

have worked more or less 'together', or at least in the same circle at the same time, they are homogenetic (and not, as on p. 34, allogenic = 'not produced in the same circle and time'). And since all four blocks are judged to have been produced in the same circle at the same time, the whole book is a homogenetic composite.

It may be interesting to note that the dates quoted on p. 32 allow one to calculate that scribe C wrote, in 73 days, 63 leaves, that is (on the average) 0.8 leaf

a day; scribe B did 39 leaves in 17 days, = 2.3 leaf a day. These are speeds that compare perfectly with speeds normal for Western scribes. It would be worthwhile to collect more data on the working speeds of Arabic (and other non-Western) scribes.

A minor detail: my second article, the one in German, is not '2004b': it was written in 2008, and published in 2010.

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Notes on Armenian Codicology.

Part 1: Statistics Based on Surveys of Armenian Manuscripts

[Reflections on statistics compiled from the Matenadaran Manuscript Repository (Erevan) summary catalogues, vol. I (mss 1-5,000, 1965), vol. II (mss 5,001-10,408, 1970), vol. III (mss 10,409-11,077, 2007), and master catalogues, vols. 1-5 (mss 1-1,800, 1984-2009).]¹

Codicology, the study of the manuscript as a physical object rather than simply a transmitter of a text, is a very new and little explored domain of Armenian studies. No manual exists, not even a substantial general article. Recent research has been confined to two specialized areas, manuscript structure and binding² and paleography,³ though the latter is usually not considered to be strictly part of codicology. There have also been studies devoted to pigments⁴ and, to a much lesser extent, inks. Little or no attention has been paid to writing surfaces, ruling, pricking, quire formation, folding, page layout, or textile linings of bindings.⁵ Illuminations and manuscript decorations have fared better, but mostly in the domain of art history rather than codicology. One of the reasons that Armenian codicology is underdeveloped relates directly to the ubiquitous prevalence of the colophon in Armenian manuscripts. By carefully recording the elements that made up the structure of a manuscript, and comparing these

¹ Eganyan et al. 1965, 1970, Malkhasian 2007, short descriptions of 11,077 manuscripts; Eganyan et al. 1984-2009, also available online: http://www.matenadaran.am/v2_2/.

² On structure see Merian 1993.

³ For details and thorough bibliography see Kouymjian 2002=2006:5-75.

⁴ A loosely constituted team of scientists and scholars including Mary Virginia Orna, Diane Cabelli, and Thomas F. Mathews have produced a dozen articles summarized in Orna 1994.

⁵ An album of watercolor reproductions of such textiles was prepared by Dournovo 1953; see also Tarayan 1978.

to like features of clearly dated works, scholars of Greek and Latin codices added to the existing arsenal of dating, which already included palaeography and the study of illustrations. The same method was also applied to identifying place of production and even separate workshops. But as I have pointed out more than once, the inclusion of the scribal memorial has privileged the study of Armenian manuscripts by granting with absolute precision the date and place of the copying in more than 55% of them:⁶ An extremely high ratio, perhaps the highest of any medieval manuscript tradition. Thus, the urgency of uncovering secondary dating tools through physical analysis of the codex was greatly diminished.

Nevertheless, codicological analyses based on statistics from published manuscript catalogues, such as the transition from parchment to paper (Table 1), from majuscule to minuscule, or the change in quire size (Table 2), can yield very precise information on the moment of the dominance of one support over another or the change in the size of gatherings.

The estimated number of surviving Armenian manuscripts has increased over the past quarter century from 25,000 to somewhere above 30,000.⁷ I have myself opted for 31,000,⁸ but as will be seen from

⁶ Kouymjian 1983[1984]:427f.

⁷ The 25,000 number was given by Sanjian 1976:1; I had used Sanjian's number in Kouymjian 1983 [1984]:426. In 1958, Sirarpie Der Nersessian had proposed 20,000 (Der Nersessian 1958, vol. 1, p. xxi).

⁸ Some years ago I opted for this figure based on discussions with Bernard Coulie after the publication of his *Répertoire* (1995-2004); a revised edition has been announced; see also my review (Kouymjian 1992-93).

Table 1. Evolution from parchment to paper. By the last quarter of the twelfth century paper began its domination over parchment and a century later completed the process.

Date	Mss	Parchment	Paper	Date	Mss	Parchment	Paper
0851-	1	1		1126-	1		1
0876-	1	1		1151-	13	7	6
0901-	2	2		1176-	21	8	13
0926-	0			1201-	25	11	14
0951-	4	4		1226-	23	14	9
0976-	4	3	1	1251-	46	26	20
1001-	3	3		1276-	84	19	65
1026-	12	12		1301-	62	17	45
1051-	9	9		1326-	63	11	52
1076-	4	3		1351-	45	1	53
1101-	2		2	1376-1400	32	2	30

Table 2. Quire size: 115 dated manuscripts to 1600.

