Parchment: archaeology

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Eventually, in the 17th century it was also accepted in Ashkenaz, in large part thanks to the efforts of the Masorah scholars Menahem di Lonzano (1550–1626) and Jedidiah Solomon Norzi (ca. 1560–ca. 1626). Nowadays, there is universal unanimity among all Jewish communities, except for two sections – Lev 7:22 and 7:28. According to the Yemenite tradition at Lev 7:22 there is an open section and there is not at 7:28, whereas in other communities it is the opposite – there is no open section at v. 22, but there is at 28.

2. Sections in the Prophets and Writings. Maimonides only dealt with the Torah, not the Prophets and Writings. Except for the scroll of Esther which is read on Purim from a parchment scroll, the custom in most communities is to read the other four scrolls and the Haftarot (prophetic readings) from printed books. About 300 years ago followers of Elijah ben Solomon Zalman, the Gaon of Vilna (1720–1797), started the tradition of reading the Haftarot from a parchment scroll of the entire Prophets, as is done with the Torah. Thus the custom of writing scrolls for the entire Prophets and Writings began in these communities, following a tradition different from that of the Aleppo Codex.

When the Aleppo Codex arrived in Israel about seventy years ago, various parties involved considered the possibility of writing Prophets scrolls according to it, just as was done with the Torah. This possibility was strengthened when it became known that a hundred years earlier R. Shalom Shakhna Yellin (1790–1874) sent his son-in-law Moses Joshua Qimḥi to Aleppo to copy the section breaks in the Prophets and Writings from the Codex into the margins of a printed copy of the Tanakh (HB). This mission was supported by the most important rabbis of Jerusalem at the time, headed by the Ashkenazi chief rabbi of Jerusalem, R. Samuel Salant (1816–1909; Ofer 1992).

About thirty years ago a fierce controversy erupted in the Haredi community on the topic of writing the sections of the Prophets and Writings. Since the discovery of the Aleppo Codex some scribes began to divide the scrolls according to it, while others thought that it was best to maintain the generations-old established custom. According to Ofer (1992), a large number of Prophets scrolls are written today according to the Aleppo Codex.

3. Section Divisions in the Scroll of Esther. The scroll of Esther is different from the other scrolls and the other books of the Prophets and Writings. According to Jewish law it is required to be read from a parchment scroll and all its sections must be closed, in accordance with the decision of R. Moses Isserles (1530–1572) in the *Shulḥan ʿarukh* (Karo, *ShA*, *OH*, Megillah 691.2; Yitsḥaqi). This decision is accepted by all Jewish communities, despite Qimḥi's testimony that there were six open sections in the Aleppo Codex, as well as in many manuscripts, both early and late throughout the Jewish dispersion (Ofer 1992; Penkower 2016).

