

## On the use of parchment for ס"ת by the Jews of Eretz Yisrael in the Mishnaic and Talmudic period

It is generally accepted by those that have learned, or have learned about, the *sugya* that *Hazal* required that the animal skins used to write *tefillin*, *mezuzot* or *Sifrei Torah* first be tanned with gall-nuts (עפצים).<sup>1</sup> The majority believe that the untanned parchment used today is nevertheless an acceptable substitute, whereas a minority believe either that it is not acceptable or, at least, that scribal leather is preferable לכתחילה or as a חומרה. In the following article, I will argue that the Rabbis of *Eretz Yisrael* never required the use of scribal leather and that the practice was specifically Babylonian. This argument was first, to my knowledge, made briefly by Prof. Louis Ginzberg,<sup>2</sup> but my version of the argument is substantially different. It is based on establishing an anterior probability that the sages of *Eretz Yisrael* used parchment, based on archaeological and historical research, and then showing how different sources are much easier to interpret in that light. One respect in which my presentation is similar to Ginzberg's, is that it substantially hinges on a claim which, at this stage, will likely strike most readers as absurd, namely that the silence of the *Yerushalmi* on the subject is most reasonably interpreted as an endorsement not a rejection of parchment.<sup>3,4</sup>

For most Jews, the argument in this article will have little in the way of halachic pertinence. Either they already use parchment in their ס"ת and do not require further arguments to legitimate it, or, if they use scribal leather, they will rely on the halachic authority of the *Bavli*, which does mandate it, or *Rambam* who emphatically emphasised this obligation in the age of halachic codification. However, I do believe that this argument will take much of the energy out of the movement in favour of scribal leather, and hope that it will calm the conscience of earnest, truth-seeking Jews who have learned from others, I believe erroneously, that their *tefillin* are invalid and they must pay a large sum for new ones.

### The difference between parchment and leather

Before embarking on our discussion, it is necessary to clear up a confusion that is endemic among *both sides* of the dispute about the permissibility of parchment for ס"ת. This is the view

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<sup>1</sup> Almost all plants contain some amount of tannins, but gall nuts are a reliable and accessible source of high-tannin plant material. Whether or not the Talmud Bavli uses עפצים as a synecdoche for any vegetable tannin (or even any tanning agent) is immaterial to this article.

<sup>2</sup> *Ginzei Shechter*, vol ii, pp. 529-30.

<sup>3</sup> One argument of Ginzberg that I believe to be mistaken is that the alleged lenient position of the Geonim of *Sura* is the result of being influenced by traditions from *Eretz Yisrael*.

<sup>4</sup> In this article I will repeatedly draw on a [well-argued 2016 article](#) by Rabbi Yaakov Hoffman in the pages of *Hakira* as a foil. Some of my comments will be unavoidably quite sharp, but I have chosen Rabbi Hoffman, whom I greatly respect as an author, not out of any animus, but as the *best* representative of the pro scribal leather position. I will also allude frequently to a widely-circulated (by the standards of such things) Hebrew article [עיבוד עורות בעפצא](#) by Netanel Tzadok.

that treatment with lime is a *substitute* for tanning and this is the essential difference between parchment and leather. For example, [Rabbi Yaakov Hoffman](#) writes:

Nowadays, however, we are unfamiliar with the use of truly tanned skin for STaM. The material currently in vogue is parchment, which is made with a much simpler and cheaper process—soaking the skin in a lime wash as a preservative, then stretching the skin on a frame and pressing out the water. Once dried, the skin acquires a white, smooth veneer that is actually much better suited to writing on than tanned skin. However, limed skin is less durable. If exposed to water, the lime will wash away and the skin will return to its raw, translucent state. (p.197)

Such a presentation is misleading. The role of lime in the preparation of parchment is twofold. First, it is used to remove the hair from the skin. This usage is *identical* to its use in the preparation of scribal leather by *Rambamist sofrim* today. Its second role is to facilitate the stretching and scraping of the skin afterwards. The true difference between parchment and leather has to do with entirely different approaches to manipulating the principal component of skin, namely collagen. In the production of leather, the collagen molecules are chemically bound to each other to make a dense fibre network. Conversely, in the production of parchment, the collagen molecules are *stretched* so that they lay side by side and point in the same direction. The distinction is explained as follows by [Ronald Reed](#):

Many accounts of parchment-making state that the essential difference between parchment and leather lies in the fact that the former is not tanned. In many cases, this is not so, the basis of the difference being a more subtle one. The true basis of the distinction is that the parchment-making process involves *drying* the wet pelt *whilst it is under tension*. Just as the quality of leather depends on the physico-chemical state of the wet pelt from which it is produced, so it is with parchment. We have considered previously that limed pelt is a highly reactive network of dermal fibres which has been expanded, where the individual fibres themselves are also highly swollen and bathed in a sticky viscous fluid containing a certain amount of ground substance. The essence of this process, which subjects this system of pelt to the *simultaneous* action of *stretching* and *drying*, is to bring about changes quite different from those applying when making leather. These are: (1) reorganisation of the dermal fibre network by stretching and (2) permanently setting this new and highly stretched form of fibre network by drying the pelt fluid to a hard glue-like consistency. In other words, the pelt fibres are *fixed in a stretched condition* so that they cannot revert to their original relaxed state. (p. 120)

It is important to emphasise that lime is *not* a preservative agent. Parchment lasts a long time, indeed for over a thousand years, if not exposed to water, because its preparation involves the removal by scraping of the oils and traces of flesh in the skin that are subject to biological decay. It is *not* preserved with lime, though its life can be extended by adding certain chemicals, such as alum, at different stages of preparation.

Indeed, not only is lime not a preservative, it is not even indispensable to the preparation of parchment. Though lime has been considered a basic part of the production of parchment since the Middle Ages, ancient accounts do not mention it, and other chemical mixtures can be used to prepare the skin for stretching. The 8th century [Lucca Manuscript](#) is the first historical source that describes soaking skins in lime, but it states that this is done for only 3 days, which indicates it was used only for removing the hair, just as it is in the production of leather. The extended use of lime certainly makes the process of producing parchment *easier* and allows for production of higher quality parchment, but it is not necessary even for that. For example, [chemical analysis of the 8th Century Book of Kells](#), which survives in immaculate condition today, indicates that no lime was used in its preparation. During the Middle Ages, and to the present day, the use of lime in the parchment-making process indeed became ubiquitous, but it also subsequently became almost ubiquitous in the production of leather. To make the point perfectly clear: scribal leather can be (and almost always is) prepared using lime, and parchment can be prepared without it. The concept of עיבוד בסיד, which is found throughout halachic discourse on the topic, where it is juxtaposed to tanning with gall nuts, simply doesn't correspond to reality.

I have belaboured this point for two reasons. The first is that a correct understanding of the distinction between leather and parchment is essential for parsing the historical argument that follows. The second is that advocates of scribal leather lean heavily on the argument that it is a superior form of technology to parchment, and that the only reason Jews would ever abandon its use is because they lost the ability to make it during periods of persecution or hardship. The fictional concept of processing with lime is portrayed as a poor substitute - 'a much simpler and cheaper process' - that Jews took up when they had no other choice. The plain truth, but contrast, is that the technology of drying wet skins under tension is a [more sophisticated and developed technology than tanning to make leather](#). It is both more labour intensive and requires a higher level of skill. The reason that parchment displaced scribal leather throughout the civilised world is that the increased costs of making it are justified by the superior product that is the result. Parchment is easier to write on, more attractive, and easier to read than scribal leather. Under normal atmospheric conditions it lasts as long, if not longer.<sup>5</sup> An appreciation of this fact, something that, outside this *sugya*, no-one would ever imagine denying, has important implications for our question, as we shall see.

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<sup>5</sup> The only advantage that advocates of scribal leather can point to is that it is better at surviving prolonged exposure to water. This is emphasised at great length and with great gusto by Tzadok ([section 4](#)). However, while dunking parchment in water is a fun experiment for children, it is not part of the usual activities of a book or scroll owner and, in any case, scribal leather that is allowed to get wet will also quite quickly become unsuitable for ordinary and, *a fortiori*, halachic use. Rabbi Hoffman states of parchment, that 'If exposed to water, the lime will wash away and the skin will return to its raw, translucent state', which is misleading in as much it implies that the parchment is preserved (albeit weakly) by the ongoing presence of lime.

## A brief history of writing on animal skin<sup>6</sup>

The practice of writing on animal skins goes back to at least 2,500 BCE. Originally, these skins were leather. Leather had already been in use by humans for many thousands of years before anyone conceived of writing on it, and there was originally no way of processing the skins into durable items that did not involve turning them into leather. The astringent mixture the skins were placed in to make it possible to remove the hair contained significant amounts of tannins and so tanning happened simultaneously with depilation. However, by our standards, these skins were not highly tanned because it was not possible to produce concentrated solutions of tannins. There is no doubt that these skins were extremely inferior to papyrus as a medium for writing. As the tanned skins aged, they would wrinkle, making the text progressively more unreadable until eventually it fell off.

Over time, tanners became progressively more proficient at producing better quality leather for a wide variety of purposes. The big breakthrough for the technology of writing, though, came when it was discovered that, if the skins were left untanned, or partially untanned, it was possible to dramatically improve their usefulness for writing by stretching them while they dried. This discovery, as is often the case, likely happened by accident. Wet hides are often dried while attached to a frame so that both sides are exposed to air for an even and thorough drying process. Tightening the cords attaching the skin to the frame would have resulted in the production of a crude parchment. This resulting material was neither strictly parchment nor leather, but, instead, a parchment-leather hybrid. The tanning could either happen early in the process before stretching, at the end, by applying gall nuts or equivalent to the surface of the already-stretched collagen sheets, or both.

The development of this leather-parchment hybrid into true parchment involved improving the process of preparing, stretching and scraping the skins until tanning was no longer necessary, as well as eliminating accidental tanning from the process of depilation and preparation for stretching. Tracing such a process in ancient history with any degree of specificity is not possible, but we do have one important source in an aside by [Pliny the Elder](#) writing about papyrus:

In later times, a rivalry having sprung up between King Ptolemy and King Eumenes, in reference to their respective libraries, Ptolemy prohibited the export of papyrus; upon which, as Varro relates, parchment was invented for a similar purpose at Pergamus. After this, the use of that commodity, by which immortality is ensured to man, became universally known. (Book 13, 21)

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<sup>6</sup> In this section, I have relied heavily on [Reed's work](#), quoted above. I also was helped in my research by material made available by the [University of Tallinn's archive](#) and an article by [Meliora di Curci](#).

Pliny certainly cannot be taken at face value. If it was so easy to invent parchment in response to a papyrus shortage, it would certainly have been done earlier, and parchment has been found that can be dated earlier than the reign of Eumenes II of Pergamon (197-159 BCE). Nevertheless, the general indication by Pliny that limited availability of papyrus stimulated the development of parchment production as a substitute is broadly plausible. We do not have the original testimony of the Roman historian Varro to which Pliny refers. However, since Varro lived only shortly after the events he describes, we can be reasonably confident that an expansion of parchment use, presumably spurred by improvements in its production, happened in the early 2nd century BCE, and that Pergamum, a Greek city state on the Mediterranean coast of modern-day Turkey, was a centre of production.<sup>7</sup> Pliny writing in the middle of the 1st century CE assumes that his audience knows what parchment is, and that it is known for its long-lasting quality. It is also important to note that Pliny, like Quintilian, Horace, [Martial](#) and Juvenal, calls parchment *membrana*. This word has a range of uses similar to the English word ‘membrane’ that is derived from it, but it is not related to the many different Latin words for leather (*corium*, *pellis*, *nervus*, *tergus* among others). All this evidence points to parchment in the 1st century Mediterranean being a widely-known product, prized for its high quality as a writing medium, and firmly distinguished from its ancestor, scribal leather.

From this point onwards, two developments in the production of parchment are particularly notable. As we have already discussed, from the 8th century CE onwards, all descriptions of parchment mention the use of lime as an important part of the process, though we do not know how much earlier its use became prevalent. Mediaeval parchment was also treated with chalk or pumice to assist with the process of cleaning and drying. Secondly, the development of the codex led to the development of thinner and thinner forms of parchment that could be written on equally well on both sides. In earlier periods, thin parchment could only be achieved by splitting the skin into the dermis and epidermis, but extensive treatment with lime allowed for thin parchment to be produced more reliably by scraping down both sides. The second of these developments, in particular, has potentially important halachic implications, which will be dealt with separately in Appendix 1.<sup>8</sup>

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<sup>7</sup> In fact, even the name ‘parchment’ derives from the Latin *Pergamentum*. This term first appears in Greek as *περγαμηνή* apparently referring to a specific type of parchment in a price edict of Diocletian of 301 CE and eventually became the standard term for parchment in mediaeval Church Latin. However, this neologism may have itself been based on Pliny’s testimony about the role of Pergamum in the development of parchment, and not an independent tradition.

<sup>8</sup> In an [important and in many ways informative article](#) dealing at some length with our topic, Menahem Haran argues for a sharp distinction between parchment in the proper sense, made according to the European mediaeval method using lime and scraping on both sides, and parchment as a more general description for any hides prepared for writing without the use of tannins. He believes that the word *membrana* refers to the latter and *pergamentum* to the former, upon which he bases the hypothesis that mediaeval parchment was invented some time around Diocletian’s edict where the term first appears. However, there is no basis either for this claim or for the distinction upon which it is based. As mentioned above, while lime makes it *easier* and *cheaper* to produce pale, thin, and smooth parchments that can be written upon on both sides, the Book of Kells, in every sense a high-quality mediaeval

## The use of scribal leather and parchment in *Eretz Yisrael* in the late 2nd temple period

Specific information, both geographical and chronological, about the use of writing media in the ancient world is extremely hard to come by. For this reason, the Dead Sea Scrolls are not only an invaluable source of information about Jewish history, but also for the study of the history of scribal leather and parchment in general. Extensive study has been done on all aspects of the process of making the Dead Sea Scrolls and, over the past decade, the use of advanced methods of chemical analysis have substantially reduced the amount of guesswork involved in reconstructing these processes.<sup>9</sup> This research does not tell us about the general prevalence of different writing media among the Jews of this period, since the Dead Sea sect may very well have been unrepresentative, but it does set a minimum bound on the range of options available to Jews in the period before the *tanaim*.

