

Forensic approaches to scientific heritage preservation and access: 3 case studies

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Hugh Le Caine's *Electronic Sackbut* (1946-1948)

the
Sackbut
as it is
displayed
in the
Ingenium
museum
(Ottawa).

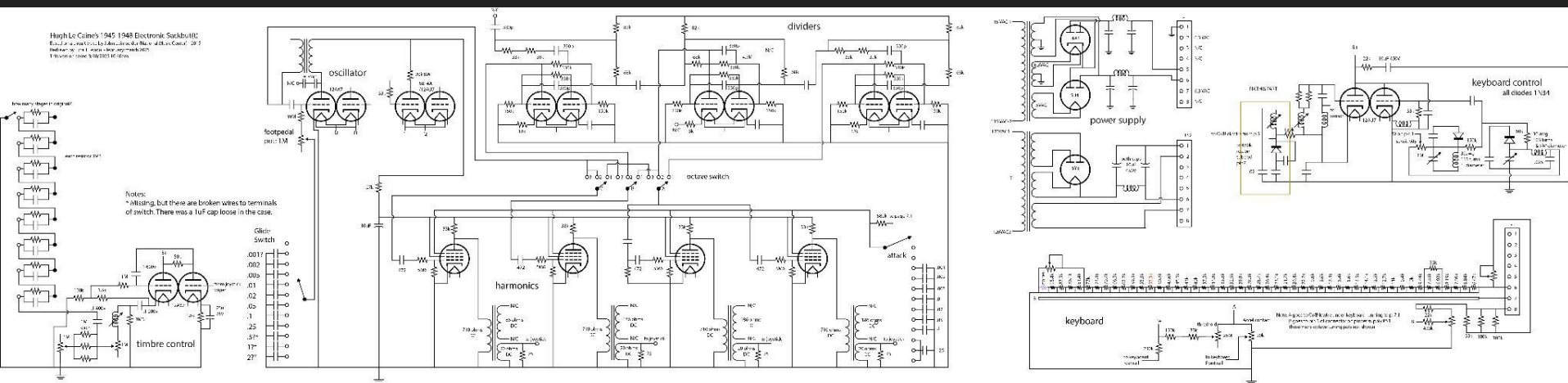


Sackbut Reverse Engineering and Reconstruction

some
insides of
the
original
sackbut



(almost) traced circuit schematic



work in progress: redrawing a complete schematic of the sackbut as it is preserved (by the author based on partial schematics by John Leimseider, National Music Center - Calgary)

Sackbut Reconstruction

the 2025
reconstructed
Sackbut, a
digital and
hardware
emulation of
the original
(by the team
at the CMST)

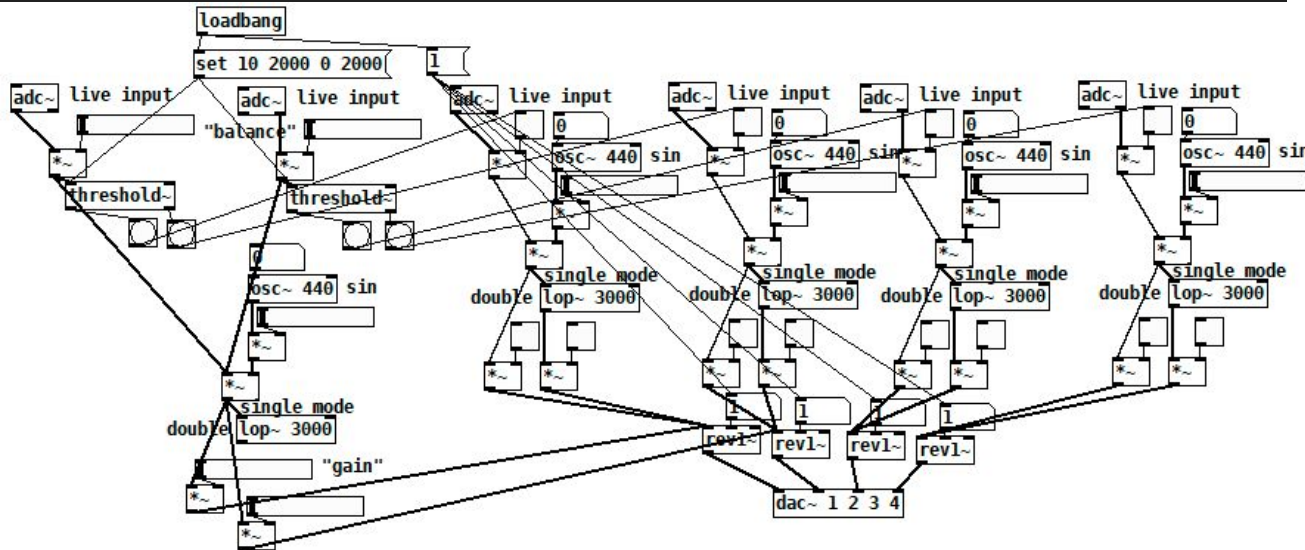


Gordon Mumma's *Mesa* (1965-1966)

