YESHIVAT HAR ETZION

ISRAEL KOSCHITZKY VIRTUAL BEIT MIDRASH (VBM)

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**LAWS OF SHABBAT: COOKING**

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This week’s shiurim are dedicated by Joseph and Phyllis Eisenman   
in honor of Judah L. Eisenman

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THE LAWS OF SHABBAT

By Rav Yosef Zvi Rimon

01: *BISHUL*

1. Principles of *Bishul*

Is it possible to come up with a way of cooking that is not biblically forbidden?

May one use solar energy to heat and cook food?

Is it preferable for hospitals to cook on Shabbat using a microwave?

Is it permissible to use a water heater powered by solar panels?[[1]](#footnote-1)

Actions Included in the Prohibition of *Bishul*

Primary *Melakha*: Cooking and Baking

*Bishul* (cooking) is one of the most important primary labors (*avot* *melakhot*) of Shabbat; surprisingly, we do not find it mentioned explicitly in the master list of Shabbat prohibitions. Instead, when the Mishna (73a)[[2]](#footnote-2) enumerates the thirty-nine primary *melakhot*, it includes *ofeh*, **baking**. The Gemara (74b) is perplexed by this: after all, the primary *melakhot* are derived from the work[[3]](#footnote-3) necessary for the *Mishkan* (Tabernacle), and in the *Mishkan*, there was no baking, but only cooking (of the dyes used for the *Mishkan*’s covering). The Gemara responds: “The author of our mishna follows the breadmaking process.” In other words, the Mishna prefers to enumerate those *melakhot* that are tied to breadmaking (perhaps because this makes it easier to memorize the *melakhot*), and therefore baking is mentioned specifically.

The words of the Gemara indicate that there is no essential distinction between cooking and baking, and they are considered to be **the same**[[4]](#footnote-4) **primary *melakha***, and therefore the author of the mishna could list baking, even though it was not baking that was done in the *Mishkan*, but rather cooking. This is also what Rashi (*ad loc.*, s.v. *Siddura*) indicates, defining baking as “the cooking of bread.” The Rambam rules in a similar vein (9:1): “Whether one bakes bread, cooks food or dyes, or boils water — it is all one and the same.”[[5]](#footnote-5)

However, according to the Yerushalmi (7:2), baking is actually a *tolada* (subcategory) of cooking and it is not part of the *av melakha*.[[6]](#footnote-6)

**Frying and Roasting — Biblical Prohibitions**

The *Acharonim* discuss whether other activities, such as **frying** and **roasting**, are considered *toladot* or are part of the *av melakha* (see, for example, *Eglei Tal*, *Ofeh* 1). In any case, it is clear that these actions and any similar actions are biblically forbidden, whether they are “co-*avot*” or *toladot*. In *Shemirat Shabbat Ke-hilkhatah,* Rav Neuwirth summarizes this discussion accordingly (1:1):

Cooking, roasting, frying, baking — whoever renders something edible by the direct heat of a flame, or [renders something edible by subjecting the food to] anything else that was heated by a flame, violates the prohibition of *bishul*.[[7]](#footnote-7)

An intriguing discussion arises as to whether *bishul* is repeatable. Do we say that *ein bishul* *achar* *bishul* (there is no cooking after cooking), so that once an item has undergone this process, the *melakha* is not applicable and one who cooks a previously cooked item would be exempt? Alternatively, do we say that *yesh bishul* *achar* *bishul* (there is cooking after cooking) and one who cooks a previously cooked item would be liable? Does it make a difference whether the item is solid (*davar yavesh*) or liquid (*davar lach*)? What about *bishul* *achar* *afiya* (cooking after baking)? We will deal with these questions at length in later weeks.