A [detailed study](#) conducted between 2007-10 found the following:

... our studies have shown that the Dead Sea Scrolls material can roughly be divided into three groups: leather, light coloured parchment and parchment of various shades of brown. The latter ones are invariably tanned, whereas the first parchment group is characterised by the presence of various sulphate salts. The colour of some of the pale parchments, among them well-preserved portions of the Temple Scroll (11QTa), is remarkably similar to that of mediaeval European parchment ...

... Usually, one can see a striking difference in the elemental composition of the two types. Sulphur (S) from the sulphates used in de-hairing liquors only corresponds to the most abundant element in the second group, whereas potassium (K), which is present in plant extracts, is mostly evident on the scrolls that have undergone vegetable tanning. It is worth noting that in the lightly tanned parchments, the levels of potassium are not necessarily very high ...

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parchment, was produced without it. All the evidence points to a gradual evolution from the parchment used in the ancient world to the mediaeval version.

<sup>9</sup> Even many contemporary academic articles describing the Dead Sea Scrolls still talk in vague terms about 'leather' or 'parchment' without clear, or even any, definitions of what these terms mean, and often based on nothing more than what they look like. Others simply repeat a study from the 1960s by [Reed and Poole](#), which was based on a combination of inference from *Rambam's Mishneh Torah* and guessing, much of which was subsequently [retracted by Reed in 1972](#) based on experimental data. This is particularly true of Daniel Michaela's [at-first-sight impressively detailed description](#) of the Dead Sea Scrolls, in which he describes all of the scrolls as being leather-parchment hybrids with the exception of the Temple Scroll.



... Reed applied fluorescence analysis in his own assessment of scroll fragments: the observation that his 'gewil' group fluoresced strongly under UV light served as the final argument against tanning.<sup>10</sup>

A [more recent study](#) of the 'Temple Scroll', the largest item among the Dead Sea Scrolls, sheds further light on this picture:

Among the DSS, the TS is significant because it comprises several anomalies. Its unusual text appears on the flesh side rather than hair side of the exceptionally thin ivory-colored parchment. ... There are several hypotheses that seek to explain the latter, including the suggestion that the parchment was split into two layers before application of the inorganic layer, but no decisive proof has been offered ...

The inorganic layer was found to contain a range of minerals, most of which are sulfate salts. Apart from gypsum and its analogs, glauberite [Na<sub>2</sub>Ca(SO<sub>4</sub>)<sub>2</sub>] and thénardite (Na<sub>2</sub>SO<sub>4</sub>) were also identified.

Research on the Dead Sea Scrolls will continue and doubtless shed more light as analytical techniques develop. One major outstanding question is whether the scrolls were all produced by the same group, or whether the Qumran caves were used as a *genizah* by different groups, potentially with different ideologies and degrees of proximity to Rabbinic orthodoxy.<sup>11</sup> However, we can already say with confidence that a range of different ways of processing animal skin for writing were used by Jews in *Eretz Yisrael* before the destruction of the 2nd Temple, running the spectrum from leather, through leather-parchment hybrids to parchment, with different treatments used to create writable surfaces. Most of the Dead Sea Scrolls were only lightly tanned as an incidental part of their preparation.<sup>12</sup> By the time of the Mishnah, there is little doubt that the newer parchment would have become more prevalent, as it was considered the best form of writing material in the Roman empire, into which *Eretz Yisrael* was

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<sup>10</sup> I Rabin, '[Building a Bridge from the Dead Sea Scrolls to Mediaeval Hebrew Manuscripts](#)' in I. Wandrey (ed.) *Jewish Manuscript Cultures* (2017) pp. 312-3.

It speaks volumes about the degree of confusion even among scholars that an article [in the very same volume](#) baldly states 'The great majority of the literary texts included in the corpora found at Qumran and Masada were written on leather'. p. 31.

<sup>11</sup> See the discussion of *tefillin* in A. Feldman, *Tefillin and Mezuzot from Qumran: New Readings and Interpretations* 2022 (available on [academia.edu](#))

<sup>12</sup> [Shuetz et al. state](#) 'Most of the DSS were written on animal skin-based material that can be roughly described as a hybrid of parchment and leather. Similar to medieval practices, production of the writing surfaces from the skins of cattle, sheep, and goats included four main steps: de-hairing, thinning, drying under tension, and finishing. However, in contrast to medieval and modern techniques, the first step (i.e., de-hairing) was conducted without a lime solution, which led to a higher content of fats in the processed skins. The de-hairing in the case of DSS involved an enzymatic treatment, which was likely carried out by application of fermented grains. **In addition, vegetable tannins were occasionally applied to the surface during the final stage of skin processing.**' [emphasis mine].

increasingly absorbed economically and culturally. There is absolutely no doubt that *Hazal* would have been both aware of parchment, and also aware of the fact that it was generally considered to be the preeminent material for writing.<sup>13</sup>

## **The use of scribal leather and parchment by Jews in *Eretz Yisrael* and *Bavel* in the Geonic period**

Modern advocates of scribal leather often quote the testimony of [Pirkoi Ben Baboi](#) writing in the eighth or ninth century, whose letter promoting the superiority of *Bavel* over *Eretz Yisrael* has been reconstructed from fragments found in the Cairo genizah. In his caustic and insulting attack on the holy Jews of *Eretz Yisrael*, Ben Baboi denotes a substantial section to their practice of using parchment for ס"ח. Ben Baboi is usually cited not for his testimony about his contemporary reality, but for his *theory* that this practice was a result of Christian persecution. According to Ben Baboi, during this period of *shmad*, the Jews of *Eretz Yisrael* had been forced to bury all of their *Sifrei Torah*, as a result of which they lost the ability to prepare scribal leather.<sup>14</sup> When the Muslim conquerors of the *Eretz Yisrael* allowed Jews to once again practise their religion relatively freely, he claims, they did not know how to correctly prepare ס"ח and bought parchment from the Muslims.

We will discuss how much credence to give to Ben Baboi's theory in due course, but what is important here is not his speculation about the past, but what he reports about his present. The chief thing we can learn from Ben Baboi is that during the Geonic era, the Jews of *Eretz Yisrael* used parchment, apparently exclusively, to make ס"ח. This evidence has recently been confirmed by [studies of the Cairo Geniza](#):

Paper was used by both the Palestinian and the Babylonian communities in more or less the same proportions, with about 75% of use. All the documents of the Palestinian yeshiva are written on paper. But since all these documents are letters, and letters are normally written on paper, the type of document certainly plays a role in this distribution. Parchment was mostly used by members of the Palestinian community and the Karaites, while only 6% of the documents authored by Babylonian scribes were written on parchment. As for leather, it was only used by Babylonians and only for scrolls. (p.72)

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<sup>13</sup> Menahem Haran's [article](#), discussed already in footnote 9 falsely states that all of the DSS were tanned, though he correctly writes that the tanned scrolls were only superficially tanned and were really leather-parchment hybrids.

<sup>14</sup> [Netanel Tzadok](#) identifies the *shmad* referred to by Ben Baboi with the persecution of Justinian, which would mean that the Jews of *Eretz Yisrael* had no *Sifrei Torah* for eighty years!



This study found that scrolls of identifiably *Eretz Yisrael* origin were *never* written on scribal leather, whereas those from *Bavel* were nearly four times more likely to be written on scribal leather than parchment. Another study describes Babylonian scrolls [as follows](#):

The effect in actual Geniza manuscripts is unmistakable: the leather is thick, heavily tanned and darkened (almost black with age, in fact). There is a clear difference between the hair and flesh sides: the hair side is smooth and shiny, while the flesh side is suede-like and soft to touch. The text is written on the hair side. (p. 65).

It is important to emphasise that the author is talking about non-biblical scrolls, albeit religious ones. What this demonstrates is that, in this period, Babylonian Jews did not use scribal leather specifically for ם"ס as advocates do today, but for a wide range of uses when paper was deemed insufficiently dignified.<sup>15</sup> Even well into the Geonic era, Babylonian scribes typically used scribal leather over parchment for such purposes. The evidence from Geonic *responsa*, which use the Arabic word *raqq* or a derivative, is that parchment was introduced to *Bavel* by the Muslims, who, through their conquests, integrated what had hitherto been the starkly hostile worlds of the Byzantine and Persian empires.<sup>16</sup> In the talmudic period, it seems likely that Babylonian Jews had no access to parchment at all. In other words, while it is clear that the *Talmud Bavli* requires tanning of hides for preparing ם"ס, we do not know how the *hachamim* of *Bavel* would have responded to Mediterranean parchment since they were likely unfamiliar with it. This will be particularly important to bear in mind when we turn to the meaning of the word *diftera*.

### **The use of parchment by the *tanaim* and *amoraim* of *Eretz Yisrael***

We are now in a position to address our true question: what type of writing media was endorsed by the sages of the Mishnah and Talmud *Yerushalmi*? We have seen that they were certainly aware of parchment and also scribal leather, though the latter was an older technology that had become increasingly less popular in the preceding centuries. We also know that, in the post-talmudic era, Jews in *Eretz Yisrael* freely used parchment for all religious purposes and did not use scribal leather at all. The standard explanation is that *Hazal* forbade the use of parchment and mandated the more traditional use of scribal leather, but that, at some later point and under some form of duress, the Jews of *Eretz Yisrael* abandoned these instructions and began using parchment, obstinately refusing correction from the Jews of *Bavel* who had preserved the true tradition. I will bring evidence for a simpler theory, namely that *Hazal* never made any such stipulation and, therefore, there was no subsequent switch to the use of

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<sup>15</sup> I have contacted the author for confirmation of the reverse, namely that biblical scrolls of *Eretz Yisrael* origin were also *all* on parchment, and she has told me she is currently working on a project to study this.

<sup>16</sup> Muslims also seem to have played a key role in promoting the use of lime to make parchment.

parchment. Before bringing the evidence for this position, we shall briefly review the evidence for the standard position.

The evidence consists solely of the testimony of Pirkoi ben Baboi that we referred to above. While ben Baboi is mostly reliable as a witness of contemporary fact,<sup>17</sup> he cannot be relied on as a witness of the *causes* of these facts for various reasons. The first of these reasons is simply that ben Baboi was an extremely hostile critic of the Jews of *Eretz Yisrael* who appears to have had few moral scruples in service of his cause of discrediting the *Eretz Yisrael* halachic tradition. The second is that the motif of *minhagei shmad* is not only applied to the case of parchment by ben Baboi, but to a wide variety of *Eretz Yisrael* practices. For example, ben Baboi avers that the use of the *pasuk* שמע ישראל in the *kedusha* of *Eretz Yisrael* was the product of an era in which the Christian persecutors had forbade Jews to recite the *Shema*, but had permitted them to recite *kedusha*. This idea is not taken seriously by any historians of Jewish liturgy who have traced the development of the *Eretz Yisrael* rite in all its complexity and beauty, and is not even plausible at first inspection. Ben Baboi's motive appears to have been specifically to refute an argument made by *Eretz Yisrael* Rabbis that, though *Bavel* was by this point the centre of learning, *Eretz Yisrael* preserved a superior tradition. Ben Baboi's gambit was to argue that there had been a radical disruption in the tradition of *Eretz Yisrael* as a result of Christian persecution. Historical study, however, does not indicate any such thing, at least before Ben Baboi's time.<sup>18</sup> The real break in tradition came subsequently when a weakened community increasingly adopted practices of the more assertive, intolerant, and powerful Babylonians.<sup>19</sup>

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<sup>17</sup> There are exceptions. In one passage he condemns the Jews of *Eretz Yisrael* for their laxity with regards to eating food cooked by *goyim*, but this contradicts many other sources that point to their having been stricter both before and during the Geonic period. However, this passage only survives in highly damaged fragments, and it is hard to know exactly what Ben Baboi is saying. I have [elsewhere](#) advanced the theory that in *Eretz Yisrael* there was no prohibition *per se* on food cooked by a gentile, only - extremely strict - rules on food presumed to be not kosher because of having been prepared by a gentile.

<sup>18</sup> See [R. Brody](#):

“It goes almost without saying that both aspects of this presentation have been distorted for polemical purposes. On the one hand, we know of the trials and tribulations of Babylonian Jewry, including the temporary closure of their academies, from Sherira Gaon, who can hardly be suspected of purveying anti-Babylonian propaganda. On the other hand, there is clear evidence of the continuity of Palestinian tradition—at least in many of its aspects—despite the repeated and sometimes severe persecutions which the Palestinian Jewish community had endured.” P.114

We may also mention here that Pirkoi ben Baboi's arguments were not taken seriously, for the most part, even by Babylonian Geonim. Specific formulas that he says invalidate prayers were actually included in the *siddurim* of Amram Gaon and Saadya Gaon. Pirkoi ben Baboi cites Yehudai Gaon in support of his absolute opposition to liturgical variety or innovation, but he may here, too, be bending the truth. One wonders whether those who cite Ben Baboi as a reliable source also agree with extreme arguments to the effect that anyone who says ברוך שאמר or של שבת נר להדליק is a blasphemer, not to mention his many statements that are surprising from a talmudic scholar, such as his repeated claim that parchment לא יצא מתורת נבילה.

<sup>19</sup> It should be noted, that despite the undoubted reality of persecution, [recent archaeological research](#) increasingly indicates that the Byzantine period was characterised by continuous growth of the Jewish

That is the sum of evidence for the persecution hypothesis, but the hypothesis actually entails two postulates, *first* that *Hazal* forbade the use of parchment and *second* that the Jews of *Eretz Yisrael* in the post talmudic period departed from this *halacha*. It is important to emphasise, then, that there is not any source in the Mishnah, Tosefta, Talmud Yerushalmi or any other halachic or midrashic source from *Eretz Yisrael* that indicates that it is necessary to tan the skins used for סת"ם with gallnuts or any other tanning agent. Indeed, contrary to providing any evidence for the persecution hypothesis, this very silence is the first piece of evidence that supports the null hypothesis, namely that no such obligation was ever recognised in *Eretz Yisrael*.

