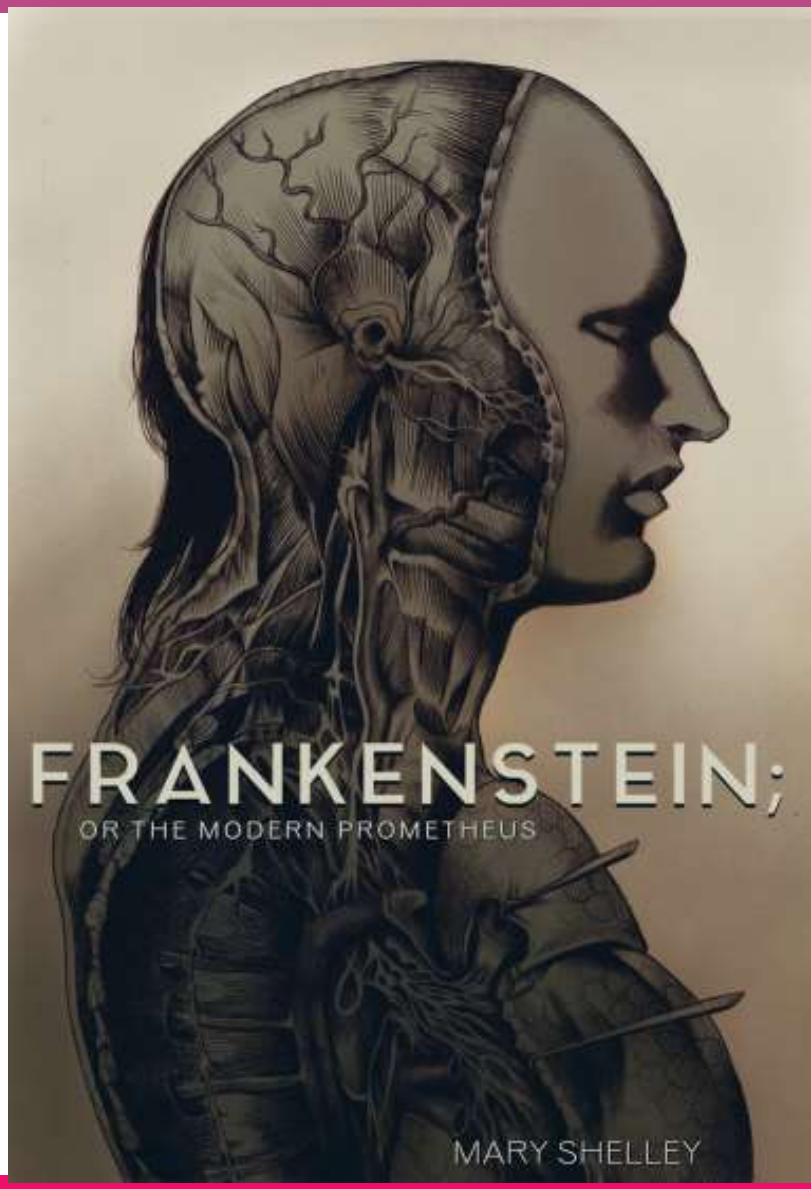

FRANKENSTEIN;

OR,

THE MODERN PROMETHEUS.

IN THREE VOLUMES.

VOL. I.



Frankenstein

Aim of our Lecture

- To look at how Shelley's text can be read as mirroring / shadowing the development of the **'narrative of science'** in our culture over the past 200 years.

***Frankenstein* is a product of culture, not ONLY a work of literature**

1816: The Year Without a Summer

- **Lord Byron, Mary Godwin, Percy Shelley, John Polidori, Matthew Lewis**
- Eruption Mount Tambora (1815, Dutch East Indies [Indonesia])
- Cold/bad weather in Europe
- Party game:
  Ghost-writing contest

*"'We will each write a ghost story,'
said Lord Byron"*

(introduction 1831)

Villa Diodati (Lake Geneva)

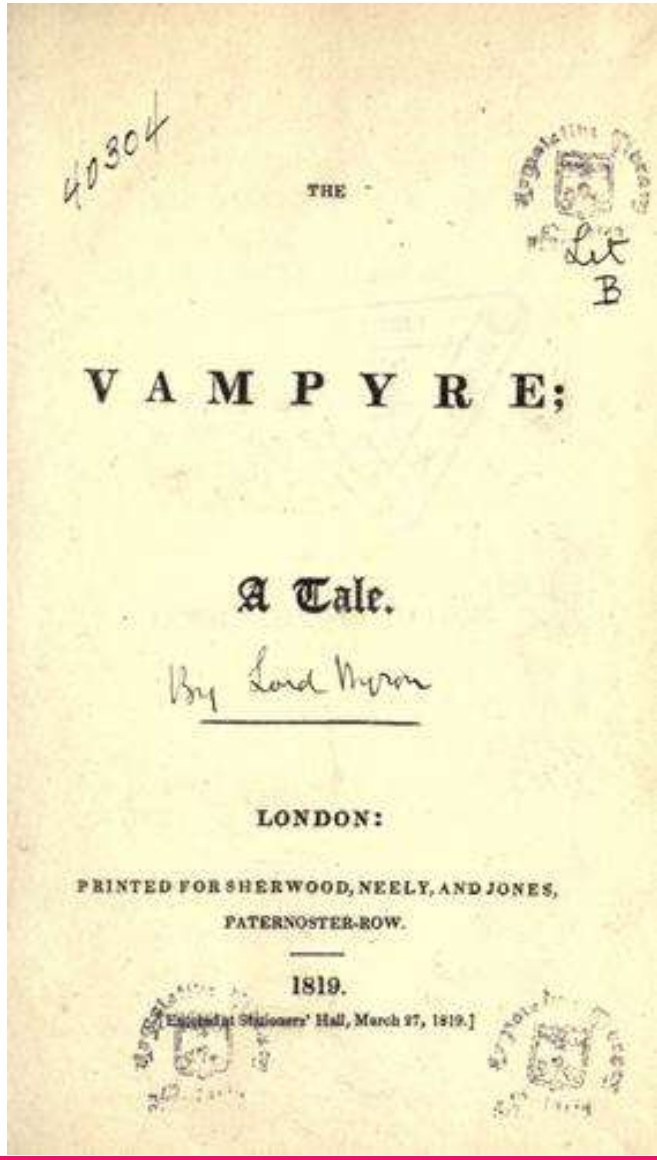
1816: The Year Without a Summer

Which lead to the creation of:

- Byron: *Darkness* (1816, poem)
- Byron: “Fragment of a novel” (1819)

- Polidori: *The Vampyre* (1819)

- Mary Shelley: *Frankenstein or the Modern Prometheus* (1818)
  - From a waking dream



Who was Mary Shelley?