1. **The Levels of Cooking**

**Solids — Minimal Edibility**

How thoroughly cooked must a food be in order to be liable for the *melakha* of *bishul*? The Gemara in *Menachot* (57a) indicates that one is liable for cooking any food once it reaches the level of ***ma’akhal ben Derusai***. Ben Derusai was a thief who would cook his food minimally: either half of the normal amount, according to the Rambam (9:5), or a third of the normal amount, according to Rashi (*Menachot* *ad loc.*).[[8]](#footnote-8) Thus, the Gemara indicates that even partial cooking is enough to make one liable for the *melakha* of *bishul*.[[9]](#footnote-9)

**Liquids — Scalding**

*Ma’akhal ben Derusai* is relevant only for solids; when it comes to liquids, another determining factor is mentioned in the Gemara in *Shabbat* (40b):

Rav Yehuda said in Shmuel's name: “Both in the case of oil and in the case of water, if the hand shrinks from it, it is forbidden; if the hand does not shrink from it, it is permitted.”

This indicates that the relevant metric for liquids is not the extent of cooking, but the magnitude of the heat — if the liquid becomes so hot that “the hand shrinks from it” (*ha-yad soledet bo*) — i.e., “one’s hand draws back out of a concern of being scalded” (Rashi *ad loc.*) — there is a biblical prohibition of *bishul*.[[10]](#footnote-10) If the liquid does not reach the level of *yad soledet bo*, there is no prohibition at all. According to this, it is permissible to put a teabag into lukewarm water — i.e., water that has not reached the level of *yad soledet bo* — because the tea will certainly not reach a scalding temperature.[[11]](#footnote-11)

**Determining *Yad Soledet Bo***

What is the temperature defined as *yad soledet bo*? In the Gemara (*ibid*.), it says:

And how is “the hand shrinks from it” defined?

Rachava said: “An infant's belly is scalded by it.”

Throughout the generations, many attempts have been made to define “*yad soledet bo”* precisely. The main problem is that it is very subjective: some people will pull their hands back upon coming in contact with an item that is only mildly hot, while others will not pull their hand backs even upon coming in contact with very hot items.

The Darkhei Teshuva (YD 105:51) writes that anything 40ºC (104ºF) or below cannot have the status of *yad soledet bo*, because cow’s milk is considered halakhically “cold,” and when it emerges from the udder, the milk is at 40ºC. (A similar idea is cited, in the name of the Kehillat Ya’akov, in *Orechot Rabbeinu*, Vol. I, p. 378).

**Anything Below 45ºC is Not *Yad Soledet Bo***

Rav S.Z. Auerbach (*Minchat Shlomo* 91:8; *Shemirat Shabbat Ke-hilkhatah,* ch. 1, n. 3) believes that one may be even more lenient, and he cites a proof from the laws of slaughtering animals: according to the conclusion of the Gemara in *Chullin* (8b), a knife used to slaughter a non-kosher animal remains kosher, because the site of slaughter (i.e., the neck of the animal) is not considered to be hot. The regular body heat of a duck exerting itself is 45ºC (113ºF), and at the time of slaughter it goes up a degree, so 45ºC is definitely less than *yad soledet bo*.[[12]](#footnote-12)

**Only 71ºC and Above is *Yad Soledet Bo***

Rav Moshe Feinstein (*Iggerot Moshe,* OC*,* Vol. IV, ch. 74, *Bishul* 3; all future citations of Rav Feinstein in the *Bishul* section come from this unit unless otherwise noted) stresses that this low temperature is only relevant for purposes of stringency (although according to his view, one should be stringent at 43ºC or 109.4ºF): it is not clear that it is definitively considered *yad soledet bo*. According to his view, only a temperature of 71ºC (159.8ºF) can definitely be considered *yad soledet bo*:

What is the level of heat that one must be concerned that it is *yad soledet bo*, and at what level is it definitely *yad soledet bo*?

