

UNIVERSITY OF
Southampton

Trailblazers: History of Hypertext

COMP3220 Web Infrastructure

Dr Nicholas Gibbins – nmg@ecs.soton.ac.uk



Revisiting Nelson's definition

Let me introduce the word "hypertext"***** to mean a body of written or pictorial material interconnected in such a complex way that it could not conveniently be presented or represented on paper. It may contain summaries, or maps of its contents and their interrelations; it may contain annotations, additions and footnotes from scholars who have examined it. Let me suggest that such an object and system, properly designed and administered, could have great potential for education, increasing the student's range of choices, his sense of freedom, his motivation, and his intellectual grasp*****. Such a system could grow indefinitely, gradually including more and more of the world's written knowledge.

The history of hypertext is intrinsically bound up with the history of knowledge organisation



From the Middle Ages to the Age of Enlightenment

St Cuthbert Gospel, 7th century England

Richard White of Basingstoke

Author of *Historiarum libri cum notis antiquitatum Britannicarum* (1597-1607)

One of the earliest scholars to make use of endnotes.

"as bees take honey from different flowers, so we must take materials from all sorts of different authors and, once they have been systematically collected, store them away, as it were, in the proper combs."



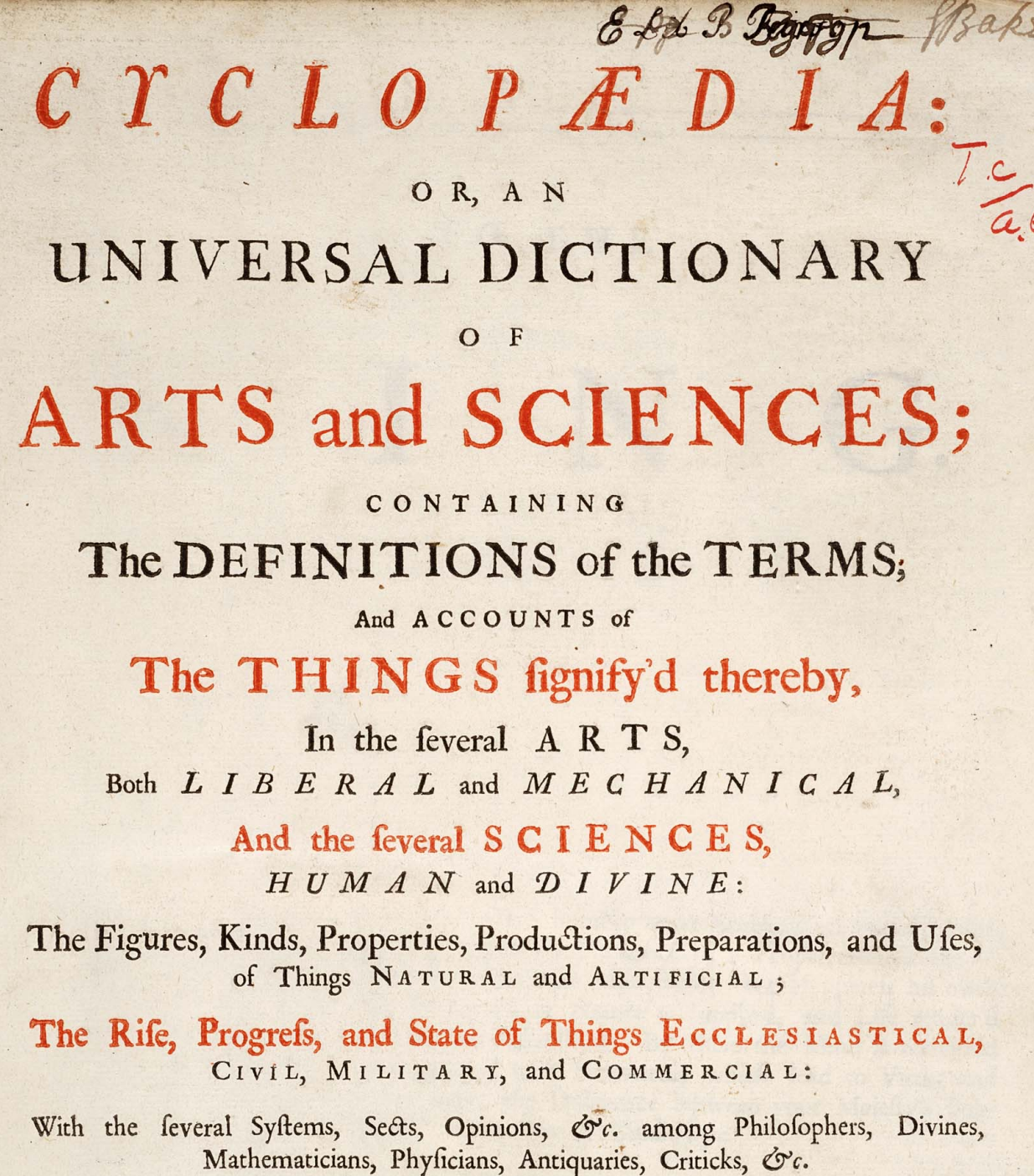
The birth of the encyclopedia

Comprehensive in scope, systematic in organisation

- Ephraim Chambers' *Cyclopædia* in 1728
- Denis Diderot's *Encyclopédie* in 1751

Common features:

- Subject-based classification of entries
- Cross-references between entries



* SYSTÈME FIGURÉ DES CONNOISSANCES HUMAINES.

ENTENDEMENT.

MEMOIRE.

SACRÉE. (HISTOIRE DES PROPHEITIES.
ECCLESIASTIQUE.

CIVILE, } HIST. CIVILE, *proprement dite.* } MEMOIRES.
ANC. } } ANTIQUITÉS.
ET MO- } HISTOIRE LITTERAIRE. } HISTOIRE COMPLETE.
DERNE. }

HISTOIRE CELESTE.

UNIFORMITÉ
DE LA
NATURE.

HISTOIRE

DES METEORES.
DE LA TERRE ET DE LA MER.
DES MINERAUX.
DES VEGETAUX.
DES ANIMAUX.
DES ELEMENS.

ECARTS
DE LA
NATURE.

PRODIGES CELESTES.
METEORES PRODIGIEUX.
PRODIGES SUR LA TERRE ET LA MER.
MINERAUX MONSTRUEUX.
VEGETAUX MONSTRUEUX.
ANIMAUX MONSTRUEUX.
PRODIGES DES ELEMENS.

MONNOYEUR.

RAISON.

MÉTAPHYSIQUE GÉNÉRALE, ou ONTOLOGIE, ou SCIENCE DE L'ÊTRE
EN GÉNÉRAL, DE LA POSSIBILITÉ, DE L'EXISTENCE, DE LA DURÉE, &c.

SCIENCE } THÉOLOGIE NATURELLE. } RELIGION,
DE } THÉOLOGIE RÉVÉLÉE. } *D'ou par abus,*
DIEU. } SCIENCE DES ESPRITS } SUPERSTITIONS.
BIEN ET MAL FAISANS. } DIVINATION.
MAGIE NOIRE.