- (1797–1851)
- Daughter of philosophers William Godwin and Mary Wollstonecraft
- Together with her husband Percy they saw themselves as:
  - ‘revealing’ knowledge about the inner workings of the human mind and emotions and equal to (and perhaps even more important than) scientists.

Mary Shelley. Photograph: National Portrait Gallery London

Bennett, B. (2004). Shelley [née Godwin], Mary Wollstonecraft (1797–1851), writer. *Oxford Dictionary of National Biography.* https://doi.org/10.1093/ref:odnb/25311

Frankenstein or the modern Prometheus (1818)

- Published anonymously
- Original story?
  - Caliban (Shakespeare)
  - Myth of Pygmalion
- Political engaged
  - Criticising power and position (and signalling its dangers)

- Mixture of Gothic and Romantic novel
  - Irrational and emotional characters (Romantic)
  - Set in Switzerland, magical surrounding (Romantic)
  - Dark and spooky setting (Gothic)
  - Death / macabre telling (Gothic)

http://www.gutenberg.org/ebooks/84

Frankenstein or the modern Prometheus (1818)

"**It was on a dreary night of November** that I beheld the accomplishment of my toils. With an anxiety that almost amounted to agony, I collected the instruments of life around me, that I might infuse a spark of being into the lifeless thing that lay at my feet."
(Chapter 1)

"I discovered more distinctly the black sides of Jura, and the bright summit of Mont Blanc. I wept like a child. "**Dear mountains! my own beautiful lake!** how do you welcome your wanderer? Your summits are clear; the sky and lake are blue and placid."
(Chapter 7)

Frankenstein or the modern Prometheus (1818)

- Age of Enlightenment
  - Philosophical debates
  - Morals (without God)
  - Who's the hero/villain?
- 'Story of Science'
  - Cutting edge technology
  - Industrial revolution
  - Electricity!

Enlightenment, a European intellectual movement of the 17th and 18th centuries in which ideas concerning **God, reason, nature, and humanity** were synthesized into a worldview that gained wide assent in the West and that **instigated revolutionary developments in art, philosophy, and politics**. Central to Enlightenment thought were the use and **celebration of reason**, the power by which humans understand the universe and **improve their own condition**. The goals of rational humanity were considered to be knowledge, freedom, and happiness.

From: https://www.britannica.com/event/Enlightenment-European-history

Frankenstein or the modern Prometheus (1818)

- Monster uses reason and talks with his creator
- Synopsis

"Frankenstein tells the story of **gifted scientist Victor Frankenstein** who succeeds in giving life to a being of his own creation.

However, this is not the perfect specimen he imagines that it will be, but rather a hideous creature who is **rejected by Victor and mankind in general**. The Monster seeks its revenge through murder and terror."

https://www.bbc.com/education/guides/z8w7mp3/revision/2

Prometheus

- Stealing from the Gods
- Gave fire to humanity
- Associated with technology
- Eternal suffering

https://www.britannica.com/topic/Prometheus-Greek-god

Prometheus, Theodoor Rombouts (1597–1637. Royal Museums of Fine Arts of Belgium

Importance of ‘Electricity’ in the novel

It is the inclusion of electricity (as representative of science, Enlightenment and rational progress) that actually unleashes the monster of destructive power that wreaks havoc on Victor’s world in the novel.

Culture and science:

- **Understanding**
  - Cf. Feringa and *Fantastic Voyage*
- **Warning (introducing anxiety)**
  - Debatable scientific developments from 18th/19th century

Frankenstein's Relationship with "Electricity"

Electricity as a theme

Two important background stories:

1. Debate around 'nature of electricity' and electrical scientists
   - **Vitalism**
2. Experiments with electricity on prisoners
   - **Galvanism**

Vitalism

Where does the 'vital spark of life' come from?

John Abernethy (surgeon):

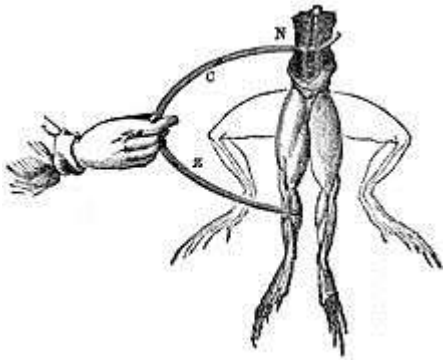
- "life, in general, is some principle of activity added by the will of **Omnipotence** to organized structure, an **immaterial soul** being superadded, in man, to the structure and vitality which he possesses in common with other animals."

William Lawrence (consultant surgeon):

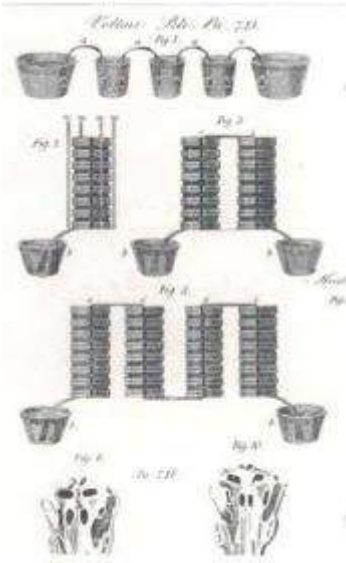
- "[…] the principle of life is in all organized beings the same: […] the vital properties **all derived from their organic structure**, and that the difference of this bodily structure constitutes the only difference in their faculties and powers. […] **man is nothing more than an orang-utang** or an ape with 'more ample cerebral hemispheres'

Galvanism

Shelley reflected in her novel on the debate around 'nature of electricity' and electrical scientists:



- Luigi Galvani
  - Deeply religous
  - Electricity as God-made energy/fluid in body
  - Frog twitching experiment:
    - Energy of the frog activated by metal wire
- Alessandro Volta
  - Made the first battery (voltaic pile)
  - Contractions in frog's legs due to differences in energy and induced by two different metals (cf. his battery)



Galvanism

https://youtu.be/hVu844ZcCdU?t=39m48s
(start at 00:39:48 – 00:43:40)

The Second reference is far more obvious…

Experiments with electricity on prisoners

- Giovanni Aldini (Galvani's nephew)
- George Forster a hanged convict was 'resurrected' through an electrical experiment in 1803.