Bibliography: ▪ Cohen, M. (ed.), *Mikraʾot Gedolot Haketer: Joshua & Judges* (Ramat Gan 1992). [Heb.] [Esp. 50*–52*] ▪ Maori, Y., "The Tradition of *Pisqāʾôt* in Ancient Hebrew MSS: The Isaiah Texts and Commentaries from und Qumran," *Textus* 10 (1982) 1–50. [Heb.] ▪ Ofer, Y., "The Aleppo Codex and the Bible of R. Shalom Shachna Yelin," in *Rabbi Mordechai Breuer Festschrift*, vol. 1 (ed. M. Bar-Asher; Jerusalem 1992) 295–353. [Heb.] ▪ Ofer, Y., "A Babylonian List of Open and Closed Sections in the Torah," in *Masʾat Aharon: Linguistic Studies Presented to Aron Dotan* (ed. M. Bar-Asher/C.E. Cohen; Jerusalem 2009) 392–434. [Heb.] ▪ Ofer, Y., *The Masora on Scripture and its Methods* (Berlin 2018). ▪ Penkower, J. S., "Maimonides and the Aleppo Codex," *Textus* 9 (1981) 39–128. ▪ Penkower, J. S., *New Evidence for the Pentateuch Text in the Aleppo Codex* (Ramat-Gan 1993). [Heb.] ▪ Penkower, J. S., "An Esther Scroll from the 15th Century: Determining its Type among Five Traditions (Oriental, Sefardi, Ashkenazi, Italian, Yemenite)," *Textus* 26 (2016) 209–70. ▪ Peretz, Y., "The Traditions of the Open and Closed Sections in Ashkenaz, in id., *Language and Masorah* (Rehovot 2019) 319–50. [Heb.] ▪ Simḥah, of Vitry, *Machsor Vitri* (Nuremberg ²1923). [Heb.] ▪ Weintraub, M. D., "Masoret haparashiyot ha-petuḥot weha-setumot ba-Torah" [The tradition of open and closed sections in the Torah], *Qovets Shiltei gibborim peletat sofrim* 7 (2014) 339–46. ▪ Yeivin, I., "The Division into Sections in the Book of Psalms," *Textus* 7 (1969) 76–102. ▪ Yitsḥaqi, D., *Sefer Ashrenu: Masoret Keter Torah shel Ben Asher* [Ashrenu; the Masoretic tradition of the Torah Crown of Ben Asher] (Benei Beraq ²2004). [Heb.]

Yossi Peretz

Parashat ha-shavuʿa

→ Weekly Torah Portion

Parchment

I. Archaeology
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I. Archaeology

In his *Life of Constantine* (4.36.1–3), Eusebius of Caesarea quotes a letter he received from the emperor, recording how he was commanded to order the production of fifty copies of the Bible to be made to satisfy the needs of new members of the church. In his letter, Constantine specified that these Bibles were to be written in a legible and skilled hand on prepared skins (διφθέραις), assuring Eusebius that the materials for these books, "convenient for portable use," would be supplied by "the man who is in charge of the diocese" (Holsinger: 137). Parchment is at the nexus of Constantine's request: it is the material which will receive the carefully scribed text, but also the artefactual means of the (symbolic and physical) transmission of the word to the empire. It is the subject of a logistical operation, with the materials acquired (and distributed) at a centralised

level, while its material nature is also intrinsic to determining the ultimate form of the product. Furthermore, the letter is testimony to an important moment of transition in the practices of book production: in specifying parchment for the production of his high-quality Bibles, Constantine is implicitly excluding another medium – papyrus – from consideration. Constantine's letter to Eusebius, in short, provides a 4th-century perspective on the affordances and limitations of parchment, a writing surface that was interlinked with a complex system of productive practices.

One Latin term for parchment, *pergamenum*, derives from the alleged invention of the production process in the city of Pergamon, as described by Pliny in his *Natural History* (7.21). Another, however – *membrana* – is inspired by its production. Describing the origin of this term in the early 7th century in his *Etymologies*, Isidore of Seville described how skins (*membranum*), were stripped from the members (*membrum*), of livestock (quoted in Vnouček et al.: 36–38). Parchment is made by taking the skin of an animal, soaking it (often in limewater, an alkaline solution of calcium hydroxide), removing the hair and upper layers of skin through scraping, and then stretching the skin on a frame under tension until it is dry. The surface of the sheet could be made smooth through polishing with a pumice stone or equivalent, while the parchment could also be whitened with chalk or other products (for detailed accounts of the manufacturing process see Reed: esp. ch. 5; and Ryley: esp. ch. 1). The result is a flexible, light, pale-coloured product, suitable as a writing surface on account of its capacity to hold ink, and suitable for bookmaking on account of its durability (notably its resistance to tearing, and relative resistance to environmental conditions).