We are all familiar with the dictum that ‘absence of evidence is not evidence of absence’, but this is not strictly true. First, absence of evidence provides the basis of a *working hypothesis* that the phenomenon in question is actually absent, and secondly, absence of evidence is demonstrative in proportion to the expected prevalence of such evidence if a given hypothesis is true. For example, if one cannot find evidence of a particular animal in a given habitat this is sufficient grounds to believe, as a working hypothesis open to revision, that the animal is not in fact present there, and, secondly, is strong proof for the secondary hypothesis that the animal in question is not *common* in this habitat. The working hypothesis that the animal is completely absent is strengthened each time an additional indicator of the animal’s presence (such as track or bones) is not found, and for each additional reason that can be adduced for thinking it unlikely *a priori* for the animal to be found there (such as climatic incompatibility or lack of appropriate food sources).

In our case, it might be argued that because the *Yerushalmi* is an incomplete work then its silence on a given issue is not significant. This, however, is to mistake the nature of the *Yerushalmi* as an incomplete work. It is true that the *Yerushalmi* is unfinished in at least two respects, namely that work was discontinued before it covered all the tractates that were part of the original plan, and, secondly, many *sugyot* leave questions open rather than engaging in extended dialectic to resolve an issue. However, this emphatically does not mean that on subjects that the *Yerushalmi* does address in detail it can be expected to leave out important *halachot* as a matter of course. In fact, the issue of what is necessary to prepare a valid *Sefer Torah* is dealt with in significant length and intense detail in the *Yerushalmi*. The following is only a short part of the discussion in [Y Megilah 1:9](#):

הלכה למשה מסיני שיהו כותבין בעורות וכותבין בדיו ומסרגלין בקנה וכורכין בשיער וטולין במטלית  
ודובקין בדבק ותופרין בגידין. וכשהוא תופר יהא תופר כתפר הזה. וצריך שיהא משייר בין שיטה לשיטה  
[כ]מלוא שיטה. בין תיבה לתיבה כמלוא אות. בין אות לאות כלישהוא. בין דף לדף מלא גודל. עשה סוף

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community in *Eretz Yisrael*, who were able, in spite of official edicts, to build lavishly decorated synagogues.

הדף שוה לתחילתו פסל. צריך ליתן ריוח בספר מלמעלן שתי אצבעות ומלמטן שלש. רבי אומר. בתורה מלמעלן שלש ומלמטן טפח. וצריך שיהא משייר בין ספר לספר כמלוא ארבע שיטין. ובנביא שלשנים עשר שלש. וצריך שיהא גומר באמצע הדף ומתחיל באמצעיתו. ובנביא גומר בסופו ומתחיל בראשו. ובנביא שלשנים עשר אסור. אין עושין ירעה פחותה משלשה דפין ולא יותר על שמונה. הדא דאת אמר. בתחילה. אבל בסוף אפילו כל־שהוא. ובקלפים לא נתנו חכמים שיעור.

By my count, there are 17 *halachot* in this passage alone regarding the preparation of a valid *Sefer Torah*, and yet all the *Yerushalmi* has to say about the writing medium is שיהו הלכה למשה מסיני שיהו כותבין בעורות.

A basic premise in any legal system is the presumption of legality. If the *Yerushalmi* states that Torah scroll must be written on skin, this implies any form of skin is acceptable unless specified otherwise. As we shall see, there are limits to what forms of skins are acceptable in *Eretz Yisrael* sources, but there isn't any indication that tanning is necessary or that parchment is invalid. This general principle is immeasurably strengthened in this case by the fact that, as we have established, parchment was certainly in use in *Eretz Yisrael* well before the Mishnaic era, and considered the best form of writing material. This forces us to ask the question: if *Hazal* did, indeed, forbid the use of parchment, what would we expect to find?

The first answer to this question is that we would expect to find an indication of Rabbinical response to grassroots demand to use parchment. In every historical era and place where Jews used scribal leather for ס"ם, but were aware of parchment, *including Geonic Bavel*, we find evidence of Jews spontaneously switching to parchment, or, at the least, requesting to do so. Sometimes halachic authorities endorsed, and sometimes they opposed this practice, but the demand for parchment ס"ם is a constant because of its self-evident superiority as a writing medium, agreed upon by Jew and gentile alike. The absence of any discussion in the *Yerushalmi* is, on such an assumption, surprising, as is the lack of any polemic within the rich midrashic tradition extolling the superiority of scribal leather to parchment. If it were true that the sages of *Eretz Yisrael* required, or even preferred, scribal leather, we would expect to find expositions of the superiority of brown writing material over white, allusions to עפצים in scripture, or the like. This is even more the case if we bear in mind the existence of leather-parchment hybrids, which must have presented a constant flow of edge cases which called for Rabbinic adjudication. If it was necessary for the *Bavli* to mention the necessity of tanning with gall nuts, even though alternative ways of preparing skins for writing were not apparently available, it would seem much more important for the *Yerushalmi* and *Midrashim* to mention it, since parchment was widely used in *Eretz Yisrael*. The simplest explanation which is compatible with this absence of discussion is that parchment was never forbidden, so there was nothing to discuss. Conversely, the assumption that *Hazal* did not permit parchment presumes that this prohibition was considered so obvious, self-evident and uncontested by Rabbinic elite and Jewish laity alike that, unlike numerous other laws of preparing a *Sefer Torah*, it didn't even

merit mention, until, at some entirely undocumented point in the post-talmudic period, everything flipped.

This argument from silence in the context of a society in which parchment was both widespread and prestigious is in itself compelling, however, we do not have to rely on it alone. There are three sources which strongly indicate, for different reasons, that parchment was not only permissible, but the default material for writing סת"ם both for the *Tanaim* and *Amoraim* of *Eretz Yisrael*.

- 1) In [Yerushalmi Sotah](#), there is a midrash that, thanks to its later adoption in kabbalistic discourse, has become very famous.

רבי פינחס בשם רבי שמעון בן לקיש. תורה שנתן הקדוש ברוך הוא עורה אש לבנה חרותה אש שחורה. היא אש ומבוללת באש. הצובה מאש. נתונה מאש. מימינו אש דת למו.

This concept of an original Torah written with black fire on white fire is also found in *Midrash Tanhuma*, *Devarim Rabah*, *Pesikta deRav Kahana*, *Shir haShirim Raba*, all of them compiled in *Eretz Yisrael*, and is absent from the *Talmud Bavli*. The reason for this seems obvious. The image of *black* fire on *white* fire is intuitive to someone who looks at a physical *Sefer Torah* made of *black* letters on *white* parchment. It would never suggest itself to someone looking at a brown *Sefer Torah* and would seem strange to those who used one. The simplest explanation is that R. Shimon Ben Lakish, the compilers of the *Talmud Yerushalmi*, and their intended audience all thought of *Sifrei Torah* as white, because they were written on parchment.<sup>20</sup>

- 2) The [Mishnah, Shabbat 7:2](#) divides the 39 *melachot* that incur the death penalty for performance on *Shabbat* into four categories: (i) preparing bread, (ii) making clothes, (iii) writing a *sefer* and (iv) miscellaneous. The third category includes as separate *melachot* salting (מולחה), 'processing' (מעבד את עורו) and scraping (ממקחו). In its commentary on this Mishnah, the [Bavli \(75b\)](#) takes the surprising step of announcing that out of the first two, one must be deleted on the grounds that היינו מעבד מולח והיינו מעבד, that is to say they are the same *melacha*. The explanation for this appears to be that, as explained on [79b](#), the *Bavli* conceives of the processing of skins as a 3-step process of chemical application, applying first salt (מליח), then

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<sup>20</sup> It is possible to today to buy מעופץ קלף that it white, or close to white, but this is a product of two quite recent developments. The first is that it is now possible to separate the tannins in gallnut juice from the other material, and, depending on how successfully purified the mixture is, the material used for tanning can be quite [close to white](#). Secondly, some producers now engage in secondary processing in which they take ordinary parchment made according to the mediaeval method and then apply the gallnut powder. However, in the time of *Hazal*, any parchment made using gallnuts would have been at least a pale brown.

flour (קמח) and finally extract of gallnuts (עפיץ). The different steps of the tanning process are analytically identical and would fall under the same *melacha*, therefore one has to be removed and replaced with a *melacha* not mentioned in the Mishnah, סרטוט, the drawing of lines.

However, [reconstructions of the ancient process of producing parchment](#) fit perfectly with the Mishnah, in which the central act of processing does not consist of the addition of a chemical, but in stretching the wet skin. First, 'depilation of the hides was conducted using sulfur salts that resulted in milky white parchments', then 'the hide is dried under tension, being stretched on a frame, thinned and cleaned until it is transformed into a rigid white sheet.'<sup>21</sup> The Mishnah can thus be understood literally as the application of these salts (מולח),<sup>22</sup> followed by stretching the wet hides (מעבד), which, while held taut, were scraped (ממחק). In other words, the description of the process of turning a skin into a writing material fits perfectly with the production of parchment, and does not fit at all, according to the *Bavli's* explicit admission, with the production of scribal leather.

- 3) In its commentary on the same Mishna, [the Yerushalmi](#) asks a question based on the idea that every *melacha* has to have had a role in the construction of the temple:

המעבדו. מה עיבוד היה במשכן. שהיו משרטטין בעורות. מה משרטטין לון. מסרגלין לון

If we understand this passage as referring to where in the construction of the *Mishkan* skins were tanned then the question is apparently senseless. The *Mishkan* was covered in ram and *Tachash* skins; if they were rawhide instead of leather, they would have not been sufficiently flexible and, upon getting wet, would have in short order rotted. However, the *Yerushalmi's* answer demonstrates that this is not the question at all. Instead, the *Yerushalmi* is asking why skins would need to be prepared specifically for writing on them. Since there is no indication of writing on skins being necessary to construct the *Mishkan*, the question is entirely pertinent.<sup>23</sup> For our purposes, what is crucial here is that the *Yerushalmi* takes it as a given that מעבד means an action

<sup>21</sup> [Z. Cohen](#), pp. 36-8.

<sup>22</sup> It has been objected to me that the Mishnah would not refer to the application of salts like gypsum as מולח, but it is hard to see what other term the Mishnah could use to describe these minerals once ground up, which all resemble salt. Certainly, there is no reason to think compilers of the Mishnah were aware that these salts were chemically related to sulphur (גפרית).

<sup>23</sup> It would appear that the *Bavli's* suggestion to amend the list, replacing either מעבד or מולח with מסרטט is based on this passage in some way, though at some remove. The discussion as to whether and to what degree the editors of the *Bavli* were familiar with the *Yerushalmi* continues to be a subject of great controversy, and will not detain us here. See the [recently re-published](#) work of Alyssa Gray.



performed on an animal hide that is *specifically and solely a preparation for writing*. There is only one such activity that is unique to the preparation of a writing medium from skin, as opposed to making ordinary leather, namely stretching the wet hide. This confirms our analysis above that the Mishnah is describing the production of parchment and *not* scribal leather. It is possible that the Mishnah and *Yerushalmi* envisage, not a pure parchment, but a parchment-leather hybrid that was tanned subsequent to stretching; but there is no indication that this is so, and certainly not that any final tanning is necessary. In any case, pure scribal leather, as is produced by activist scribes today and as appears to be mandated by *Rambam*, is not compatible with the Mishnah and *Yerushalmi*.<sup>24</sup>

### דיפתרא דפתרא

At this point, many readers will likely have begun to suspect that I am skirting around the main issue. The chief argument for the necessity or preferability of using scribal leather is based on the following passage in [B Shabbat 79a](#), that we have referred to above in passing:

תא שמע דאמר רבי חייא בר אמי משמיה דעולא שלשה עורות הן מצה וחזיפה ודיפתרא מצה כמשמעו דלא מליח ודלא קמיה ודלא עפיץ. וכמה שיעורו תני רב שמואל בר רב יהודה: כדי לצור בו משקולת קטנה וכמה אמר אביי ריבעא דריבעא דפומבדיתא. חיפה — דמליח ולא קמיה ולא עפיץ. וכמה שיעורו כדתנן עור — כדי לעשות קמיע דיפתרא דמליח וקמיה ולא עפיץ וכמה שיעורו כדי לכתוב עליו את הגט

The *gemara* here, in the context of a long discussion concerning the minimum amount of leather one is liable for carrying on Shabbat, cites a statement of the *Amora* Ulla according to which there are three types of skin (in addition, the *gemara* assumes, though it is not mentioned in Ulla's statement, to fully-tanned leather). The third of these, *diftera* is defined as being skin that has been salted and rubbed with flour, but not tanned with gall nuts. The Mishnah discusses *diftera* on three occasions, invalidating its use for writing the *megilot* for use on *Purim* ([Megila 2:2](#)) and in the ceremony of the *sotah* ([Sotah 2:4](#)), and recording the opinion of Rabi Yehuda ben Batyra that it is also invalid for a *get* ([Gittin 2:4](#)). It is clear that it would *a fortiori* also be unacceptable for ס"ח (though the [Mahzor Vitry](#) entertains the possibility that it was acceptable בדיעבד). Since, so the argument goes, parchment has not been tanned, it is therefore defined as *diftera* and is invalid. If this is so, then the silence of the *Yerushalmi* and other *Eretz Yisrael* sources on parchment would simply be a function of it being too obvious to mention.

<sup>24</sup> We may mention another point here. The term גייל, which is used to describe the material for writing a *Sefer Torah*, is used in the Mishnah only to refer to an unhewn stone. In both cases, the word appears to derive from the root 'to roll'. An unhewn stone can usually be moved most easily by rolling it. Similarly, parchment has a natural tendency to return somewhat to its pre-stretched state and thus rolls up, making it easier to store it in a roll than flat. As above, this would also be true of a leather-parchment hybrid, but it is not true of scribal leather.