PNEUMATOLOGIE ou SCIENCE DE L'ÂME } RAISONNABLE.
SENSITIVE.

ART
DE
PENSER.

APPREHENSION. } SCIENCE DES IDÉES.
JUGEMENT... } SCIENCE DES PROPOSITIONS.
RAISONNEMENT. } INDUCTION.
ET } DÉMONSTRATION. } ANALYSE.
MÉTHODE... } SYNTHÈSE.

ART
DE
RETENIR.

MÉMOIRE... } NATURELLE } PRÉNOTION.
ARTIFICIELLE. } EMBLESME.
SUPPLÉMENT } ÉCRITURE. } ALPHABETH.
DE LA } IMPRIMERIE } CHIFFRES... } ARTS
MÉMOIRE. } D'ÉCRIRE,
D'IMPRIMER,
DE LIRE, DE
DÉCHIFFRER. } ORTHOGRAPHE.

SCIENCE DE L'HOMME.

LOGIQUE.

ART

SCIENCE DE } GRAMMAIRE } PROSODIE.
L'INSTRUMENT DU } CONSTRUCTION.
DISCOURS. } SYNTAXE.
PHILOLOGIE.

SIGNES... } GESTE... } PANTOMIME.
DÉCLAMATION.

CARACTÈRES } IDÉAUX.
HIEROGLYPHIQUES.
HERALDIQUES
ou BLAZON.

IMAGINATION.

POÉSIE

SACRÉE. PROFANE.

NARRATIVE.

POÈME
ÉPIQUE.
MADRIGAL.
EPIGRAMME
ROMAN, &c.

MUSIQUE. } THÉORIQUE.
PRATIQUE.
INSTRUMENTALE.
VOCALE.

PEINTURE.

SCULPTURE.
ARCHITECTURE CIVILE.

DRAMATIQUE.

TRAGÉDIE.
COMÉDIE.
OPÉRA.
PASTORALES, &c.

PARABOLIQUE.

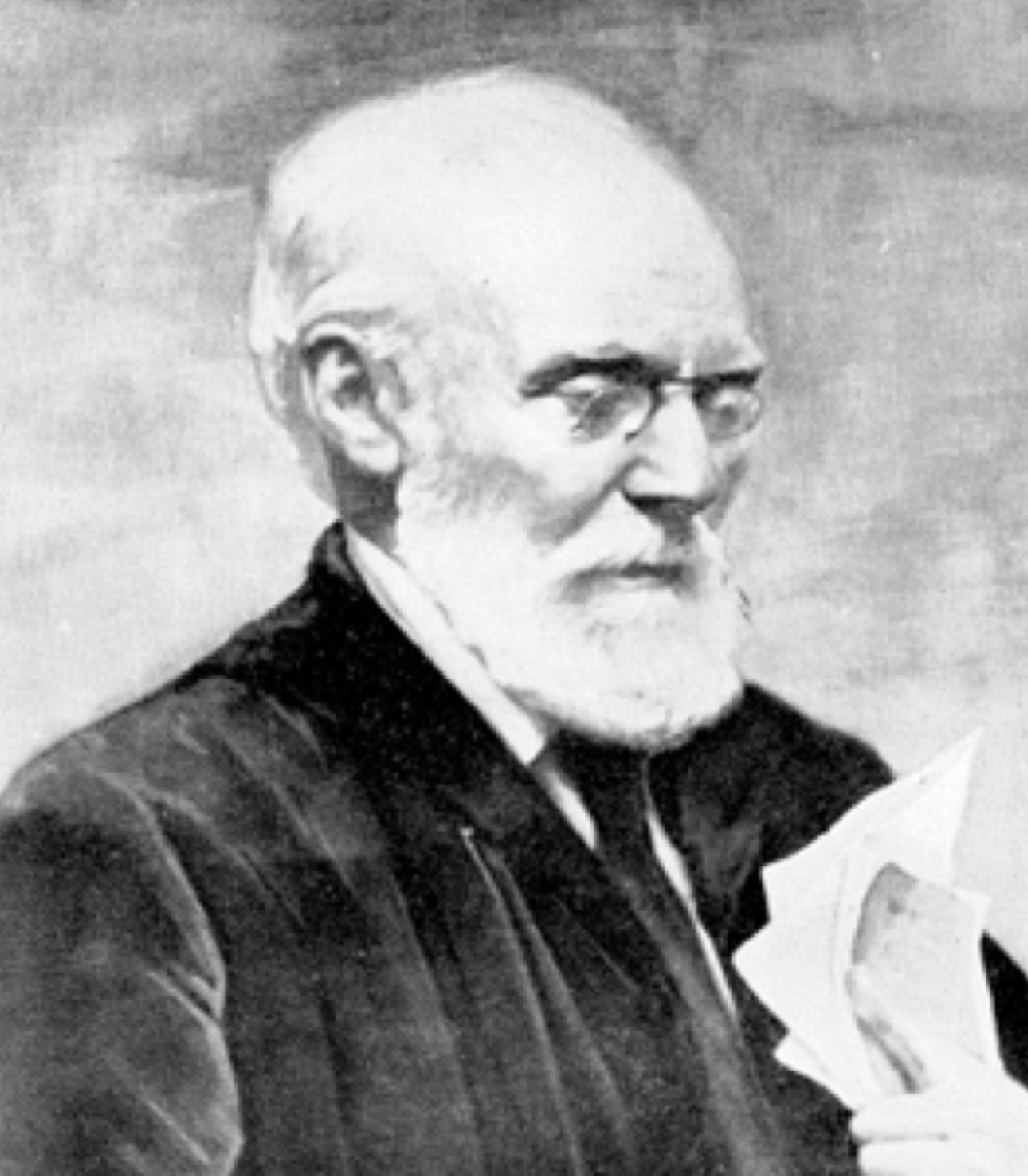
ALLEGORIES.