Mary Shelley was aware of this 'experiment'…

https://youtu.be/hVu844ZcCdU?t=56m3s
Start at 00:56:03 – 00:58:04

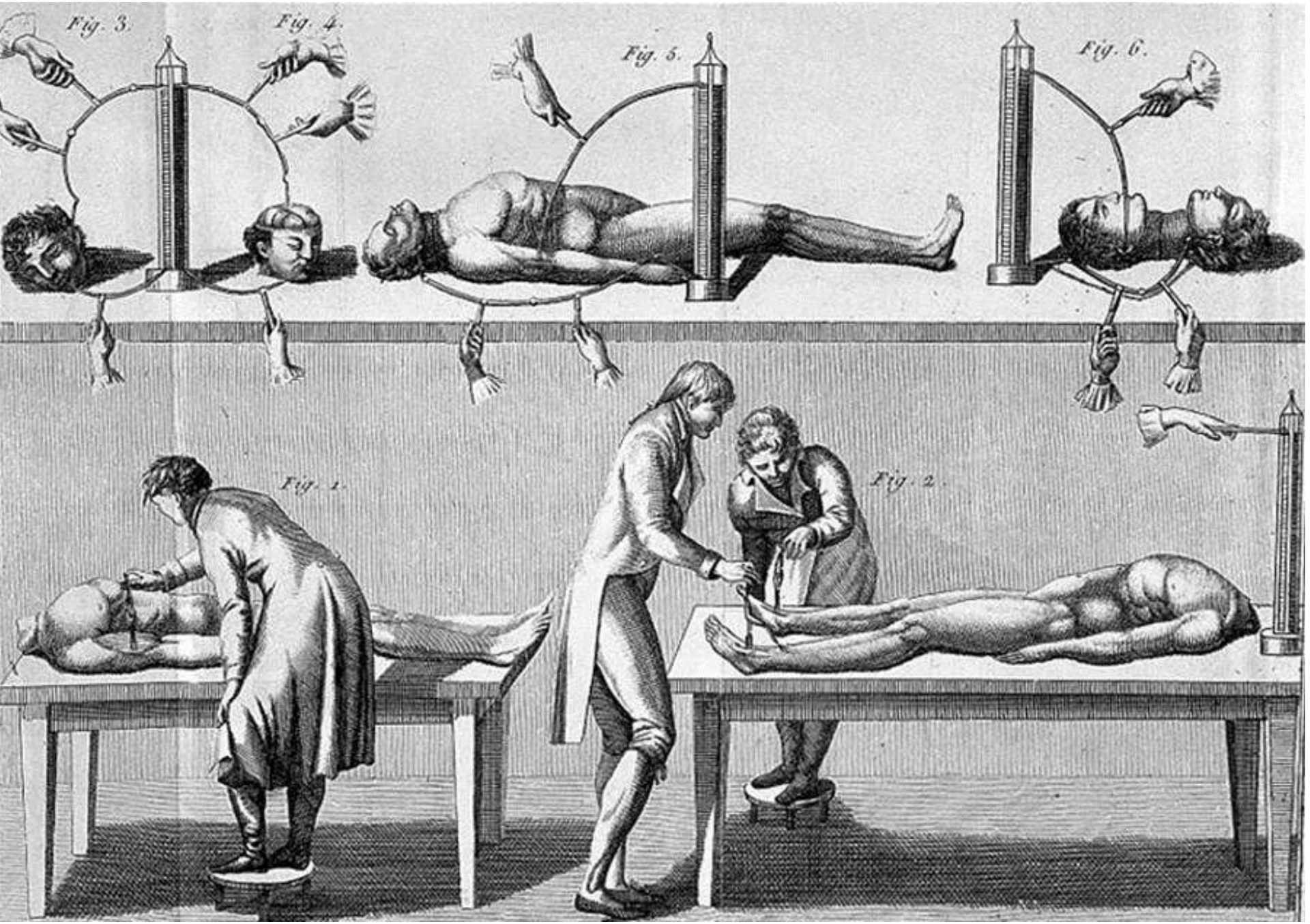


Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 1.
Fig. 2.