Aside from surviving recipes (see examples in Reed: 133–34), the process of making parchment is evidenced through features such as visible striations or inadvertent knife cuts resulting from the scraping of the skin. Application of tension on the skin during the manufacturing process could accentuate existing minor flaws of the skin and lead to the formation of holes or areas of uneven thickness. Parchment often preserves visible traces of its animality, such as the presence of a dark "dorsal stripe" (Gumbert: 82) corresponding to the spine of the animal, or changing textures or follicular patterns at the extremities (e.g., the axillae areas) of the skin. Examining the placement of these features can facilitate estimations of the original dimensions of the source skin and a "reading" of its manufacturing process and use (Turner: 55–64).

When dry, parchment leaves were trimmed, cut to the desired size, then attached to form a roll, or folded and assembled into a codex. The maximum size of the codex is determined by the size of the skin and, by extension, of the animal from which it was sourced. Its format, meanwhile, is dictated by the number of bifolia (two conjugate leaves comprising four pages) which are cut out of a skin. Cut bifolia were assembled into quires (conventionally comprising four-to-five bifolia). For tonal consistency across book openings, bifolia were often arranged so that hair-side faced hair-side of the parchment, and flesh-sides faced flesh-side (a convention often referred to as "Gregory's Rule," following the work of the NT scholar Caspar René Gregory, who observed this common arrangement) (Nongbri: 27). A notable physical property of parchment is that it can also be erased, or palimpsested; this is the case, for example, for the Codex Ephraemi Rescriptus, where the 5th-century Greek OT and NT texts were erased and then overwritten in the 12th century. Ganz (106) notes that as many as twenty-six of the ninety-three surviving Latin Bible manuscripts copied before 600 CE were later palimpsested, a figure that reflects the resilience of the parchment medium, which could be erased and co-opted to new ends.

Parchment was one among a range of social and economic activities linked to animal husbandry in the late antique and medieval periods, including food and textile production (on investigating such "ecocodicologies" see Holsinger: esp. ch. 14). For the purposes of book-making in late antiquity and the medieval period, parchment was usually made from the skins of goat, sheep, calves, or the larger hides of cattle. That said, identifying the animal species from which a particular sheet of parchment was made on the basis of visual observation alone is complicated by the fact that the making process involves the removal of the epidermis of the skin, and with it much of the follicular patterns distinctive to particular species (see, for example, Vnouček et al.: 34–35). Recent developments in biomolecular, nondestructive testing of manuscripts have had some success in facilitating species identification, even to the extent of pinpointing the sub-species which were used to make particular books (Fiddyment et al. 2019). Such biocodicological approaches may nuance our understanding of the practices which underpinned parchment production, as well as enhancing the status of parchment as a repository of information for dating and localising book production.

As codices could be made from a number of materials (and parchment was also used for the production of book rolls) a direct correlation between the spread of the use of parchment and that of the codex form cannot be postulated; the transition from papyrus to parchment and from the book roll to the codex are associated but independent transitions (Harnett: 191). The ambiguity of a relation between form and material is apparent in 2 Tim 4:13, where Paul requests Timothy to bring items he has left at Troas: a cloak, books, and "above all the parch-

ments." In this possibly pseudepigraphic letter, Paul uses a loanword, μεμβράνας, to transliterate *membranas* (Hurtado: 76). Some scholars have argued that Paul is explicitly distinguishing between these parchments and (other) texts on papyrus, while some contend that they refer to texts in codex (rather than roll) form, or perhaps to parchment notebooks (ibid.: 76–77). We also see the ambiguity of *membrana* as referent in this period in Martial's *Epigrams*, where it may refer to literary works in parchment codices or erasable notebooks (Blake). Although the form of these textual carriers still remains indeterminate, Paul's letter attests to the use of parchment as a writing medium within an early Christian setting.