HISTOIRE



Organising Utopia

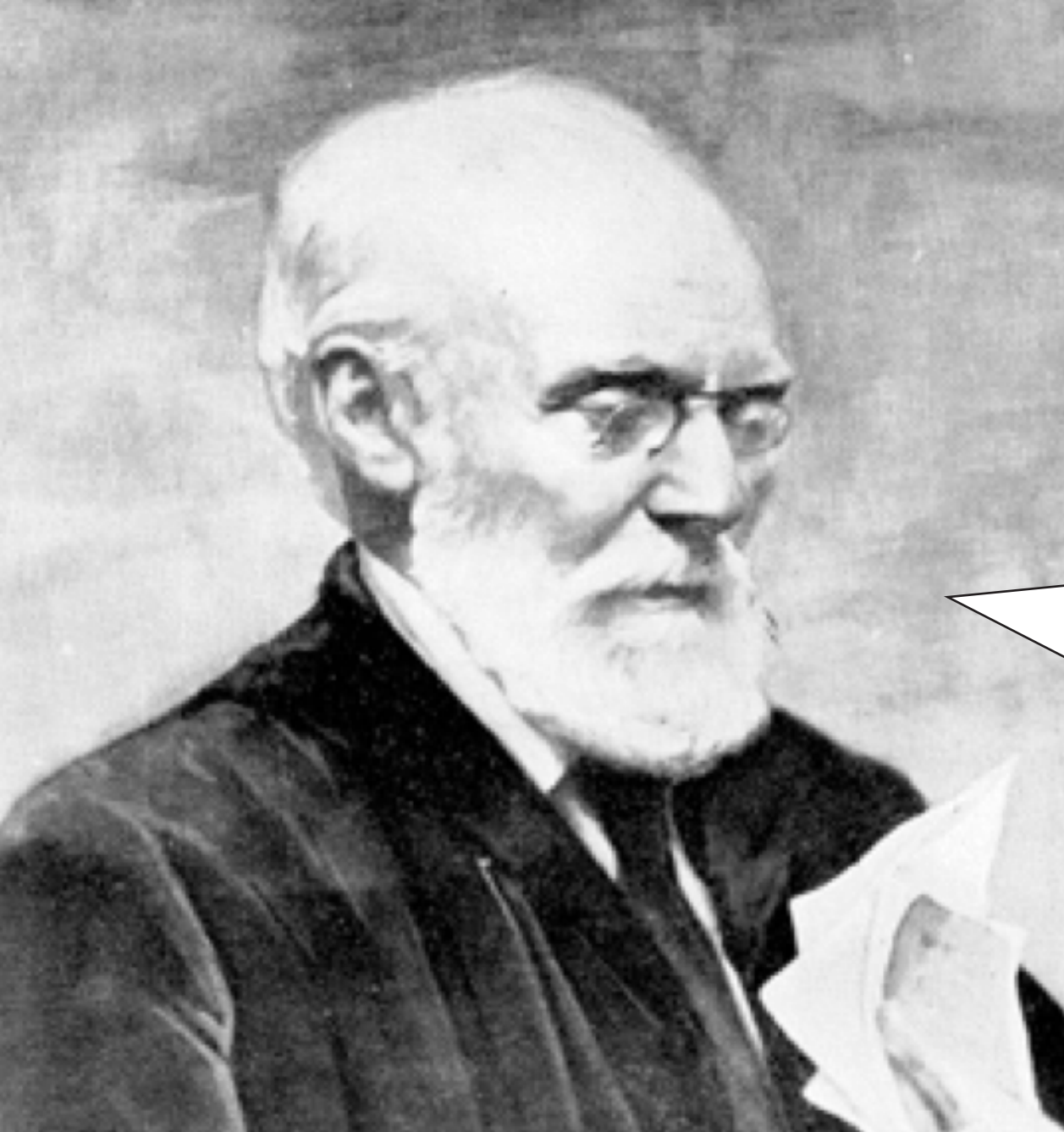




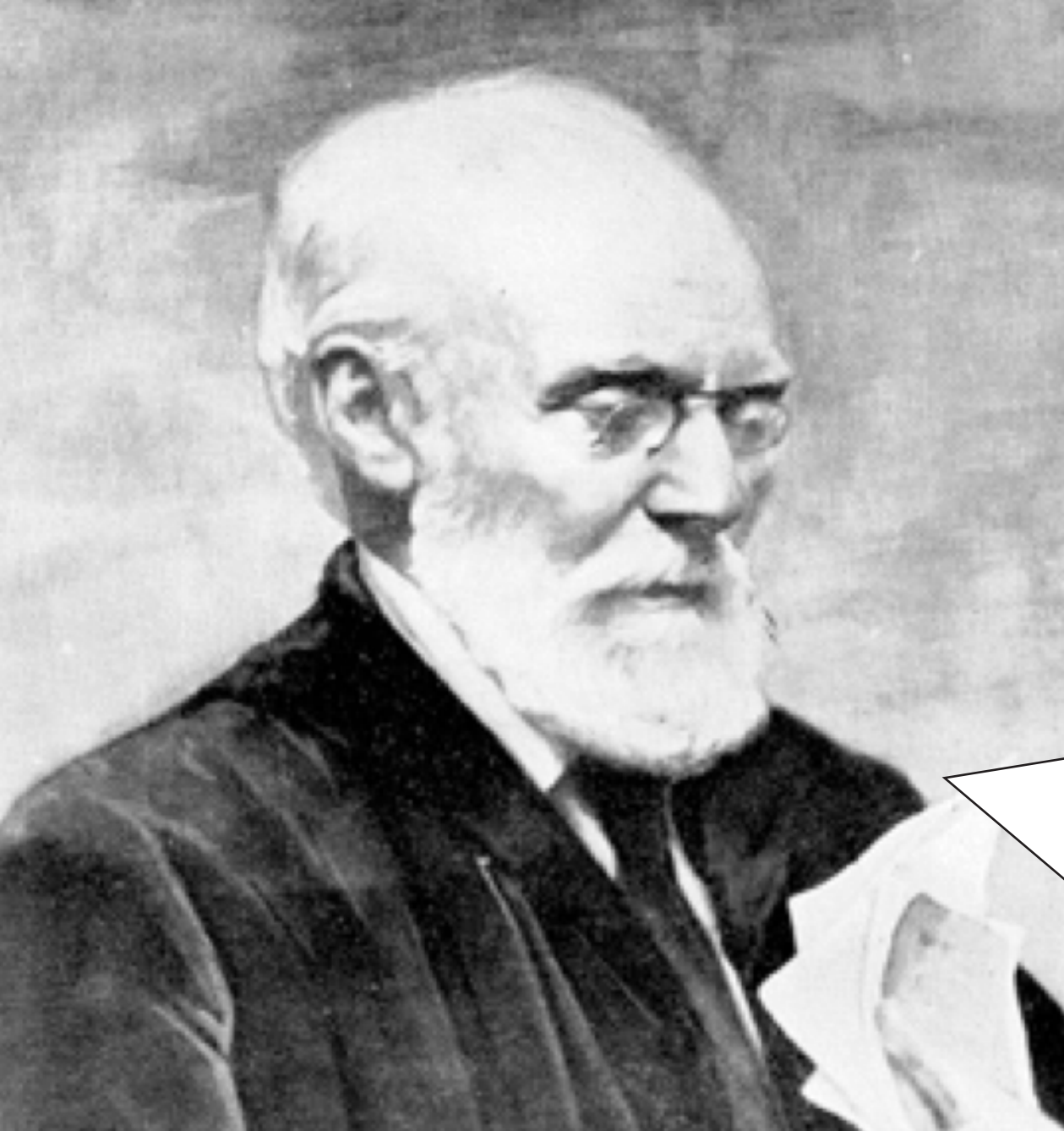
Paul Otlet (1868-1944)

Belgian lawyer, internationalist and
'father of Information Science'