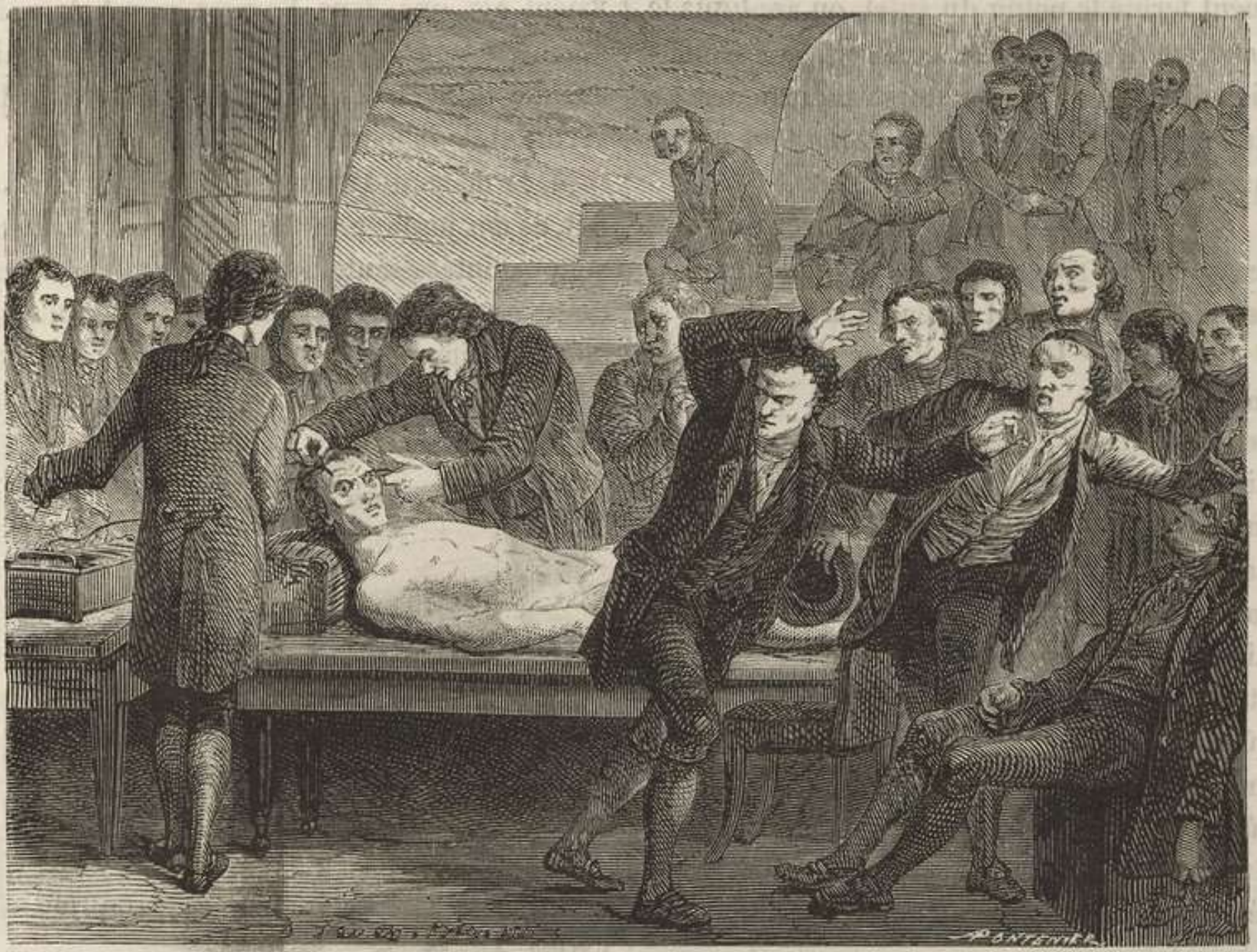


Fig. 333. — Le docteur Ure galvanisant le corps de l'assassin Clydsdale.

Nature's Lightning/ Man's Electricity

What is curious is that in *Frankenstein* Shelley uses the **symbol of 'lightning'** with all its cultural and religious references to the divine punishment of God and the destructive forces of the 'natural world' **to criticise science and the Enlightened beliefs that everything can be explained**, utilised and controlled […] and this is **symbolised by the new science of electricity.**

Victor’s story. Vol. 1 (uncensored version, 1818)

My dreams were therefore undisturbed by reality; and I entered with the great- est diligence into the search of the philosopher's stone and the elixir of life.

When I was about fifteen years old, we had retired to our house near Belrive, when we witnessed a most violent and terrible thunder-storm. It advanced from behind the mountains of Jura; and the thunder burst at once with frightful loudness from various quarters of the heavens. I remained, while the storm lasted, watching its progress with curiosity and delight. As I stood at the door, on a sudden I beheld a stream of fire issue from an old and beautiful oak, which stood about twenty yards from our house; and so soon as the dazzling light vanished, the oak had disappeared, and nothing remained but a blasted stump. When we visited it the next morning, we found the tree shattered in a singular manner. It was not splintered by the shock, but entirely reduced to thin ribbands of wood. I never beheld any thing so utterly destroyed.

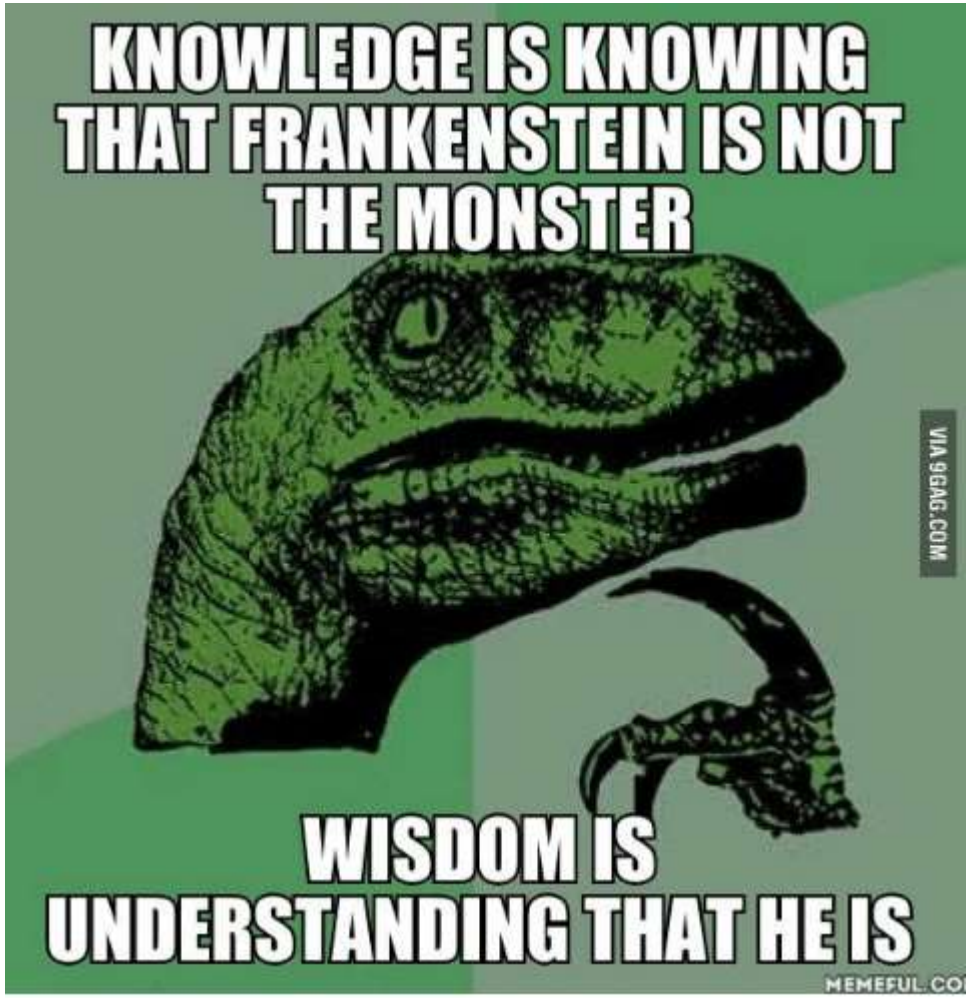
The catastrophe of this tree excited my extreme astonishment; and I eagerly inquired of my father the nature and origin of thunder and lightning. **He replied, "Electricity;"**