Indeed, while the earliest surviving biblical manuscripts are overwhelmingly written on papyrus, a Christian preference for parchment over papyrus is apparent from at least the 4th century CE onwards (Blumell: 9). An important factor motivating this preference was its widespread availability, with papyrus production restricted to dry zones where the plant was cultivated (notably Egypt) (Roberts/Skeat: 8–10). The favouring of parchment for Bible production is evidenced by the survival of early deluxe parchment biblical codices such as the Codex Vaticanus and Codex Sinaiticus, which contain portions of both the OT and NT (in Greek). The mode in which parchment was prepared for the Codex Sinaiticus shows a sensitivity for the requirements of the codex form. Written in four columns across the breadth of an almost squarely-proportioned page (measuring 430 × 380 mm), it uses very thin and smooth parchment, an aspect that, as Parker notes, would have facilitated the binding of the whole text of the Bible into a single volume or pandect (a criterion influencing the selection of skins that required planning at an anterior stage to its copying).

A partiality for parchment is also apparent in the 6th-century *Institutions* (1.8) of Cassiodorus (127–28), where he refers to a copy of Augustine's commentary on the Epistle of James, "in a parchment book" – which he praises for its "meticulous diligence" – while also describing a commentary text on the Pauline Epistles, "written in a papyrus book" and requiring further emendation. Here the material medium of the textual carriers seems to telegraph their respective authority. However, caution should be exercised in extending value judgments of texts of the biblical tradition based on the materiality of the carrier. As Nongbri has argued, early Christian papyri have often been regarded by scholars as imbued with an "aura of antiquity and authority," a factor that has led to comparative disinterest in later, but also significant, parchment carriers of early Christian texts, such as the Freer fragments (Nongbri: 18).

Although critiqued by Jerome for their extravagance in his letter to Eustochium (383–84), deluxe late antique codices could receive further elaboration through the staining of their parchment. The 6th-century illuminated Vienna Genesis is an example of a luxurious codex of this type. Recent pigment analysis has illustrated that an orchil-based dye, derived from lichen, was used to stain its pages (Hofmann et al.). Purple parchment, associated with Byzantine imperial splendour, could also signify authority. Writing in the early 8th century, Stephen of Ripon records how Wilfrid, bishop of York (664–78), left a set of gospels to the new church at Ripon, "in letters of purest gold on purpled parchment," a gift interpreted as an expression of his desired link between the mission of the church in Britain and that of Rome in the light of the Easter controversy (Charles-Edwards: 330–35). The Godescalc Evangelistary (Paris, Bibliothèque nationale de France, MS NAL 1203) meanwhile, was written in gold ink on purple-stained parchment for Charlemagne in 781–83, with its scribe, Godescalc, recording in a dedicatory poem how the combination of gold on purple was intended to evoke the divine and human nature of Christ, as well as the glory of the heavens (Bücheler: 134–35). As these examples illustrate, one of parchment's inherent affordances – its capacity to take colour, whether painted or steeped in dye – could permit it to become a vehicle of implicit meaning for the reader, a signifier of wealth, status, and sacrality.

Parchment is not necessarily an inert medium in the composition of the codex, but one that could aid in encoding the meaning and significance of a text. Creative use of the affordances of parchment could maximise or minimise various aspects of the codex – influencing its economy of production, its physical presence, or its portability. For example, the use of large-format parchment leaves was a significant characteristic of the stately Latin biblical manuscripts produced at Martin of Tours in the late 8th and early 9th centuries (McKitterick: 71–72). Chiming with Carolingian concerns for accurate and standardized biblical texts, the leaves of these codices aimed to impress, averaging ca. 480 × 375 mm in size, and requiring, according to an estimate by Ganz (1994: 55), between 210 and 225 sheep skins per volume. The scale of the enterprise which underpinned the production of these books, described by Ganz as displaying features of "mass production," points to the centrality of Tours for the standardization of the biblical text into the first half of the 9th century, with forty-six complete Bibles and eighteen gospel books from this center surviving from prior to 853 (ibid.: 53).