Date	Quaternion (8ff.)	Quinion (10ff.)	Senion (12ff.)	Quire (14ff.)	Quire (16ff.)	Quire (20ff.)
11 th cent.	03					
12 th cent.						
13 th cent.	07	02	15		03	01
14 th cent.			32	01	03	
15 th cent.			26	01	01	
16 th cent.			18			

the statistics below about the actual number of individual manuscripts (usually discrete bound volumes) this does not give an accurate account of separate items since there seems to be an inflation factor of about 9% due primarily to bound volumes which contain more than a single manuscript.⁹ To be fair, one might subtract from the total, a number of flyleaves, which are sometimes counted as individual manuscripts, though such guard leaves are in fact often fragments of separate manuscripts. Also, one ought to take into account early printed books and subtract them, since they are often bound just like manuscripts and counted among them in many collections.¹⁰

Observations on Tabulating the Manuscripts

In every case the number of items listed in the index of manuscript catalogues arranged by date (discrete items) is always greater than the number of catalogued codices. For example the summary catalogue of the Matenadaran (Repository of Ancient Manuscripts), Erevan, v. I (1965), 5,000 numbers, 5,418 items counted (+ 8%); v. II (1970) 5,408 numbers, 5,886 items (+ 9%); v. III (2007) 668 numbers, 705 counted (+ 6%); Master Catalogue, Matenad-

⁹ This figure is derived from a statistical analysis of the 11,077 manuscripts thus far published from the Matenadaran collection in Erevan. Using the date indices in these volumes, 12,009 individual items were counted. To what extent this reflects individual manuscripts bound together or other anomalies was not determined or even attempted to control.

¹⁰ Hybrid examples also exist of a printed text bound together with a manuscript, Kouymjian 2008:19, a printed book of 1669 with manuscript texts copied in 1697–98 and bound in the same year.

aran, Erevan, v. 1-5, 1,800 numbers, 2012 counted (+ 12%).¹¹ It is not clear why we get 12% for the first 1,800 of the 5,000 in the summary catalogue, that is the first 36% of manuscripts, whereas for the whole lot it is only an 8% inflation. Perhaps the counting was more accurate in the detailed catalogue or the remaining 3,200 manuscripts have proportionately fewer items with more than one dated part. It is not completely clear if the starred items in the indices represent two separate manuscripts or the same manuscript whose copying was discontinuous. In the final analysis I believe that there are at least 31,000 bound volumes in the world, but more probably 32,000 to 34,000 discrete surviving Armenian manuscripts.

Dated Versus Undated Manuscripts

As already mentioned, Armenian scribes had the consistent habit of leaving a dated colophon usually at the end of the copy; in addition the scribal memorial usually mentioned the place of copying, the scribe and patron's name, and often that of the artist and binder. But many manuscripts have lost their original colophons through wear and tear or re-binding and thus are only dated by other elements, including dates of rulers, catholicoi, and other identifiable figures.

In an early article based on a similar, but more casual, survey of a large sample of more than 12,000 published manuscripts, I calculated that 59% of all

¹¹ Calculating the total of all 11,077 manuscripts in the Matenadaran collection (2007) with the number of individually dated items in the index, 12,009, the global augmentation is 9%.

