THE TACKETED QUIRE: AN EXERCISE IN COMPARATIVE CODICOLOGY

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A codex consists of quires (1). (Once a book is bound, the reader is not aware of the fact; but the scribe is, and the codicologist must be.) And the quires consist of bifolia. I used to think that bifolia were what scribes worked on: single thicknesses of parchment (or paper); they would have a stack of them (e.g. four, = a quaternion) at their right side, fill the first recto and verso of the first one and put it aside on the left, and take a new one from the right; if no bifolia remained on their right, they would shift the left stack to the right and proceed to fill the second leaves; so, always working on a single thickness of parchment. I never thought any other way was possible (apart from the so-called ‘imposition’, working on undivided sheets; but that also is done on a flat sheet, one thickness of parchment).

So I was surprised when, around 1980, I met Dr. Sergew, an Ethiopian historian and manuscript scholar (then in Leiden), and heard from him that Ethiopian scribes worked in quires (2), something I had thought impossible. Later, in his little book on Ethiopian codicology (3), he described it thus: «The scribe cuts the sheets into the size suitable for the manuscript he intends to write. Then he folds the sheets, flesh sides together. Temporarily the quire is connected with a piece of selloam. When he starts writing he notes the number on the top left-hand corner(s) (etc.). A more recent booklet confirms that they still work this way (4): »After the skin is removed from the frame the sheets are cut out and folded in half. Four, or sometimes five, sheets are nested together to form a section which is then held together using temporary parchment ties. Small holes (...) are pricked (...)» (etc.). And Mark Clarke reports: «Hinok, ruled bifolia are assembled into gatherings (quires). Holes are made with an awl in the fold at the head and foot of the gathering, which is

(1) This text grew out of a lecture which I gave, in various shapes, at the Annual Saint Louis Conference on Manuscript Studies in St Louis in 2006, as a Catherine Lewis Master Class in the context of the Centre for the History of the Book in Oxford in 2009, and at the colloquium «Der Aufbau der Seite in mittelalterlichen Handschriften: Planung und Herstellungstechnik» in Bern in 2010. I am grateful to the various bodies that gave me the opportunity to give those talks. Gratefully, also, I acknowledge permission to reproduce photographs from The Bodleian Libraries, University of Oxford, and from the anonymous owner of the Archimedes Palimpsest.

(2) SERGEW H.S., Bookmaking in Ethiopia, Leiden (privately printed), 1981; the quote from p. 25-26. After Sergew the information is given in the most recent survey, A. Baum, «La tradizione scrittoria etiopica», Segno e Trabe 6, 2008, p. 507-557; p. 543.


Scriptores, 65, 2011, p. 299-329, pl. 50-54.
then tied together loosely with two thin (2-4 mm) strips of parchment. The holes for these ties are not re-used in sewing — they can usually be seen on a bound manuscript.(4)

And indeed in Ethiopian manuscripts we do find, not the tisa, but the holes where they were (Pl. 50 a and b). They might be taken for traces of sewing of handbands that had been lost, but Ethiopian manuscripts either have leather coverings and headbands, or bare wooden boards with no headbands; and for bindings like the ones shown here there is no reason at all to suppose that they are not in their original state and that they ever had headbands.

Of course, Ethiopia is a sort of Jurassic Park of codicology: anything found there has a chance of being very ancient. Still, they are exotic people. And so I was surprised again when, shortly afterwards, this feature came home to the West: in restoring a Leiden manuscript (Leiden, UB, Abl. I, an Infardinian, Italy s. XIF) the restorer, sister Lucy Gimbrère, found a small loop of parchment still holding together one of the quires(5).

Subsequently I realized that others had been finding such little strings, called tacklets(6), fairly frequently. The most important contribution is an article by Michael Gillick, From Scribe to Binder. Quire Tackets in Twelfth Century English Manuscripts(7). (Pl. 51 a and b)

The tacklets are generally either loops of thread, or thin strips of parchment (often rolled tightly so as to resemble pieces of string), the ends of which are knotted

(4) Mark Clark, e-mail of May 2005, describing a trip to the Aynon region in 2001. — I cannot rest my quotation his comment (by e-mail of October 2010): I arrived just in time for the Orthodox Easter, 2001, which meant the market outside the cathedral was swarming with scribe-mongers who had walked (for days) from their monasteries, to sell MSS, and (after the Easter slaughter) to buy skins.


(6) The word is found with this meaning in dictionaries (where it is rather the nails in a book). — J. Vezien, Quaterni (infra n. 7) calls them bandes de peau, liens de cœur, cœr-delet de parchemin, but most often others; in his Reconstitution..., (as note 12) also to tissage. For Dutch, the word stijglet was introduced in W.K. Gieskes — J.P. Gimbret — J.A. Szeszma, Korten en binding, Den Haag, 1992, 34.11. For Gerrum, Agnes Scholla, Libri sine assise, Zur Einbundtechnik, Form und Inhalt mittelalterlicher Kopier des 8 bis 14. Jahrhunderts, thes. Leiden 2002, uses Schmiroung but I find this a bit colourless and prefer the word nodet, since this, in the Middle Ages, meant a series (the shoe-lace, or the strings for attaching hose to doublets), and now is virtually extinct and therefore available; during my lecture the public approved this proposal.

(7) In J.L. Shader (ed.), Roger Powell / The Cambridge Binder, Turnhout, 1996 (Bibliotheca, 14), p. 240-259. They are also discussed by J.A. Szeszma, The Archeology of Medieval Bookbinding, Aldershot, 1999, p. 114-115, 142. — But Gillick was not the first or only researcher to notice them; see, e.g., C. Claridge on Powell's own observations, in his Annotated Bibliography of Works By and About Roger Powell, Powell's own volume, p. 83 on the Leichfield Gospa (he finds some evidence to suggest that [they] were decorated and so presumably written also while assembled in folded quires), 64 on Stoweher, and A.G. Clark, Roger Powell's Innovation in Book Conservation, in the same volume, p. 79 on Leichfield (Powell's 1960 report: seem to have been stitched in quires (probably with twisted vellum strips) and 87 on the Cathedr. Sec also J. Vezien, Quaterni simili ligati: Recherches sur les manuscrits en chamfrin, in: P.R. Robinson, H. Zun (eds), Of the Making of Books, Essays presented to M.B. Parkes, Aldershot, 1997, p. 61-70. 67-68.

(8) This is described (in a role as sewing tacket) by P.R. Robinson, The 'Booklet', a Self-Contained Unit in Composite Manuscripts, in A. Goys (ed), Codicologia 3: Essai typologiques, Leiden, 1980, p. 46-69: 52.

(9) This is mentioned in G. Petersen (infra n. 16), p. 377-378; there also the possibility of a figure-of-eight loop through three holes.