Large-scale Bibles (sometimes termed "Giant Bibles" or "Atlantic Bibles") are also associated with the Gregorian reform of the 11th and 12th centuries. These codices, usually measuring between 550 and 600 mm in height, were comprised of bifolia formed from single skins (folded perpendicular to

their dorsal axis resulting in a slightly narrow aspect), and could require between 165 and 260 animals for the production of a complete Bible (Maniaci: 39–40). The parchment required for these volumes, intrinsic to its scale and dimensions, represented a significant portion of its production costs. For example, in 1168 Mattilda Veckii, a widow, donated a hundred solidi to the church and monastery of S. Vito in Pisa for the purchase of parchment for a Bible, an amount equivalent to the purchase cost of twenty-five casks of wine. Mattilda's gift supplied 240 sheets of parchment – over half of the materials needed for this visible symbol of reform (Yawn: 126–28). Aside from recording Mattilda's piety, this transaction is indicative of the increased professionalization of the parchment trade within medieval urban contexts.

Turning to the other end of the spectrum, thin, small-format leaves of parchment were a popular medium from the 13th century on for the production of portable single-volume Latin Bibles (Ruzzier). Written in compact, highly abbreviated script, these Bibles, which contained on average nearly 500 leaves, were suitable for the pastoral contexts of this period, including the requisites of the new mobile preaching orders (De Hamel: 114–39). The craft practices required to produce the extremely thin parchment, necessary to facilitate the binding of so many leaves in a single volume, remain obscure. Sometimes referred to as uterine parchment, it has traditionally been assumed that it was made from the skins of aborted or newborn animals. However, it is more likely that a practice was developed which involved splitting or specially processing skins, one that could have sustained the massive volume of production of these Bibles (Fiddyment et al. 2015).

As these examples show, makers of Bibles were aware of the potential of parchment as an expressive medium, and by extension sensitive to its physical qualities. An extreme case of the valorization of the physical medium is conveyed in a late 13th-century treatise which recommends the ingestion of scrapings from a parchment that has been inscribed with the opening words of the Gospel of John as a cure for demonic possession (Kieckhefer: 174). Many high-status Bibles used high-grade parchment of even thickness and consistency of colour. In a Bible copied in Hamburg in 1255 (now Copenhagen, Det Kongelige Bibliothek, MS GKS 4.2, fol. 183r; see fig. 5), a decorated initial opening the prologue to the book of Daniel depicts an encounter between Jerome and a parchment maker. It shows a moment of economic transaction between maker and potential purchaser but also represents a symbolic transaction between the translator of the Vulgate and the material medium in which the Latin Bible was conveyed to the reader. Moreover, it illustrates a moment of qualitative, haptic interaction: with a roll of parchment under his arm and a stretched skin on a frame in the background, the maker holds out a white sheet of parchment to Jerome to touch and determine whether it is fit for purpose.

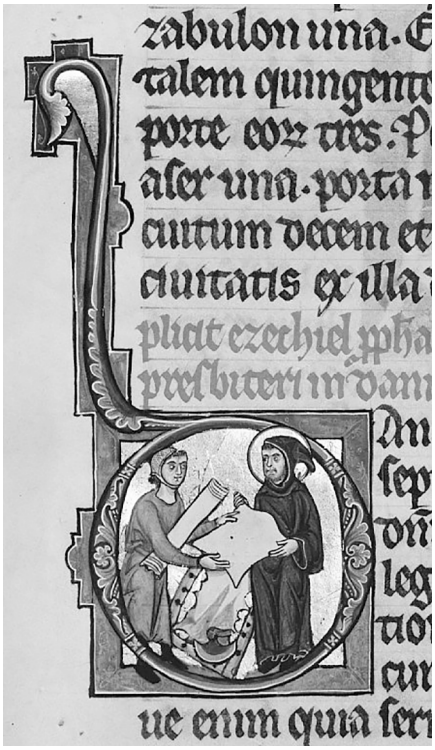

Fig. 5 "Jerome purchasing from the parchment manufacturer" (ca. 1255)