- Created the Universal Decimal Classification for libraries (still in use around the world)
- With Henri La Fontaine, established the Répertoire Bibliographique Universel in 1895

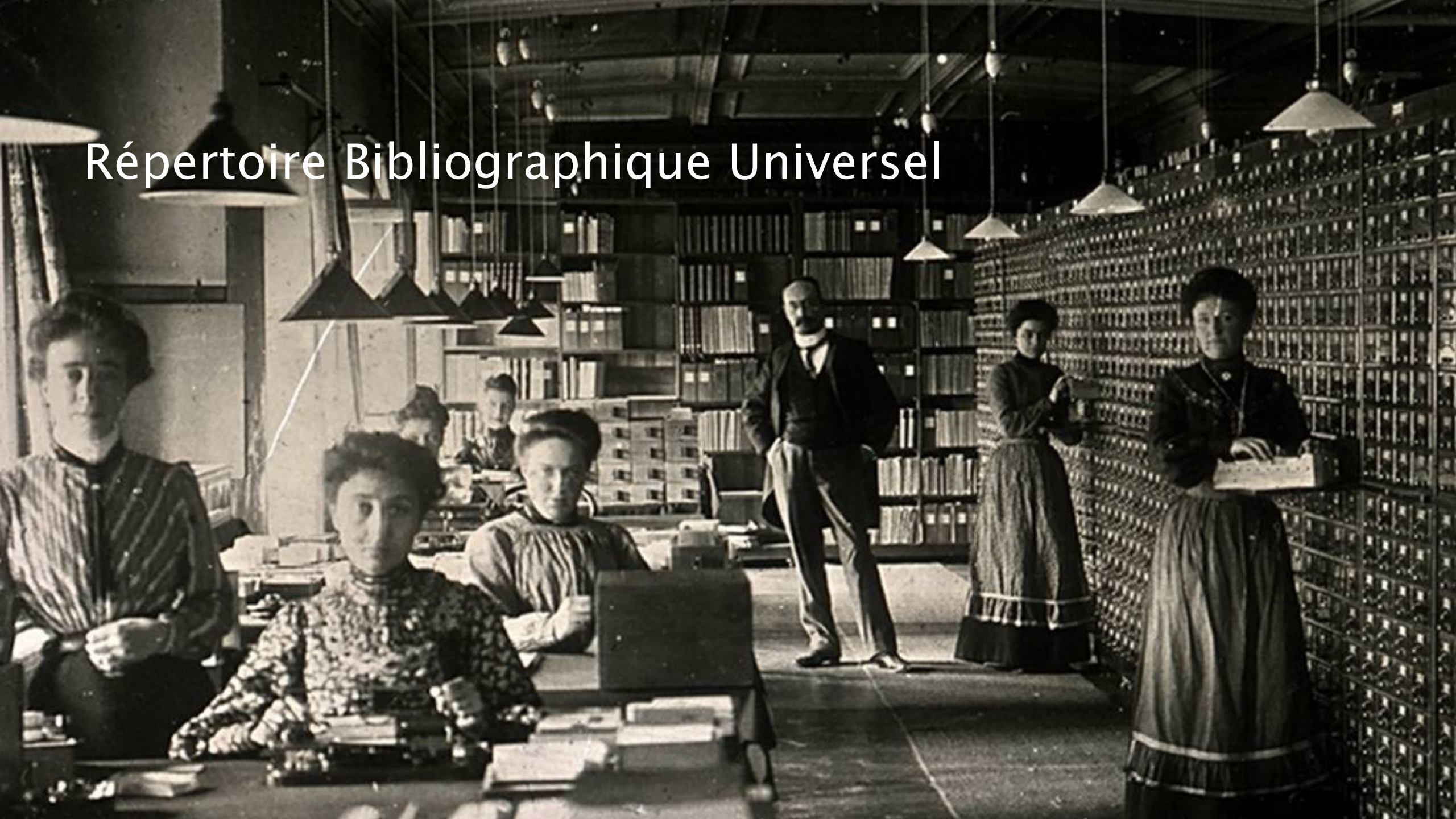


The external make-up of a book, its format and the personality of its author are unimportant provided that its substance, its sources of information and its conclusions are preserved and can be made an integral part of the organisation of knowledge



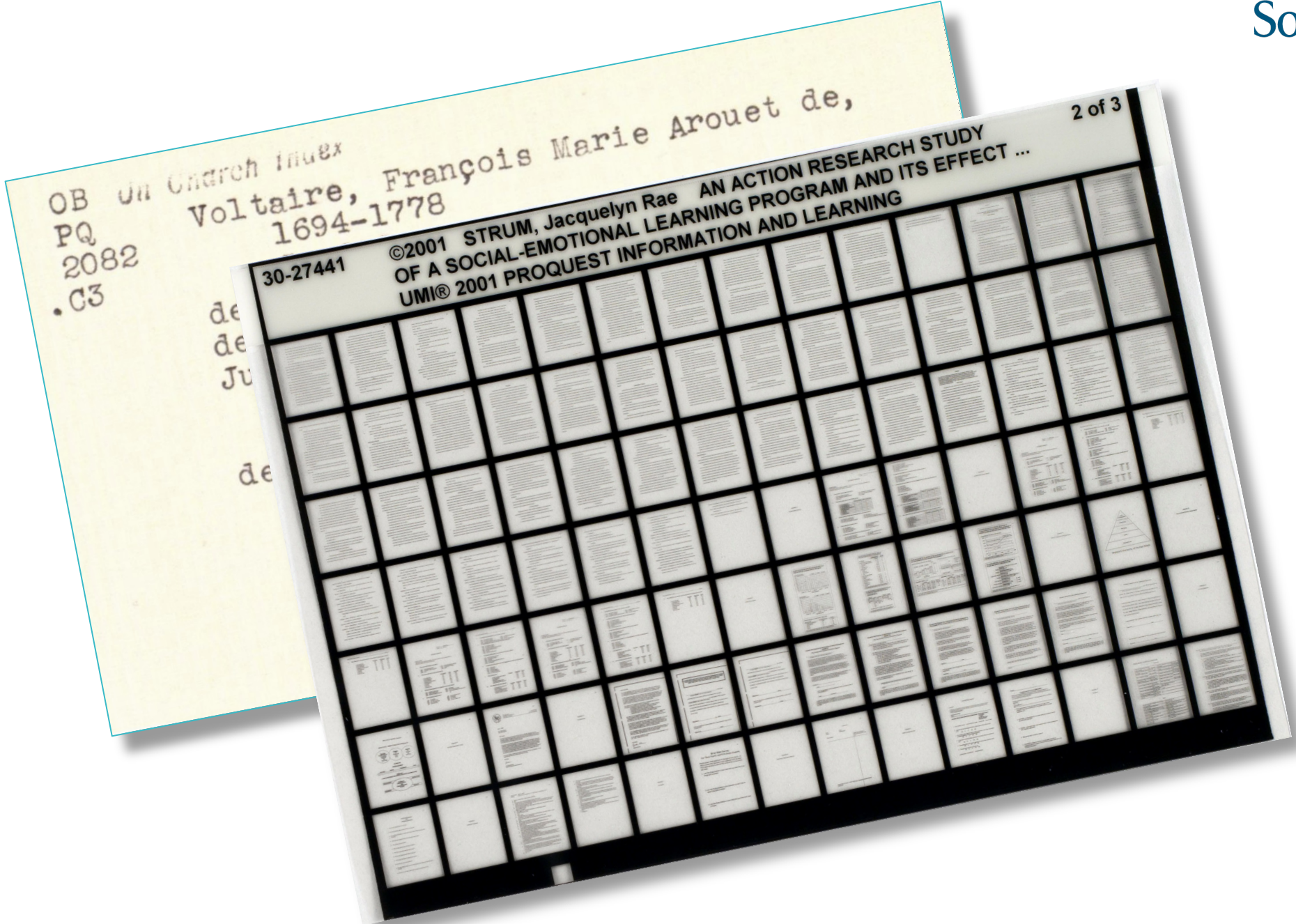
The ideal would be to strip each article or each chapter in a book of whatever is a matter of fine language or repetition or padding and to collect separately on cards whatever is new and adds to knowledge. These cards, minutely subdivided, each one annotated as to the genus and species of the information they contain, because they are separate could then be accurately placed in a general alphabetical catalogue [...]

