

The evolution of a medical concept through a data science lens

The strange case of hysteria

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Doxa vs. epistêmê

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There is no original truth, only original error. The first and most essential function of the subject's activity is to make mistakes. The more complex his error, the richer his experience will be.

Bachelard, 1934 [trad.]

Type of cognitive <i>dynamis</i>	Object (<i>relatum</i>) of the cognitive <i>dynamis</i>	
ἐπιστήμη (knowledge)	what (perfectly/ unqualifiedly) is	Form
δόξα (opinion)	what is and is not	a mere exemplification, not the Form itself
ἀγνοσία (ignorance)	what in no way is	nothing

Table 1: Three cognitive states (*powers*) according to Plato's *Parmenides* (Szaif, 2007)

The evolution of the term *hysteria*

Ancient history ([Micale, 2019](#))

- 1 Egyptian papyrus d'El-Lahoun, 1900 BC : “troubles caused by the wandering *uterus*” (ὑστέρα)
- 2 Term documented in Hippocrates' *Diseases of Women* representing (1)
- 3 Plato's *Timaeus* : *matrix* – “animal that longs to beget children”

The evolution of the term *hysteria*

Middle Age (Jacquart and Thomasset, 1985)

- *suffocatio (prefocatio) matricis*
 - 1 Genital prolapse or uterus moving upwards
∴ Treatment by fumigations of the nose and vagina in order to push the uterus downwards
 - 2 Retention of vaginal secretion and excess of substances spreading through the vessels or the nerves, causing the critical symptoms (Avicenna, but also Galen in Ancient history)
- women possessed by the devil and treated by exorcism, stigmatised as witches, persecuted, tortured, executed

The evolution of the term *hysteria*

XIXth c. – Jean-Martin Charcot

- From the organic to the psychological ([Walusinski, 2014](#))

- 1 Nervous system damage

- 2 Emotional traumata

- Desexualisation of the term → (fe)male disease

- Paradigm shift, epistemological break ([Yilmaz, 2021](#))

- Clinical¹ (Charcot) vs. anatomical-explanatory² investigation (Freud)

Under the influence of Charcot, Freud dismissed his Viennese training in the name of his newly acquired paradigm – psychoanalysis.

¹Insight into mental processes when a problem arises.

²Diagnostic and classificatory duties of medicine should be conducted in an objective way $\approx$ experimental psychology

Jean-Martin Charcot (1825 – 1893)



Source: [Wikipedia](#).

“Napoleon of neuroses” (Ellenberger, 1970)

- father of French neurology and one of the world's pioneers of neurology
- rehabilitation of hypnosis and hysteria as objects of scientific study
- major impact on the prominent figures in and beyond his discipline (S. Freud, P. Janet, E. Zola ...)

BETWEEN EPISTEMOLOGY AND DATA SCIENCE

Problem

- Exploring the genesis and migration of medical discourse from anatomical pathology, neurology and psychology of Charcot in the writings:
 - realised collaboratively
 - of his disciples and followers
- No DH initiative aiming at the constitution and digital exploitation of this fund

Objectif

Macro-objectif

Valorisation of Jean-Martin Charcot's archives in the DH prism.

- 1 Analysis of Charcot's neuropathological discourse
 - TXM, Voyant Tools...
 - 2 NER using BERT language models
 - CAMEMBERT, D'ALEMBERT...
 - 3 Influence on his own discipline and on other fields
 - TextPair, OBVIE...
- Exploratory methods

Workflow

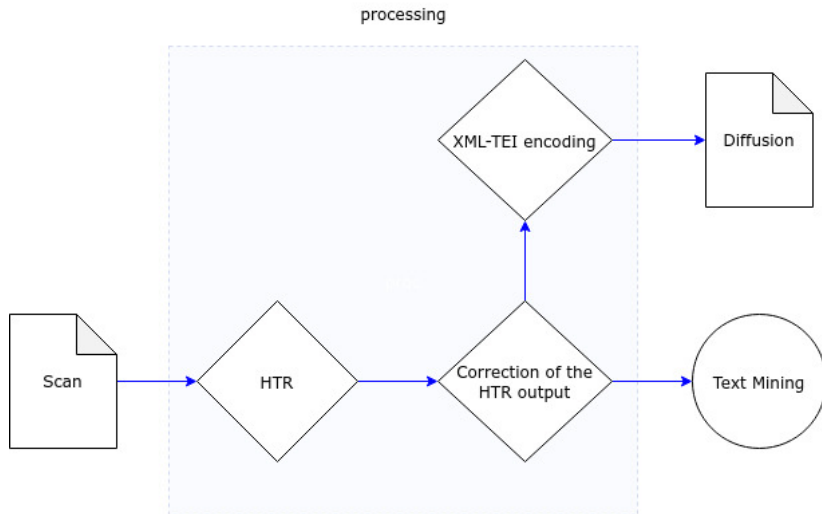


Figure 1: General pipeline of processing Charcot's archives.

PROJECT STATUS

Corpus

- The entire Charcot collection digitised to date is available on *SorbonNum*³
- Inventory *Charcot*⁴

Works in French	267
OCRised	201
To be OCRised (<i>eScriptorium</i>)	66

³ [Bibliothèque numérique de la BSU.](#)

⁴ [Google Sheet.](#)

Problems encountered

Finalise the production of the Charcot corpus:

- Automatic correction of the OCR/HTR output
 - Deep Learning (librairies *neuspell*, *xfspell*, *spell4french*...)
- Production of XML-TEI data via *eScriptorium*
 - choice of models adapted to printed documents / manuscripts
 - use of the controlled vocabulary *SegmOnto*
- Encoding the XML-TEI documents containing the basic tags (<doc>, <id_doc>, <pages>)

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