(10) See J.A. Szeszma (infra n. 7), 287 ff. They are also described, for instance, in M. Knecht, Les reliures des registres d'archives medievales, XIVe-XVe siecle, in M. Zerboni Bart YHervé et C. Bourlot (eds), Materiaux du livre medival, Turnhout, 2010 (Bibliotheca 30), p. 249-268, 262-265, called relieurs d'attache (with insufficient distinction between quire and sewing tackets; see also p. 267). But see particularly N. Pickwood, Tacketed bindings, A hundred years of European bookbinding, in D. Pearson (ed), For the Love of the Binding, Studies in Bookbinding History Presented in Miriam Font, London, 2000, p. 119-167 (where, incidentally, the word tacket receives a rather wider application).
These are not made in all quires at the same time but in each quire separately, they do not form a regular line:

\[ \text{[Image not shown]} \]

Fig. 2. Variable tacket stations, as against stable sewing stations.

(From Gielicki, From Scribe to Binder, s. fig. 7.)

This can occasionally be seen, if one has an uncovered back available: the sewing holes are in straight lines, but there may be a swarm of small holes that do not fit with any of the real sewings. A good example is Leiden, UL, BL I, 114, a Lex Romana Visigothorum c.a., France (Bourges? s. VIII) (PL 52 a and b). It still has its original wooden boards, with the Carolingian attachment of the sewing supports; but it was rebound (in Belgium) in the thirteenth century, and at that time the boards were turned around and given a new, modern attachment. It was restored in 1987. All three bindings used the same straight line of single sewing stations; the irregularly placed tacketing holes are clearly distinct. Once this type of hole is recognized, one may easily find similar holes in many old manuscripts, although generally only in the inside folds, where their nature is less certain (PL 54 a and b).

Gielicki not only found numerous quire tackets and traces of quire tackets in twelfth-century manuscripts (and older ones, right back to the Stonyhurst Gospels), but he also found a medieval text that actually mentions them (once you know what the author is talking about) and he pointed out that already in 1885 C.-R. Gregory suggested that the bifolia of a quire might be «temporarily» fixed — a suggestion that was not taken up by later codicology (none of the existing manuals, not even Agati, so much as mentioned quire tackets until 2007)!

So, quire tackets do still exist, and the traces of formerly present quire tackets are fairly frequent, at least from the eighth to the thirteenth century, in various Western countries. No doubt they would be found even more frequently if more people knew that they might, and should, look for them. In fact, I have come to believe that, up to the end of the thirteenth century, tacketed quires were, if not perhaps precisely the norm, at least quite common.

The Tacketed Quire

(1) A. Scholl (supra n. 7) quotes them from a number of ninth-century MSS. J. Veen (supra n. 7) found these in MSS down to the thirteenth. How common quire tackets may have been can be illustrated from the work of A. Scholla on early lump bindings (Libri sine osseribus, supra n. 6): among the 89 bindings that she studied, almost 40, ranging from the 9th to the 14th century, still showed «chondritic holes from quire tacketing», some with «twisted parchment tackets» still in them. During the course of her restoration work Sister Giamberto (see note 5) noted a number of cases in Leiden and Utrecht MSS, which she documented in her reports (her papers are now Leiden, BL 3479). For instance, in Leiden, BL 416 (Gospels, s. IX), she found, apart from two series of normal sewing stations, in each quire two pairs of «small pricked holes at varying heights», except in two quires that, being miniatures, consisted of only one bifolio and so needed no quire tacket; in one place she still found «a remnant of a loop of parchment», of which the ends had been twisted together on the back of the quire. In Leiden, Voss. lat. oct. 61 (s. XII, a rather small book) she found, in each quire, only one pair of such holes, near the middle of the height, that could somewhat, so it is clear, that they served to attach the leaves within the quire. On BL 114, she did note the odd holes for temporary fixings, but did not comment on their position. — An interesting case in Leiden, Voss. lat. oct. 15 (early eleventh c.) has been found and analyzed by A. Van der Lee, A Flexible Unity: Adornor of Calligraphy and the Production and Use of Age of Ms. Leiden, Universitatsbibliothek, Vossianus Latinius octavo 15a, Scripturium, 65, 2001, p. 21-66, pl. 12-25.

(12) M. Gielicki (supra n. 7) p. 280, quoting Alexander Neckam, De omni historia ab initio mundi (ca. 1180): «quarutanis» cellula sive appendicis tam in superiori quam in inferiori parte folium habent conflatum — «the quire should have its leaves connected, both at head and tail, with a strip or a tacket», and Sacrocto ad altare (ca. 1200): «Folia junturiam tam in superiori quam in inferiori parte quarutanis appendicis officio circumvolvente» — «the leaves should be joined both at the head and the tail of the quire by means of a wound-around tacket». In both places for appendix read offendent, which is also a base for tying (e.g. for closing books); see the Appendix. Neckam is also quoted by J. Veen, «Quarutanis» (supra n. 7) p. 67 n. 33, translating «le scribe doit disposer de caisner dont les feuilles sont réunies en tête et en queue par des boucles de parchemin» (i.e. his «De constitutione sive de scripto (...) Acud. Des Incisions et Belles-Lettres 2006, p. 691, he translates s.)» dont les feuilles sont tenues solidaires par des liens en tête et en queue»).

(13) See below, note 37. The phrase had already been noted earlier, see L. Goldschmid, La reliure occidentale antérieure à 1490, Turnhout, 1983 (Bibliothèque, I), p. 134, where he quotes it because he found on the spine of a manuscript [dated s. X, but not reliably] de multiples tracés de piquages divers, difficiles à interpréter. It is a pity he gave no photograph of that spine; very probably it is such a «swarm of small holes» as mentioned above.