Answer: It is fitting to be stringent, it would appear to me, from a temperature of 110ºF [43ºC], which is already a high enough level of heat that we must be concerned about *yad soledet bo*, as our investigations show. The doubt remains until 160ºF [71ºC], because 160ºF is certainly considered *yad soledet bo*, even in order to be lenient.

According to this, one should not leave a food in a place where it can reach 45ºC; however for purposes of being **lenient** about *yad soledet bo*,[[13]](#footnote-13) one must count only a temperature of 71ºC as definitely scalding*.*[[14]](#footnote-14)

**Translated by Rav Yoseif Bloch**

1. These questions will be answered over the course of the next few *shiurim*. [↑](#footnote-ref-1)
2. Throughout this series, unless otherwise noted, the citations from the Talmud are from Tractate *Shabbat*; the citations from the Rambam’s *Mishneh Torah* are from *Hilkhot Shabbat*; the citations from the Tur and *Shulchan Arukh* are from *Orach Chayim*. [↑](#footnote-ref-2)
3. The question of the Gemara indicates that the primary *melakhot* are based on those labors necessary **to erect the *Mishkan***, not those labors necessary **for the daily operation of the *Mishkan***, because baking was done regularly in the *Mishkan*, namely baking the showbread. [↑](#footnote-ref-3)
4. According to the Maggid Mishneh (7:4), “Any *melakha* that is totally similar to the *av*, but distinct from it in the quality of the action or the quality of its object — this is considered an *av* just as much,” and following this, one may say that the results of baking are similar to the results of cooking. [↑](#footnote-ref-4)
5. The Rambam starts to analyze the *toladot* of *bishul* only in 9:6, indicating that baking is not a *tolada*, but part of the *av melakha*. [↑](#footnote-ref-5)
6. See *Eglei Tal* (*Ofeh* 1), who thoroughly explains the dispute between the Bavli and the Yerushalmi. [↑](#footnote-ref-6)
7. As for **cooking non-food items,** the *melakha* of *bishul* does not apply solely to foods, but even to other items, as is indicated by the words of the Gemara (74b) that one who throws a tent peg into an oven in order to dry it out and harden it is liable [in the *melakha* of *bishul*]. The same applies to boiling pitch in order to liquefy it, as the Rambam (9:6) states: “This is the rule: one is liable for cooking, whether one softens a hard mass in the fire or hardens a soft mass.” [↑](#footnote-ref-7)
8. As for **measuring the progress of cooking**, the Chazon Ish (37:6) states that since it is difficult to calculate what constitutes a third or a half of the necessary cooking of a given food, one must calculate based on the time necessary to cook it. If, for example, a certain food reaches the level of “fully-cooked” after an hour of cooking, then half an hour of cooking makes the food half-cooked, and twenty minutes of cooking is one-third-cooked. The Chazon Ish adds that when one cooks the food in water, one must count this time only from the point at which the water reaches scalding temperature, because before this point, no *bishul* occurs. [↑](#footnote-ref-8)
9. As for **cooking a food after it has reached the level of *ma’akhal ben Derusai***, according to many Rishonim (Ramban, Rashba, Me’iri, Ran *et al*., 38b), the level of *ma’akhal ben Derusai* can also be applied for lenient purposes; once a food has been cooked to this level, there is no further prohibition of *bishul* violated by continuing to cook it. However, from the Rambam’s words (9:3), it would appear that we can only say that the prohibition of *bishul* does not apply once the food has been fully cooked, but anything that has not been fully cooked (even if it has reached the level of *ma’akhal ben* Derusai)still has a prohibition of *bishul* upon it. This is also the ruling of the *Shulchan Arukh* (318:4), and the Bei’ur Halakha (*ad loc.*, s.v. *Afillu*) lists a number of Rishonim who agree.