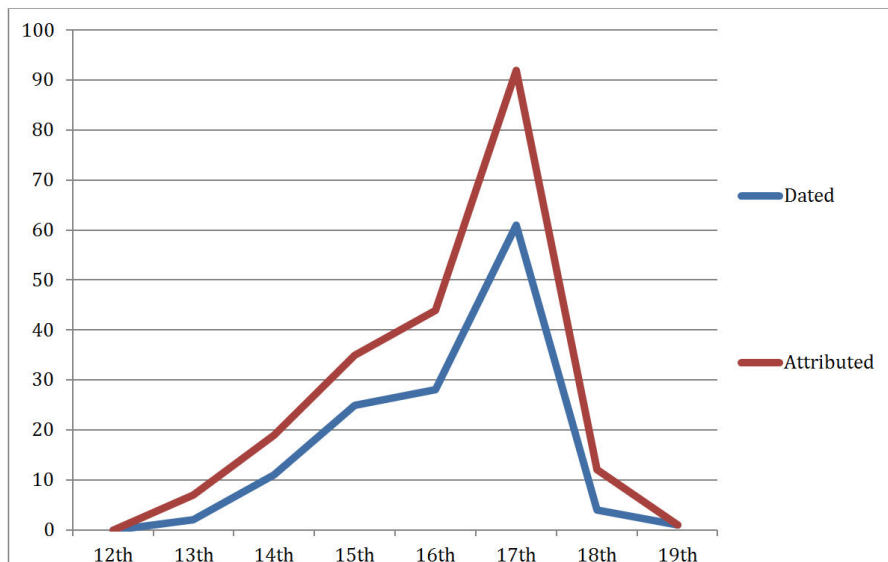


Table 3. Production graph by century of 264 Armenian Hymnal manuscripts, 132 of which are precisely dated.

Armenian manuscripts are precisely dated. For this note, a more careful counting of the large Matenadaran collection (11,077 items), the percentage is slightly less: for Cat. I (3,056 dated items, 5,418 total items), 56 %; Cat. II (3,176 dated items, 5,886 total), 54%; Cat. III (319 dated items, 705 total), 45%; Cats. 1-5 (1,800 numbers, 2,012 items), 54%; taken together 6,551 dated items of a grand total of 12,009 listings results in 55% of all manuscripts with precise dates. The discrepancy between the latter figure and the higher one of 59% in the earlier study using the data in the same indices probably is due to my using the number of manuscripts in the catalogues rather than the larger number of counted items in the indices, e.g., Cat. vol. I, manuscripts nos. 1–5,000, rather than the 5,418 individual items listed in the index and so forth.

Manuscript Production by Century

In my earlier statistical study, a graph with three curves covering the years 1200 to 1800 was plotted by number of dated manuscripts for ten-year periods. The first curve was based on 6,030 dated items from the 10,408 manuscripts of the Matenadaran already published; the second on 7,973 dated manuscripts from a total of 13,944 from a variety of repositories; the third based on 16,744 manuscripts, which included the manuscripts from the large collection of the Armenian Patriarchate of Jerusalem, but only plotted for the years 1310 to 1620.¹² The first observation is that the curves resemble each other very closely even when the data sample was dramatically increased, suggesting that the Matenadaran, perhaps because of its size, affords an

¹² Kouymjian 1983 [1984]:433, fig. 1.

accurate reflection of the whole and can be used to project results of a theoretical database inclusive of all Armenian manuscripts. The data clearly show that the number of manuscripts copied steadily increased from century to century, except from the fifteenth to the sixteenth century, when there was a net decline in production, especially in the first decades when production had practically come to a halt because of the enormous unrest caused by the Ottoman-Safavid wars.¹³

Examining the table listing the number of dated manuscripts and total number of manuscripts century by century, the decline in the sixteenth century was about 20%. But this was followed by the sudden and dramatic increase in manuscript production, already beginning in the second half of the sixteenth century, but continuously accelerating until the late seventeenth century: a nearly 400% increase, from 1,030 to 4,072 manuscripts. Though in absolute percentages it is less than the 560% increase from the twelfth to the thirteenth century (69 to 392 items in the combined column), the earlier figure has to be tempered when we consider reliable historic witnesses to the destruction of whole libraries with thousands of codices, especially during the Seljuk Turkic period.¹⁴ The remarkable seventeenth-century growth reflects the furious activity of monastic scribes during a period when Armenians were prospering after the end of the wars between the Turks

¹³ The historical details of this period, including the devastating wars between the Safavids of Iran and the Ottoman Turks, which played out on the territory of Armenia, can be found in Kouymjian 1982 (revised ed. 2007; see also expanded version 1997).

¹⁴ In the 1160s some 10,000 manuscripts were destroyed at the Monastery of Tatev alone; see Orbélian 1861, vol. 1, p. 191.



Fig. 1. Double page from the first Armenian printed Hymnal, Amsterdam, 1664, with on the left an engraving of the Annunciation by the Dutch artist Christoffel Van Sichem II (1577-1658), whose monogram initials cvs are seen just above the H in the lower left, and on the right an incipit page with traditional decorations used in Armenian manuscript versions. Paris: Private Collection.

and the Persians and from wealth accumulation by a greatly expanded and dynamic merchant middle-class.¹⁵ The trend was already graphically shown in an earlier article¹⁶ and its conclusions help inform a discussion of the rise of the new class in a position of dominance as early as the late sixteenth and early seventeenth centuries.¹⁷

The data also very clearly show that a large majority of Armenian manuscripts which have come down to us date after 1600: 67 % after that date from the large sampling, 78% from the same sampling (cat. III), and 66% from the manuscripts included in the first five volumes of the detailed catalogue. And though there is a roughly 35% decrease in manuscript production in the eighteenth century, the absolute number of surviving eighteenth centuries codices is more than the combined quantity from both the fifteenth and sixteenth centuries. The actual decline in the hand writing or copying of manuscripts is statistically quite clear: the third-quarter of the seven-

teenth century. Yet again, nearly 10% of surviving Armenian manuscripts were written or copied in the nineteenth century.¹⁸

Printing and Manuscript Production.