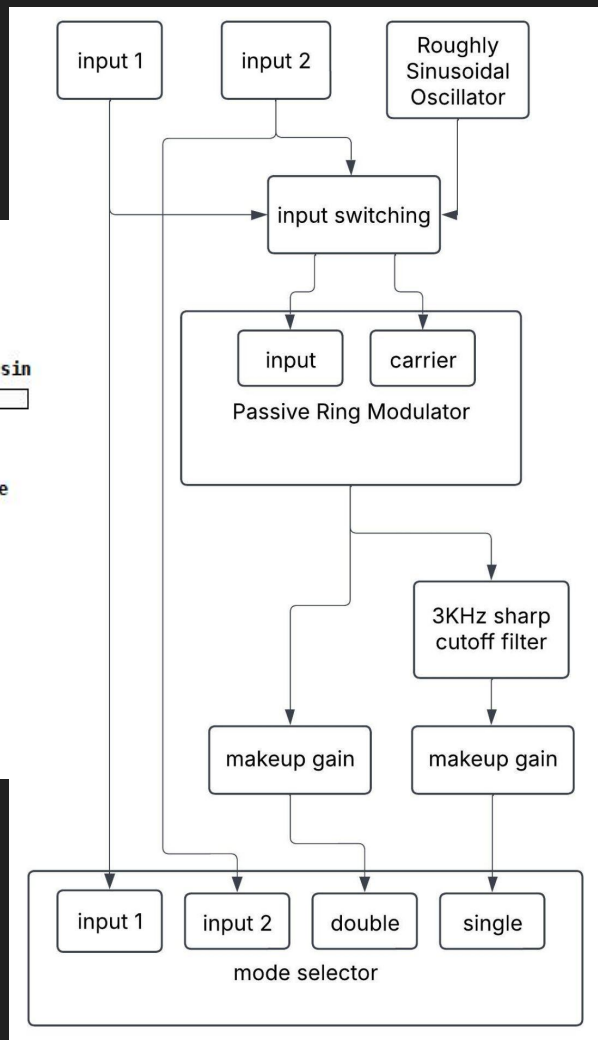
recording
setup for
the July
1967 CBS
30th st.
studios
session
with
Mumma
and David
Tudor.



Mesa digital emulation (and adaptation)



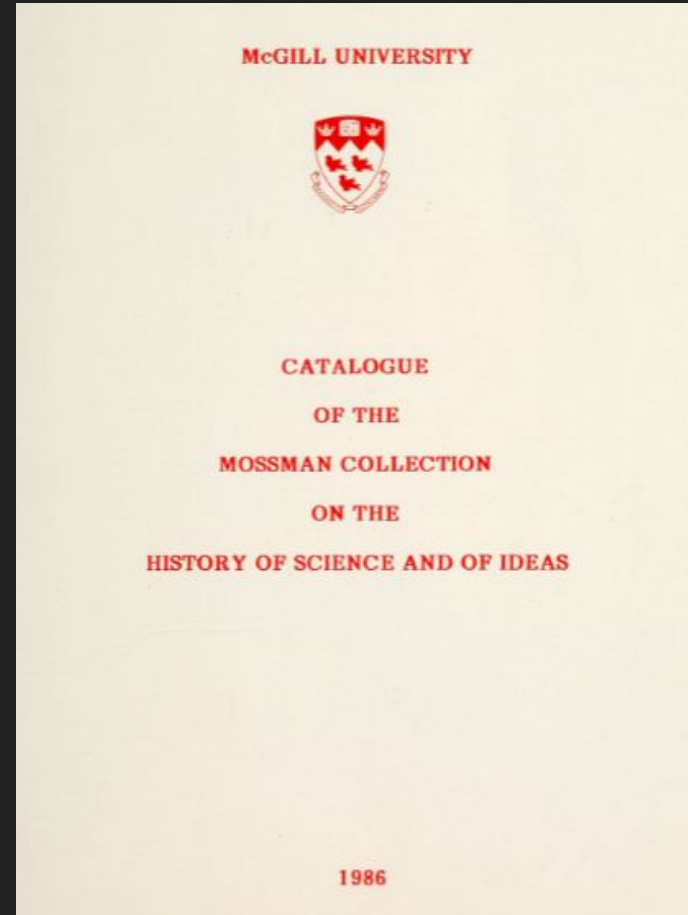
a guess (left) for a digital emulation in the audio programming language Pure Data of the wiring of the full system, with multiple versions of the "spectrum transfer" (right)



The Mossman Collection at McGill University Libraries (donated 1974)