Répertoire Bibliographique Universel





Desk Set (1957) Directed by Walter Lang [Film]. USA: 20th Century Fox.



The Mundaneum

A central repository for all the world's knowledge!

- First envisaged in 1910 by Otlet and La Fontaine
- Built on the earlier Repertoire Bibliographique Universel
- With support from the Belgian government, established in Brussels in 1919

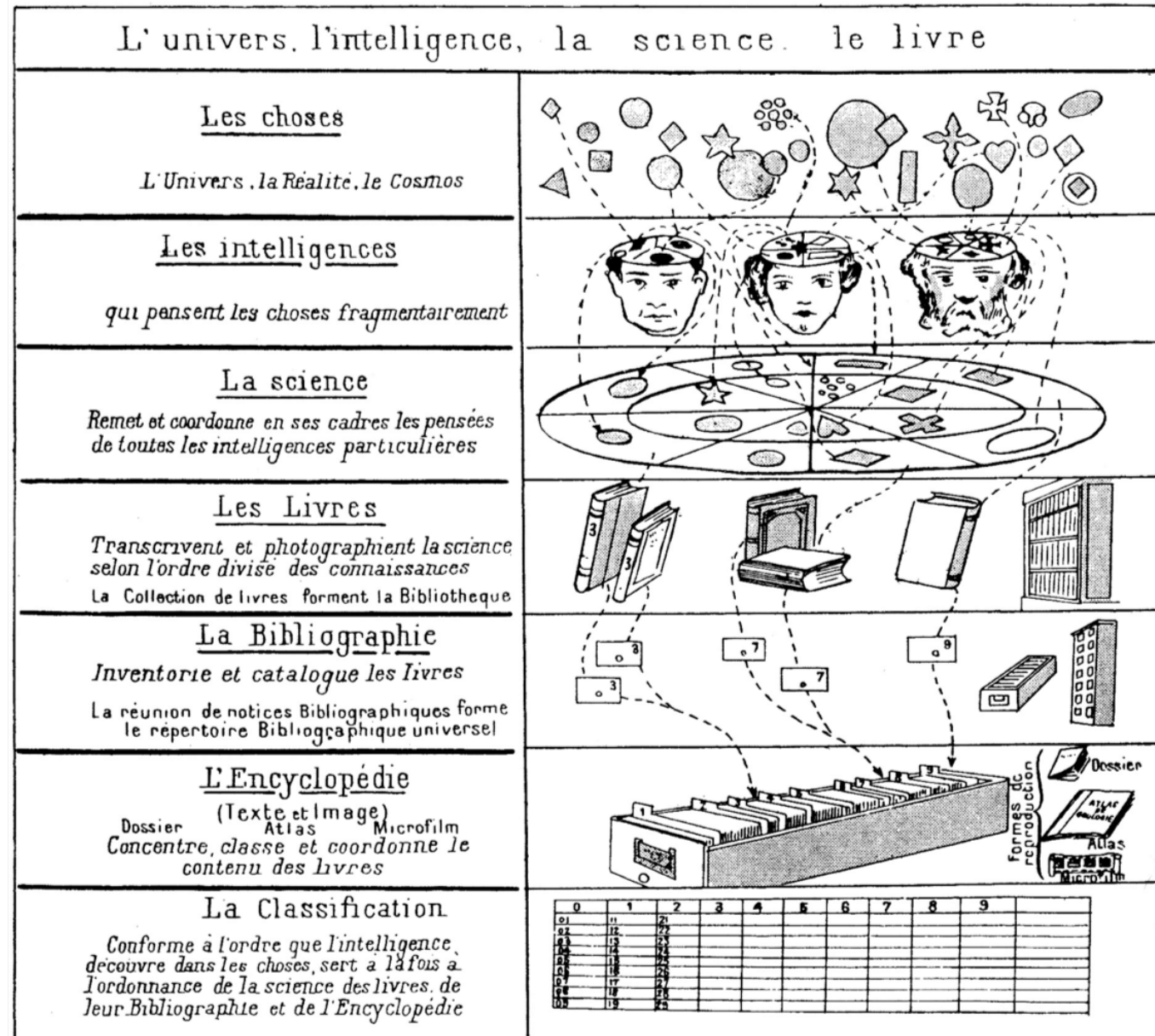


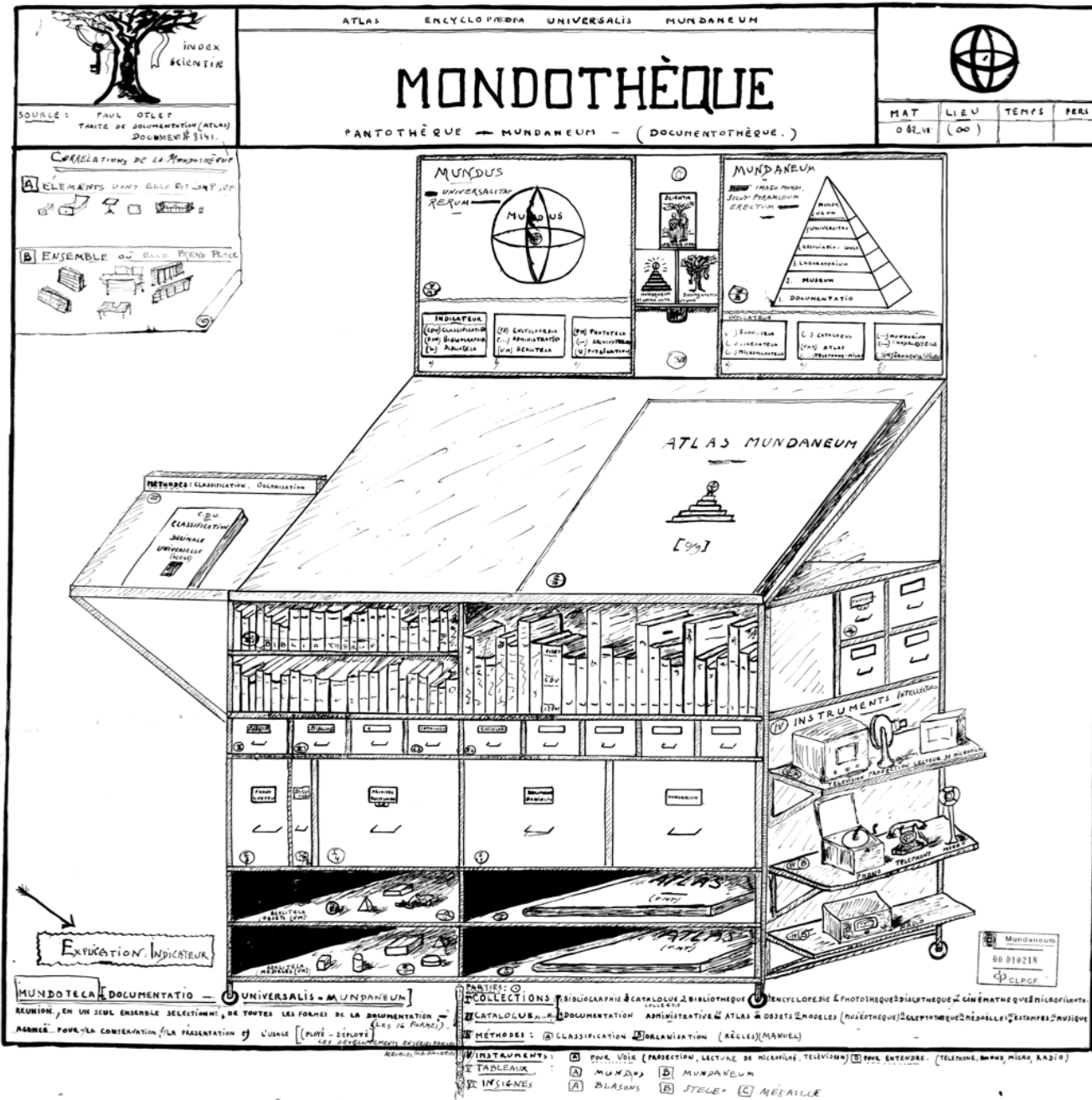
The World City

Otlet's visionary plan for a city that brought together international institutions, containing the Mundaneum at its heart

- Design by Le Corbusier in 1929, to be built outside Geneva alongside the palace of the League of Nations







Wilhelm Ostwald

German chemist, Nobel Prize winner and polymath

- Inspired by Otlet's work, established die Brücke (the Bridge) in 1911 using his prize money



Die Brücke

International Institute for the Organizing
of Knowledge Work

- Short-lived – wound up in 1913