(14) C. de Hamel, Medieval Craftsmen: Scribes and Illuminators, London, 1992, discusses them on p. 20 («a few choice traces of tacketing of gatherings is not necessarily indicative of universal practice»), M.P. Brown, Understanding Illuminated Manuscripts, A Guide to Technical Terms, London, 1994, p. 21, mentions (i.a. 'Binder') that «there is evidence that scribes occasionally undertook the preliminary 'tacket' sewing of their own sections of manuscripts». A website of Stanford University mentions «the quire-tacket, which is sort of the medieval version of a staple, usually a piece of alum-taw rind passed through holes in the quire». R. Clemens - T. Graham, Introduction to Manuscript Studies, Ithaca, 2007, on p. 15 notes «Once the quire has been formed, the scribe might then tightly tie the leaves together with thread or a narrow strip of parchment in order to keep them united as a group during the writing process. This is called tacketing. Nec- dle-holes and lengths of thread or strips of parchment have been discovered in numerous manuscripts. R.M. Thomson, in M. Morgan - R.M. Thomson (eds.), The Cambridge History of the Book in Britain 3, Cambridge, 2008, p. 79-80, fig. 6: When folded, and prior to writing, each quire needed to be kept together by a loop of string or parchment ('tacket') which passed through a hole pierced near the head or foot of the spinefold». M. Agati, Il libro manoscritto, Roma, 2009, does not mention tacket; but in her 2009 edition, she does mention them on p. 161 (and p. 580). In recent times awareness of tackets, including quire tackets, and mentions of them are becoming more frequent; see, e.g. A. Gillies & I.A. Gillies - D. Wescott (eds.), The Production of Books in England 1350-1366, Cambridge, 2011, p. 161, on a «clustering of pierced holes at the ends of the spine folds».}
This for the West, but they are used in Ethiopic manuscripts, and have also been documented for Coptic, Greek, and Slavic manuscripts. Recently I had the good fortune to find them in at least one Hebrew manuscript. Thanks to the fact that this manuscript is now kept in separate quietues (each sewn to its own paper cover) it was possible to map all the holes in all the quire spines and this showed clearly, between the aligned holes of normal sewing stations, the characteristic ‘swarms’ of tacket stations (fig. 3), and indeed two tackets were still found in place (PL. 53 b). As for their occurrence in Arabic manuscripts, see below. These facts, taken together, argue that quire tackets are a feature inherited from the Late Antique, Mediterranean codex.

What are such tackets for? One of the striking features of Medieval and Early Western books is the frequency with which quires occur in isolation. Consider the common Carolingian practice of copying after divided quires: if a text needs to be copied in a hurry, the abbot will have the original taken out of its binding, call a number of monks, and give to each of them one or two quires of the original and one or two blank quires, with the order to copy the one into the other.

15) J.A. SZIRMAY (supra n. 7) p. 46-47 does not mention them, but his own photograph shows the tacket holes, if you know where to look for them.
16) Coptic. J.A. SZIRMAY (supra n. 7) p. 33 (quoting Petersen). On Dublin, Chester Beatty Ac. 1499, a Greek and Coptic-Latin codex from Egypt, dating ca. 480, see A. WOULKEN, ‘From papyrus roll to papyrus codex’, Manuscripts of the Middle East 3, 1990, p. 8-19: the codex contains several blank quires, and one of these is undamaged and the sheets are even still connected at the middle by a piece of strings (p. 13). J. GACKER, ‘Les codex documentaires égyptiens’, in A. BLANCHARD (ed.), Les débuts du code, Turnhout, 1989 (Bibliothèque de la Faculté de Lettres de Turnhout), p. 71-101, notes a quire of the fourth century with quire de trou de broche (p. 84, no. 1; see also no. 3). Byzantine: Szirmay, p. 64 (quoting G. PETRELLI, S. REITOLDI, ‘Sewing Structures and Materials’, in Palaeographia et codicologia greca, Alessandria, 1991, p. 363-489); Szirmay comments: there is ample evidence of quire tacketing used to join the leaves of individual quires, as tackets were frequently left in place on sewing the bookblock, but it must be said that the examples given by Petrelli are late, from the 15th to the 18th century. However, I have observed holes in older Greek manuscripts which may well be tacket stations. And recently Ms Abigail Quinonez told me that quire tackets of 2-ply thread have been found in the famous Archimedes Palimpsest dating from the 13th-century reuse: one quire tacket thread survived (PL. 53 a. See A. QUANSEY in R. NISE (ed.), The Archimedes Palimpsest I: Catalogue and Commentary, New York, 2011, p. 89-91). Slavic: N.I. PETROVA, ‘Parchment manuscripts as a methodological basis of restorations’, in C. FEDERICI and P.F. MONARDI (eds), International Conference on Conservation and Restoration of Archival and Library Materials (Lecco 1996), Palermo, 1999, p. 555-557: p. 552, noticed a small parchment knot used to fix the bifolios making up every quire in two Russian manuscripts, one of the 13th, the other of the 14th century.

17) Oxford, Bodl. Heb. d.11, a compilation of chronicles and other material, written in Germany in the second quarter of the 14th century. I saw it during a joint course in codology with Mahshi Seif-Adil in 2009.
18) Cf. also J. VEZIN, ‘Quaderna’, supra n. 7.

Consider also the case of the beginning in the thirteenth century (20), who bought in Paris a manuscript of visibilis, subsequently, while living in a cathedral city, she used to provide the priests who came to town with quires of the manuscript for copying, with the result that the text was multiplied throughout the whole region. This is a precursor of the pecia system which could not have been invented if books had not been divisible, that is if it had not been fairly common for books to exist for a shorter or a longer period (sometimes for their entire lifetime), in the state of separate quires.

This divisibility, or dividedness, has a parallel in the Arab world, where books may consist of a set of separate ans, now this word seems to have a fairly wide

(21) J. VEZIN, ‘Quaderna’, supra n. 7, p. 66 recalls the Book of Malling, an Irish Gospel book of the eighth century, which consists of four quires (ranging from 13 to 28 leaves), one for each gospel, which have never been bound and are kept in a metal box (cabinet). — In this light one should also consider at least some of the many mentions, in medieval book lists, of books in quadrinovitates. It is generally thought (rightly, I think) that this often means that they were sewn
spectrum of meaning; sometimes it seems to mean merely a major division of a text; but more often it means one of the parts of a text which is contained in a number of physically independent parts (which may be a number of quires), as for instance a Qur'an in 30 ḏuʿūr. But often it means one of the parts of a text, contained in a physically independent entity which is one quire. These quires — often of ten bifolia — have their first recto blank, but for a title and number, the text begins on 1v, and ends safely before the end of the quire at some textually acceptable break. (So they differ from Western quires, for instance those of the pedia system, which are entirely filled by the text.) The Leiden library possesses four manuscripts which consist of such ḏuʿūr. Three were bound at a later moment. Or. 122 (said to date from A.D. 1218, but probably older) has quires of (four) five or six bifolia; the text always begins on the first verso and ends on the recto or verso of the penultimate leaf, leaving space for reading certificates. Or. 298, the famous oldest dated Arabic manuscript on paper (4) of A.D. 866, has quires of ten bifolia; the text of each begins on page 1v and ends on page 20r. Or. 580, of A.D. 1198-99, has quires of six or five (once four) bifolia, with no text on first recto and last leaf, with an extra bifolium added around the quire (5). The fourth, Or. 12644, of ca. 1200, consists of four ḏuʿūr, numbered 277-280 (of a huge work that must have contained thousands of such ḏuʿūr) and kept, loose and unseen, in separate paper covers. Each is a quire of ten bifolia, with the first recto and the last verso blank. Their loose condition makes it possible to make a table of their sewing holes; and one clearly sees, apart from regularly placed stations from a time when they must

(or tacketed) into a limp cover, instead of having a real binding over wooden boards. But often it may mean that the book really was in quires, and this would seem to be particularly probable in cases where the number of quires is specified, as in the remarkable inventory of Gonzal de Pérez (future archbishop of Toledo) of 1275-76 (cf. 27) Atlas de plano [sic] natura et Bernardo Silvester en tres quadernos de purpurino de cuberio, [ca. 31] Tresent et segi quadernos de la obra de fray Albert sobre los libros de natura (etc.), [ca. 32] Széchényi library notes, note a Scroll of fray Albert de melébrose et de propiiedad das elemosinas (after H. Gonzáles Fria), Memorias y libros de Toledo (1896-1897), Madrid, 1997 (Monumenta Escleusa Toledoana Historica, series V: Studia, 1), p. 437, 458.