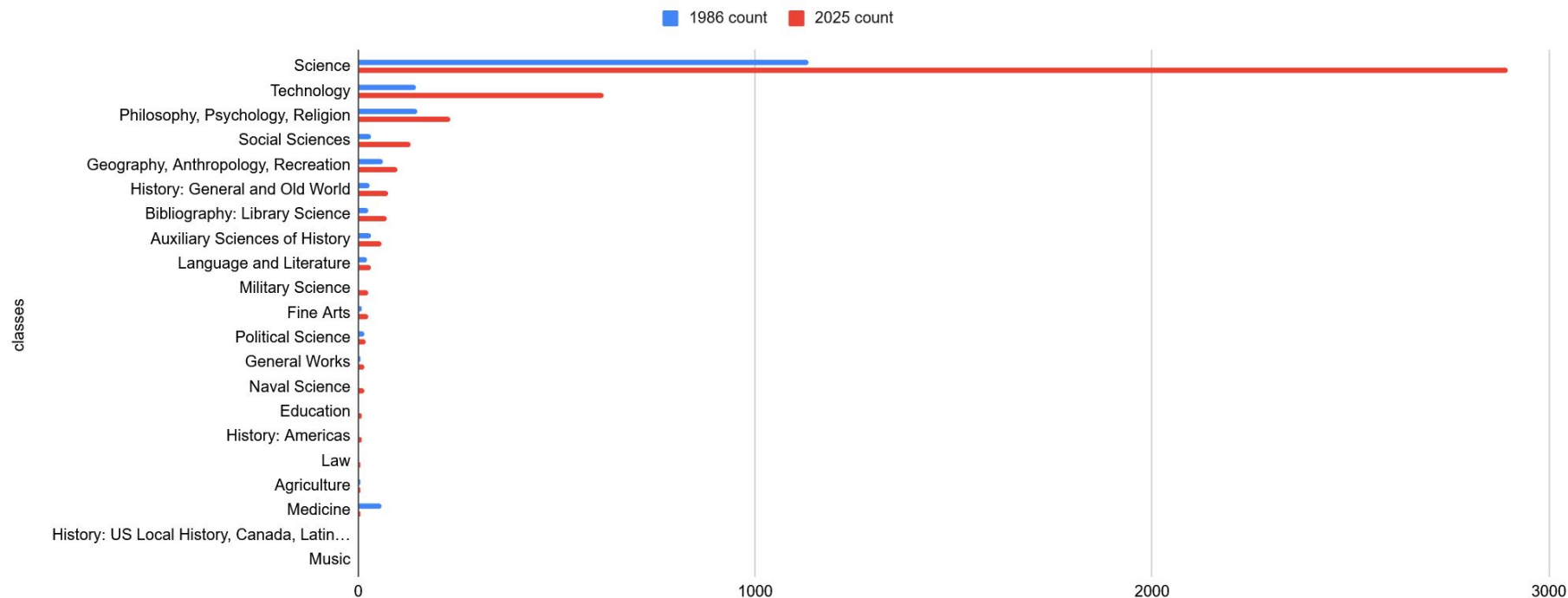
Donald Mossman



1986 call numbers (1727): has duplicates	2025 call numbers (4348): has duplicates	items in A but not B (711)	items in B but not A (2921)	A + B (6075), duplicates in red	deduplicated (merged) collection: 4641 items	1986 call numbers (1722): no duplicates	2025 call numbers (4348): has duplicates
AC1 G72 v.16	AC1 G72 v.16	1986 call numbers (1727): has	2025 call numbers (4348): has	AC1 G72 v.16	AC1 G72 v.16	AC1 G72 v.16	AC1 G72 v.16
AE25 E561 1978	AC8 D97 1997	AS262 A68V79	AC8 D97 1997	AC1 G72 v.16	AE25 E561 1978	AE25 E561 1978	AC8 D97 1997
AS262 A68V79	AC8 G335 1996	B21 M38 1946	AC8 G335 1996	AC8 D97 1997	AS262 A68V79	AS262 A68V79	AC8 G335 1996
AZ321 T5 1929	AE25 E561 1978	B21 S45	AG5 K315 2006	AC8 G335 1996	AZ321 T5 1929	AZ321 T5 1929	AE25 E561 1978
B21 M38 1946	AE25 E561 1978	B29 B74 1952	AM7 K72 2008	AE25 E561 1978	B21 M38 1946	B21 M38 1946	AG5 K315 2006
B21 S45	AE25 E561 1978	B53 A9 1952	AS262 S3364	AE25 E561 1978	B21 S45	B21 S45	AM7 K72 2008
B21 W8 1947	AE25 E561 1978	B53 R4	AS911 N9 S5813 2010	AE25 E561 1978	B21 W8 1947	B21 W8 1947	AS262 S3364
B29 B74 1952	AE25 E561 1978	B72 F4	B29 D465 1989	AE25 E561 1978	B29 B74 1952	B29 B74 1952	AS911 N9 S5813 2010
B41 E5 1972	AG5 K315 2006	B72 J6 1936	B67 O4 1988	AE25 E561 1978	B41 E5 1972	B41 E5 1972	AZ321 T5 1929
B53 A9 1952	AM7 K72 2008	B72 M38 1950	B73 A43 1988	AE25 E561 1978	B53 A9 1952	B53 A9 1952	B21 M38 1946
B53 R4	AS262 S3364	B72 R8 1945	B92 F413 1957	AG5 K315 2006	B53 R4	B53 R4	B29 B74 1952
B67 B8 1932a	AS262 S3364	B105 C5L6 1957	B105 C473 L48 1992	AM7 K72 2008	B67 B8 1932a	B67 B8 1932a	B41 E5 1972
B67 D6 1935	AS262 S3364	B127 C68H46 1984	B105 C5 L6 1957	AS262 A68V79	B67 D6 1935	B67 D6 1935	B67 B8 1932a
B72 F4	AS262 S3364	B187 M6C6 1931	B127 C68 H46 1984	AS262 S3364	B72 F4	B72 F4	B67 D6 1935
B72 J6 1936	AS911 N9 S5813 2010	B187 T55C3 1948	B165 D43 F7 1953	AS262 S3364	B72 J6 1936	B72 J6 1936	B67 O4 1988
B72 M38 1950	AZ321 T5 1929	B218 Z7L35	B187 M6 C6 1931	AS262 S3364	B72 M38 1950	B72 M38 1950	B73 A43 1988
B72 R8 1945	B21 W8 1947	B485 B3 1960	B187 T55 C3 1948	AS262 S3364	B72 R8 1945	B72 R8 1945	B74 R6 1952

