CODICOLOGICA
Towards a science of handwritten books
Vers une science du manuscrit
Bausteine zur Handschriftenkunde

CODICOLOGICA

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Éléments pour une codicologie comparée

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Towards a Typology of the Early Codex

THIRD TO SIXTH CENTURIES AFTER CHRIST

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In his valuable discussion of the form of the early codex in *Das Buch bei den Griechen und Römern*[1] Wilhelm Schubart laid it down that for the format of the codex no significance was to be found in the absolute dimensions of B(readth) and H(eight); the important factor was the proportional relationship between B and H. A similar attitude to the uselessness of absolute dimensions was taken by Sir Frederic Kenyon, in his *Books and Readers in Ancient Greece and Rome*.[2] In the study of the codex the work of these two scholars still dominates the field. Mr. C. H. Roberts in 1954 put forward a very attractive hypothesis of how the codex came to take over from the roll as the favourite form of ancient book. But he too dismisses a consideration of the format of ancient codices as relatively unhelpful to his study.[3]

Since Schubart wrote, however, in 1921 a large number of relatively early manuscripts in codex form has been found. It includes, for instance, the Chester Beatty Biblical Codices;[4] the codices in M. Martin Bodmer's library at Cologny-Geneva, now an international scientific foundation under Swiss law;[5] the Coptic-Gnostic find from Nag-Hammadi;[6] the find of Origen and Didymus the blind in the Tourah quarries;[7] the Manichaean papyrus codices in Berlin and the Chester Beatty library,[8] and the parchment miniature Manichaean codex, the size of a butterfly's wings, now in the possession of the University of Cologne.[9] These finds are sufficiently extensive to permit the separate study of manuscripts of papyrus and of parchment (I use this term to cover all kinds of skin, simply in opposition to 'papyrus'). In 1970 I began

1 2nd edition 1921, pp. 130-140. In the re-edition of this work in 1963 (Lambert Schneider, Heidelberg) the text is unchanged, but all references are dropped.

2 2nd ed., Oxford 1951.

3 'The Codex', *Proceedings of the British Academy*, xl (1954), 169ff. Esp. p. 198: 'The format and make-up of these early codices, interesting enough in themselves, contribute little to the solution of the questions with which we are here concerned.' A new edition of this pamphlet is in preparation by the author.

4 F. G. Kenyon, *The Chester Beatty Biblical Papyri*, London (Fasc. I, 1933, Fasc. VIII, 1941, Plates Vol. to Fasc. V and VI, 1958). There are important portions of these manuscripts also in Ann Arbor and Princeton U.S.A., in Vienna, Cologne and Barcelona.

5 Papyrus Bodmer I, 1954; XXVI, 1969.

6 See Martin Krause, *Abhandlungen d. deutschen Archäol. Instituts*, Abteilung Kairo, Band 18 (1962), 121, 19 (1963), 106; *ibid.*, Koptische Reihe, Band I, 1962, Band II, 1971. D. M. Scholer, *Nag Hammadi Bibliography 1948-1969* (Leyden 1971). J. M. Robinson, *The Facsimile Edition of the Nag Hammadi Codices* (Leiden 1972).

7 J. Doutreleau, *Recherches de science religieuse*, 43 (1955), 161; J. Doutreleau and J. Koenen, *ibid.*, 55 (1967), 546.

8 H. J. Polotsky, *Manichäische Homilien* (Stuttgart 1934); C. R. C. Allberry, *A Manichaean Psalm Book* (Stuttgart 1938); C. Schmidt, H. J. Polotsky, A. Böhlig, *Kephalaia* (Berlin 1940-).

9 P. Colon. inv. 4780, *ZPE* 5 (1970), 97-216.

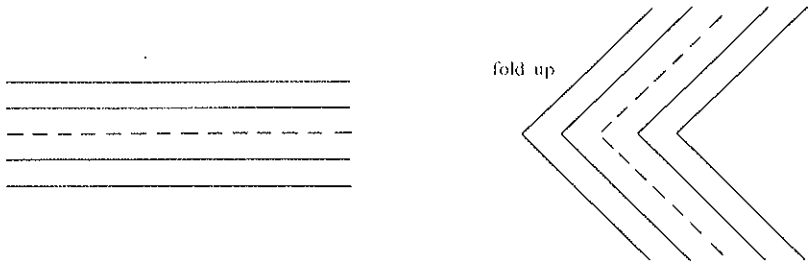

Fig. 1

to collect data about the physical characteristics of early codices such as these, and I have become convinced that a helpful typology of the early codex can be established on the basis of physical characteristics alone. Two of these characteristics are particularly important. They are:

I. The absolute size of page (leaf) of a codex expressed in terms of B(readth) first, H(eight) second.

II. The method by which early codices are made up from gatherings.

Only the second of these will be considered briefly in this article.