(22) An older one has been reported from a library in Alexandria, but no further details have yet become known.

(23) The analysis of this MS by J.J. Witkam, Van Leiden naar Damascus, en weer terug, Leiden, 2003, p. 35-37 is wrong. For instance, of quire 6 he says "It is a sheet of 4v the original quire of 6 sheets, with title on 7r, text of ḏuʿūr 6 on 7v-8v, and reading protocols on 8v-10v. Combination of the protocols on 8v-10v, both glued to the quire. Actually I. 85 is the second leaf of the bifolium wrapped around the original quire ff. 73-84, and its counterpart is f. 72. I. 86 is the first leaf of the bifolium wrapped around quire 7, ff. 87-98, and its counterpart is f. 99. The great amount of reading protocols, added during the thirteenth, fourteenth and even fifteenth century, made the addition of several extra leaves necessary and caused much misunderstanding. It would seem that the MS remained in unbound ḏuʿūr for much of the period, but that at least in the fifteenth century it had been bound.

have been bound together (a length of string is preserved in one quire), irregularly placed holes which must be tacketing stations (5).

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Fig. 4. - Diagram of tacketing and sewing stations in Leiden, UL, Or. 12644.

And if it is difficult to think of the Arabic ḏuʿūr, or of the quires that the beguine lent to the priests, other than as tacketed quires, it is equally easy to think of the quires that the Carolingian abbot distributed as also tacketed.

If quires were generally tacketed, this would also explain why, until the thirteenth century, they only bore quire signatures (6). From the fourteenth century onwards it is normal to find leaf signatures, generally of the form a a a a a b b ... system, so that each bifolium bears its complete address, and even if the book is completely taken apart it is still easy to reorder it. But before the thirteenth century in the West, and generally in all the other civilizations that inherited the codex form, it is only the quire that is numbered (7). Surely this must mean that the scribes, who made sure that the quires would be ordered correctly, felt no anxiety about the bifolium within the quire, because these were safely tacketed.

If we feel that tacketing quires was a common practice, we must then ask at which point in the process, between forming the quire and binding the book, this tacketing was done. Those who have studied the phenomenon at all have generally seen it as some relation to binding (most evidence — particularly the holes — is only visible when a book is being restored, by a bookbinder). I would rather say that


(25) Cf. also J. VECIN, "Quaderni" (supra n. 7) p. 69.

(26) Absence of leaf signatures in Greek manuscripts: M.L. NAGY (supra n. 14) p. 286 ffl. (2009, p. 283): signatures "registri" only in the fifteenth century; on Western example: see also H. MOHR, Untersuchungen in der codicologie comparée (see note 19) p. 27. Arabic: F. DÉROCHE (supra n. 24) p. 101: leaf signatures only in a number of manuscripts between 1149 and 1292. Hebrew: M. H. HART, Hebrew Codicology, Jerusalem, 1981, p. 66 see Spanish example of 1290, then very rare in the fifteenth century. Syriac: none; see F. ROCQUE-CHATINOT in Recherches ... p. 162 (they are paradoxially absent). For Ethiopian manuscripts also only quire signatures are mentioned.
it is related to red binding, or at least to not immediately binding. One often finds tacket stations in fragments of small books of the thirteenth and fourteenth centuries that were discarded before they ever were properly bound. Such tackets, for single quires or small sets of quires kept separately either without a cover or in a very slight cover, could have been placed at any moment. This, together with the frequent occurrence of quires in isolation, encourages us to see the tacketed quire as a conservation unit.

However, there are reasons to think that tacketing was often done rather early in the life of the quire, often perhaps immediately after it was formed (= after a number of bifolia were nested, which were meant to remain together as a quire). One interesting point to note is the presence of coupled leavings: the use of two singletons to take the place of one entire bifolio. These are not the result of requiring some mishap in writing: the quire was constructed that way right from the start, as is clear from the fact that the coupled leaves almost always replace leaves 3+6 or 2+7 (of a quaternion), rarely 4+5, almost never 1+8 — so, almost always the coupled pair is safely sandwiched between entire bifolia. This is a perfectly normal and respectable way of using smaller pieces of parchment; it is quite frequent in early Greek, Hebrew and Arabic manuscripts. In Latin manuscripts it is, if not really frequent, at least far from rare up to the twelfth century. (And it would seem that such a quire is very unpractical to handle if it consists of loose bifolio and singletons — much better to have it tacketed. And handling would certainly include writing.

Handling the quire might also include an earlier step: pricking and ruling. And here one will think of the so-called Old Style ruling. This is a group of early Carolingian ruling methods in which blind ruling is effected on several layers of parchment together, with primary or direct ruling on one leaf and secondary or transmittal ruling on other leaves below the first one — and not only several leaves, but leaves in the order and position in which they are now in the finished quire (typically, for instance, by four from the outside on or from the inside; but there are other variations).

(27) For Greek and Hebrew manuscripts I have no quote, but I have observed some cases (also in Samaritan manuscripts). For Arabic, see F. Droullier, Supra n. 24, pp. 84-85. For Coptic, see C. Sarnat, in Recherches..., supra n. 19, p. 133.


So the scribe would go through his quire in the same way as a reader would, turning one leaf after another; surely he did this while writing it, refreshing the ruling whenever he felt the need to do so. There is also a specific Spanish way of ruling, by two from the beginning, with the system >>>>>>>, which would seem to be the same principle but executed more systematically (9):

Fig. 7 - Old Spanish ruling, by two from the beginning: A [+] B [+] C [+] D [+] E [+] F [+] G [+] H [+] I [+] J [+] K [+] L [+] M [+] N [+] O [+] P [+] Q [+] R [+] S [+] T [+] U [+] V [+] W [+] X [+] Y [+] Z

Both, I think, would be very difficult to do in an untacketed quire.