However, if we think only a little about what the *Bavli* here says, it is clear that the matter is not that simple. Rubbing a skin with salt and flour is not, properly speaking, a way of processing it at all, but rather a preparation for tanning. Parchment, by contrast, is prepared using a labour-intensive and highly-skilled process of stretching the moist pelt while scraping to remove fats and oils, as well as the application of other chemical agents. It is absolutely not skin that has been left untanned (nor, as we have discussed, skin that has gone through an inferior process of so-called *עירוד בסיד*). *Diftera*, as described in the *Bavli*, would not be an appropriate material for writing on at all, or useful for very much else. Whatever it is, though, it is not parchment and it seems strange, to say the least, that the Mishnah would need to prohibit using such a material for writing a *megilah*.<sup>25</sup> In any case, it should be emphasised that the compilers of the *sugya* in the *Bavli* are not identifying *diftera* with parchment, and, in all likelihood never thought about parchment at all, since they did not know it existed.

An alternative approach to discovering the meaning of the term *diftera* is through philology. The word *דפתרא* is a straightforward transliteration of the Greek word *διφθέρα*, and the *tanaim* in *Eretz Yisrael* who authored and compiled the *halachot* of the Mishnah would have learned the term from Greek speakers, whereas the authors of the *Bavli* could only rely on tradition, where they had it, or guess. In Appendix 4, I have collected various different places where the word *διφθέρα* or derivatives is used in Greek Literature. As the examples demonstrate, the word *diftera* is nothing more complicated than the Greek word for leather. It is used to describe the material used for clothes, for bags, for tents, and to cover ships and a fort, in all of which cases the water-resistance and toughness of leather is clearly a must. It is also used to describe material used for writing on. In two of these cases, [Herodotus](#) and Euripides, the term must refer to scribal leather, since they lived before the proliferation, and likely even the

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<sup>25</sup> It must be noted that the *Amora* cited in this passage, Ulla, was from *Eretz Yisrael*, and surely would have used parchment himself if the thesis of this article is correct. We must distinguish between the *stam's* explanation, and Ulla's statement, which we must explain as referring, not to writing materials at all, as demonstrated below, but to three different types of *leather* substitutes and, likely, their ability to contract *tumah*, as indicated both by [Mishnah Kelim: 17:15](#) and [Sifra Shemini 6:11](#). See Appendix 2 for a full discussion.

development, of parchment.<sup>26</sup> The only sources in which the word even possibly refers to parchment are [Plutarch](#) who uses the word when describing sacred writings looted from Carthage and [Diodorus Siculus](#) who uses the term to refer to writings found in the *Persian* archives. In both cases, the scroll must have, in fact, been scribal leather and not parchment, but it is strictly possible that Plutarch and Diodorus were not aware of this. It is noteworthy that Lucian of Samosata, a contemporary of Rabi Yehuda haNasi from Syria, uses the term specifically to refer to leather bindings and *not* the scrolls they contain, which he calls by the name βιβλία (*biblia*), which usually refer to papyrus.

It is thus barely possible to argue that the Greek term *diftera* refers to all kinds of processed skins *including* parchment, though in fact there are other words for parchment, and not a single case where the term *diftera* clearly refers to it.<sup>27</sup> An alternative, and radical, theory that presents itself is that *diftera* in the Mishnah is scribal leather, and thus that the *tanaim* not only did not mandate, but actually forbade its use for ritual scrolls. However, such an interpretation is impossible in light of one of the three occasions when *diftera* appears in the Mishnah:

אין כותבין במחבר לקרקע. כתבו במחבר, תלשו וחתמו ונתנו לה, כשר. רבי יהודה פוסל, עד שתהא כתיבתו וחתמתו בתלוש. רבי יהודה בן בתירא אומר, אין כותבין לא על הניר המחוק ולא על הדפתרא, מפני שהוא יכול להזדיף. והכמים מכשירין: (M. Gittin 2:4)

The basic thrust of this section of the tractate is that it is possible to write a *get* on any material, and with any form of ink. In this *halacha*, Rabi Yehuda ben Batyra proposes two exceptions to the rule: rubbed-out papyrus and *diftera* on the grounds that they can be easily forged. It is possible to wash the ink off of a papyrus sheet, but it is obvious that this has been done because the papyrus will become grayish. However, papyrus which has already been rubbed out once (ניר מחוק) can be repeatedly washed and rewritten over without it being obvious how many times

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<sup>26</sup> It is interesting to look at Herodotus in more detail:

These Phoenicians who came with Cadmus and of whom the Gephyraeans were a part brought with them to Hellas, among many other kinds of learning, the alphabet, which had been unknown before this, I think, to the Greeks. As time went on the sound and the form of the letters were changed. At this time the Greeks who were settled around them were for the most part Ionians, and after being taught the letters by the Phoenicians, they used them with a few changes of form. In so doing, they gave to these characters the name of Phoenician, as was quite fair seeing that the Phoenicians had brought them into Greece.\* The Ionians have also from ancient times called sheets of papyrus skins, since they formerly used the skins of sheep and goats due to the lack of papyrus. Even to this day there are many foreigners who write on such skins.

We see that Herodotus, a contemporary of *Ezra haSofer*, already considered the use of *diftera* for writing to be an outdated practice, but notes that the Ionians in early times still used the term *diftera* to refer to papyrus.

<sup>27</sup> Unfortunately, the once-widely-used [Woodhouse dictionary](#), translates parchment as διφθέρα, citing only Euripides. Clearly, an unfamiliarity with the history of parchment and scribal leather is responsible for this mistake, but it appears to me from various things I have read that a contributory factor to the confusion was an unfortunate willingness of classicists to accept the testimony of Hebraists that διφθέρα as used in Rabbinic sources referred to parchment.

this has been done. It is therefore possible to tamper with a *get* written on this material without it being evident. It is clear, therefore, that *diftera* must be a similarly easy-to-forge writing medium.

It follows, therefore, that *diftera* in the Mishnah cannot refer to scribal leather, because far from it being easy to erase and correct writing on scribal leather, it is practically impossible for the same reason that it is famously difficult to remove stains from leather furniture. Indeed, this is one of the arguments made in modern times by opponents of parchment, namely that the relative ease of removing and replacing letters makes it unfit for ritual use, as opposed to unforgeable scribal leather, an argument which can be traced back to the *Meiri*. This argument is not convincing because the Yerushalmi contains [halachot](#) that clearly assume it is possible to relatively easily scrape off letters.<sup>28</sup> However, our source is sufficient to demonstrate that *diftera* does not refer to scribal leather.

We are forced, then, to abandon the pursuit of the *diftera* through philology and accept that the mishnaic term is a loan word that has gone through semantic narrowing and acquired a precise technical connotation. A closely related example of this phenomenon is the word פנקס used in the Mishnah to refer to wax tablets, a widely used erasable writing medium in the Roman empire. The term פנקס is a transliteration of the Greek πίνακες, which was a general term for a plate and similarly flat objects, including wax tablets, but most frequently referred to religious icons painted, carved or engraved on boards made from a wide variety of materials. Mishnaic Hebrew borrowed the term to refer specifically to wax tablets, which had the same physical shape.<sup>29</sup> We must, therefore, move on from philology and attempt to extract the specific meaning of *diftera* from a review of all of the cases where *diftera* is used in tanaitic and amoraic literature from *Eretz Yisrael*. The surprising conclusion that emerges from careful study of these sources is that the term refers not to a material at all, but rather to an object, specifically the codex. To demonstrate most efficiently that this is so, it is necessary first to briefly review the early history of the development and spread of the codex in the Roman empire.

The codex was first used as a replacement for the wax tablet, indeed the name *codex* is derived from *caudex*, the most elaborate version of the wax tablet that had multiple leaves. The first literary mention of the new invention is found in Horace (a contemporary of Beit Hillel and Shammai) who states that he used them to make rough drafts of his works. These early codices were made out of multiple sheets of cheap or old parchment or papyrus stitched together that could be rubbed out and reused multiple times. The first mention of the codex as an alternative to the traditional scroll that could be used for published works is found in Martial (a

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<sup>28</sup> It may be significant that in the the parallels that appear in the *Bavli*, the root ג-ר-ג (roughly speaking ‘to scratch’) is replaced with ג-ר-ג (‘to drag’) perhaps implying a deeper level of scraping which removes the top layer of the scribal leather into which the ink has been absorbed.

<sup>29</sup> Though the Mishnah in [Keilim 24:7](#) recognises three types of פנקס for the purpose of *tumah*, one used for sitting on, one used for writing, and one that has not yet been specified for use.

contemporary of Rabi Akiva), where he emphasises its superior portability. However, despite the apparently obvious and numerous advantages of the codex over the scroll this innovation did not take off, and rather the codex laboured for another hundred years under the prejudices attached to its lowly origins as a personal notebook. The Roman jurist Ulpian, writing around the time of the final redaction of the Mishnah, ruled that the Latin word for ‘book’, *liber* included only scrolls and not codices; thus, if X left Y all of his *libri* in his will, Y would not have no claim on any codices he owned. This appears to have been something of *mahloket* because another jurist Paulus, writing slightly later, does include the codex under the general heading of *liber*. Despite cultural inertia and stigma, the codex eventually triumphed over the scroll for most purposes, with the crucial boost provided by the early decision of the Christian church to adopt the codex as its signature object, a factor that became increasingly important following the conversion of Constantine.

With that in mind, the following data points to the term *diftera* in halachic sources serving as a translation of *codex*.

- 1) We find that the term *diftera* is paired with two different types of writing media. First, a *midrash* found in [Bereishit Rabah](#) pairs together *diftera* and the *pinkas* as different versions of a workmans notebook:

והאומן אינו בונה אותה מדעת עצמו אלא דפתראות ופנקסאות יש לו לדעת היאך הוא עושה חדרים

Conversely, the Yerushalmi in [Hagiga 1:8](#) pairs *diftera* with *sefer*, that is to say a scroll.

מה בינן לאומות. אילו מוציאין ספריהן ואילו מוציאין דפתריהן. אילו מוציאין דפתריהן ואילו מוציאין דפתריהן

These two sources reflect the two different stages of the codex as used in Roman culture, first as a substitute for the traditional wax tablet for personal note taking, and gradually as a substitute for scroll used to publish important literary works.

- 2) The cognate word *daftar* survived in Arabic in which it means ‘account book’, a use for which the codex perhaps most clearly outshines the scroll.
- 3) The Mishnah in *Gittin* reflects the earlier reality of the era of Rabi Yehuda ben Batyra (~ 100 CE) in which the codex was primarily, or even exclusively, used as an erasable notebook and was thus considered to be a too-easily forgeable object for writing a *get*.<sup>30</sup>
- 4) It is well known that one of the key differences between Judaism and Christianity was that the former insisted on exclusive use of the scroll for ritual purposes, whereas the latter most fervently embraced the codex. However, until now, no source has been identified for the prohibition in Judaism of using the codex for ritual purposes. The identification of the term *diftera* in the mishnah in *Megila* solves this issue, and fits

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<sup>30</sup> It should be noted here that Rabi Yehuda ben Batyra lived in Nisibis, in modern day Turkey, but though this is sometimes glossed as being in ‘northern Babylonia’, it was a Greek city having been captured by Alexander the Great in 332 BCE, and was absorbed into the Roman empire in 67 CE, a status it retained for the rest of the period of the *tannaim* and substantially beyond until it was relinquished to Persia following the Emperor Julian’s failed military campaign in 364 CE.

perfectly with the structure of the Mishnah, which first forbids both נייר (an alternative material) and דפתרא (an alternative apparatus) before insisting on the mandatory traditional ספר. This also solves another mystery, namely why the *codex* is apparently never mentioned at all in the entirety of classic Rabbinic literature, given that the *tanaim* were certainly familiar with it.

All that remains is to explain how the term *diftera* could have been transformed from an all-purpose word for leather and hide in Greek, to a technical term for a particular type of book (one that is not necessary even made out of parchment). There is simply not enough evidence to answer this question, but a plausible explanation is that it reflects some of the early stigma attached to the codex as a medium for reading and writing. ‘That’s not a *book*’, we can imagine a traditionalist Jew saying, ‘it’s just some sewn together *diftera*’.

### **The divergence of material-religious culture among the Jews of *Eretz Yisrael* and *Bavel***

We are now in a position to tie up loose ends and explain how use of parchment for סח"ם could simultaneously be the traditional practice of Rabbinic Jews in *Eretz Yisrael* and considered by the Babylonian *Geonim*, and the radicalised exponents of the Andalusian tradition, to be an improper and illegitimate innovation.

It is generally appreciated that one of the most important facts about Rabbinic Judaism in the late antique and Early mediaeval era is that it was divided between two centres that stood on either side of the ancient world’s most important political divide, the border between the Roman and Persian empire. It has long been theorised that the relatively tolerant political and religious regime in the Persian empire encouraged the centre of gravity to shift to *Bavel* following the conversion of the Roman empire to Christianity, though more recent scholarship has complicated this picture. A significant strain of contemporary research is based on investigating how the very different cultural environment in Persia influenced the development of both halacha and theology, and how far this can explain differences between the *Yerushalmi* and *Bavli*. For our purposes, however, we need to bear in mind something rather more simple. *Eretz Yisrael* and *Bavel* were close enough to facilitate travel between the two centres on a time frame of two or three weeks along the well-established trade routes that ran through modern-day Lebanon and Syria, diverging south on either end to enter *Eretz Yisrael* and *Bavel*. However, the ability to travel along these merchant routes relied on a certain baseline level of peace and civil order, and at a crucial stage in our story this ceased to exist as we shall see in due course. We shall, however, start at the beginning.