I have studied the matter in much greater detail in *The Rosenbach Lectures in Bibliography* given in the University of Pennsylvania, Philadelphia, Pa. in 1971, and these lectures are to be published by the Philadelphia University Press. (They are expected to appear in the course of 1977 under the title *The Typology of the Early Codex*.) What is set out here is a summary account, put together in 1973, of certain parts of my findings. I have also spoken about them briefly to the XIIIth International Congress of Papyrologists held at Marburg in August 1971, and to the Colloque on Hebrew Palaeography held in Paris in September 1972.[10]

The physical characteristic of the early codex which will briefly be taken into account here is the method by which it is made up of one single or of several gatherings, and the nature of these gatherings. Only the barest summary can be given. It should be noted that through the accident of discovery, and the fact of rebinding, it is much more difficult to obtain information about the make-up of early parchment codices than of papyrus codices.

The essential feature of the codex is that a sheet or a number of sheets of material of the height but double the width of the page desired is folded centrally. When folded each sheet will give a sequence of 2 leaves, 4 pages. Two sheets laid above each other before folding will give 4 leaves, 8 pages, three sheets 6 leaves, 12 pages, four sheets 8 leaves, 16 pages, and so on. The system of 4 sheets, 8 leaves, 16 pages eventually became the canonical form, and from the Latin word *quaternio*, for a 'set of four', was derived the English word 'quire', which has come to be used (against its etymology) of a gathering whatever the number of sheets. A convenient division for us at the moment (it need not reflect the historical origin of the form) is between those codices all the sheets in which were laid above each other before folding, and those codices in which a limited number of sheets were laid above each other before folding; the folded sheets

10 'Some questions about the typology of the codex', *Akten des XIII. Internationalen Papyrologenkongresses* (Munich 1974), 427-438; 'Towards a typology of the early codex (3rd-6th centuries A.D.): classification by outward characteristics', *La paléographie hébraïque médiévale. Colloques internationaux du Centre national de la Recherche scientifique*, no. 547 (Paris 1974), 137-152.

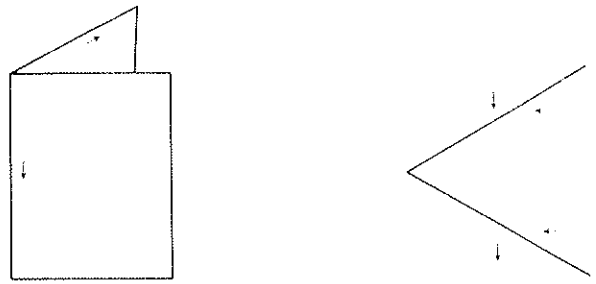

Fig. 2

were then laid on one side, and a new set of sheets laid one above another and folded, followed by a repetition of the process. In the former type there is only one 'gathering' in the whole book, and it has become common to call this type a 'single-quire' codex. In the latter type, each set of folded sheets is 'gathered' together and stitched – i.e., the sets form 'gatherings'. One set of threads holds each gathering together. If the book has a binding a second set passes horizontally through the first set and unites the gatherings; it is then taken through them across the spine of the book and secured to the front and back binding covers.

It has been supposed[11] that the second of these two methods of putting together a codex arose from the way in which a skin prepared for writing was folded and cut. If a skin were folded centrally and then folded again, it would give a series of 2-sheet quires; if it were folded a third time, the quires would be 4 sheets, i.e., *quaterniones*. Once again, it must be emphasized that it is quite uncertain whether this supposition corresponds to the actual historical origin of the system of gatherings in a codex.[12] But we note one point about it, which is that it will account for alternation of the two sides of a skin in a made up gathering. There is a difference in a skin between the 'flesh' side which tends to be whiter and more even, and the 'hair' side which may be yellower and show little pittings which are the roots of the hair follicles. The difference in quality between the sides will be less obvious to the eye if pages from the same side of the skin confront each other, that is, if hair side is opposite hair side, flesh side opposite flesh side. C. R. Gregory[13] observed that parchment manuscripts written in the East show the flesh side on the outside (i.e., on the initial right-hand page) of a gathering, and on its final left-hand pages, and at the central opening; page 2 will therefore be hair side, and the next sheet will be so arranged that its first right-hand page is hair side, so as to face a page of the same kind; the next pair of openings will both be flesh side. If the gathering has an even number of sheets, flesh side will face flesh side at the central opening.[14] On the other hand, manuscripts written in the Latin West usually have the hair side on the outside right-hand page (and so on).