Dr. Frankenstein

- Young Student
- Creative
- Search for knowledge above human concern

- Mad scientist / villain?
  - Galvani

- Rejects his own creation
  - *Emile*, Rousseau



https://en.wikipedia.org/wiki/Victor_Frankenstein

Other Main Scientific Themes in Frankenstein

- Nature versus nurture
  - Criminal brain
- Dangerous Knowledge (cf. Adam and Eve)
- Exploration and Discovery (Walden)

- From 1818 onward:
  - Above themes in countless Science-Fiction books and films

Presumption; or, the Fate of Frankenstein (1823)

- Novel not an immediate success
- Only after it had been made into a play (1823)
- Other Frankensteins were made and published/played

Mary Shelley's *Frankenstein* (1818)

The Modern Prometheus

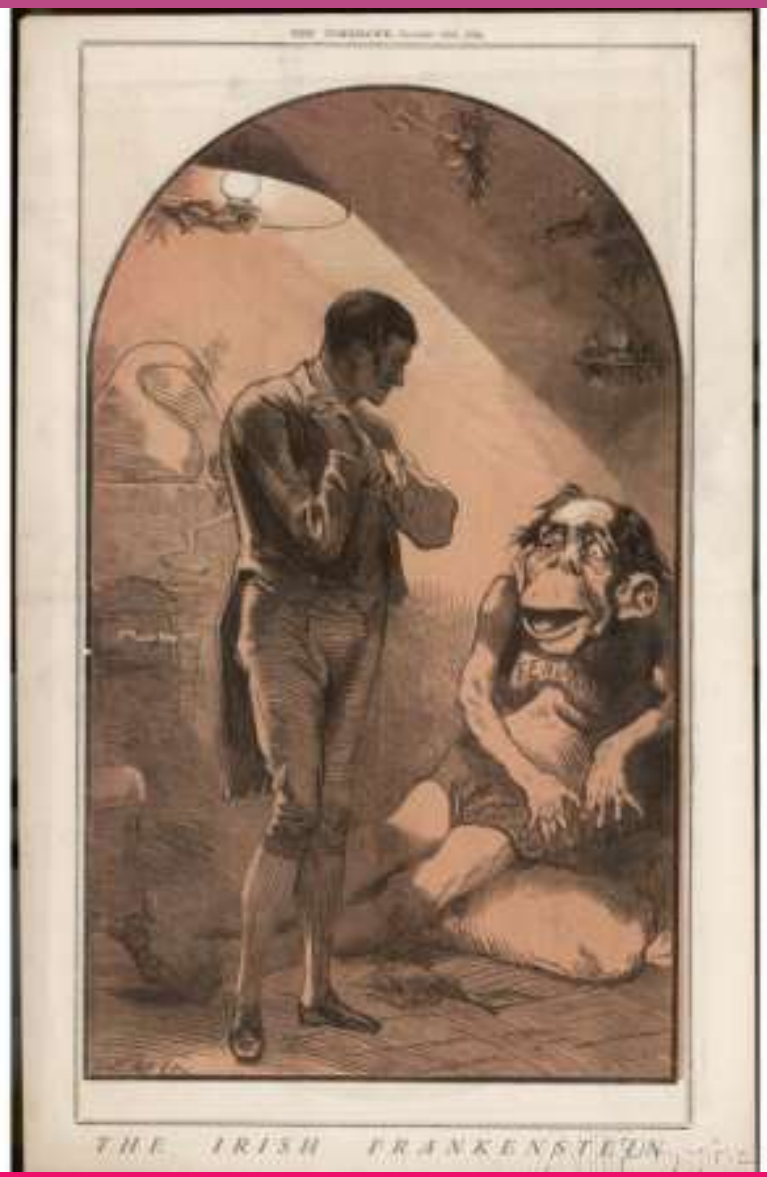
VU VRIJE UNIVERSITEIT AMSTERDAM | Faculty of Humanities

Why is Frankenstein so 'iconic'

- The idea of 'creating a monster' was an instant 'sensation' and was a good example of what cultural theories define as a 'Remediated Text'
- Many 19th Century alternations: highlight the contemporary fears in popular culture of the day:
  - Racial Purity
    - Radical reformers
  - Class Rebellion
    - Irish peasants
  - French Revolution
  - European/Invasion (dangers of reform)
    - Russians
- Plays/ Short Stories/ Newspapers

Contemporary Political Images

THE RUSSIAN FRANKENSTEIN AND HIS MONSTER.