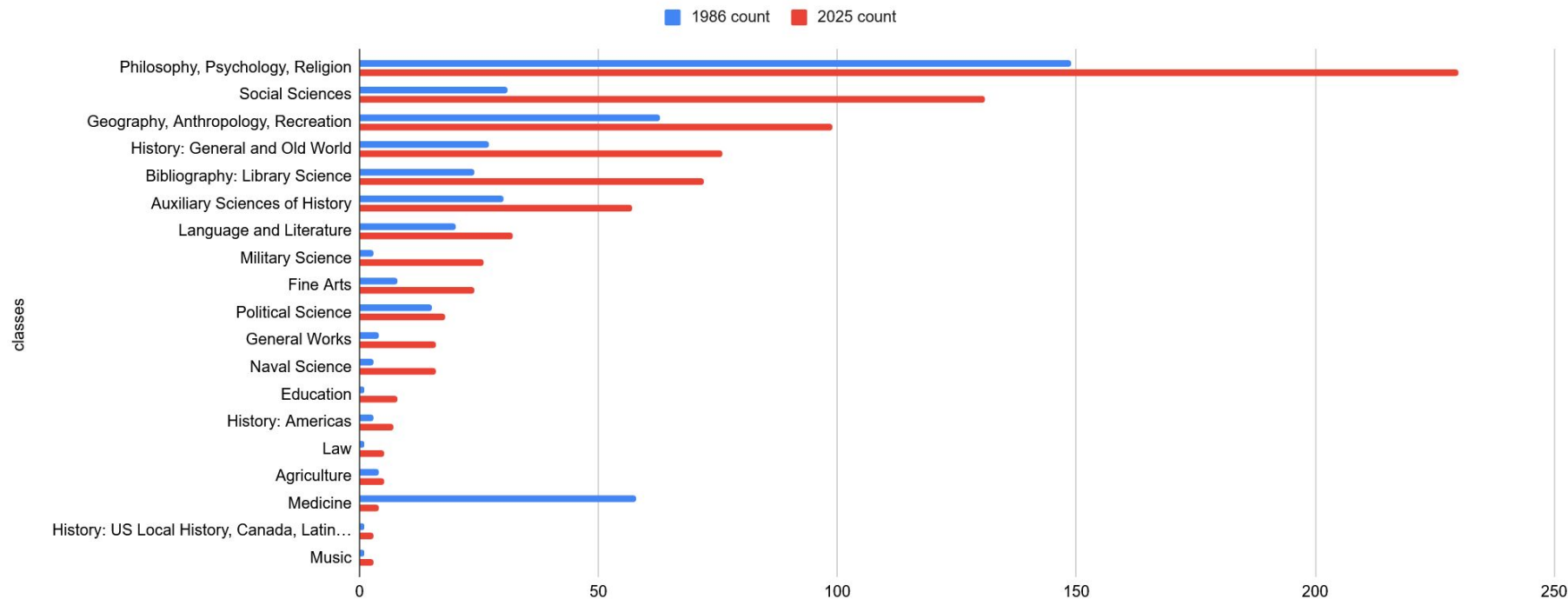
Mossman call numbers topic spread 1986-2025