In spite of the introduction of paper, a more economic medium, from the 13th century onwards, parchment remained a popular choice for copying Bibles. It is striking, for example, that almost every surviving copy of the Wycliffite Bibles, the 14th-century English translation of Scripture, is copied on parchment, a preference that seems to parallel the continued use of parchment for books for private devotion (De Hamel: 179–80). While the introduction of the printing press would accelerate a preference for paper, almost a quarter of Gutenberg Bibles were printed on parchment. As De Hamel speculates (207), each projected print run of twenty-five copies could have required as many as 4,000 skins (with the resulting copies weighing over 60 percent more than a paper copy, leading to a different experience in handling and use). While the differences between the paper and parchment copies are stark, Gutenberg clearly anticipated a ready market for the purchase of these printed parchment codices. Valued and instrumentalized for its particular affordances, parchment continued to persist as a medium to en-

sure and shape the transmission of the Bible from antiquity into the early modern period.

Bibliography: ▪ Blake, S., "Text, Book, and Textbook: Martial's Experiments in the Codex," *Ramus* 43 (2014) 67–93. ▪ Blumell, L. H., "Scripture as Artefact," in *The Oxford Handbook of Early Christian Biblical Interpretation* (ed. P. M. Blowers/P. W. Martens; Oxford 2019) 6–32. ▪ Bücheler, A., "Clothing Sacred Scripture: Textile Pages in Two Medieval Gospel Books," in *Clothing Sacred Scriptures: Book Art and Book Religion in Christian, Islamic and Jewish Cultures* (ed. D. Ganz/B. Schellewald; Berlin/Boston, MA 2019) 123–40. ▪ Cassiodorus, *Institutions of Divine and Secular Learning* (trans. J. Halporn/M. Vessey; Liverpool 2004). ▪ Charles-Edwards, T., *Early Christian Ireland* (Cambridge 2000). ▪ De Hamel, C., *The Book: A History of the Bible* (London 2001). ▪ Fiddyment, S. et al., "Animal Origin of 13th-Century Uterine Vellum Revealed Using Non-Invasive Peptide Fingerprinting," *Proceedings of the National Academy of Sciences* 112 (2015) 15066–71. ▪ Fiddyment, S. et al., "So You Want to Do Biocodicology? A Field Guide to the Biological Analysis of Parchment," *Heritage Science* 7 (2019) 1–10. ▪ Ganz, D., "Mass Production of Early Medieval Manuscripts: The Carolingian Bibles from Tours," in *The Early Medieval Bible: Its Production, Decoration and Use* (ed. R. Gameson; Cambridge 1994) 53–62. ▪ Ganz, D., "Early Manuscripts of the Latin Bible," in *The Oxford Handbook to the Latin Bible* (ed. H. A. G Houghton; Oxford 2023) 106–20. ▪ Gumbert, J. P., "Skins, Sheets and Quires," in *New Directions in Later Medieval Manuscript Studies* (ed. D. Pearsall; Woodbridge 2000) 81–90. ▪ Harnett, B., "The Diffusion of the Codex," *ClAnt* 36 (2017) 183–235. ▪ Hofmann, C. et al., "The Vienna Genesis: An Example of Late Antique Purple Parchment," *Restaurator* 43 (2017) 3–33. ▪ Holsinger, B., *On Parchment: Animals, Archives, and the Making of Culture from Herodotus to the Digital Age* (New Haven, CT 2017). ▪ Hurtado, L., *The Earliest Christian Artifacts: Manuscripts and Christian Origins* (Grand Rapids, MI/Cambridge 2006). ▪ Kieckhefer, R., *Magic in the Middle Ages* (Cambridge ²2014). ▪ Maniaci, M., "The Structure of Atlantic Bibles," in id. (ed.), *Trends in Statistical Codicology* (Berlin 2021) 35–64. ▪ McKitterick, R., "Carolingian Bible Production: The Tours Anomaly," in *The Early Medieval Bible: Its Production, Decoration and Use* (ed. R. Gameson; Cambridge 1994) 63–77. ▪ Nongbri, B., *God's Library: The Archaeology of the Earliest Codices* (New Haven, CT 2018). ▪ Parker, D., *Codex Sinaiticus: The Story of the World's Oldest Bible* (London 2010). ▪ Reed, R., *Ancient Skins, Parchments and Leathers* (London 1972). ▪ Roberts, C. H./T. C. Skeat, *The Birth of the Codex* (London 1983). ▪ Ruzzier, C., "The Miniaturisation of Bible Manuscripts in the Thirteenth Century," in *Form and Function in the Late Medieval Bible* (ed. E. Poleg/L. Light; Leiden 2013) 105–26. ▪ Ryley, H., *Re-Using Manuscripts in Late Medieval England* (Woodbridge 2022). ▪ Turner, N. K., "The Materiality of Medieval Parchment: A Response to the Animal Turn," *Revista hispanica moderna* 71 (2018) 39–67. ▪ Vnouček, J. S. et al., "The Parchment of the Vienna Genesis," in *The Vienna Genesis* (ed. C. Hofmann; Vienna 2020) 35–70. ▪ Yawn, L., "The Italian Giant Bibles," in *The Practice of the Bible in the Middle Ages: Production, Reception, and Performance in Western Christianity* (ed. S. Boynton/D. J. Reilly; New York 2011) 126–56.