- Reduced literature to small units of recorded knowledge ('monos') that could be arranged and linked with other units
- Monos categorised using Dewey Decimal Classification



Die Brücke

Die Brücke is planned as a central station, where any question which may be raised with respect to any field of intellectual work whatever finds either direct answer or else indirect, in the sense that the inquirer is advised as to the place where he can obtain sufficient information



BRÜCKEN ZEITUNG

ILLUSTRIERTE HALBMONATSSCHRIFT FÜR
ORGANISIERUNG DER GEISTIGEN ARBEIT

HERAUSGEGEBEN VON WILHELM OSTWALD
WILHELM FÖHRER - KARL WILHELM BÖHRER

Abg. 1913
Kreuz-Verlag
Wiesbaden



FEBRUAR
1913
HEFT 30 A

RAUMNOT UND WELTFORMAT

VON K. W. BÖHRER



...ER UND AD. SAAGER
DER
ORGANISMUS DER
GEISTIGEN ARBEIT



WILHELM OSTWALD
DIE ORGANISIERUNG
DER ORGANISATOREN
DURCH DIE BRÜCKE



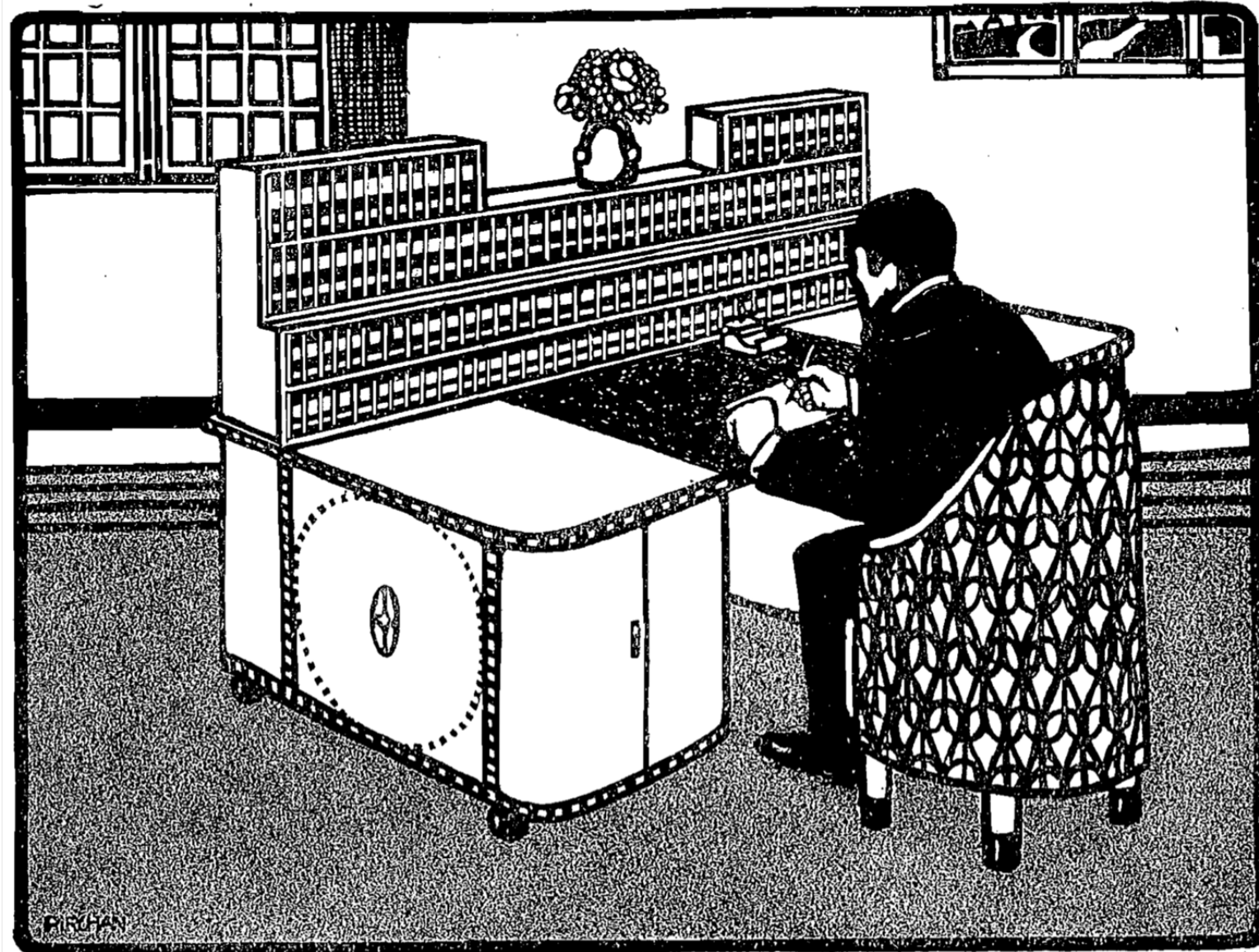
K. W. BÖHRER UND A. SAAGER / DIE
WELT-REGISTRATUR