Mossman Call Number class comparison



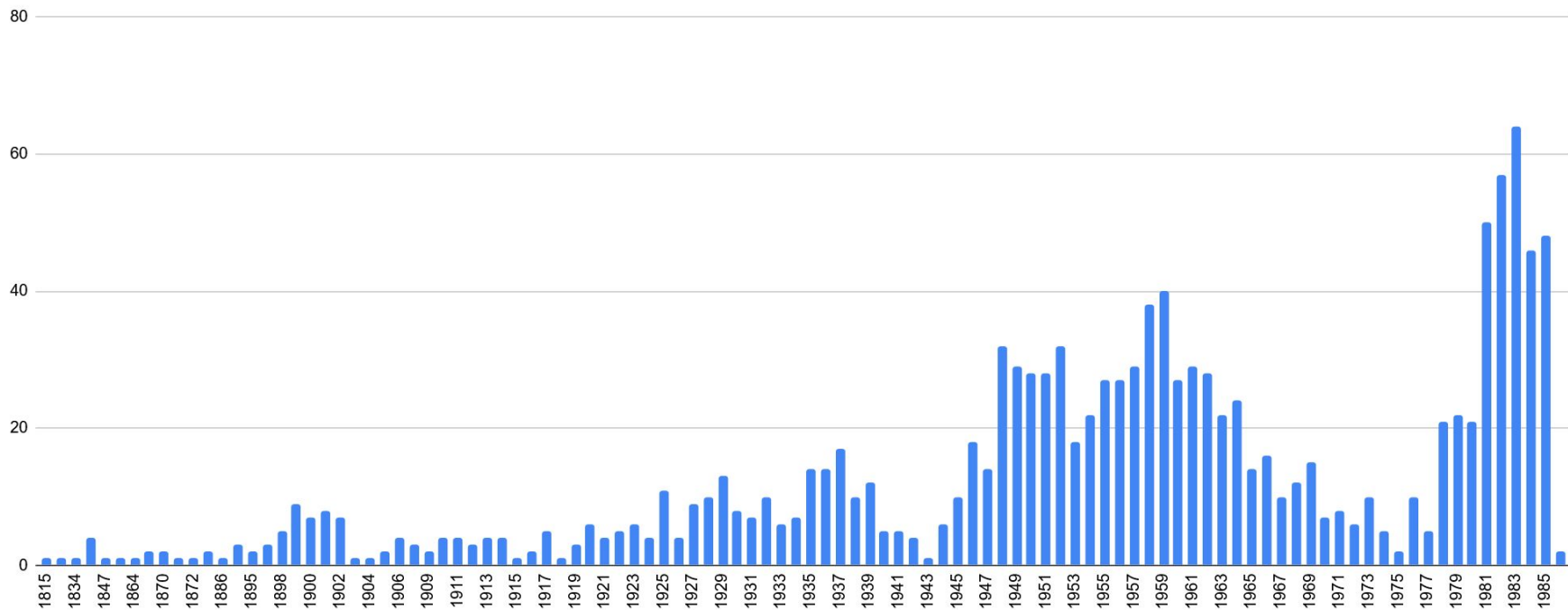
Same, without science and technology

Mossman Call Number class comparison



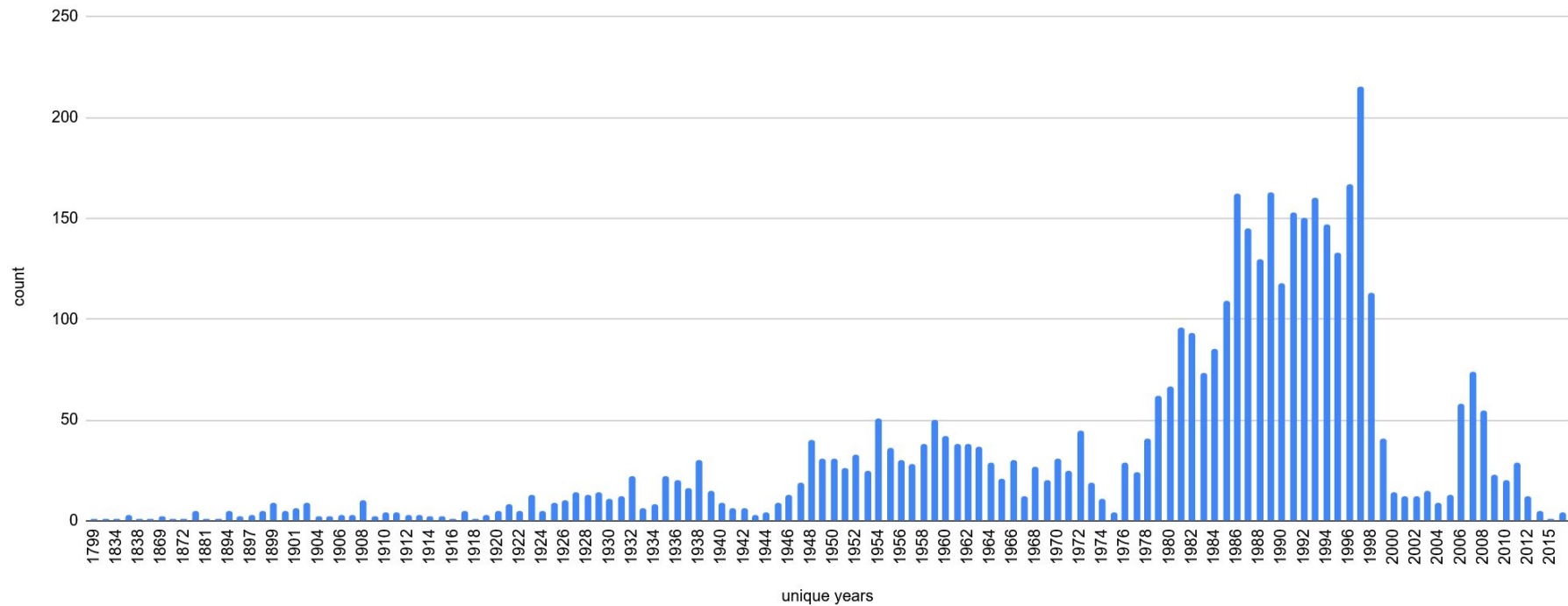
By year

1986 years (1345 items, ~400 missing)