If we try to look further afield, we find that for most of the regions concerned we have no information at all (except that the 'Spanish' method is attested for Hebrew manuscripts written in Spain) (8). Only for Greek manuscripts we have the work of Leroy (7), who lists as many as 13 systems (8); some are our Old and New Style systems, but most look very strange to Western eyes, for instance number 6: <<<>. Leroy proposed a really complicated way to reach this result. But if one starts from the idea that this too might be done in a tacketed quire, a simple solution is possible (8). Western quires are arranged with hair and flesh sides alternating, and a hair side outward (and inward), so, if you feel the hair side is best for ruling, you simple open your quire flat and either side will be a hair side ready for ruling. Greeks, however, have quires with flesh sides outward; if they want to rule on a hair side, they can counterfold the outermost bifolium (and fold the inner one), and the result will be System 6 (or with appropriate variations) any of the other 'strange' systems:

(31) M. Reutter (supra n. 26) p. 75. For Slavonic manuscripts Old Style rulings are much more frequent than New Style ones: M.L. Agar, Il libro manoscritto (supra n. 14), 2009, p. 201 (after Biccaro).
(33) In fact, there are many more; but these have not yet been sufficiently researched.

Only two systems are variations on the 'Spanish' method also attested in Hebrew manuscripts from Spain (9).

The fact that the seemingly complicated and illogical Greek systems can be easily explained and brought into line with Western systems would seem to speak strongly in favour of the hypothesis that ruling (and, after that, writing, because one surely would not needlessly untacket a quire) in a tacketed quire was a possibility both in the West (10) and in the Greek world (11); and this makes me believe that in both contexts using the tacketed quires not only as a conservation unit but as a working unit is one of the technical possibilities inherited from the late classical Mediterranean past.

(35) M. Reutter (supra n. 26) p. 75 n. 144.
(36) Already in 1881 J. Mazzega posited that scribes did not write on unfolded sheets, as Dain and Gislen believed, but on quires; see the summary of his article, «Observations sur les techniques utilisées par les scribes latins du Haut Moyen Âge», Scriptorium, 14, 1969, p. 126-130, on p. 127; the original text is in Vepassat's «Het iter der lateïne kalligrafie» 12, 1981, p. 298-299. He adduced not only pictorial representations, but also texts, especially Henricus von Mara (as quoted in W. Wattenbach, Das Schriftensystem im Mittelalter. Leipzig, 1896 [= «Graeff, 1958»] p. 297) and Alexander Neckam (the text quoted in note 12; see the Appendix). And recently R.M. Thomsen simply stated: «When folded, and prior to writing, each quire needed to be kept together by a loop of string or parchment (‘tacket’...» (supra n. 14).
(37) Writing in tacketed quires is also accepted by G. Petrovitsich (supra n. 16) p. 384; he even describes and illustrates an instrument (a pair of pliers connected by a chain or cord) used to keep open such a quire (p. 383). On these pincers see also J. Slavicek, «Preliminary notes on Greek writing implement», in: M. Geisser (ed.), Pen in Hand: Medieval Script, Portraits, Codices and Tools, Waltham, 2006, p. 151-168: 157-159.
However, matters are not that simple. "New Style ruling", with direct ruling done on the hair side of each bifolium but the bifolia themselves arranged with sides alternating (which later is the normal method in most regions), evidently cannot be done in a tacketed quire; it must be done on single bifolia; and this style is not very new, being found in some of our oldest manuscripts. But even then the tacketing can be done after ruling but before writing. This is what Ethiopian scribes do; the quires have hair sides outward, but the direct ruling is done on each flesh side (that is a New Style ruling); so the tacketing must be done after ruling, but before writing(28). But there are very few really old Ethiopian manuscripts; so the fact that they use New Style ruling now does not prove that Old Style or similar rulings had not been known there a few centuries ago.

After about the eleventh century New Style ruling is absolutely dominant in the West (as it is also in other regions). Yet tacketed quires still are common, and even tacketing before ruling remains possible — not, certainly, with blind ruling, but with the new habit of plummet ruling. Such ruling has to be executed separately on each face of a leaf. It could be done page by page, or, on separate bifolia, on each face of a bifolium (for instance on 1v+2r); or, in a quire, on the two pages of an opening (for instance on 1v+2r). And it is as with so many things; if it is done well, one will not see how it is done; only if something went wrong one may get a clue to the method of working. Such cases, where an error in ruling clearly shows that it was done on two facing pages together (which is hardly possible unless the quire was tacketed), do exist (Pl. 54 b et c). There is another type of error which shows that leaves were stacked (and, presumably, tacketed) during plummet ruling. Gullick gives a particularly clear description of one manuscript: "It was ruled in plummet and in a number of the leaves are unpatched holes which come in the paths of ruled lines. In all cases the plummet line comes to the edge of the hole, continues on the leaf under, and then resumes its course on the first leaf. This could hardly have happened unless the sheets of the quires were together and possibly attached together with tackets(29). Such cases prove, I think, that even in the thirteenth century both ruling and writing were, at least sometimes, done in tacketed quires.

(28) This is also what C.-R. G Gregoire, *Les cahiers des manuscrits grecs*, Académie des Inscriptions et Belles-Lettres, Complex rendus ... 1885, sq x 13, 1886, p. 261-268 [reprinted in L. Gullick, *Prolegomena à la codicologie*, 1977, pp. 15-19] suggested for Greek manuscripts: the scribe (he says) has the ruled bifolia in front of him, stacks them with sides alternating, folds them, perhaps joins them for the moment by a thread around the middle, or by a thread entering by the holes that will later serve for the binding, and there is the quire ready to receive the writings; p. 264-265 (= p. 17).

(29) M. Gullick, *supra* n. 7 p. 248. — I once noticed a similar case in a manuscript in The Hague, Royal Library 129 E 20, a Parisian Bible of the 13th c., where both on ln. 70v and 72b traces are seen that are the result of ruling through a hole in f. 71.

The thirteenth century is the age of the great changes in the West: few actual tackets have as yet been reliably reported from this century(30), and on the other hand the invention of leaf signatures proves that scribes started to handle loose bifolia rather than tacketed quires. (Also, writing on undivided sheets was invented, a subject which is also connected with the matter of tacketed quires, but cannot be tackled now.) Further, plummet ruling, writing below top line, and placing flyside out in quires become dominant during this century, being the rule from 1250 onward. So many changes within the span of two generations — one would expect all sorts of transition situations. For leaf signatures, these are easy to point out: it is the system, or rather the group of systems, that Neil Ker called the *ad hoc* signatures(31) (and which I call *primitive leaf signatures*), which are usually (often pencilled) numbering the bifolia within a quire, and also allowing them to be grouped quire by quire, but which do not themselves indicate the order of the quires (for instance f. f. f. f. f. f. f. f. + + + + ++ +, with nothing to tell whether the quire with / or that with + comes first(32)). And I am very happy to have found a reference by Patricia Stirmann(33), who discussed French manuscripts of the late twelfth century and the *marques d'assemblages* in them; in particular she mentions cases where these marks (our primitive leaf signatures) occur only in the quires which contain more than one miniature; they would have made it possible, in the case of complicated jobs where a quire was dismantled and taken apart, to allow a correct re-assembling afterwards. If she says that quires with two or three paintings in them were *dismantled* for the painters' work, does that not fairly imply that the other quires remained dismantled — read: tacketed?