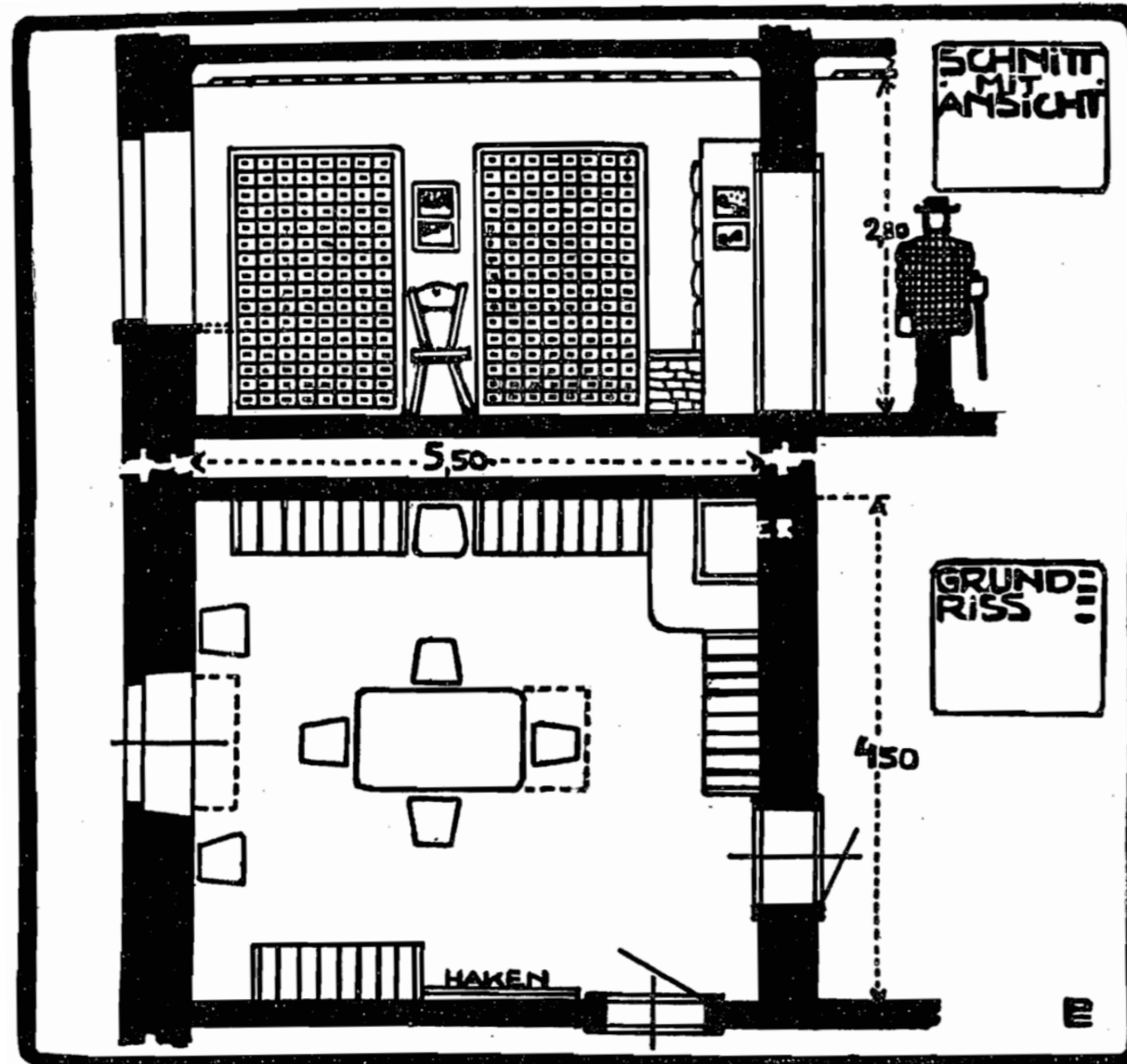


K. W. BÖHRER
U. A. SAAGER
Die Organisierung
der geistigen Ar.

ÜBER SOZIALES
STIFTEN UND
TESTIEREN

VON WILHELM OSTWALD





Das Gehirn der Welt

[The] cerebral results of creative minds have already assumed a thoroughly international character. [...] Every member of this small community of intellectual leaders works essentially for himself, and the happiness of the individual depends on whether he can connect with his fellow workers, who perhaps live far from him in another country and in another language.



Das Gehirn der Welt

Thus we conclude that, with the best attitudes and the broadest and most noble mindsets of such organisational idealists, the means to harness such great thought for the intellectual benefit of mankind is a central organ, so to speak a brain of the whole world.