Throughout the period of Amora'im, travel between *Eretz Yisrael* and *Bavel* was an integral part of the development of *halacha*. Torah study in *Bavel* was essentially established by Rav, from



*Eretz Yisrael*, and Shmuel who had learned his wisdom there. *Bavel*, however, amply repaid this debt with *amoraim* such as Ravi Zeira, Rabi Elazar ben Pedat or Yirmiyah featuring prominently throughout the Yerushalmi. This close connection endured throughout the era of *amoraim* and beyond. [Mesechet Hullin](#), for example, records the sages of *Eretz Yisrael* intervening in a halachic debate during the time of the *savora* Rav Ahai, and Mar Zutra III (son of a babysonian *reish galuta*) became head of the Sanhedrin in Tiberia in the early 6th century. There is strong evidence that at least certain tractates of the newly composed Talmud Yerushalmi were brought to Bavel at this time and drawn upon in the development of the Babylonian Talmud.<sup>31</sup>

Throughout this period, the Persian and Roman empires appear to have exerted little, if any, effort to impede transport across the frontier between them. To do so would have been contrary to their interests, since it was the ability to tax the profitable trade routes that crossed their borders that was the main reason for their competition over the region in the first place. For much of this period, many border areas were active warzones, but even these prolonged periods of conflict do not seem to have posed more than temporary and surmountable problems for Rabbinic transport and communication. Both sides in the imperial wars adhered to a tacit agreement not to let military hostilities interfere with trade. There is not a single reference in talmudic literature to political or military obstacles to travel between *Bavel* and *Eretz Yisrael*, and this is corroborated by the bulk of evidence from Christian and pagan sources.<sup>32</sup> Nevertheless, it is important not to overstate the degree of contact between the two centres: the physical distance and difficulty of ancient travel in general meant that the arrival of a Babylonian in Palestine or *vice versa*, was something that happened closer to every few months than every few days. Travelling backwards and forwards on a regular basis was certainly very rare.<sup>33</sup>

During this period, the Jews of *Eretz Yisrael*, as we have seen, used parchment for their ם״נס, and we must assume the Jews of Bavel used scribal leather. The reason in both cases was the same: this was what was available. Parchment was the high-grade writing material of choice in the Roman empire. Its absence in the Persian world can be explained in terms of both supply and demand. As to the first, whereas Rome was by far and away the most literate society that had ever existed, or indeed would exist for more than a millennium after it fell, Persia was more ‘normal’, in historical terms, in its degree of demand for writing materials. As to supply, in the Roman world, the only source of parchment’s competitor, papyrus, was Egypt. Though

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<sup>31</sup> See [A. Gray, \*A Talmud in Exile: The Influence of Yerushalmi Avodah Zarah on the Formation of Bavli\*](#) (2020)

<sup>32</sup> For a good survey see C. Hezser, *Jewish Travel in Antiquity*, pp. 318-322.

<sup>33</sup> See [Safrai and Maeir](#), pp. 511-14, 529-31. It should be emphasised that while travel between *Eretz Yisrael* and *Bavel* was facilitated by trade routes that crossed the Roman-Persian frontier, neither *Eretz Yisrael*, nor the Jewish areas of settlement in *Bavel* were on these trade routes. Thus, contact between the two centres was created through the effort of Rabbinic elites to stay in touch, and not a natural outgrowth of economic factors. To the extent that direct trade between the two Jewish communities existed, it was a result, not a cause, of religious connections.

the Roman peace had removed earlier political obstacles to its sale throughout the mediterranean, it nevertheless represented a disadvantage relative to parchment which could be produced anywhere. Conversely, the expansive Mesopotamian marshes of what is now southern Iraq and Iran were a practically inexhaustible supply of reeds to make papyrus. The impetus to develop scribal leather into the superior technology of parchment, therefore, was never there.

This difference in practice between the Jews of *Eretz Yisrael* and *Bavel* finds no expression in talmudic, or other contemporary sources. This appears strange in the light of later Babylonian atavism on the subject, but is quite explicable in light of the following factors. First, very few, if any, Rabbis were directly involved in the production of either parchment or scribal leather.<sup>34</sup> Though the production of different goods from animal hides played an indispensable role both in the religious and secular culture of the Rabbis, leatherworking itself was not well-regarded by them as a profession, associated as it was primarily with malodorous smells. The *halacha*, accepted across all known sources, that skin used for סת"ם, while it had to be from a kosher animal, could be sourced from *neveilah* likely meant that in practice parchment or scribal leather was probably frequently purchased ready-made from gentiles.

Indeed, an under-appreciated but very relevant fact here is that the classical Rabbinic lexicon does not distinguish between the different types of material that can be made through processing animal skins. Instead, leather, rawhide, parchment and everything in between are simply known as עור, that is to say skin. Apart from a short list of unusually soft skins, listed in M. *Hullin* 9:2, the skin only needs to be removed from an animal and be scraped of flesh (or perhaps not even that) in order to be considered עור, at which point it was considered halachically indistinguishable from extensively processed and tanned leather. The sources distinguish only between the different *uses* to which עור can be put, and while these must have correlated with different types of material qualities those qualities find no halachic expression.<sup>35</sup> The *tanaim* and *amoraim* thus lacked even the conceptual vocabulary that would

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<sup>34</sup> B. *Shabbat* 49b records that Rabi Yose ben Halafta, a *tana* of the fifth generation, was a שלהא. Though the term is not used anywhere else, both context and etymology point to it referring to someone who works with hides (שלהין). However, even in this unique case there is nothing to indicate he was involved in preparing any of the materials for used in סת"ם; the hides in question appear to have been intended for furniture, and, anyway, it may simply mean he was vendor.

<sup>35</sup> An exception that, in the classic sense, proves the rule is found in *Yerushalmi Shabbat* 8:3:

עור כדי לעשות קמיע כולי. אית תניי תני. כדי ליתן על הקמיע. מאן דאמר. כדי לעשות קמיע. בהין רכיכה. ומאן דאמר. כדי ליתן על הקמיע. בהין קשייא.

Two variant *girsaoth* of the Mishnah either specify that the minimum amount of 'skin' one must carry to be liable on *Shabbat* is enough 'to make' or 'to put on' an amulet. The *stam* explains that the first refers to soft skin (that can be written upon) and the second to hard skin (that is appropriate for the amulet casing). Thus the *Yerushalmi* makes a halachic distinction between two types of skin based on their physical qualities, but - at the same time - demonstrates that the classical Hebrew terminology of תורה שבעל פה does not enable such a distinction.

have been necessary to distinguish, on a halachic basis, between the different types of writing material used in *Eretz Yisrael* and *Bavel*.<sup>36</sup>

Moreover, the binary opposition between parchment and scribal leather not only lacked a halachic terminology in which it could be expressed, it likely didn't exist in reality. As we have seen, there is a large middle ground between the pure forms of parchment and scribal leather that was amply filled in the ancient world. Parchment can be tanned to various degrees and scribal leather can be stretched. It is more likely that the Jews of *Bavel* used some kind of highly tanned parchment than the extremely old and inferior technology of scribal leather. It is probable that *Amoraim* and others who travelled from *Eretz Yisrael* to *Bavel* and *vice versa* noticed that the 'skin' used to write ס"ח in *Bavel* was darker, cruder and generally inferior to that used in *Eretz Yisrael*, but there is no reason to assume that they would have thought this any more significant than the numerous other ways in which Persia was less economically and culturally developed than the Roman empire. It is therefore no surprise to find that the topic goes unremarked upon in talmudic sources.

However, a century after the close of the era of the *amoraim*, the situation changed radically, not once, but twice. Following a hundred years of increasing tension, the Roman empire (often by this stage known in historical discourse as the Byzantine empire following the loss of its western territories) and the Persian empire commenced their final war in CE 602, which was to last until 628. In this war, first the Persians, and then the Romans, threw aside all the conventions adhered to for the previous four centuries and, opting for total war, launched attacks directly at the other's imperial heartlands. After multiple reversals, which saw Persian forces making conquests as far as Egypt and laying siege to Constantinople, as well as Roman troops rampaging around the Euphrates, Rome eventually triumphed at the battle of Nineveh, and recovered all of the territory it had held before the war. While this final showdown, however, was playing itself out, Muhammad had been busy unifying the Arab peninsula and turning the formerly warring Arab tribes into an engine of conquest. The succeeding caliphate found that the two empires that, between them, had since time immemorial divided the known world between them were exhausted, depopulated, and bankrupt. The result was that the Persian empire was conquered in its entirety, while Rome was reduced to a rump state comprising little more than modern day Greece and Turkey. As a result, for the first time since

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<sup>36</sup> This is true specifically of tanaitic sources and amoraic sources, but the stammaitic layer in the *Bavli* does introduce a distinction between 'processed' (מעובד) and 'unprocessed' skins, most notably B. Shabbat 49b, which reads:

תא שמע: עורות, בין עבודין ובין שאין עבודין, מותר לטלטלן בשבת. לא אמרו עבודין אלא לענין טומאה בלבד.

As understood by *Rashi*, this means that unworked skins are not capable of receiving *tumah*, but, as *Tosefos* point out, this flatly contradicts a *baraita* which states that they can receive *tumah* immediately after flaying. Their answer makes a distinction between skin that has and hasn't been specified for sitting upon, but there is no source that indicates that in the latter case worked skin would be capable of receiving *tumah* without being turned into a כלי or specified for some purpose. It is important to note that even in such sources, the mode of processing is left unspecified. See Appendix 3 for further discussion.

the conquests of Alexander the Great more than a millennium before, the Jews of *Eretz Yisrael* and Bavel were under the same political authority.

The period 600-650, then, was arguably the most convulsive period since the Bronze Age Collapse. The archaeological record demonstrates extensive depopulation and de-urbanisation across the Middle East during these years, often lasting for centuries or more, and North Africa was transformed from the breadbasket of Europe to the semi-barren land it has been ever since. The succeeding centuries, however, saw the primitive Arab empire that had improbably rose to global pre-eminence embark on a period of rapid cultural and technological modernisation in which it sought to unify the prior achievements of the two empires it had conquered. The new Arab rulers brought with them one key advantage: a lack of prejudice in favour of the established traditions of either of their captured empires, and the resultant eagerness to spread what they found most useful in both civilizations throughout their rule. Thus, in due course, Baghdad became the world center of Aristotelian philosophy, and the Persian enclosed garden was spread as far as Spain.

This dramatic and quite unexpected political change coincided with an important development in internal Jewish history. The famous *iggeret* of Rav Sherira Gaon, from which to this day we still derive a great part of our knowledge of the geonic period, begins in the year 580 CE. Sherira Gaon, writing in the 10th century, chose this date because it corresponded to a round number, but it is also clear that this was shortly after the beginning of what he regarded as the beginning of the period of the Geonim. This meant, in short, both that the talmud of *Bavel* had been in some sense completed<sup>37</sup> and that the heads of the *Yeshivot* were self-sufficient and supreme halachic authorities for the Jews of *Bavel*. It would be another century and a half before Rav Yehudai Gaon, if we are to believe the testimony of Ben Baboi, sought to impose his halachic opinions also on the Jews of *Eretz Yisrael*, but an important rubicon had been crossed. The *Yeshivot* of Bavel were no longer junior partners in Rabbinic Judaism, but an independent realm, the true 'Zion' of Torah scholarship as Ben Baboi later termed it.

To sum up, three things happened in the space of a century. First, the Rabbinical elite of Bavel turned inwards, ending an vestigial legacy of subordination to the Rabbis of *Eretz Yisrael*, and instead drawing upon their own talmud, the first Rabbinic compendium produced outside of the Holy Land. Second, the Byzantine-Persian deathmatch both put a temporary end to freedom of movement between the two centers of Torah study, and also ravaged the frontier territory of *Eretz Yisrael* and its Jewish community in particular, whilst leaving *Bavel* relatively

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<sup>37</sup> How complete is a matter of speculation, not least because it was entirely oral for many centuries. [Ari Bergmann](#) has presented a strong case that what was fixed was the amoraic stratum (רבינא ורה אשי סוף) (הירואה) and the stammaitic dialectical layer was open to addition, and perhaps revision, for many centuries. [R. Leonard Levy](#) has shown that even the later Geonim did not look at the stammaitic layer as an authoritative legal text, but rather as something closer to an academic exercise.

unscathed. Thirdly, the new Muslim empire opened up *Bavel* to the full spectrum of material and cultural products from the old Roman world.

This multi-stage dynamic had numerous and complex effects on Jewish history, parchment being a particularly illustrative example. In Sassanid Persia, as we have seen, the pale parchments used in the Roman empire had not been adopted, the scribes contenting themselves with papyrus and highly tanned leather-parchment hybrids. The Arabs, however, introduced a new type of parchment known as *raq*. This new Arabic import was very similar to the mediaeval European parchment, made with extensive use of lime, and possessing a whitish colour and smooth surface, but with two differences. First, the Arabs salted the skins before treating them with lime, though it is not clear what the purpose of this was, or whether it was simply vestigial. Secondly, whereas mediaeval parchment was made by shaving down both sides of the whole skin, the Arabs split the skin into two before shaving in order to double the output. *Raq* was made by shaving down the thick inner layer (the dermis), and was considered of higher quality than the *qast* made from the outer layer.<sup>38</sup>

Whereas the Jews of *Bavel* had witnessed a gradual progression over many centuries in which the parchments they used gradually became paler and smoother, the Jews of *Bavel* saw a sudden influx of what to them appeared to be an entirely new, and decidedly foreign, form of writing material. Having substantially lost contact, and even the desire to maintain contact, with the Rabbis of *Eretz Yisrael*, decades before, the Rabbis of *Bavel* looked at the new parchments as a departure from what they assumed to be a Jewish tradition stretching back indefinitely. Though there was clearly substantial popular demand to use these newer parchments, the *Geonim*, who, in general, tended towards atavism in their approach to *halacha*, either banned its use outright, or reluctantly tolerated it for certain limited purposes while promoting the use of the traditional materials. When it was discovered that the Jews of *Eretz Yisrael* happily used parchment for their ס"ח, this was seen, not as evidence in favour of the legitimacy of doing so, but as grist for the Babylonian *kulturkampf*, confirmation of the degraded status of Palestinian Jewry. As the rhetorical emphasis of the use of gallnuts as *the* indispensable element in the preparation of kosher ס"ח became increasingly fraught, a natural tendency came to forget other traditional elements involved in the preparation of leather-parchment hybrids of Babylonia. Since no-one else bothered to continue this obsolete technology following the introduction of the Arabic *raq*, keeping alive knowledge of the importance of stretching and scraping the wet pelts, Jewish practice *regressed* into the preparation of pure scribal leathers. Were it not for the Jews of Italy and Ashkenaz preserving the traditional *Hazalic* indifference to how ס"ח should be prepared, this view would doubtless

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<sup>38</sup> A clear explanation can be found in [Hanan](#) pp.47-8. Though we cannot know how quickly *raq* was introduced except that it must have been widespread enough to arouse halachic treatment by the mid 8th century.

have been added to the list of Babylonian quirks that became coterminous with Rabbinic Judaism.