In the course of time the Latin West made a substantial number of inventions in book techniques. I name the following: sewing supports, decorated initials, watermarks, ruling in plummet (and later in ink), quire construction by folding, work on separate bifolia (and, concomitantly, leaf signatures), work on undivided sheets (so-called *imposition*). All these are departures from the original situation of the very early Middle Ages, when the Western book had still been fully imbedded in the traditions of Late Classical codex making, as they were found in the Roman and Greek empire and in all the cultures that were heirs to it: Coptic, Arabic, Hebrew,

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(30) On the other hand they cannot have died out completely quire tackets, placed prior to writing, are reported from the fifteenth century (D. Warcklein and F. Hedinson, *Evidence for the Construction of Quires in a Fifteenth-Century English Manuscript*, The Library 7th 9, 1998, p. 283-296) and the sixteenth (ms. owned by H. Mudder, who kindly sent me a description and photographs).


(32) Another system is a b c d; + b a c d; again the order within the quire is clear enough, but the order of the quire with / and that with + is not made explicit.

can go hunting for them, even if it would take an indefatigable searcher years to do it. But for other evidence, the tacketed and their holes, you generally cannot sit in a reading room and look at a bound book — you need to be there when the book is opened for restoration; or you have to find a well-done and especially a well-reported restoration. Those are very rare indeed. And useful observations of such hidden features in intact volumes are very difficult. It does not help that most books have been rebound at some time(4), and generally much too tightly; both Galliuc and Szirmai worked with original, contemporary bindings, up to the thirteenth century, which allow a careful researcher, who knows what he is doing and what the binding will stand, at least some access to the arena of the quire fold.

In particular more research needs to be done on the non-Western manuscript traditions. Non-Western codicology is flourishing, but it has generally not yet reached quite the standards of Western codicology. A particularly interesting area is the earliest period, Late Antiquity; we are lucky in possessing a substantial number of very early codices, many of them papyrus codices from Egypt, but the information about their codicology is very hard to find and, if found, often disappointingly vague. And the codices themselves are not in a good condition from our point of view (the very first thing that used to be done to a newly found Coptic codex was often to take it out of its binding and put the leaves between glass).

Although my text is more a matter of suggestions and probabilities than of acquired facts, I trust that I have made it clear why I have become convinced that writing in tacketed quires was a normal procedure (not necessarily the only procedure) in Mediterranean cultures, and also in the West at least up to the twelfth and thirteenth century, and that for a long time and in many regions the tacketed quire was the typewriting unit of the scribe. Not every tacketed quire is evidence of that; but whenever one finds them, especially in older manuscripts, there is a good chance that they do indeed reflect work in a tacketed quire.

(40) Although rebinding is not always totally destructive. Leiden, University Library BPL 52 is a manuscript of Servius from Corbie, c. 800; a number of its tacketed — see PL. 54 a) — quires were lost and replaced by new quires c. 860 (both the old and the new quires are ruled Old Style); most of the book, both old and new, was lost subsequently; the remnant was bound up and sold at an auction in 1606; it was rebound in the eighteenth century; it was photographed for a facsimile edition (1959); and still, after eleven centuries, Yvonne Marshall could find a fragment of a tacket hidden in its fold (And some of its tacket stations can be seen). — On the other hand, those restoring bindings is still the most destructive threat: Michael Galliuc told me that one of the Princeton bindings, of which he had photographed the tackets, had been rebound and the tackets were gone. And as regards another codicological subject: L. Gallani, Propriétés à la codicologie, Genou, 1977, pp. 115 and 116, mentions that about 1975 F. Persoons told him that he had found, in the Archives Générales du Royaume in Brussels, two MSS. with meant leaves; but in the «Chronique des bibliothèques», Archives et bibliothèques de Belgique 49, 1978, p. 752, Persoons had to mention that one of them (Arch. écoles. 15070) had been rebound in 1976 and the unjusted leaves been opened.

(14) This joint Irish (see most recently M. DLAKE, «Book of Stitches in early medieval British art», Gazette du Livre médiéval 52-53, 2000, p. 16-24) and Ethiopian.

(15) J. DAGNON, in Recherches de codicologie comparée (BRUGEN n. 19) p. 1: the nature of the quire is a consequence of the use of parchment; the use of this large-size material makes a repeated folding necessary.}\n\nJ.P. GUMBERT
Appendix: offindix

Offindix is a singular Latin word. It survives only through the huge compilation of old Latin words De verborum significatione of M. Verrius Flaccus, who lived around the beginning of our era. Actually we only have the extract (still of 20 books) made from this work by Sex. Pompeius Festus, in the second century (and for half of it we do not even have that but only the extract made from it, for Chalcographus, by Paulus Diaconus). However, what these derivative sources give are probably the words of Verrius Flaccus himself (although not necessarily without errors).

It is a word of the ritual and sacred sphere (the sole survivor in Latin of a root cognate with i.e. English "offend"). Verrius Flaccus quotes two sources for its meaning: according to one Titius "offendicis" arc's-knots with which the apex can be retained and loosened (and the apex is a kind of mitre (usually pointed) worn by priests) (54). One Verrius however (who seems to have written several books on scribes, priests and similar matters) believed them to be "small pieces of leather on the strings of the apex, with which the apex can be retained and loosened; so called from offendo 'to strike against' (an obstacle)' because when it comes to the chin, the chin is struck with". The etymology evidently is wrong (56), but the interpretation seems clear: it has to do with "bindings", tying the priest's hat (56).

The extract by Paulus reduces this to Offendices are tying knots, with which the apex was held. When this came to the chin, it was called offendidicurn (this last word being, as Ernest Meillet (57) suggested, a garbling of Festus' last words "offendi mentum") (58).

Echoes of Festus/Paulus in several glossaries of the ninth and tenth century (often in rather corrupted spelling and grammar) can be found in the CGL (59); in vol. IV (1889) p. 152 "a proper knot with which the apex of priests is retained and loosened", in vol. V (1891) p. 508 "a knot, properly, which is retained and loosened by a priest", p. 574 "a knot, properly, by which "something" is retained and loosened" (60). The apex and the priest drop out subsequently.