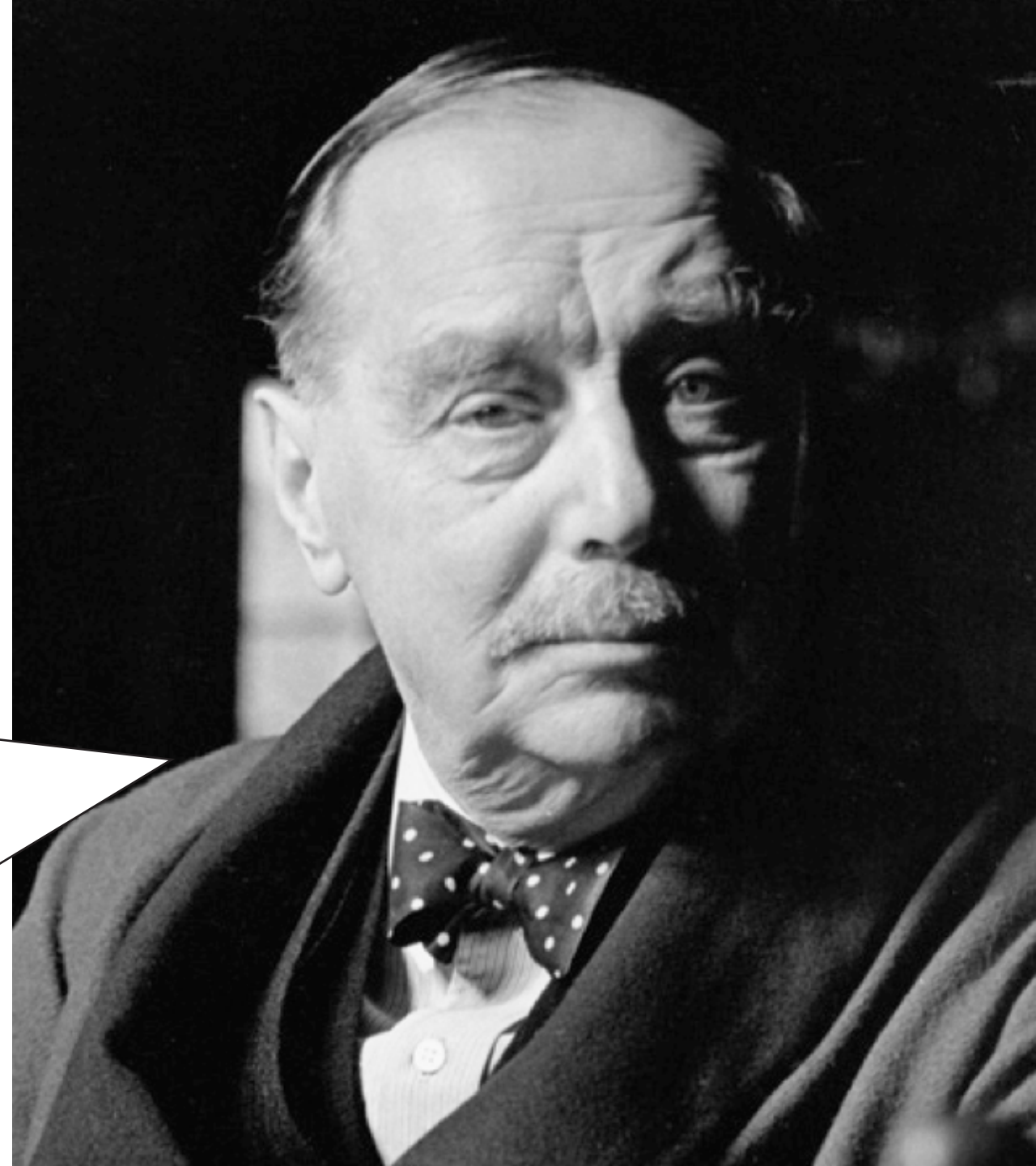


Things to Come (1936) Directed by William Cameron Menzies [Film]. London: London Films

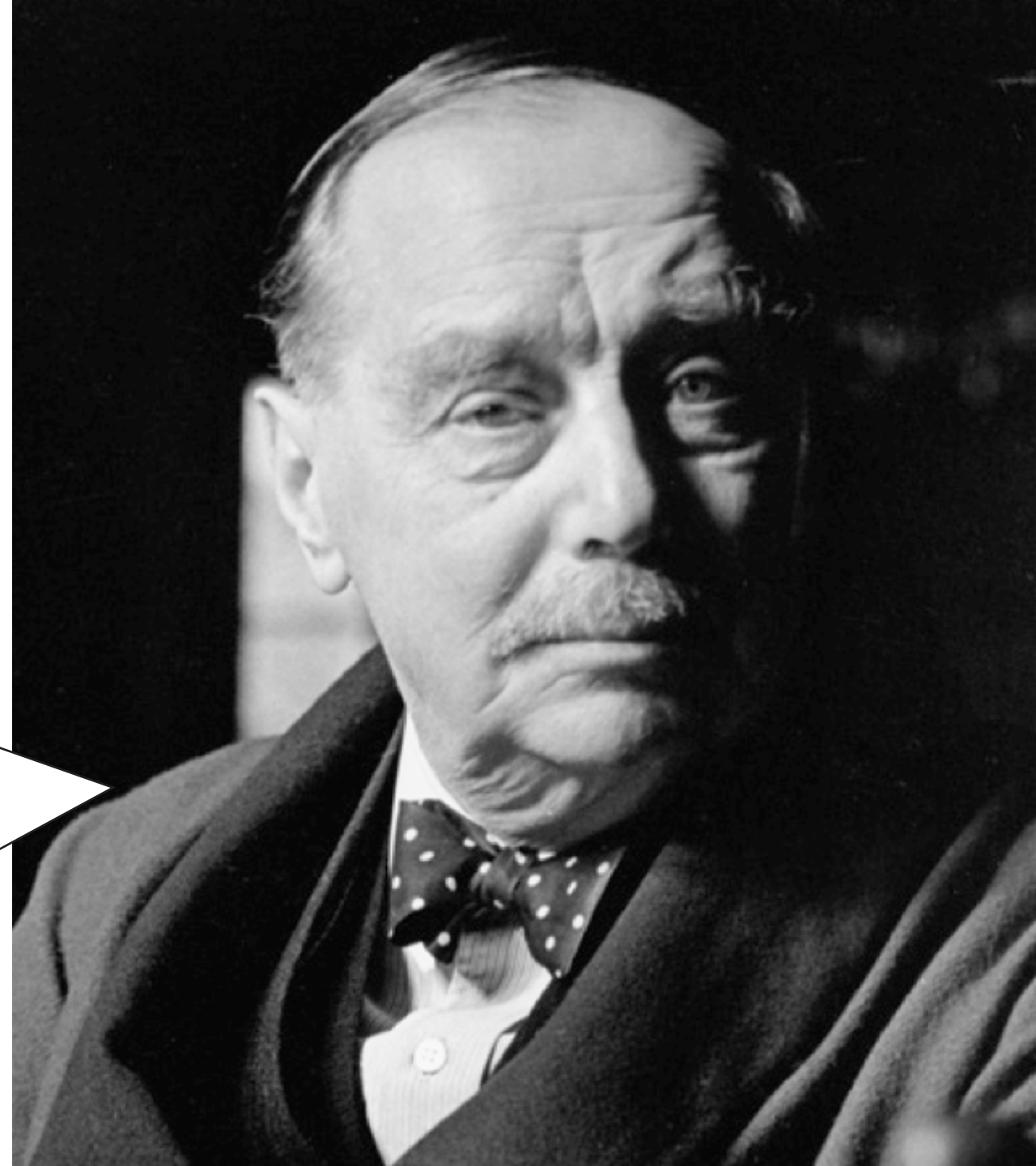
The World Brain

It is probable that the idea of an encyclopaedia may undergo very considerable extension and elaboration in the near future [...] the core would be a world synthesis of bibliography and documentation with the indexed archives of the world. A great number of workers would be engaged perpetually in perfecting this index of human knowledge and keeping it up to date.

Wells, H.G. (1938) *World Brain*, London: Methuen and Co. Ltd.



The World Brain





Interlude, 1939-1945

Next Lecture: Trailblazers, Part 2