Even though the first Armenian printed book dates to 1512, the old technology continued to grow until 1675 and was an active endeavor until the mid-nineteenth century, even though by 1800 some 100 different titles in over a thousand editions had been printed in Armenian.¹⁹ I have commented on this phenomenon more than once. For more than three centuries the two technologies, printing and scribal copying of manuscripts, worked in a close, symbiotic relationship, one that has not been adequately studied. It is certainly true that a large number of eighteenth and nineteenth Armenian manuscripts were not copied from earlier exemplars, but simply are the original composition of an author (memoir, account book, dictionary, translation), a unique item that perhaps should have a special place in the sta-

¹⁵ To the already considerable bibliography on Armenian merchants and trade in the seventeenth and later centuries, notice should be taken of the just published, Aslanian 2011.

¹⁶ Kouymjian 1983 [1984].

¹⁷ Kouymjian 1994.

¹⁸ It should be remembered that medieval sources speak of the destruction of whole libraries numbering more than 20,000 manuscripts, and that during the massacres of 1894-96 and the Genocide of 1915-23, thousands more were destroyed, stolen, or lost.

¹⁹ Anasyan 1963.



Fig. 2. Left, engraving of the Tree of Jesse; right, incipit, printed Hymnal, Constantinople, 1743. Erevan: National Library.

tistical examination of the history of the last centuries of manuscript production.

Armenian printing was wide spread and dynamic, an entirely diaspora-based activity from the first books published in Venice in 1512 to the first press established in the historic homeland in Holy Etchmiadzin in 1772. During these 260 years Armenian printers were established in more than twenty localities including Paris, Rome, Constantinople, Berlin, Lvov, Marseille, New Julfa-Isfahan, Amsterdam, Padua, Leghorn, London, Leipzig, Vienna, and Madras. Yet, unlike the experience in European printing, which rapidly replaced the work of copyist, scribes continued their activities, to be sure often in the context of remote monasteries, well into the nineteenth century. One explanation for this is that the cheap, in some cases free, labour of the monastic scribe was more economical than the often expensive printed volumes.

Available data have not been sufficiently studied yet. At least for one category of a liturgical text, the Armenian Hymnal (*Šaraknoc'* or *Tropologion*, indispensable for performing the daily and hourly offices), a preliminary survey showed that the hand copying of text dropped dramatically (nearly 700%) from the end of the seventeenth to the eighteenth century

(Table 3).²⁰ The first Amsterdam printed Hymnal of 1664 (fig. 1) was followed quickly by more printings up to the total of twenty-one editions by 1794 (figs. 2-3) – nine more in Amsterdam and thirteen in Constantinople. The most copied Armenian manuscript text, the four Gospels, reflects a similar, yet somewhat different, history. Though the first Gospel book as well as complete Bibles and New Testaments were printed in equally large numbers, the noticeable decline in copying of the Gospels seems to have only occurred half a century later, in the early eighteenth century.

The intent of this short article, though proclaiming to treat codicology, was to show how data mined from published manuscript catalogues and other sources abundantly available online for the history of early Armenian printing²¹ can be used statistically to es-

²⁰ The following results from an as yet unpublished sampling of 132 precisely dated Hymnals mostly from the Mekhitarist Fathers' collection in Venice, of the thirteenth to the nineteenth century, are revealing: thirteenth century (2), fourteenth (11), fifteenth (25), sixteenth (28), seventeenth (61), eighteenth (4), nineteenth (1). The numbers are even more dramatic because of the sixty-one Hymnals of the seventeenth century, more than twice that of the previous century, fifty-four are dated to before the first printing and only seven after.

²¹ The Meghapat Project, named after the mysterious first Armenian printer of Venice, Yakob Meghapat (the Sinner), can be consulted at: <http://greenstone.flib.sci.am/gsdll/cgi-bin/library.cgi?site=localhost&a=p&p=about&c=armenian&l=en&w=utf-8>.

establish a history of Armenian manuscript production and observe a number of phenomena related to the long transitional period from the handmade book to the mechanically produced one.

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Fig. 3. Titlepage, printed Hymnal, Constantinople, 1768. Erevan: National Library.

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