Now a piece of papyrus for writing is made of two layers taken from the papyrus reed, arranged so that on one side the fibres run in a horizontal direction, while on the other side they run in a vertical direction. To indicate the fibre-direction I use throughout this chapter

11 For example, by Sir Frederic Kenyon, *Books and Readers*[2], p. 106.

12 The remarkable recent paper by Léon Gilissen should be read in this connexion: L. Gilissen, 'La composition des cahiers. Le phage du parchemin et l'imposition', *Scriptorium* 26 (1972), 3-33.

13 C. R. Gregory, *Comptes Rendus de l'Inst.* XIII (1885), 261ff.; *Canon and Text of the New Testament*, 1907, p. 324.

14 The order may, of course, occasionally be disturbed through the carelessness of the scribe. Cf. A. S. Hunt's comments on P. Ryl. I, 53 Odyssey, P. Ryl. I, p. 91.

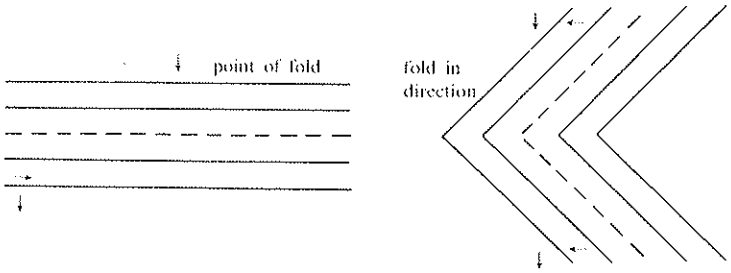

Fig. 3

as shorthand the symbols ▸ and ▸, ▸ standing for fibres horizontal in direction, ▸ for fibres vertical in direction. When we come to fold a sheet of papyrus to form a codex we shall find a situation analogous to that of the flesh and hair sides of a parchment codex. A single sheet (= 4 pages) may have its outside right-hand page ▸; then the next page will be ▸, and if the codex has gatherings of single sheets it will necessarily be followed by ▸, and the fourth page will be ▸. This may be diagrammatically shown as in Fig. 2.

But if the gathering is of more than single sheets, will ▸ face ▸ (like opposite like, as in parchment) or will they alternate? Actually both systems (alternation, and like facing like) were in use, as we shall see; and the introduction of the system of like facing like offers a useful dating criterion.

There are, then, two variables in any papyrus codex:

(1) The gathering system: whether the sheets are put together in one single-quire codex or in a number of gatherings. If the latter, how many sheets are there to a gathering, and is the number uniform?

(2) The way in which ▸ and ▸ are arranged: which is on the outside, and do ▸ and ▸ (or ▸ and ▸) face each other or alternate on the inside?

A favourite make-up from c. ii/iii to iv for a papyrus book was in single-quire form. As an example of a single-quire codex we may take the Bodmer codex of Menander (IV *Dyskolos*; XXV *Samia*; XXVI *Aspis*). Sixteen sheets were laid on top of each other in a pile, then folded across the centre, to give 32 leaves or 64 pages. The sheets were in fact almost square, 26 (or 26.6) cm. B × 27.5 cm. H, giving a folded page size of 13.0 B × 27.5 H.[15] It is simplest to suppose that the sheets were laid on a surface (ground or table) ▸ side downwards: folding centrally would then bring up the right-hand outside page showing vertical fibres; cf. Fig. 3. The codex was not, of course, found intact like this. Its back was broken and the pages lay separated, in some cases torn, and the fragments loose. There are three reasons for certainty that it is a single-quire codex:

(1) The fibre alternations are ▸ → ▸ → to the middle of the book; then → ▸ → ▸ from the middle to the end. (It will be found that if this alternation can be established it is decisive for the classification of a book as single-quire codex.)

(2) Some of the pages have page-numbers (even if these have been altered and the succession tampered with, as R. Kasser thinks); and continuity can in general be checked from continuity of the action in the plays they contain, and in that part of the *Samia* which is also in the Cairo codex by whether or not the text coincides.

15 Figures of V. Martin. *R. Kasser, P. Bodmer XXV*, pp. 13 and 17, gives 13/13.3 B × 28 H.

(3) A certain number of overlaps can be traced between the horizontal fibres of one sheet and the next.

