

subsequently in the middle ages, we have to deal with it in two forms. The common form of the book of the ancient world was the *roll*, composed of one continuous sheet of material and inscribed only on one side. This form had a long career. In Egyptian literature it can be traced back for thousands of years. In Greek literature it may be assumed to have been in vogue from the earliest times; actual examples have survived of the latter part of the 4th and beginning of the 3rd centuries B.C. As to its early use in Latin literature we cannot speak so definitely; but Rome followed the example of Greece in letters, and therefore no doubt also in the material shape of literary productions. Both in Greek and Latin literature the roll lasted down to the early centuries of the Christian era. It was superseded by the *codex*, the manuscript in book form (in the modern sense of the word book), composed of separate leaves stitched together into quires and made available to receive writing on both sides of the material. This form is still in vogue as the modern printed book, and probably will never be superseded. But the codex in this developed shape was only an evolution from the early waxen tablets of the Greeks and Romans, two or more of which, hinged together, formed the primitive codex which suggested the later form. Therefore it will be necessary to include the description of the tablets with that of the later codex.

The ordinary terms in use among the Greeks for a book (that is, a roll) were *βιβλος* (another, form of *βίβλος*, papyrus) and *The Roll*, its diminutive *βιβλίον*, which included the idea of a written work. The corresponding Latin terms were *liber* and *libellus*; *volumen* was a rolled-up roll. A roll of material unscripted was *χάρτης*, *charta*, or *τόμος* (originally a *cutting* of papyrus), applicable also to a roll containing a portion or division of a large work which extended to more than one roll. A work contained within the compass of a single roll was a *μονόβιβλος*, or *μονόβιβλίον*. The term *τεῦχος* seems also to have meant a single roll, but it was also applied at a later time to indicate a work contained in several rolls.

In writing the text of a work, the scribe might choose to make use of separate sheets of papyrus, *κολλήματα*, *schedae*, and then join them to one another consecutively so as to make up the roll; or he might purchase from the stationers a *scapus*, or ready-made roll of twenty sheets at most; and if this length were not sufficient, he might add other sheets or *scapi*, and thus make a roll of indefinite length. But proverbially a great book was a great evil, and, considering the inconvenience of unrolling a long roll, not only for perusal, but, still more so, for occasional reference, the practice of subdividing lengthy works into divisions of convenient size, adapted to the capacity of moderate-sized rolls, must have come into vogue at a very early period.

It was the practice to write on one side only of the papyrus; to write on both front and back of a roll would obviously be a clumsy and irritating method. Works intended for the market were never *opisthographi*. Of course the blank backs of written rolls which had become obsolete might be turned to account for personal or temporary purposes, as we learn not only from references in classical authors but also from actual examples. The most interesting extant case of an *opisthograph* papyrus is the copy of Aristotle's *Constitution of Athens* in the British Museum, which is written on the back of a farmer's accounts, of the end of the 1st century—but only for private use. It being the rule, then, to confine the writing to one side of the material, that is, to the inner surface of the made-up roll, that surface was more carefully prepared and smoothed than the other; and, further, the joints of the several sheets were so well made that they offered no obstacle to the action of the pen. Still further, care was taken that this, the *recto* surface of the material, should be that in which the shreds of papyrus of which it was composed lay horizontally, so that the pen might move freely along the fibres; the shreds of the *verso* side, on the other hand, being in vertical position. This point is of some importance, as, in cases where two different handwritings are found on the two sides of a papyrus, it may be usually assumed that the one on the *recto* surface is the earlier.

The text was written in columns, *σελίδες*, *paginae*, the width of which seems not to have been prescribed, but which for calligraphic effect were by preference made narrow, sufficient margins being left at head and foot. The average width of the columns in the best extant papyri ranges from two to three-and-a-half inches. The written lines were parallel with the length of the roll, so that the columns stood, so to say, with the height of the rolled-up roll, and were disclosed consecutively as the roll was unrolled. Ruling with lead to guide the writing is mentioned by writers, but it does not appear that the practice was generally followed. The number of lines in the several columns of extant papyri is not constant, nor is the marginal boundary of the beginnings of the lines, for the accuracy of which a ruled vertical line would have proved useful, ordinarily kept even. No doubt in practice the horizontal fibres of the material were found to afford a sufficient guide for the lines of writing.

If the title of the work was to be given, the scribe appears to have written it ordinarily at the end of the text. But something more was needed. To be obliged to unroll a text to the end, in order to ascertain the name of the author, would be the height of inconvenience. Its title was therefore sometimes written at the head of the text. It appears also that at an early period it was inscribed on the outside of the roll, so as to be visible as the roll lay in a chest or on the shelf. But a more general practice was to attach to the top edge of the roll a label or ticket, *στίλβος*, or *στύμβος*, *titulus*, *index*, which hung down if the roll lay on the shelf, or was conveniently read if the roll stood along with others in the ordinary cylindrical roll-box, *κίστη*, *κιβωτός*, *cista*, *capsa*. One such label made of papyrus has survived and is in the British Museum.

The scribe would not commence his text at the very beginning, nor would he carry it quite down to the end, of the roll. He would leave blank a sufficient length of material at either extremity, where the roll would naturally be most exposed to wear and tear by handling in unrolling and re-rolling; and, further, the extreme vertical edges might each be strengthened by the addition of a strip of papyrus so as to form a double thickness of material.

According to the particulars given by classical authors, the roll would be finished off somewhat elaborately; but the details described by them must be taken to apply to the more expensive productions of the book trade, corresponding with the full-bound volumes of our days. In practice, a large proportion of working copies and ordinary editions must have been dealt with more simply. Firstly, the roll should be rolled up round a central stick, of wood or bone, called the *ὀμφαλός*, *umbilicus*, to which the last sheet of the papyrus may or may not have been attached. But as a matter of fact no rolling-sticks have been found in company with extant papyri, and it has therefore been suggested that they were not attached to the material but were rolled in loose, and were therefore liable to drop out. In some instances, as in the rolls found at Herculaneum, a central core of papyrus instead of a stick was thought sufficient. The edges, *frontes*, of the roll, after it had been rolled up, were shorn and were rubbed smooth with pumice, and they were sometimes coloured. A valuable roll might be protected with a vellum wrapper, *φανόλη*, *paenula*, stained with colour; and, further, it might be secured with ornamental thongs. The central stick might also be adorned with knobs or "horns," plain or coloured. This seems to be the natural explanation of the *κέρατα*, or *cornua*, mentioned by the ancient writers. Finally, the title-label described above was attached to the completed roll, now ready for the book-market.

In the perusal of a work the reader held the roll upright and unrolled it gradually with the right hand; with the left hand he rolled up in the reverse direction what he had read. Thus, when he had finished, the roll had become reversed, the beginning of the text being now in the centre of the roll and the end of it being outside. The roll was "explicitus ad umbilicum," or "ad sua cornua." It had therefore now to be unrolled afresh and to be re-rolled into its normal shape—a troublesome process which the lazy man shirked, and which the careful man