But in vol. V p. 606 we find something different: a particularly unclear complex of glosses (called "Glosses of Scaliger, formerly commonly believed to be by Isidore") tells us that "offendices are knots with which books are marked" (61). One can surmise that signantrarum arc marks is an error for signantur arc tieds. But how do the books come into the picture? Surely Goetz was already right when he pointed out (62) that the word apex must have been misunderstood; its meaning "priest's hat" was forgotten, and the only meaning current in a later period (apart from summa) was "letter, written document". (So this version must descend from a form in which the priests had disappeared, but the apex was still present. Since the word was not in live use but only existed in a lexicon entry, readers were forced to imagine on their own what a knot to tie documents/books could possibly mean.

Wherever and whenever this mistake occurred, it had a great future. It makes a faithful appearance in many of the standard Medieval dictionaries (many compiled in Italy) (63).

Oudin of Gloucester (early twelfth century) in his Derivationes has the form as given in the "Scaliger" glosses (64).

In Hugatius' Liber derivatio (of the late twelfth century) it is called a knot, properly that which is fastened or loosed in which a book is bound (65) (evidently a combination of the original and the misunderstood version); a similar text (i.e. or with which a book is bound) is in Johannes de Jonio, Collectanea (1296) (66). From there the word percolated to numerous later dictionaries, particularly German ones: the Nuremberg Vocabularius thesaurius of 1482 makes it a "knot or ribbon with which one binds books", the Gesta lexicon (first printed Lovain c. 1482) has the well-known "knot, properly that is fastened or [and this is new] is loosed with difficulty, or with which a book is bound", the Thesaurus by Gerard van der Schueren, 1475, gives a faultless translation

(54) IV p. 132: "Offindix nodus proprius quo apex librorum restringatur et remittatur; V p. 508: "Offindix nodus proprius qui a flamine restringatur et remittatur; V p. 574: "Offindix nodus proprius quo restringitur et remittitur."

(55) V p. 606: "Offindices modi quibus libri signantur; Actually the source is Leiden, UB, MS, Scal. 81 F. 486-491, an autograph by Scaliger under the title "Liber glossarum ex variis glossariorum collationibus"; our entry is found on f. 59, as one of a series of marginal additions to the original compilation.

(56) CGL VII, 1901, p. 17.

(57) I did not find it in Papias, Elementarium (early eleventh century).

(58) Pertaining bar offindices, 'cum, id est modi quibus libri signantur, after the edition A. MAI, Clausioarum antrocur et Vaticanis codicibus edidit tomus VIII. Thesaurus novus latinatisque, Roma, 1856, p. 298.

(59) "Hic offendix, id est nodus proprius qui restringitur et remittitur vel qui liber ligatur est." Quoted from Nouum glossarium medes latinitatis, vol. IV, 1884. The Leiden manuscript, Leiden UB Abt. 25, reads: ". . . offendix . . . restringitur vel remittitur vel quo . . .

(60) ... nodus, et proprie qui restringitur et remittitur vel qui liber ligatur. Quoted from the edition [Strassburg], Russch [1470].

(61) "Kapell odor pavet donit man pachter pint." Quoted from K. DEERNaCH, Glossarium latino-germanicum, Frankfurt, 1857, p. 294.
of the same (62). (In both cases the idea is probably that it means the long thong that is often found on lisp hangings, which wraps around the book two or three times and is fixed by turning it around a button.) The Vocabularius Ex quo, however, gives the *Sca- 
ligera* version (63). The French Dictionnaires familiars, Rousen c. 1590, has the Jana text (64). Of English sources, the Panoplia parrunum or 1440 and the Catholicum Anglicum of 1483 both provide the translation *a chape* (which indeed is the normal method of closing bound books) (68).

All these occurrences are in dictionaries; from book to book this (misunderstood) fossil is handed on without any contact with real life. I am aware of only one author who — no doubt having found the word in a dictionary — actually used it: Alexander Neckam for *Nequaim*), a versatile British author of the later twelfth century. At least: he uses *appendix* several times, but I am convinced that this is really our friend *offendix* in disguise (caused either by an unclesend in Neckam’s source, or by some misunderstanding of himself).

First, he uses the word in his De monitis uterilium, a remarkable text, enumerating the Latin names (sometimes very recondite) of everything you might need in a kitchen, on horseback, in the bedroom, in a castle, in weaving, as a farmer, on a ship, etc. etc.; but it is never easy to understand what he is describing, unless you already know it. (66). A dictionary, ne'er didst know the art of life, etc.

(62) O. dictiur admodum proprie qui restringitur vel difficiliter resolviur vel quo liber literarum, nec nos nosce autque opus hanc is omittatur. (63) K. Gruenweltch, *Vocabularius Ex quo*: Überlieferungsge schichtliche Anmerkungen, 4, Tubin gen, 1959, p. 319: *Sca- 


(66) There seem to be three editions of this text: that by T. Wright, in *A Vocabularius* (1587), p. 96-119, after MS London, BL, Cotton Titus D.XX, with the French glosses and some notes; that by J. A. Schoeler, *Trois traités de lexicographie latine du XIIe et du XIIIe siècles* II, *Jahrbuch für romanische und slavische Literatur* 7, 1866, p. 56-74, 155-173 (reprinted in Schoeler, *Lexica latinate*, 1867, pp. 81-118); after MS Brussels, Bibl. pub. 506, with some more French glosses and notes; that by T. Hince, *Teaching and Learning Latin in Thirteenth-Century England*, Cambridge, 1991, p. 181-190, after MS London, Wellcome 801A, with glosses or notes. A modern critical edition, with a good commentary, is needed. An English translation of many sections is found in T. Tigges *Holmes, Daily Living in the Twelfth Century*, Based on the *Observations of Alexander Neckam in London and Paris*, Wisconsin, 1952 (etc); see p. viii. — The text was already quoted by W. Wattenbach (supra n. 36) p. 207, 275; after Wright; he thought that these *vocalic words might refer to transfixes. It was also quoted by V. M. R. M. (supra n. 36) p. 239 (after Schoeler); he translated *colade* as *string, strip*. For *appendix* he suggested (in his note 7) that it might mean the cords with lead weights at the ends, that in many late medieval miniatures are seen to hold open books or sheets.

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**The Treated Quire**

a section on the scribe (65): he must have a scraper, a puncture stone, plummet and a ruler. *He must have a quire (…); it must have its leaves at top and bottom joined by a codex or appendix.* (66) He must also have a writing chair, various implements, pigments, and a knowledge of spelling and of writing styles.