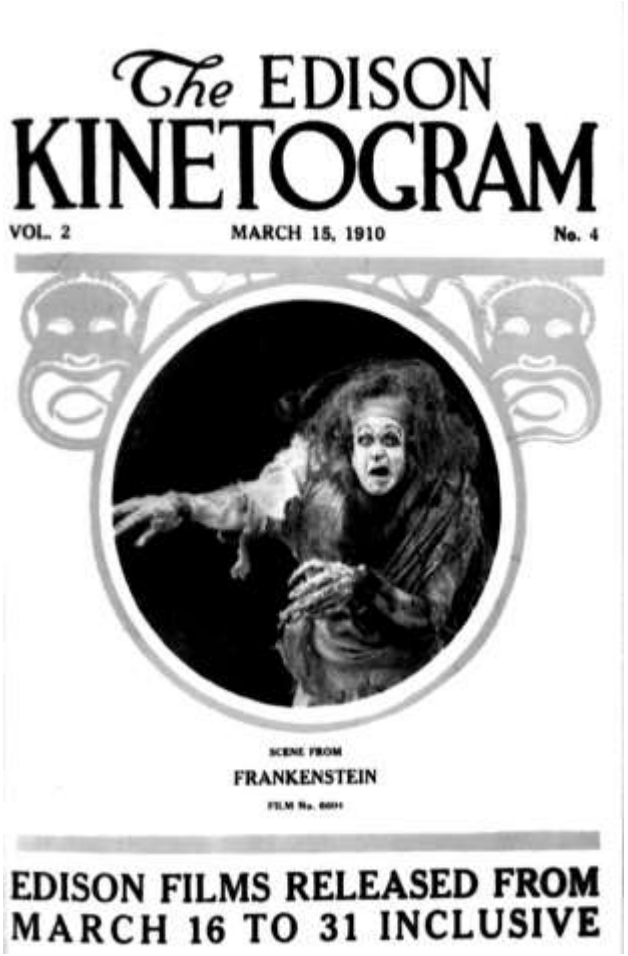


Contemporary Political Images

The American Frankenstein (1874)

Frankenstein, or the Model Man (1850)

Frankenstein in Cinema



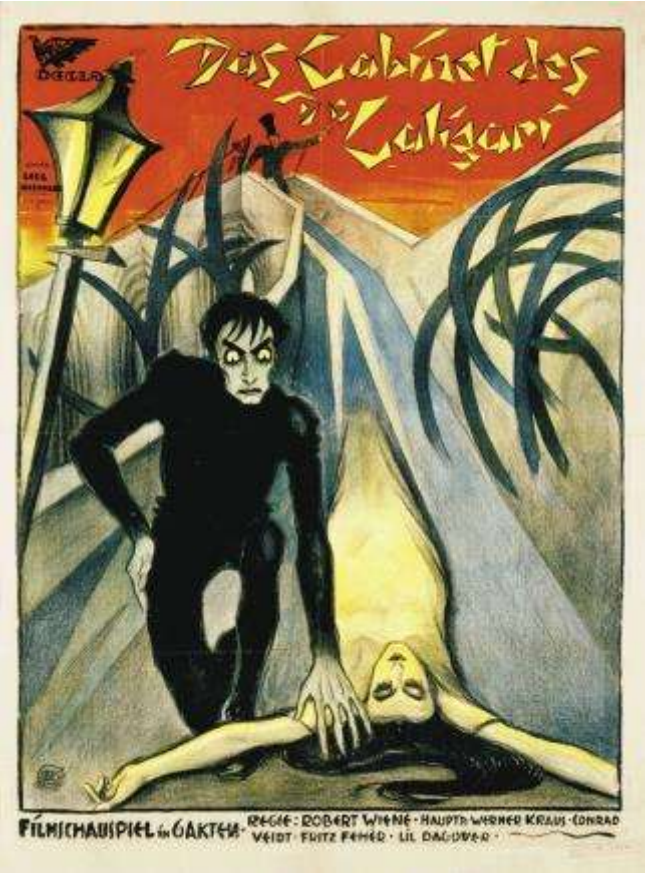
Edisons 1910 Silent movie introduced ‘special effects but also started to change the image of the creature in the public domain.

- Lurching movements
- Large Head
- Shuffling Gait

https://youtu.be/w-fM9meqfQ4?t=3m
(start at 00:03:00 – 00:04:30)

Horror movies

- German expressionist film



The cabinet of dr. Caligari (1920)

Metropolis (1927)

Horror movies

Dracula (1931)

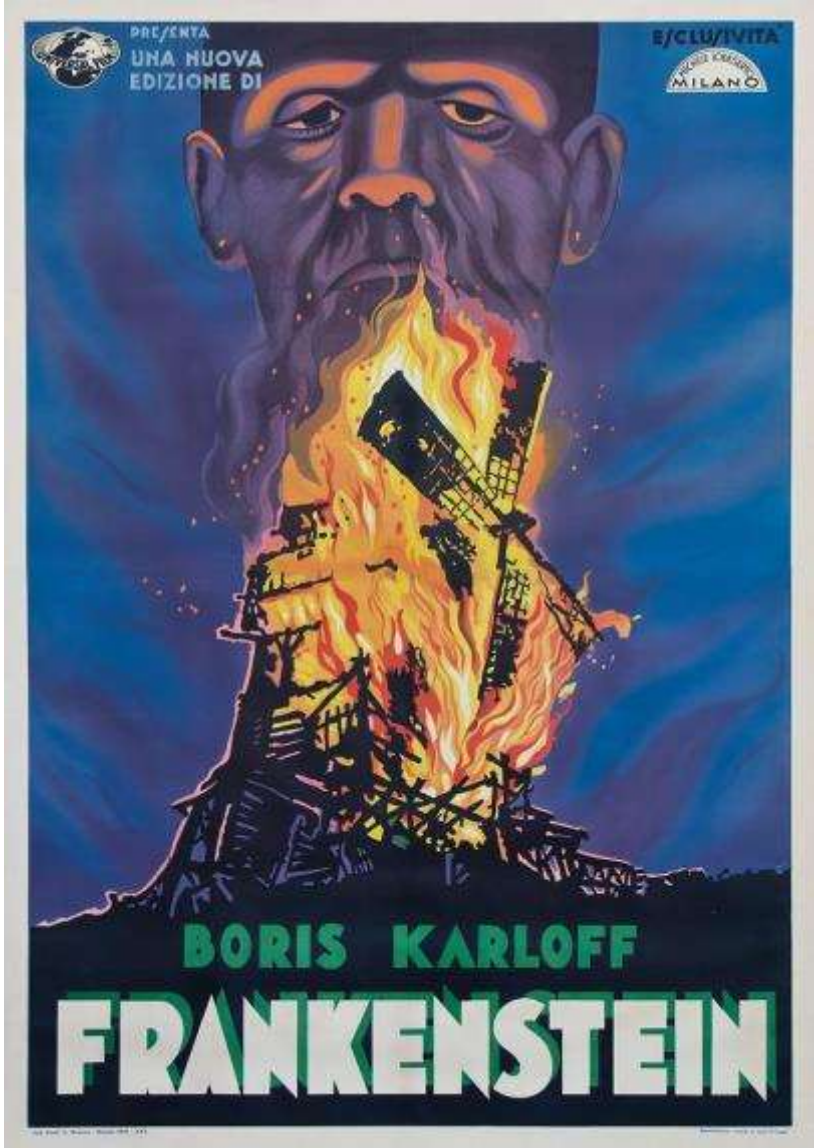
Frankenstein (1931)

Director James Whale 1931
Boris Karloff, A Monster of the Great Depression.