   As for **cooking food that is edible when raw**, the Rishonim and Acharonim argue whether the prohibition of *bishul* applies. A number of Acharonim infer from the Rambam (*loc. cit*.) that foods that are edible without cooking, such as fruits and vegetables, are considered to be fully cooked; therefore, the prohibition of *bishul* is not applicable to them at all (*Minchat Kohen*, II, ch. 4), or that the prohibition is rabbinical only (*Hagahot Rabbi Akiva Eger*, Magen Avraham 254:14). The prohibition of *bishul* means to prepare food for eating by the application of heat, and naturally there can be no prohibition for foods that are edible even without any heat. On the other hand, the Or Zarua (II, ch. 62) states, in the name of the Riva, that the biblical prohibition of *bishul* applies even to fruits and vegetables that are eaten raw, because the act of *bishul* alters the taste and prepares them for a different intended use. (For example, apples may be eaten raw, but once one cooks them, they may be made into applesauce; for this purpose, raw apples are not useful, and so it is the act of *bishul* that makes the apples fit for this.) This is also what arises from the words of Tosafot (48a, s.v. *De-zeitim*) and the Sefer Ha-teruma (ch. 231), and there are Acharonim who infer this from the words of the Rambam (*Eglei Tal*, *Ofeh* 19; *Sha’ar Ha-tziyyun* 318:114). The words of the *Shulchan Arukh* (254:4) indicate that he rules stringently about this, that the prohibition of *bishul* does apply to foods that are edible raw, and this is how the Rema (318:14) rules explicitly. [↑](#footnote-ref-9)
10. What is **the basis for the distinction between liquid and solid**? The Gemara notes different measures for solids and liquids because *bishul* affects them in different ways. A solid changes in a significant way due to *bishul*; it becomes softer and has a different consistency, and therefore the level of *bishul* required is defined by the level of alteration of the food, to what extent it becomes soft and edible. While a liquid does change in a significant way through *bishul*, it essentially just becomes hotter, and therefore the level of *bishul* required is determined instead by its temperature. This distinction also has ramifications for the issue of *bishul* *achar* *bishul*, as we shall see in later weeks. [↑](#footnote-ref-10)
11. However, one should not leave a liquid or cooked food in a place where it can reach the temperature of *yad soledet bo*, even if one plans to move them before they will reach that temperature, because we are concerned that one will forget to do so (OC 318:14; *Mishna Berura* *ad loc.* 90). [↑](#footnote-ref-11)
12. Also see the book ***Middot V-shiurei Torah*** (ch. 19), which cites a view, in the name of **Rav Tzvi Pesach Frank** and **Rav Aharon Kotler**, that anything below 52ºC (125.6ºF) is not considered *yad soledet bo*. [↑](#footnote-ref-12)
13. We will see a number of instances in which reaching this temperature is a reason to be lenient. For example, for the issue of *bishul* *achar* *bishul* regarding a liquid that has cooled; according to the *Shulchan Arukh*, once the item has reached *yad soledet bo*, there is no prohibition to cook it further. [↑](#footnote-ref-13)
14. Rav Feinstein’s words elsewhere (*Iggerot Moshe,* YD*,* Vol. II, ch. 52) indicate that only a temperature of 79ºC (174.2ºF) is considered definitely *yad soledet bo*. However, it makes sense that one need not be stringent with a temperature above 71ºC, since this number is already quite strict. Consider that the heat of water in a boiler (an electric water-heater) does not go above 70ºC (a safety measure that prevents the heater from reaching a higher temperature), but hot water in a shower, if not mixed with any cold water, can certainly cause burns, not only on an infant’s belly, but even on an adult’s body. Thus, it is clear that *yad soledet bo* must be lower than 70ºC. This is what leads the Chazon Ish (*Me’or Ha-Shabbat,* Vol. IV, p. 382; *Chut Shani,* Vol. II, p. 164, n. 101) to argue that a heat of about 47-48ºC (116.6-118.4ºF) is definitely considered *yad soledet bo*, even to be lenient (we will develop this idea further in a future week when we discuss hot water heaters). [↑](#footnote-ref-14)