There also is a section on the scribe in another work probably by Neckam, known by its incipit as *Sacris ad alteram* (67). Here we read: *The scribe should have a writing chair; the parchment, from which the quire is to be formed, must be smoothed. The leaves must be joined, both in the upper and the lower part of the quire, by means of a turned-round *appendix.* Then follow ruling, correction and painting.* (68)

Neckam must, on reading the definition *nodus quo liber ligatur*, have felt that he knew what that was: a tuck, that is, a knot with which (or part of) a book is tied. I am sure that Gallie is right in thinking Neckam meant this word to mean that object. And if so, Neckam is a lovely testimony before the existence of quire tickets at the end of the twelfth century; even more precisely: if one can put any trust in his statement of treatment, he testifies to tocketing before writing and even before (pflaster) ruling. The makers of the Dictionary of Medieval Latin from British Sources, who had to accept Neckam’s word

(67) In ed. Scholten, p. 167-169; in ed. Wright, p. 116-117; in ed. Hunt, p. 188-189; in translation Holmes, p. 67-70: *There should be a fold of four sheets (…). Let these leaves be held together at top and bottom by a strip of parchment thread passed through.* This translation quoted in Thomas son (as note 14) p. 78.

(68) After Wright: *Aquot ej. etiam Hunt* [quartus glossed *quarto*] — omnis dies *quaternio*, qui aliquidam [aliquam S; quartam H., wrongly] partem exercitum desinit [significat S. H.]. *Codula (apiere) sive apodicum tam superiori [in sup. S, H.] parte quam inferioris folia [fraga] habeat conjuncta [ensemble].* Schollar explains: *These [the *codula*] are strips of paper serving to connect the sheets; as for the word *apicis*, I suppose it is derived from *apicus*, these strips being made from lamb’s skin.*

As to the gloss *apices* (W.), *apicis* (S.), I owe to Marc Smith the suggestion that it might be *apicis*, which would be a form of *apiculas* — *aiguille* [needle, point]; see W. v. Wartburg, *Franz. etymologisch Wörterbuch* 24, 1973, p. 118 f.; on p. 120 *aiquilote = cóndon, rodillo fino aux dos bous pour servir a attacher*, with a note on p. 122 that he means what in German is called *Nestel* and corresponds to English *pother* [tagged line for … attaching hole to diptulat …] (Cotgrave French Dictionary). *Tourell-Lecommet, Alpharum, Wörterbuch* 1, 1925, col. 216 quotes, from the text *olla patelle*, *aiquilote* the equivalent *liquile*, and from unspecified texts *lamente* and *hardilas* (= *Strick; Strang; esp. strip for joining a couple of doges*). It is a family of meanings which might well accommodate the meaning *tacket.*


(70) 芬氏 juggernaut turn in superiori *qui in inferiori* parte quaternis ordinibus officii circumvolvere. C. M. Hawkins (as note 69) translates *The sheets shall be joined above and below by the aid of an appendix wrapped round them*, but U.T. Holmes (supra n. 66), p. 278 note 76 (quoted in H.M. Thompson (supra n. 14) p. 79) changed this to … by the aid of a strip threaded through them,*
in their book, did not know that tackets existed; they had to guess on their own what the
word *appendix* was meant to mean, and came up with "book-cover", which surely is wrong.

*Appendix* has another codicological meaning: the *Textualis* calls it "a register with
which one binds books". The *regestrum* in its turn is, as the *Confessio* tells us, "a small
thing or ribbon by which leaves are turned this way and that", or a *cordata libri*, a ribbon
as bookmark. 

Neckam also has the *registrium* in *De nominibus aeternitatis*, immediately
after mentioning the tacketed quire, he says that the scribe must also have a *registrum*
and a *panectarium* (24). The latter (glossed *pognotrium* surely is an awl or other
instrument for pricking: the former is glossed *cordula libri*, but that makes no sense at this
point of the text; Martin Steinmann (25) takes it as a template for pricking, which seems a
reasonable suggestion. But in *Sacerdos ad altare* Neckam also uses the word: "when the
book is put together and corrected, it should be marked with registers and, closed,
provided with a *puscularia*" (26). Here the *registrum* must be a finding aid, either a
number of ribbons or perhaps the marker tabs at the edges of leaves. The *puscularia*
turns out to be a chaps.

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(21) Both quoted from the *Lexicon* ... *Nederl.* (supra n. 62). For several other instances of

(22) *Hascat* [in *H.* etiam [et *H.*] *registrum* (glossed *sepine* in *S.*, *cordula libri* in *W.*) et
*punctarium* (pognotrium), a [in *H.*] quo posuit dicere *paxxi qntrrn* = mean [p. *m. com. *H.*]: et non

(23) In an unpublished footnote for Neckam, part of his collection of source texts for Medieval
*Buchwesen*, of which a part [but not Neckam] is accessible online codices.ch/codicesregion/Quellen-
texte.html.

(24) *Formatus liber et ensenatus registris insigniatur, clausus puscels muniatur*. Ed. T. Hunt
(supra n. 66) p. 272. (Not in ed. Flasins, nor in Holmes or Thomson.) I happened to find
*Johannes de Graillandia, *Dictionarium*, where a man is mentioned selling shoes of *lapores, et ad nodos,*
et *ad puscels*, and the commentary tells us that *puscula gai* "knee", which here gives very
good sense.

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a) Leiden, UL, Or. 12835: Tacket holes near the end of the spine of an Ethiopian manuscript

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b) Leiden, UL, Or. 12838, fol. 28v-29 : Tacket holes close to the ends of the centre fold

Pl. 50. — (voir p. 299-320)
Fig. 1. Princeton University, Game 52
Above, primary sewing thread; below, a quire tacket. Either side of the tacket are shadows caused by light shining indentations in the surface of the parchment made by the tacket.

a) Tacket *in situ* (From M. Gellon, *From Scribe to Binder ...*, fig. 1.)

b) Sankt Gallen, StiftsA, 190, p. 42-43, s. IX*1: textblock sewing, 2: a parchment quire tacket, 3: endband sewing (from J.A. Sjöblom, *Archaeology of Medieval Bookbinding*, fig. 7.15.)

Pl. 5.1. — (voir p. 299-320)
a) "Swarm" of tacket stations near the ends of the spine

b) Detail of the spine

Pl. 52. — Leiden, Uit., BPL 114, s. VIII (voir p. 290-320)
a) The Archimedes palimpsest, fol. 9v-10. A surviving tacket in a Greek manuscript. Scale of cm at right; a sewing station at about 12.7 cm; the tacket is from 14.0 to 14.7 cm, below the tear leading to the next sewing station (which is at 17 cm).

b) Oxford, Bodleian, Bodl. Heb. d.11 fol., 160v-161, s. XIV. A surviving tacket (just below the largest hole) in a Hebrew manuscript (below, the modern sewing thread).

Pl. 53. — (voir p. 299-320)
a) Leiden, UL, BPL 52, fol. 101v-102. Corbie ca. 800. Possible tacket station, between the sewing and the end of the spine fold.

b) Leiden, UL, BPL 131, fol. 28v-29, s. XII. Faulty ruling in an opening.

c) Leiden, UL, BPL 64, fol. 168v-169, s. XIII. Faulty ruling in an opening.

Pl. 54. — (voir p. 299-320)