The date of this manuscript can be assessed only on palaeographical grounds. The handwritings to which it seems to me to be closest are dated to the early fourth century.[16] Others, however, have put it in the third century, V. Martin early in that century.

The disadvantages of this method of make-up are obvious. Its size makes it tend to break at the spine. This happened more than once in antiquity to this very manuscript, since R. Kasser has shown that it was twice restitched in antiquity. Secondly, if the book is to have an even appearance when closed, it must be trimmed at the fore edge, and this will result in the pages in the middle of the book being narrower than those on the outside. This disproportion is not obvious to the eye in this particular manuscript; but it is one that the eye at once remarks in the Pierpont Morgan *Iliad* in which the outer pages are 14 cm. broad, the inner are reduced to 12.5 cm.

I have collected as examples of this form of make-up:

Manuscripts of Greek literature: 4 certain, 6 probable (dates iii-iv).

Manuscripts in Greek of Christian character: 12 certain, 5 probable (dates ii/iii-iv).

Manuscripts in Greek, non-literary (e.g., magical, school-books): 8 certain (c. iv).

Manuscripts in Coptic: 23 certain (mostly c. iv, a few c. v).

Papyrus codices in this format are sometimes of considerable bulk. Chester Beatty IX-X Ezekiel-Daniel-Esther totals 236 + pages; the Milan Coptic codex of the Epistles of St. Paul probably runs to more than 280 (the last surviving page number is 279); another twelve in the list have 100 pages or more. The most favoured dimension is what in the Marburg Congress paper I called Group 8 (H = 2B), into which 12 examples fall; but the single-quire make-up is not restricted to this group. Group 4 aberrant has 1, 5 has 2, 5 aberrant has 2, 6 has 2, 7 has 4, 8 has 2, 8 aberrant has 2, 9 has 3, 9 aberrant has 1, 10 has 4. It is noticeable that the dates suggested by palaeographers are almost all iii A.D. or iv A.D. The Milan Coptic letters of Paul is probably v A.D., and it is wise to reckon with the possibility that some of the other Coptic hands could be as late as v. The relatively early character of this make-up is a striking fact. No doubt this relatively early appearance is a support to those who (like H. Ibscher) claim that it is the original form of the papyrus codex. Till now no example of a single-quire codex made of parchment has been identified.

If the alternative method of making a codex is utilized — namely that of forming separate gatherings of sheets — then the number of sheets constituting such a gathering has been found to vary from one to seven. Examples may be found in gatherings of from one to seven sheets:

One sheet, *uniones*: it is very rare to find a literary or Christian codex made up only of *uniones*. P. Chester Beatty I, *Gospels and Acts*, c. iii, is the only certain early example. P. Colt 8-9 of c. vii is a 'very rough note-book'. On the other hand the codex of *uniones* is a common form for documents in c. vii-viii (H. I. Bell, *The Library*, NS X (1909) 307).

Two sheets, *biniones*: there is no codex formed solely of *twos*.

Three sheets, *terniones*: it has been suggested that some codices are formed solely of threes, but I know of no unequivocal surviving example.

Four sheets, *quaterniones* (4 sheets = 8 leaves = 16 pages). This number eventually becomes standard (hence the word 'quire'). But it did not at once establish itself as such. There are 12 exx. known on papyrus (date ii/iii-vi); and 7 exx. known on parchment (date iii-iv onwards). — On papyrus the make-up may show fibre-alternation ▸ → ▸ → etc.; or it may be ▸ → ▸ → ▸ → ▸ etc. After c. iv both systems are found, and persist till c. vii. Probably the earliest example of the second system (▸ → ▸ → ▸ → etc.) is a Virgil glossary with Greek renderings,

16 Cf. *BICS* 6 (1959) p. 64. *Gnomon* 1969, p. 505, quoting as parallel Vindob. G.2039b of A.D. 321 or 322.

P. Ryl. iii 478 + P. Med. I 1 + P. Cairo in *J.J.P.* 4 (1950) 239ff. It has been dated by R. Marichal in the late c. iii, but I should personally prefer to date in c. iv.

Five sheets, *quiniones* (= 10 leaves = 20 pages): this number is a strong rival to *fours* in the early period. We know 8 exx. on papyrus (ii/iv-vii); and 3 exx. on parchment (iv-vi).