## Conclusion(s)

The combination of textual and material evidence from both the pre-Mishnaic and Geonic eras, along with close attention to what the Mishnah and *Yerushalmi* both do and don't say, demonstrates beyond reasonable doubt that the *tanaim* and *amoraim* of *Eretz Yisrael* wrote their ם"ס on parchment, the *premiere* writing material both in their day and of subsequent centuries through to the modern age.<sup>39</sup> The Babylonian practice of writing on scribal leather was likely a function of the lack of access to parchment outside of the cultural limits of the Roman empire, and was based on, or, at any rate, justified by, a misunderstanding of the Greek term used in the Mishnah. This essay is not a statement of what the *halacha* is or should be. However, it is appropriate to conclude here by observing that many of the arguments made by modern proponents of scribal leather are provably false. *Diftera* does not refer to parchment. Parchment is not an inferior substitute for leather adopted during times of persecution, but a categorically superior writing material. Scribal leather is not meaningfully more durable than parchment, and it has no other advantages. Lime is absolutely not, and has never been, a substitute for tanning. The use of scribal leather is not a tradition going back to Sinai, it is a specifically Babylonian custom that fits poorly with the Mishnah. Instead of repeating these false arguments, advocates of scribal leather should concentrate on the real crux of their case, the belief that *halacha* should follow the Talmud *Bavli* and *Rambam*, instead of tradition and the *Shulhan Aruch*.

Preparing this article involved making use of a range of evidence which, in the pre-internet age, would have taken years of dedicated study to accumulate. I am privileged to have been able to access in my free time indexed and cross-referenced Greek texts with translations and the results of advanced chemical studies of ancient scrolls, as well as academic histories of parchment production, travel in the ancient world, and the spread of the codex, all from the comfort of my desk. Even collating and analysing the Torah sources was made immeasurably easier and less burdensome on my time by the magic of *Sefaria*. This consideration is sufficient to absolve those who, even a decade ago, used false arguments to impugn the validity of the *tefillin* worn by millions of Jews, though it is a welcome caution against overconfidence among those who wish to overturn established practices. However, when the facts change, it is time to change our mind.<sup>40</sup> There is no longer any excuse to propagate misinformation in support of

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<sup>39</sup> It is still used, for example, to record British Acts of Parliament.

<sup>40</sup> Rabbi Hoffman writes:

*The suggestion by Prof. Louis Ginzberg (Ginzer Schechter vol. 2, p. 529) that tanning skin for use in scrolls was only a Babylonian practice and not, in fact, required by the ancient sages of the land of Israel, seems to be a far less reasonable assumption.*



scribal leather. Much the same, I fear, goes for many other *idées fixes* of oppositional and originalist groups within the broad tent of Orthodoxy (among whose ranks I am ineluctably a member). I am not the first to observe that the internet is both a curse and a blessing. For those with strong opinions, it is also a responsibility: *do your research*.

## Appendix 1 - *Klaf* and *Duchsustos*

In the above article, I deliberately avoided the well-known dispute about the identity of *klaf*. This question is not strictly relevant to the central argument of the piece, namely that the use of parchment for סת"ם was the immemorial practice of Rabbinic Judaism in the land of Israel. The question, however, is important enough in its own right, not least because it provides an additional *tu quoque* argument against those who impune the *kashrut* of tefillin worn by Jews today.

Let us start first with matters about which there is no dispute. *Hazal* talk about three types of skin: קלף (hereafter, *klaf*), דוכסוסטוס (*duchsustus*) and גויל (*gvil*). *Gvil* refers to a material made out of the whole animal skin; *klaf* and *duchsustus* are made by splitting the thin outer layer of the skin (epidermis), from the rest (the dermis and corium). Normative halacha mandates, based on the discussion in [Bavli Shabbat 79b](#) and [Menahot 32a-b](#) that, ideally, a *Sefer Torah* should be written on *gvil*, tefillin should be written on *klaf*, and a *mezuzah* should be written on *duchsustus*. However, a *Sefer Torah* is also valid if written on *klaf*, and a *mezuzah* is valid if written on any of the three.<sup>41</sup> Subject to dispute, however, is the precise identity of *klaf* and *duchsustus*. One of them is the epidermis and the other dermis, but which?

However, while there is no doubt that this is a historical dispute with great figures on both sides, this is not the same thing as saying that there are genuinely reasonable grounds for doubt. The evidence that points to *klaf* being the epidermis, as per Ashkenazi *halachic* tradition, and the ruling of the *Shulhan Aruch*, is as follows:

1. The term קלף means 'peel', which naturally refers to the thin outer layer that is literally peeled off. There is no etymological reason for calling the thick inner layer קלף.
2. The term דוכסוסטוס comes from Greek and means either 'split into two', 'difficult to split' or simply 'split'. Any of these refer easily to the lower thick layer which can, with some

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The way to arbitrate such disagreements, however, is not to intuit one assumption as more reasonable than another, but to investigate all lines of evidence.

<sup>41</sup> It should be noted here that, in the short passage of the [Yerushalmi](#) upon which this section is based, the discussion *solely* concerns minimum useful quantity of *klaf* and *duchsustus*. The fact that a quantity of *duchsustus* large enough to write one of the *parshiyot* of tefillin is not considered a significant quantity certainly can be read as indicating *duchsustus* is valid for tefillin. However, it might be taken simply to mean *duchsustus* was not *typically* used for that purpose. The passage has nothing to say about the use of *klaf* for *mezuzot* or *Sifrei Torah*, though the latter is well attested [elsewhere](#).

difficulty, be re-split again into thinner layers. Indeed, in contemporary parlance ‘split leather’ is used precisely to refer to what is left when the ‘grain’ (the outer layer) has been peeled off.

3. The *gemara* requires that one writes on *klaf* on the flesh side and on *duchsustus* on the hair side. If we understand *klaf* to be the outer layer, this makes perfect sense, since in both cases you would be writing on the smooth side that was peeled away from the other layer of the skin. If, however, *klaf* is the inner layer, this would mean writing on the less smooth side of both, for no apparent reason.
4. All ancient *tefilin* that have been discovered are extremely small and the remains of *klaf* within them extremely thin. It is much more likely that they contained leather made of the thin outer layer, rather than the inner layer, which is nearly as thick (perhaps 95%) as the skin itself.
5. The *Yerushalmi* states that *klaf* is made בקולף פני העור. This seems clear proof of the etymological argument in (1) above.
6. While the *Bavli* stipulates that one writes on *klaf* במקום בשר, the *Yerushalmi* uses different terminology: במקום נחושתי. This term, which appears to literally mean ‘its copper place’ has two possible explanations. The first is that it means ‘the underside’ (see [M Keilim 8:3](#)), the second is it means ‘the smooth side’. In the second case, this must mean that the *klaf* is the outer layer, since only then can the smooth side and the flesh side be identical. However, even if the first explanation is correct, it is much easier to explain why the term was chosen if *klaf* is the outer layer, since, in the strict sense, there is no ‘flesh side’ and the term ‘underside’ clearly refers to the opposite side from the hair, which is the top of the skin. Conversely if *klaf* is the inner layer, the term נחושתי would be unnecessarily ambiguous, since ‘underside’ does not have such an obvious meaning with reference to the under-layer.

By contrast, there is no evidence from any primary sources that supports the Spanish tradition of identifying *klaf* with the thick, inner layer. Supporters of this position therefore tend to base their position on Geonic testimony, but, if correct, this only demonstrates that Geonic era Jews of Bavel had lost the ability to make *klaf* as understood by *Hazal*, perhaps influenced by the fact that *raq* was made from the inner layer. It may be noted here that while *Rambamist* scribes identify the outer layer as being *duchsustus*, none of them even attempt to create a writing material for *mezuzot* out of it, despite this being the obvious implication of their position, because they have no tradition for how to use it. Because the epidermis is relatively rich in oils, it is no doubt harder to prepare usable parchment or scribal leather than from the dermis, and once technological development provided alternative ways of creating thin parchments this obsolete process was forgotten.

This conclusion presents us with a problem. The mediaeval parchment used today is prepared by scraping down both sides of the whole skin after extensive soaking with lime. In this process, all of the epidermis is scraped off, leaving behind only part of the dermis. This means

that modern parchment is technically speaking *duchsustus*, even though in its thinness it clearly resembles more closely *klaf*. How to respond practically to such a quandary is a topic all of its own, and beyond the scope of an article which has already exceeded its initially planned length several times over.

## Appendix 2 - Late Antique and Early Medieval *Sifrei Torah*

The oldest complete *Sefer Torah*, the University of Bologna scroll, has been carbon dated to no earlier than 1155, well after the issue of parchment vs. scribal leather had become a subject of active halachic controversy, with textual witnesses to the traditions of different communities, and thus far too late to shed light on our question. Artefacts from the period of the Dead Sea Scrolls until the era of the *Rishonim* are few and far between. Here is a complete list.

- (1) The 'En Gedi scroll' was found in the *aron* of an excavated synagogue, but is substantially damaged by fire and cannot be unrolled, or even handled without damaging it. Carbon dating gives a range of 210-390 CE, the first half of the era of the *amoraim*. Advanced techniques were used to 'read' the first two columns of the scroll, demonstrating that it is either a copy of the *Sefer Vayikra* alone, or, possibly, the last three books of the Torah. In email communication, it was indicated to me that no tests have been performed on material of the scroll beyond carbon dating, and it is likely no such tests are possible.
- (2) Two Geniza MSS, T-S NS 3.21 and T-S NS 4.3 form surviving parts of a Byzantine *Sefer Torah* or possibly *Bereshit* scroll with small divergences from the Masoretic tradition. It is usually dated to the 5th-6th century, the second half of the era of the *Amoraim*, but Ada Yardeni disagrees and dates it to the 8th or 9th century. [It is clearly written on parchment.](#)
- (3) Two separately discovered pages have been identified as part of a *Sefer Torah* from the 7th or 8th century, known collectively as the London-Ashkar or Ashkar-Gilson scroll, generally believed to come from Egypt and to have been written for ritual use. Subsequently, an additional 13 fragments have been identified by Mordechai Veintrob as part of the original scroll. The London-Ashkar scroll provides the earliest written record of the traditional layout of *Shirat haYam*, and it has been [suggested](#) that the Tiberian Masoretes consulted it as one of their authoritative source texts. It is written on scribal leather.
- (4) Sheets of a palimpsest (parchment sheets that had the writing washed off and then were written over) in the University of Florence library containing texts by Oribasius and other authors has been discovered to have originally been part of a *Sefer Torah* dated to the 10th century.
- (5) The oldest completely readable page of a *Sefer Torah* is in the Library of Congress and has been dated to around 1000 CE. It is written on [parchment](#).

## Appendix 3 - Ulla's 3 skins

In the above article, we argued that the *Bavli's* identification of *diftera* as skin that had been treated with salt and flour, but not tanned, which subsequently became the basis for geonic opposition to the use of parchment for ס"ת, is not a reference to parchment at all and in any case does not accurately reflect the meaning of term in the Mishnah. A fuller treatment of the *sugya* in [Shabbat 79a](#) and its components would have been too much of a digression, but a complete treatment of the topic requires it:

כדי לעשות כו'. בעא מיניה רבא מרב נחמן: המוציא עור, בכמה? אמר ליה: כדתנן: עור כדי לעשות קמיע. [המעבדו, בכמה? אמר ליה: לא שנא.] לעבדו בכמה? אמר ליה: לא שנא. ומנא תימרא? — כדתנן: המלכן והמנפץ והצובע והטווה — שיעורו כמלא רוחב הסיט כפול. והאורג שני חוטין — שיעורו כמלא רוחב הסיט כפול. אלמא: כיון דלטוייה קאי — שיעורו כטווי. הכא נמי, כיון דלעבדו קאי — שיעורו כמעובד. ושלא לעבדו, בכמה? אמר ליה: לא שנא. ולא שני בין מעובד לשאינו מעובד? איתביה: המוציא סמנין שרוין, כדי לצבוע בהן דוגמא לאירא. ואילו בסמנין שאינן שרוין תנן: קליפי אגוזים וקליפי רמונין, סטיס ופואה, כדי לצבוע בהן בגד קטן [לפי] סבכה! הא איתמר עלה, אמר רב נחמן אמר רבה בר אבוח: לפי שאין אדם טורח לשרות סמנין לצבוע בהן דוגמא לאירא. והרי זרעוני גינה, דמקמי דזרעינהו תנן: זרעוני גינה פחות מכגורגרת. רבי יהודה בן בתירא אומר: חמשה. ואילו בתר דזרעינהו תנן: זבל וחול הדק כדי לזבל בו קלה של כרוב, דברי רבי עקיבא. וחכמים אומרים: כדי לזבל כרישא! — הא איתמר עלה, אמר רב פפא: הא דזריע, הא דלא זריע — לפי שאין אדם טורח להוציא נימא אחת לזריעה. והרי טיט, דמקמי דליגבליה תניא: מודים חכמים לרבי שמעון במוציא שופכין לרשות הרבים ששיעורן ברביעית, והוינן [בה] שופכין למאי חזו? ואמר רבי ירמיה: לגבל בהן את הטיט, ואילו בתר דגבליה תניא: טיט כדי לעשות (בהן) פי כור! התם נמי כדאמרן: לפי שאין אדם טורח (בהן) לגבל את הטיט לעשות בו פי כור. תא שמע, דאמר רבי חייא בר אמי משמיה דעולא: שלשה עורות הן: מצה, וחיפה, ודיפתרא. מצה — כמשמעו, דלא מליח ודלא קמיה ודלא עפיץ. וכמה שיעורו? תני רב שמואל בר רב יהודה: כדי לצור בו משקולת קטנה. וכמה? אמר אביי: ריבעא דריבעא דפומבדיתא. חיפה — דמליח ולא קמיה ולא עפיץ. וכמה שיעורו? כדתנן: עור — כדי לעשות קמיע. דיפתרא — דמליח וקמיה ולא עפיץ וכמה שיעורו? — כדי לכתוב עליו את הגט. קתני מיהת, כדי לצור בו משקולת קטנה, ואמר אביי: ריבעא דריבעא דפומבדיתא! התם בבישולא. והתנן: הבגד — שלשה על שלשה למדרס, השק — ארבעה על ארבעה, העור — חמשה על חמשה, מפץ — ששה על ששה, בין למדרס בין למת. ותאני עלה הבגד והשק והעור — כשיעור לטומאה כך שיעור להוצאה! ההוא בקורטובלא.