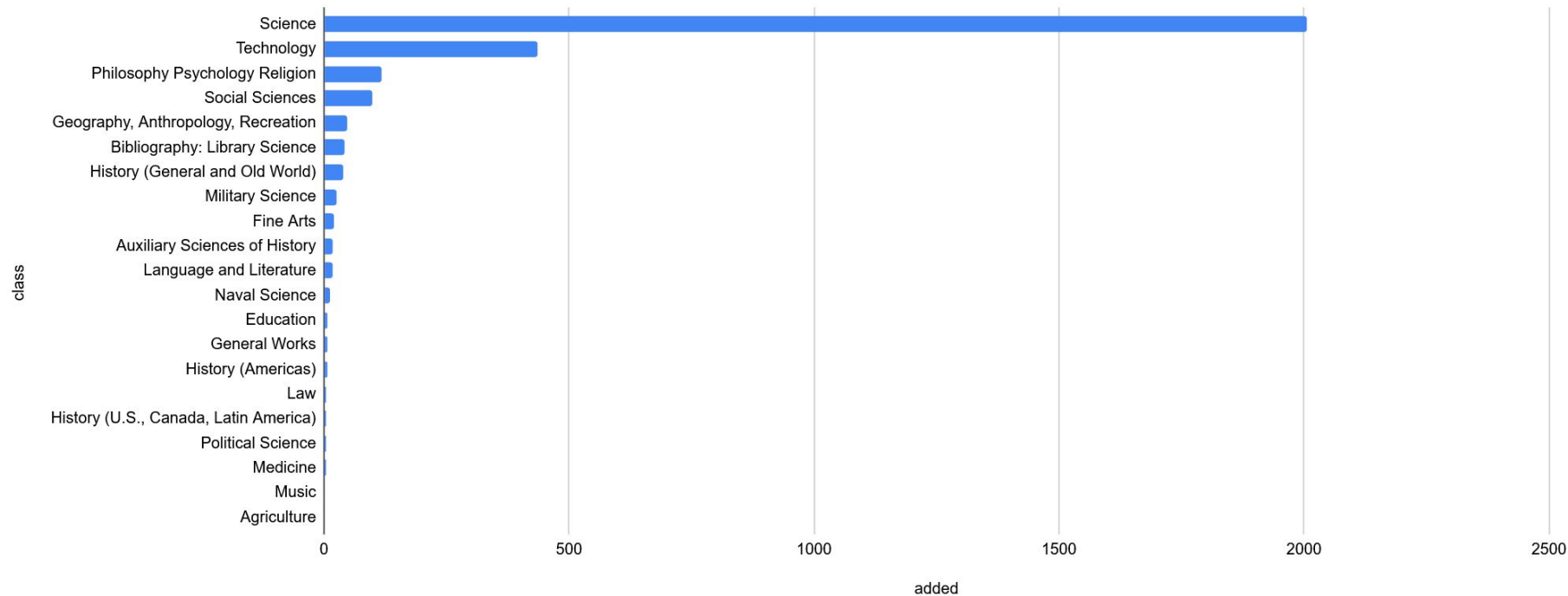
2025

count vs. unique years



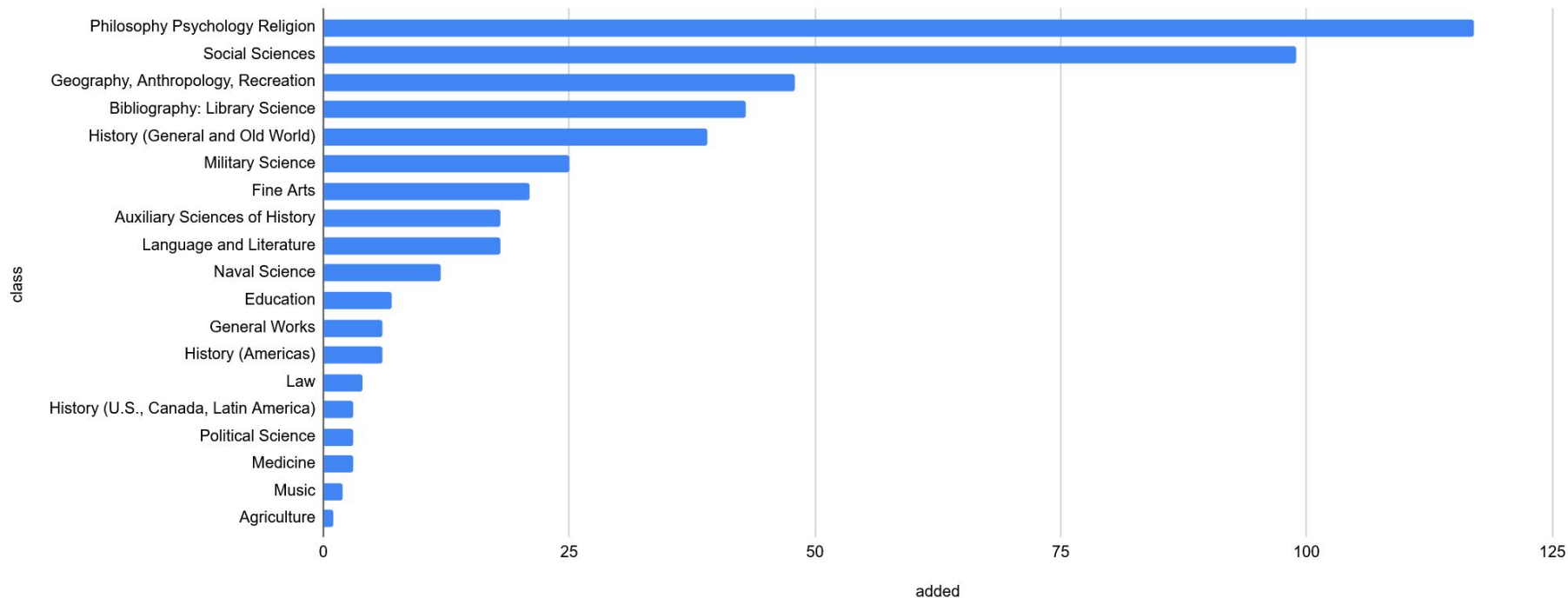
Topic spread for purchased items (1986-2025)