Six sheets, *seniones* (= 12 leaves, 24 pages): 5 exx. on papyrus (from c. iii on) and 1 ex. on parchment (Cologne Mani codex, *Z.P.E.* 5 (1970) 97-216, prob. c. iv). One of the papyrus examples is the Oxyrhynchus Philo codex of c. iii (P. Oxy. ix 1173 + xi 1356 + xvii 2158 + P. Haun. 8 + PSI xi 1207). Its fibre alternations are ▸|||▸|▸|||▸|▸|||▸ etc. It is perhaps the earliest papyrus codex to show 'like facing like'.

Seven sheets, *septeniones* (= 14 leaves = 28 pages) perhaps occur in the Bodleian papyrus codex of Callimachus, P. Oxy. vii 1011, c. iv or iv/v (see R. Pfeiffer, *Callimachus* ii p. xxii).

Eight sheets, *octoniones* (= 16 leaves = 32 pages) have been suggested as the make-up of a commentary of Origen on Genesis, MPER iv no. 51, iv-v (see the editor's note on the foliation numbering), but the editor's argument is not cogent.

Those who work on the palaeography of a later period will be surprised to find no mention here of 'ruling patterns'. The omission is deliberate. The 'ruling pattern' does not help as between papyrus and parchment codices. On papyrus there is no ruling, or at least none that has survived and can now be observed. On parchment it has rarely been recorded by editors, and is rarely observable on photographs. My material is not therefore adequate for an investigation.

Clearly much additional work is called for. A correlation of the sizes of complete page and written area is required; so is a correlation of the number of lines per page and the nature and content of a manuscript; an examination into the size and disposition of the margins, and into the choice of format in relation to the purpose of the book. Yet even as a rough sketch of the possibilities of the archaeological approach I hope that this chapter has shown its utility for appreciating the development of the codex as a book form, and as chronological cross-check on the datings assigned to manuscripts by palaeographers on the basis of their letter-forms. I should be content if the reader endorses my conviction that to attempt a typology in terms of absolute dimensions and of make-up is not a waste of time.

*La réalisation matérielle des manuscrits latins pendant le haut Moyen Âge**

JEAN VEZIN

Durant tout le Moyen Âge, la réalisation matérielle des livres, abstraction faite de l'acte d'écrire, a nécessité de multiples opérations, qui vont du choix du support de l'écriture et de sa fabrication à la reliure du volume terminé. Depuis un demi siècle, spécialement, les savants prêtent un intérêt tout particulier aux indices, parfois minuscules, fournis par ces différentes manipulations. Ils ont pu tirer de ces études un certain nombre d'indications précieuses quant à l'âge des manuscrits ou à leur lieu d'origine.

Il ne pouvait pas être question, en quelques pages, de traiter dans son ensemble un vaste sujet qui aurait nécessité un gros livre, livre qu'il serait sans doute prématuré de vouloir écrire dans l'état actuel de nos connaissances. Nous croyons que dans ce domaine le temps de la synthèse n'est pas encore venu. De multiples recherches préliminaires comparables à celles que contient le présent ouvrage sont encore nécessaires afin que nous puissions nous orienter avec davantage de sûreté dans ce monde complexe des artisans du livre médiéval. Aussi avons-nous limité notre ambition à tenter d'indiquer les points sur lesquels doit principalement s'exercer l'attention des chercheurs, les détails souvent infimes, qui peuvent se révéler instructifs si on les replace dans un ensemble. Chemin faisant, nous avons ajouté aux observations de nos prédécesseurs des indications personnelles, fruit d'un contact quotidien avec les manuscrits de l'une des plus riches collections du monde.

Nous nous sommes volontairement limité à la période qui trouve son terme au XIIe siècle, avant la naissance des Universités, estimant que cette époque marque un tournant important dans les méthodes de confection du livre dont les ateliers ecclésiastiques, réguliers ou séculiers, perdent le monopole alors que se développent des officines au service des Universités et des laïcs lettrés et amateurs de beaux livres.

LES SUPPORTS DE L'ÉCRITURE

Les matières les plus variées ont été employées au cours des âges comme support de l'écriture. Pour mémoire, nous citerons la pierre,[1] les tablettes d'argile séchée ou cuite, le métal et en

* Le lecteur est prié de se souvenir que cet essai, comme d'ailleurs la plupart des autres, a été terminé quelques années avant l'impression.

1 M. Gomez Moreno, *Documentacion goda en pizarra* (Madrid, 1966); A. Mundó, *Pizarra visigoda de la época de Khindasvinto (642-649)*, dans *Festschrift Bernhard Bischoff* hrsg. von J. Autenrieth und F. Brunhölzl (Stuttgart, 1971), p. 81-89, 1 pl. h.t.