The *sugya* begins with a series of questions asked by Rava (4th generation) to Rav Nahman (3rd generation), though the precise nature of these questions is not clear, and partly depends on which MS one follows. According to the majority of MSS, the correct explanation appears to be as follows. The mishnah states that the amount of 'skin' that one is liable for carrying is the amount to 'make' a *kemia*. As discussed in footnote 35, the *stam* in the Yerushalmi knew of an alternative version which read 'to cover' and explained that the two versions referred to different types of skin. The Babylonian *amoraim* apparently had no such tradition, and Rava asked if the mishnah applied indiscriminately to all types of skin, to which Rav Nahman replied that it did. Rava then asked what the *shiur* was for someone who 'processed' (מעבד) the skin, to which Rav Nahman replied that it was the same. Finally, Rava asked if the *shiur* was different when carrying skin that had not been processed and Rav Nahman responded that it was the same.

As discussed above in footnote 36, though the tannaitic sources do not distinguish between different types of ‘skin’ but only between the uses to which they might be put, the *stammaitic* layer in the *Bavli* makes a distinction between skin that has and hasn’t been ‘processed’. The *stam* therefore is moved to explain *why* there is no difference between the *shiur* for carrying skin that has and hasn’t been processed. It explains, through a parallel to the laws of spinning, that, since the skin will be processed it’s minimum *shiur* for the purposes of carrying is the same as if it had been processed.

However, the *gemara* then adds a further question of Rava - what about skin that *isn’t* going to be processed? - and, even here, reports that there is no difference. As we have explained, Rav Nahman is faithfully representing the position of classical Rabbinic sources which do not distinguish between different types of skin based on their physical characteristics or method of production. At this stage, the *stam* picks up where Rava left off<sup>42</sup> and raises multiple parallels in which tannaitic sources - or amoraic explanations of them - do distinguish between the *shiur* for different materials depending on whether they have been processed. In light of our discussion, the citation of all of these sources misses the point. Classical rabbinic sources *do* distinguish between different materials depending on their processing; they *don’t* distinguish between different forms of skin.

In any case, after three examples, the *stam* changes tack and cites an *amoraic* source that says directly that there are three types of skin: *matza*, *hipa*, and *diftera*. The *stam* then proceeds to identify these three types of skin. This statement is also quoted in [B. Gittin 22a](#), prompted by the Mishnah referred to above in which R. Yehuda ben Batyra invalidates a *get* written on *diftera*. Because of minor differences in the analysis in each tractate, we shall present them here in parallel columns.

<i>Gittin</i>	<i>Shabbat</i>
<p>אמר רבי חייא בר אסי משמיה דעולא, שלשה עורות הן: מצה, חיפה ודיפתרא. מצה – כמשמעו, דלא מליח ודלא קמיה ודלא אפיץ. <b>למאי הלכתא</b> להוצאת שבת. וכמה שיעורו? כדקתני רב שמואל בר יהודה: כדי לצור משקל קטנה. וכמה? אמר אביי: כי ריבעא דריבעא דפומבדיתא. חיפה – דמליח, ולא קמיה ולא אפיץ. <b>למאי הלכתא?</b> להוצאת שבת. וכמה שיעורו? כדתנן: עור – כדי לעשות קמיע. דיפתרא – דמליח וקמיה, ולא אפיץ. <b>למאי הלכתא?</b> להוצאת שבת. וכמה שיעורו? כדי לכתוב עליו את הגט.</p>	<p>תא שמע, דאמר רבי חייא בר אמי משמיה דעולא: שלשה עורות הן: מצה, חיפה, ודיפתרא. מצה – כמשמעו, דלא מליח ודלא קמיה ודלא אפיץ. וכמה שיעורו? תני רב שמואל בר רב יהודה: כדי לצור בו משקולת קטנה. וכמה? אמר אביי: ריבעא דריבעא דפומבדיתא. חיפה – דמליח ולא קמיה ולא אפיץ. וכמה שיעורו? כדתנן: עור – כדי לעשות קמיע. דיפתרא – דמליח וקמיה ולא אפיץ וכמה שיעורו? – כדי לכתוב עליו את הגט.</p>

<sup>42</sup> The printed *Bavli* and most MSS here have איתביה implying that Rava himself is making these arguments, but apart from the fact that the entire character of this section is plainly stammaitic, it quotes in one place Rav Papa, a student of Rava.

The *stam* continues to explain that *matza* refers, according to the ‘plain meaning’ of the word, refers to skin that has not been treated at all, then asks what the *shiur* for carrying it is on Shabbat. It responds by citing a *baraita* taught by *Rav Shmuel bar Yehuda*, a 3rd generation *amora* from *Bavel* who moved to *Eretz Yisrael* later in life, according to which it is the amount needed to wrap around a small weight. The *gemara* then cites *Abaye* to the effect that it is a 1/16th of the Pumpeditan measure. The *stam* then states that *hipa* has been salted, but not treated with flour or tanned and that its *shiur* for Shabbat is enough to make an amulet, thus identifying the unspecified ‘skin’ of the mishnah with *hipa*. Finally it states that *diftera* has been salted and treated with flour, but not tanned, and that its *shiur* for Shabbat is to write a *get*. It seems most likely that the passage from B. *Shabbat* is the more original and that it was copied over to B. *Gittin* in order to provide an explanation of the word *diftera*, with the words למאי הלכתא added to provide a link the material that is irrelevant in the secondary context.<sup>43</sup>

In addition to the issues already mentioned in the article, the *stam*’s analysis of Ulla’s statement has several problems:

- 1) The essential content of Ulla’s statement is that there are *three* types of skin, but the *gemara*’s analysis actually implies that there are actually *four*, since fully tanned skin must also be a type.
- 2) The *gemara* states that the smallest possible use of *diftera* is to write a *get*, but if it is possible to write a *get* on *diftera*, it is also possible to write other things on it, which would be smaller than a *get*. The *stam* appears to pick a *get* because this is the only thing that the Mishnah positively affirms may be written on *diftera*, but the Mishnah does not discuss any one of the myriad mundane uses to which a writing material might be put.
- 3) The *stam* restricts the Mishnah’s general statement that the *shiur* for skin is the amount needed to make an amulet to *hipa*, but there does not seem a good reason to think that salted, but basically unprocessed skin would be especially useful for this purpose.

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<sup>43</sup> The *sugya* closes by raising and solving some minor difficulties. The significance of the first difficulty raised is not clear. According to *Rashi*, the issue is that the *shiur* for *matza* is larger than for more processed forms of skin. I do not understand why this would be problematic (in general, one would expect more highly processed forms of material to be more useful, and thus smaller amounts of them would be considered significant) and it also does not seem to me to be true. A sixteenth of a *litra* is about 22 grams, and such a weight would need a tiny amount of skin to cover it. More likely, is that the question is that since any type of skin can also be used to wrap a weight (even if this would be a wasteful in terms of opportunity cost) then there is no need for the other larger, *shiurim*. The answer is also unclear since it is not obvious what בבישולא means. The final difficulty is easier to understand. The *gemara* quotes Mishnah *Keilim* 27:2, which teaches the minimum amount of different materials that can become impure, which for skin is 5x5 finger widths. The *gemara* then cites a tradition, recorded in Tosefta *Shabbat* 9:3 that this is also the *shiur* for carrying on Shabbat. The *gemara* answers that this refers to *kortovla* which appears to refer to leather that is useless for any purpose except as a generic cloth substitute.



All in all, the *stam's* analysis has the character of an intellectual exercise using sources at its disposal to arrive at a conclusion (in this case that the *halacha* differentiates between different types of skin), and does not likely reflect the original meaning of Ulla's statement at all (just as it does not, by design, reflect the classical Rabbinic conception of skin as an undifferentiated halachic entity).

I shall now attempt to explain what I believe the original meaning of Ulla's statement was. It should be stated clearly at this point that an important principle of responsible source criticism is that sometimes the original meaning of a source is not recoverable, and that we should be tentative in our reinterpretations in inverse proportion to the amount of evidence that can be brought to bear to support them.

There are two principal ways to solve a problem like this. The first is to use philology to establish the syntactic meaning of a statement in its original context. The second is to find related sources that throw light on the matter. As we already seen, philological analysis of the term *diftera* is of limited use. Of the other two terms in Ulla's statement, one of them appears more easily amenable to interpretation: *hipa* appears to be from the root ה-פ-ה and thus likely refers to a material use for covering. *Matza* is much more enigmatic. It may be borrowed from the standard meaning of the word, namely unleavened bread, in which case it would imply some sort of common feature. This is the understanding of the *stam*, which interprets it to mean skin that has not been processed at all, in the same rough way that unleavened bread has not been treated and processed with the addition of sourdough or natural yeasts. Alternatively, it could be that the name *matza* for a type of skin reflects not borrowing from unleavened bread, but common ancestry from the same root. This, however, does not help us because there is no scholarly agreement on the origin of the term *matza*, or even whether it is of Hebrew origin or a loan word from a foreign language.

However, while *hipa* is not mentioned in any tannaitic source, *matza* does appear once in a Mishnah *Keilim* 17:15:

העושה כלי קבול, מפל מקום, טמא. העושה משקב ומושב, מפל מקום, טמא. העושה כיס מעור המצה, מן הניר, טמא. הרמון, האלון, והאגוז, שחקקום התיבוקות למד בהם את העפר או שהתקיניםם לכף מאזנים, טמא, שיש להם מעשה ואין להם מחשבה:

The *mishna* as whole here describes various forms of vessels that, despite being unusual in various ways nevertheless, are susceptible to impurity just like regular vessels. The relevant phrase states that a pouch made of either papyrus or *matza* skin is still susceptible to impurity. Traditional commentators explain the *mishnah* based on passage we have analysed, interpreting it as teaching that even a pouch made of unprocessed skin is nevertheless considered a vessel. However, the *mishnah* itself is susceptible to a range of interpretations, and

the most likely 'local explanation' is that *matza* skin, just like papyrus, is a material ordinarily used for writing, which can nevertheless be used to make a makeshift pouch.

There are two more sources that have some relation to Ulla's statement. The first is another mishnah from *Keilim* (24:12), which starts identically to Ulla's statement,<sup>44</sup> and reads as follows:

שְׁלֵשָׁה עוֹרוֹת הֵן. הָעֲשׂוּי לְשִׁטְיָהּ, טָמְא מִדְּרָס. לְתַכְרִיךְ הַכְּלִים, טָמְא טָמְא מֵת. וְשֵׁל רְצוּעוֹת וְשֵׁל סַנְדְּלִים,  
טְהוּרָה מִכְּלוּם:

In accordance with all classical Rabbinic sources, the Mishnah here does *not* distinguish between different types of skin in terms of their material properties, but solely according to the purposes to which they are intended to be put. Skin that has been designated for use as a mat is susceptible to *tumat midras* in the same way as any other object designated for sitting or lying upon; skin that has been designated for wrapping objects is susceptible to *tumah* in the way that any vessel is; skin that is designated for being cut up into shoes or straps is not susceptible to *tumah* at all because it is not yet considered any kind of article (כלי). Naturally, in the way of things, these three categories almost certainly were correlated with different types of skin in terms of their processing and physical properties, but these have no halachic significance *per se*. A skin that might be more wisely put to use making shoes nevertheless has the halachic properties of a rug if that is what it is used (or even designated) for and *vice versa*.

The second relevant source appears in *Sifra* in two places ([Negaim 13:10](#) and [Shemini 6:11](#)), with various variations, partly as a result of the different verses around which they are arranged:

<p>וְכָל אֲשֶׁר יִפְלֵעַ עָלָיו מֵהֶם בְּמַתָּם יִטְמָא מִכָּל־כְּלֵי־עֵץ אוֹ בָּגֶד אוֹ־עוֹר אוֹ שֶׁקַּל כְּלֵי־אֲשֶׁר יַעֲשֶׂה מְלֹאכָה בָּהֶם בְּיָמָם יוֹבֵא וְטָמְא עַד־הָעֶרֶב וְטָהַר: (ויקרא יא:לב)</p>	<p>או בְּשִׁטְיָהּ אוּ בְעֶרְבֵי לְפִשְׁתִּים וְלִצְמָר אוּ בְעוֹר אוּ בְכָל־מְלֹאכֶת עוֹר: (ויקרא יג:מח)</p>
<p>יכול אף עור המצה ועור האיפה שלא נעשה בהם מלאכה? תלמוד לומר "אשר יעשה בהם מלאכה". אוציא עור המצה ועור האיפה שלא נעשה בהם מלאכה ולא אוציא עורות רצועות וסנדלים שנעשו בהם מלאכה? תלמוד לומר 'כלי' – יצאו רצועות סנדלים שאינם כלי. או יכול שאני מוציא עורות אהלים שאינם כליים? תלמוד לומר "אשר יעשה מלאכה בהם" – לרבות עורות אהלים.</p>	<p>יכול אף עור המצה ועור האיפה במשמע? ת"ל "מלאכת עור" – יצאו עור המצה ועור האיפה שלא נעשה בהם מלאכה. אוציא את עור המצה ועור האיפה שלא נעשה בו מלאכה ולא אוציא עורות רצועות סנדלים שנעשה בהם מלאכה? ת"ל "כלי" – יצאו עורות רצועות סנדלים שאינם כליים. או יכול שאני מוציא עורות אהלים שאינם כליים? ת"ל "לכל אשר יעשה העור למלאכה" – לרבות עורות אהלים.</p>

As in *M. Keilim* 24:12 and Ulla's statement, this source describes three types of skin, though it adds a fourth at the end, 'skin for tents'. More crucially, however, the source acts as a bridge between the Mishnah and Ulla's statement, sharing different points of commonality with each

<sup>44</sup> Though in MSS of the *Bavli*, about half read עוֹרוֹת, either taking עוֹר to be a feminine noun, or ignoring classical Hebrew rules of gendered numbers.

one. The *Sifra* includes two out of three of the skins in Ulla's list, with *איפה* becoming *חיפה*, a common process by which gutturals devolved down in degenerate Hebrew. The *Sifra* is also linked to the Mishna, in including *עורות רצועות (ו) סנדלים*.