added vs. class

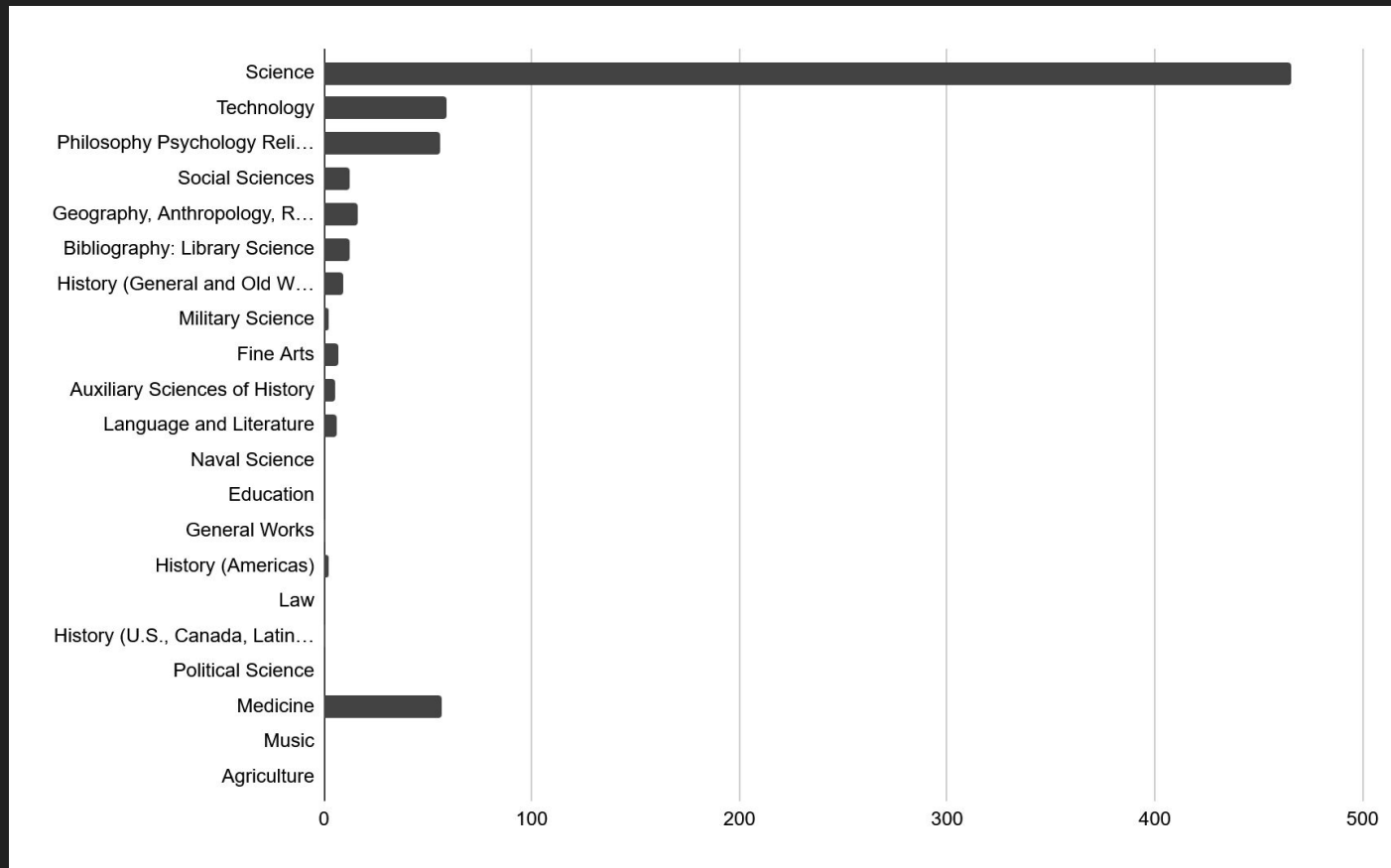


Topic spread for purchased items w/o Science and Technology (1986-2025)

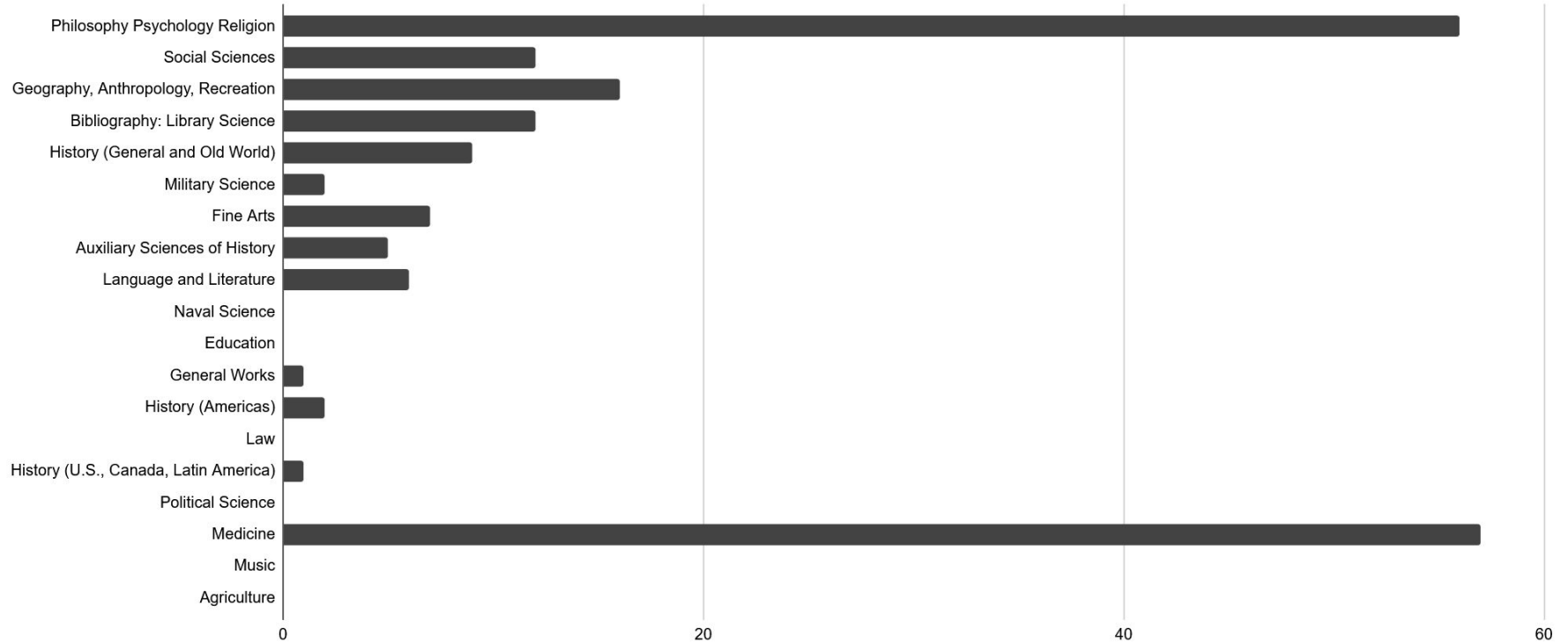
added vs. class



Topic spread for de-mossman'd items (1986-2025)



Topic spread for de-mossman'd items (without Q and T)



Conclusion: "Information (recovery) studies" and scientific knowledge history

- acknowledge the creative / recreative labor of information "maintenance"
- engage with not-entirely-understood or not-completely-archived objects and projects
- explore the limitation of authors or list of authors and elaborate on hierarchies of responsibility and credit as appropriate
- explore in more depth the space between the text, the digital object, and our analog experience of reality
- folksonomies but for OAIS-model archival preservation and resource exploration frameworks

Thank you!

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