Frankenstein (1931)

Frankenstein (1931)

Frankenstein (1931)



Trailer

https://youtu.be/BrhXbrbg_wI

Why is this image so important?

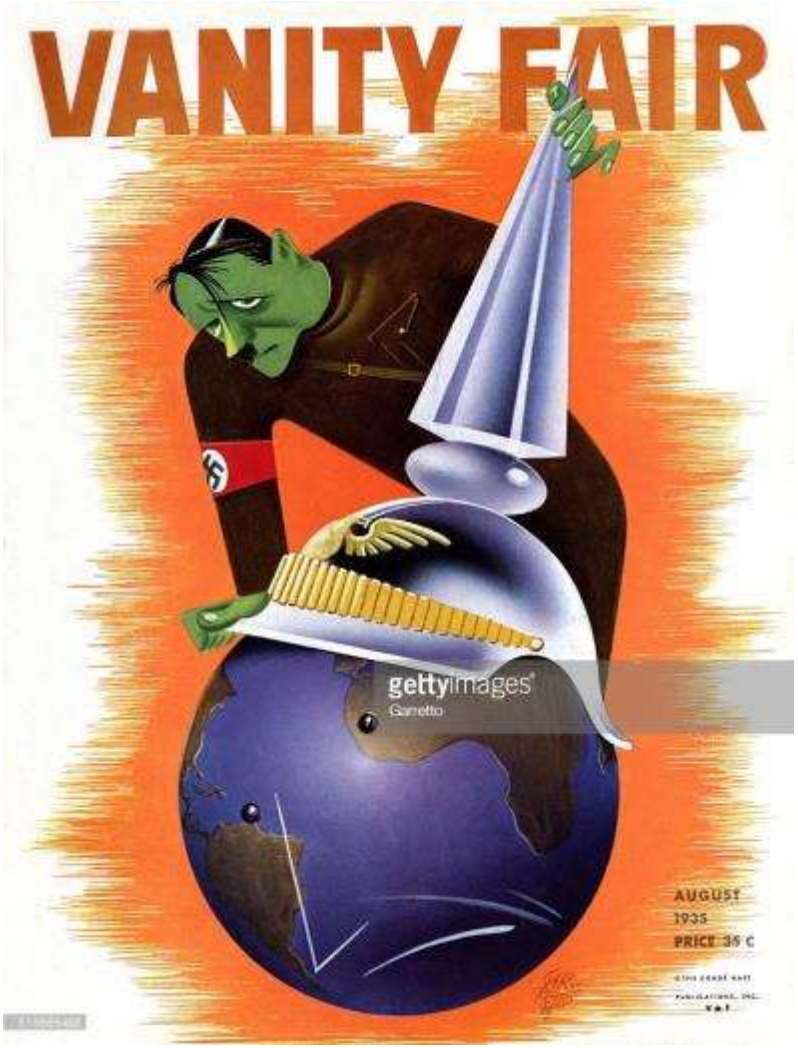
Karloff's Frankenstein

- The image of Karloff as Frankenstein's monster (Universal Studio's) has lasted
- Displays developments in **science as uncontrolled / alien/ monstrous**
- Culturally embedded

Other versions

- Herman Munster (The Munsters, 1964)
- The Young Frankenstein (1974)

Frankenstein as icon



Frankenstein as Icon

Q: Why is it a perennial / still relevant in reflecting our expression of science in culture?

Language of Science: *Franken-*

- Entered into the public domain as a way of describing anxiety about science.
- ‘Frankenstein’ applied to monster rather than scientist from 1820’s onwards
- It has become a **catch-all term** for everything that represents **‘science gone out of control’**

Frankenfood?

Frankenstein as intertext

Intertextual IRONY and PARODY

- ‘Frankenstein’ is an image / text that ideally lends itself to rewrites, irony/parody and intertextuality because we already know the ‘story’

For example, if we focus on Tim Burton and his use of cinematic ‘stop-go’ animation style we can see how he uses irony and parody and intertextual reference to explore his own cinema style (like Edison?).

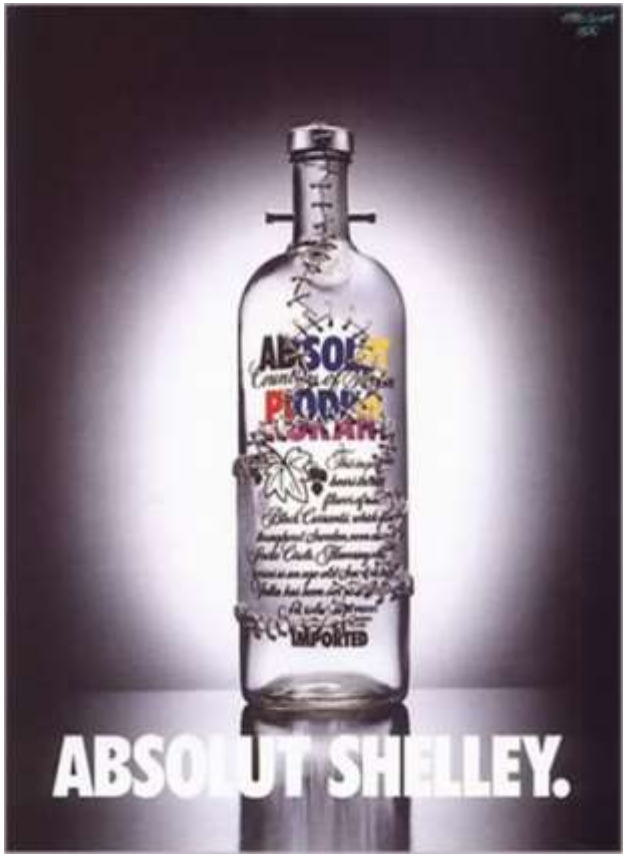
https://youtu.be/2rcPe9sojpc?t=2m56s
(start at 00:02:56)
https://youtu.be/2rcPe9sojpc?t=16m28s
(start at 00:16:28)

Frankenstein as intertext

Vehicle for new cinematics techniques?