Before interpreting the relationship between the three sources it is necessary to define what kind of work the *Sifra* is. In his recent book, [Scripture and Tradition](#), Azzan Yadin argues that the anonymous material in *Sifra*, which represents over 90% of the work as we have it,<sup>45</sup> represents a break with tannaitic *midrash* of both the Akivan and Yishmaelian traditions, in which technical terms like *לרבות* or *יכול* are repurposed from their original functions of teasing out additional information from the biblical text, and become merely formal rhetorical devices for a project of total re-scripturalising of the oral law, as exemplified by the Mishnah. Because these superficially-exegetical terms are employed in inconsistent ways across the anonymous material in *Sifra* it is not possible to reconstruct the logic of a passage by looking at how a *pasuk* is analysed (because it is not actually being analysed). Instead, the only way to 'understand' the *Sifra* is to work out which tannaitic *halacha* (usually a mishnah) it is attempting to scripturalise.

In this case, there is only one candidate, namely our Mishnah, thus the *Sifra* here must be understood as attempting to derive a scriptural basis for the Mishnah's teaching that there are three types of skin with regard to *tumah*. The reference to leather for shoes and straps is too close to be a coincidence. However, this same observation demonstrates that something is deeply wrong with the *Sifra* because it describes not, like the mishnah, 'straps *and* shoes', but 'straps *of* shoes'.<sup>46</sup> The former is a synecdoche for things that one might cut out of a sheet of leather, whereas the latter is one specific use for which the tannaitic *halacha* accords no special status. The *Sifra* correctly states that skin that has already been cut into straps *is* susceptible to *tumah*; it does not contradict the mishnah, but it is saying something different.

It appears inescapable that the mishnah is both referencing M. *Keilim* 24:12, but is also significantly misprising it. This is only possible if we posit a process of multiple revisions - something which certainly seems to have occurred with the *Sifra* corpus as a whole - in which a text that originally connected the mishnaic *halacha* to one of the two verses was reworked by a later author who did not understand the original referent and changed the material until it no longer corresponded (after which it must have been transferred to the second verse with the relevant 'proof texts' substituted in for the old ones). If we accept that this occurred - and there seems no way to explain the reference to *עורות סנדלים* otherwise - then we can make the following reconstruction of the original source from which the *Sifra* is constructed.

<sup>45</sup> It's important to note that while both of the *talmudim* quote the *Sifra*, demonstrating that the *Sifra genre*, at least, predates them, they often quote *Sifra*-type passages that are substantially different or don't exist in our version of the *Sifra*, indicating that it's final editing may well post-date them. See, for example, the passages in Y. *Megila* 1:12.

<sup>46</sup> In printed versions as reproduced in the table above, one of the four times the phrase appears it does indeed read *עורות וסנדלים*, however, this appears to be either a mistake, or a partial attempt at correction.

The three skins mentioned in the *Sifra* - *matza*, *hipa/ipa*, and *retzuot v'sandalim* - are identical with the three skins mentioned in M. *Keilim* 24:12. The last in each list are obviously identical. The second in the *Sifra's* list, *hipa*, fits perfectly with the second category in the mishnah, skin intended or used for wrapping (להפוך) things. By process of elimination, the first element in *Sifra* is the first in the Mishnah. It is possible to speculate about why skin used for lying on might be called *matza* (perhaps because lying on it makes it flat), but it is not necessary to establish the point. The original version would therefore have had to include 'drashot' learning the respective laws of susceptibility to impurity of the three categories of skin from words in the verse.

This stage of my argument is, by necessity, the least evidenced, but if we accept it, then the final part follows automatically. Ulla's list of three skins is the same list as in the *Sifra*, which means it is *also* the same list as in the Mishnah. The only additional piece of information we need to add is that *diftera* refers to skin used for cutting out shoes and straps, which fits perfectly with its Greek meaning as an all-purpose general term for animal hides and leather. Ulla is therefore doing nothing more than stating an abbreviated version of the M. *Keilim* 24:12, substituting ordinary terms in use for these types of hide for the Mishnah's more laborious descriptions. In all likelihood, Ulla's terms were those used in commerce for these three types of skins, and might not have mapped on completely perfectly to the Mishnah's halachic typology. We can only speculate about the reasons he chose to teach the Mishnah in this way, but they must have been far removed from the purposes to which his formulation was eventually put by the Babylonian *stam*.

The only remaining problem is that this apparently contradicts our analysis in the article of the meaning of the term *diftera* in tannaitic sources, but this is only *prima facie* difficult. It is very common for terms to be used in tannaitic Hebrew with a specialised technical meaning even though they demonstrably had a wider or even non-overlapping semantic range outside this context, which sometimes occurs even inside halachic literature.<sup>47</sup> If my argument is correct, Ulla's statement is a *translation* of precise *halachic* discourse into a more colloquial Hebrew idiom and so we should not be surprised to see a word used in a specialised sense, used here in its more general sense - especially when we know that this is how the word was generally used in the Mediterranean.

## Appendix 4 - *Diftera* in Greek Literature

I am going to indicate what seems to me to be the most marvellous thing in the country, next to the city itself. Their boats which ply the river and go to Babylon are all of skins, and round. They

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<sup>47</sup> Take for example the word תפילה, which sometimes refers solely to the statutory 18-blessing prayer, and sometimes to prayer in general, leaving its use in some contexts open to interpretation.

make these in Armenia, higher up the stream than Assyria. First they cut frames of willow, then they stretch **hides** over these for a covering, making as it were a hold; they neither broaden the stern nor narrow the prow, but the boat is round, like a shield. They then fill it with reeds and send it floating down the river with a cargo; and it is for the most part palm wood casks of wine that they carry down. Two men standing upright steer the boat, each with a paddle, one drawing it to him, the other thrusting it from him. These boats are of all sizes, some small, some very large; the largest of them are of as much as five thousand talents\* burden. There is a live ass in each boat, or more than one in the larger. So when they have floated down to Babylon and disposed of their cargo, they sell the framework of the boat and all the reeds; the **hides** are set on the backs of asses, which are then driven back to Armenia...

[Herodotus \*The Histories\* 1.194](#)

The timbers served to bind the building together, and to prevent its becoming weak as it advanced in height; it had also a covering of skins and **hides**, which protected the wood-work against the attacks of burning missiles and allowed the men to work in safety.

[Thucydides \*The Peloponnesian War\* 2.75](#)

What is your idea, now, in all this rolling and unrolling of scrolls? To what end the glueing and the trimming, the cedar-oil and saffron, the **leather cases** and the bosses? Much good your purchases have been to you; one sees that already: why, your language — no, I am wrong there, you are as dumb as a fish-but your life, your unmentionable vices, make everyone hate the sight of you; if that is what books do, one cannot keep too clear of them.

[Lucian of Samosata \*Adversus indoctum et libros multos eumentem\* 16](#)

After this, when this son was born to us, to me, forsooth, and to my excellent wife, we squabbled then about the name: for she was for adding hippos to the name, Xanthippus, or Charippus, or Callipides; but I was for giving him the name of his grandfather, Phidonides. For a time therefore we disputed; and then at length we agreed, and called him Phidippides. She used to take this son and fondle him, saying, When you, being grown up, shall drive your chariot to the city, like Megacles, with a xystis. But I used to say, Nay, rather, when dressed in a **leathern jerkin**, you shall drive goats from Phelleus, like your father.

[Aristophanes \*Clouds\* 56](#)

You cannot help thinking so. Or you will keep away from these places and go to Crito's friends in Thessaly; for there great disorder and lawlessness prevail, and perhaps they would be amused to hear of the ludicrous way in which you ran away from prison by putting on a disguise, a peasant's **leathern cloak** or some of the other things in which runaways dress themselves up, and changing your appearance. But will no one say that you, an old man, who had probably but a short time yet to live.

[Plato \*Crito\* 53d](#)

Thus in disgrace with fortune, I have betaken me to this corner of the earth, where I wear the **smock-frock** and dig for sixpence a day, with solitude and my spade to assist meditation.

[Lucian of Samosata \*Timon\* 6](#)

This order they proceeded to carry out, and meanwhile Xenophon passed word to all the peltasts to advance with hand on the thong, so that they could discharge their javelins when the signal should be given, to the bowmen to have their arrows upon the string, ready to shoot upon the

signal, and to the slingers to have their **bags** full of stones; and he despatched the proper persons to look after all these things.

[Xenophon Anabasis 5.2.12](#)

Across the Euphrates river in the course of these desert marches was a large and prosperous city named Charmande, and here the soldiers made purchases of provisions, crossing the river on rafts in the following way: they took **skins** which they had for tent covers, filled them with hay, and then brought the edges together and sewed them up, so that the water could not touch the hay; on these they would cross and get provisions—wine made from the date of the palm tree and bread made of millet, for this grain was very abundant in the country.

[Xenophon Anabasis 1.5.10](#)

## Appendix 5 - The Wadi Murabba'at scrolls

In the article, the Dead Sea Scrolls played a crucial role in building the case that the Jews of *Eretz Yisrael* used parchment for ס"ת during the mishnaic and talmudic periods. The argument is *not* that we can infer what the Rabbinic Jews of *Eretz Yisrael* considered halachically acceptable or did in practice from the Dead Sea Scrolls, but that we can use them to establish the *minimum* range of skin-derived writing materials with which the *hachamim* of *Eretz Yisrael* would have been familiar with. Since the Dead Sea Scrolls include holy writings on completely untanned yellow parchments, Jews one or two centuries later must have been familiar with them, and the fact they could (materially speaking) be used for ס"ת. Therefore, the fact that no sources from *Eretz Yisrael* exclude the use of parchment, but rather consistently talk vaguely of using 'skin', strongly indicates that the *hachamim* of *Eretz Yisrael* had no objection to using it.

In my discussion of the Dead Sea Scrolls, I only referred to those from Qumran, which form the vast majority, and are also by far the most extensively studied. However, strictly speaking, the category also includes a separate collection of scrolls about 15km away at Wadi Murabba'at in 1952. This find was particularly interesting because it includes material from an outpost of the Bar Kochba revolt, including important examples of the Mishnaic Hebrew dialect used for correspondence and secular purposes, and a letter signed by Bar Kochba himself.

Compared to the Qumran scrolls, there is a general paucity of research on these documents and I have not been able to find any recent studies on their material qualities. The most recent description I could find is from a [mid-1950s article](#). I will reproduce in full the relevant material:

Also in Greek are leather and parchment fragments, apparently portions of administrative acts, civil or military; Jewish names (e.g. Josephus, Jesus, Saul, Simon), with signs and numbers appended, figure in the texts.

Among the Semitic texts are Biblical fragments, all of leather. There are various short fragments of Genesis, Exodus and Deuteronomy, which bear traces of violent



handling; e.g. the fragment of Gen. XXXII-IV is just a long narrow strip torn from across three columns of an original scroll. Another fragment exhibits an empty column, followed by the opening lines of the first column of the book of Isaias (1.4-14). A complete phylactery was found, in two separate pieces, both inscribed in tiny, yet very clear letters. The larger portion, a thin, irregular strip of leather, contains in order the three texts Ex. XIII.I-IO and II-I6 and Deut. XI.I3-2I. The other piece, about one-fifth the size, contains the Shema (Deut. VI.4-9).

There is some extremely interesting material here relating to the position of the third *parsha* in *tefillin*. However, for our purposes the significant fact here is that all of the biblical fragments are identified as being leather.

In terms of my argument above, this makes no odds. The only relevant question is whether parchment was available as an option in the mishnaic and talmudic periods. However, if true, it is doubtless of some significance that the Bar Kochba rebels were particular to write their ם”ה on leather. I would close here with the following two observations:

- (1) It is doubtless the case that the Bar Kochba rebels were closer to what we know as Rabbinic orthodoxy than the Qumran sect, but they were not identical to it, and, in some respects, that Rabbinic orthodoxy crystallised in reaction to the failures of the Bar Kochba revolt, particularly in regard to its views on organised political action and messianism. The Bar Kochba revolt was certainly animated by a spirit of atavism, which is closely related to the rejection of parchment as a material for ם”ה. It is entirely within the realm of the probable that Rabbinic orthodoxy rejected the inflexible attitude of the Bar Kochba rebels on this score.
- (2) Further research is needed. In discussion of the Qumran scrolls even as late as the 1980s it is common to find confident descriptions of them as being all written on leather, though in fact, most are written on leather-parchment hybrids, often only lightly tanned, and some on untanned parchment. It seems likely to me that, if scholars who have closely studied the Qumran scrolls review the Wadi-Murabba’at fragments, what they report will be substantially different from the above description, though, given the relatively small number of these fragments, there well may be no examples of true parchment among them.

Nevertheless, it is possible that there is some connection to the geonic babylonian insistence of scribal leather and a tradition that dates back to pre-mishnaic proto-Rabbinic Judaism. If so, this would not be the only example of the Jews of Babylon preserving a more conservative approach to *halacha*.