Irene O'Daly

II. Judaism

To this day, Jewish tradition prescribes parchment as the exclusive writing material for Torah scrolls, tefillin (phylacteries) and mezuzot (scrolls affixed to doorposts), and the scroll of Esther. To this end, the early authorities of religious law established rules for the production of parchment to be used for copying scrolls intended for liturgical settings. In particular, the first comprehensive manuals for scribes, Massekhet Soferim and Massekhet Sefer Torah (most probably written in the 7th or 8th cent., but drawing on older sources), offer a clear idea of what types of hides should be reserved for writing the holy scrolls and which materials should be restricted to use within the profane realm. Not suitable for use in the liturgical context are *maṣṣah*, *ḥippah*, and *diftera*, hides that were processed less laboriously or not at all (bShab 79a; bGit 22a; bMeg 19a). The rabbis recommended *gewil*, *qelaf*, and *dukhsustos* instead, hides that derive from a kosher animal and that have passed through all three steps of the ancient process of hide preparation: 1) salting, to remove the upper hair and the lower fat layer in order to stop the organic decay and preserve the material, 2) flouring, in order to withdraw excess liquid and to soften the surface, 3) tanning, with substances like gallnut, in order to strengthen the material. *Gewil*, however, in contrast to *qelaf* and *dukhsustos*, was not processed any further and thus must have been relatively thick and less flexible. In rabbinic literature, *gewil* appears to be related in most cases to Torah scrolls so that scholars assume that this skin was especially used for writing biblical scrolls in ancient times (Blau: 25; Haran 1985: 40, n. 35). Regarding the differences between *qelaf* and *dukhsustos*, later halakhic authorities such as Hai Gaon (ca. 939–1038) explained that the hide – before it was treated with salt, flour, and gallnut – was split through its thickness into two: the thin hair side (*dukhsustos*) was designated for writing tefillin and the thicker flesh side (*qelaf*) for writing mezuzot.

Research on the Dead Sea Scrolls, which were written between the 3rd century BCE and the 1st century CE, has shown that besides the main writing materials – papyrus and leather – particularly for biblical writings, a parchment of various shades of brown was in use, whose material characteristics are very close to the writing material described by the later rabbis as *gewil*. *Qelaf* and *dukhsustos*, however, seem to have come into use only later. The technique of splitting an animal skin into two parts appears to have ceased to be a common practice as early as the days of Maimonides (1138–1204), since he and other medieval scholars resort to geonic sources of late antiquity for their descriptions. Moreover, some of the scrolls discovered in 1946/47 at the Qumran Caves were written on a lighter-colored parchment that exhibits features resembling those of early Christian Greek parchments (Pool/Reed). The question of the extent to which parchment was already in use at the time of the Second Temple or whether papyrus still dominated