Advertising

Minimal Description



No words needed?

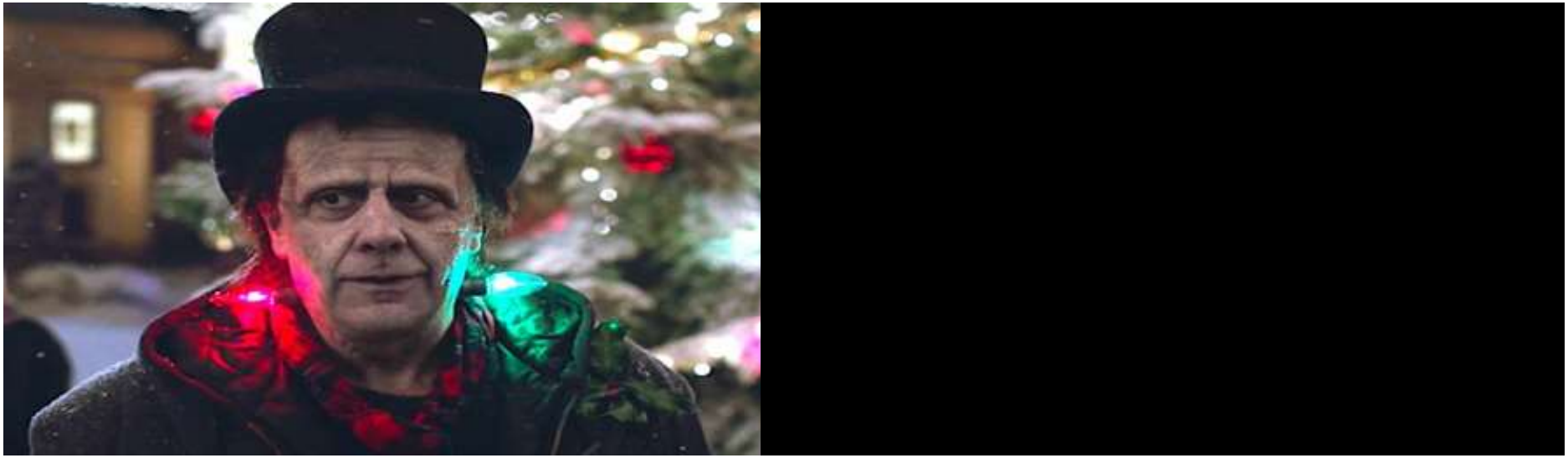
What does the association of Adidas with Frankenstein mean?

Banksy

Parody and a Changing ‘Benign’ Image

Apple

Advertisement Dec 2016



https://youtu.be/K1kl7qJDmw4

From low to High culture

Frankenstein, originally a popular ‘gothic’ low cultural text is now fully integrated into our culture at the highest echelons

National Theatre, London

https://www.youtube.com/watch?v=Lsu-gbgqPoE

Royal Opera House , London.

http://www.roh.org.uk/news/watch-liam-scarlett-on-frankenstein-its-essentially-about-love

Frankenstein in the medical domain

https://www.ncbi.nlm.nih.gov/pubmed/?term=frankenstein

Britton, Ronald. "Mary Shelley's Frankenstein: what made the Monster monstrous?." in *Journal of Analytical Psychology* 60.1 (2015): 1-11. https://onlinelibrary.wiley.com/doi/full/10.1111/1468-5922.12126

Harrison, G., & Gannon, W. L. (2015). Victor Frankenstein's Institutional Review Board Proposal, 1790. *Science and engineering ethics*, *21*(5), 1139-1157. https://link.springer.com/article/10.1007/s11948-014-9588-y

Frankenstein in other domains

Nagy, P., Wylie, R., Eschrich, J. et al., “Why Frankenstein is a Stigma Among Scientists” in *Sci Eng Ethics* (2017). https://doi.org/10.1007/s11948-017-9936-9

G. Hu, X. Peng, Y. Yang, T. M. Hospedales and J. Verbeek, "Frankenstein: Learning Deep Face Representations Using Small Data" in *IEEE Transactions on Image Processing*, vol. 27, no. 1, pp. 293-303, Jan. 2018. https://doi.org/10.1109/TIP.2017.2756450

Kupferschmidt, Kai, "The long shadow of Frankenstein“ in *Science Science* Vol. 359, no. 6372, pp. 146-147, 12 Jan. 2018. http://science.sciencemag.org/content/359/6372/146.full

Journal report B

CRISPER (DNA Sequencing Acronym) by Lee Davis.

From the exhibition: Frankenstein in the 21st Century: The Waking Dream, 200 Years Later

Journal report B

The past two weeks we have seen science taking its turn on the human condition. Shelley's story on *The Modern Prometheus* (1818) can be seen as the first example of 'science-fiction' literature. Published over 200 years ago, the image/idea of the monster of Frankenstein is still a hot and important topic in today's society because it links the two fields of culture and science. We have seen *Frankenstein* (1931, dir. James Whale), the iconic movie in which actor Boris Karloff gave the monster its iconic appearance.

Part I

- Look for media online (e.g. images, memes, videos, game, other) that refer to the monster of Frankenstein in some way. Have you found something (think of the examples from the lecture slides)? Then please paste your medium (article, image or cinematic representation) in the discussion on this page as a reply. Then, in your journal assignment, discuss how the image of the creature/monster you found reflects scientific themes. Also suggest why it is still important for our culture in the 21st Century. If you are not able to find an image, you can pick one from that discussion.

To conclude

Frankenstein:

A text written as a fearful **reflection and response to scientific progress** and discovery two centuries ago has been used through the years by culture and science to represent this fear… but it has **transformed/mutated** alongside the 'narrative' of scientific development to have become a hugely complex **symbol**' that is disconnected from the original text…

> *but still very useful in representing science.*