**YESHIVAT HAR ETZION**

**ISRAEL KOSCHITZKY VIRTUAL BEIT MIDRASH (VBM)**

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**Halakha and Jewish History**

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**Shiur #28**

**1879: Invention of the Light Bulb**

***Halakhic Challenges of Electric Lights***

Thomas Edison (1847-1931, Ohio) was an inventor who registered close to 1,100 patents during his lifetime. In 1879, he filed for U.S. patent number 223,898, for what is known today as the incandescent electric bulb. Truth be told, there were earlier scientists who had invented similar technologies, and there is some debate surrounding the question of who really invented the first light bulb.[[1]](#footnote-1) However, it was Edison’s patent that became commonly known as the classic light bulb.

Essentially, an incandescent lamp runs electricity through a vacuumed glass bulb, which burns a thin strip of material until it gets hot enough to glow. This glowing material (filament) provides light, until it eventually burns out.

This invention challenged rabbis of the time and since, presenting many halakhic questions that were debated throughout the 20th century. On one hand, there was the question of whether it could be permitted to use this new light on Shabbat and Yom Tov, as it is not fire; on the other hand, questions were raised as to whether a light bulb might be used in place of a candle in religious practices that require light or fire.[[2]](#footnote-2)

The first and probably the most profound question surrounded whether it would be permissible to turn on an electric light bulb on Shabbat. Is it considered a *melakha*? Is it the same as creating a fire on Shabbat?

**The *melakha* of *hav’ara***

One of the 39 *melakhot* prohibited on Shabbat is *hav’ara*, lighting a fire. This *melakha* is unique as it is the only one of the 39 mentioned explicitly in the Torah.[[3]](#footnote-3) The Torah rules that all *melakha* is prohibited on Shabbat, and in the next verse, singles out this one type:

Six days work may be done, but on the seventh day you shall have sanctity, a day of complete rest to God; whoever performs work thereon [on this day] shall be put to death. You shall not kindle fire in any of your dwelling places on the Sabbath day. (*Shemot* 35:2-3)

What is the meaning of singling out this *melakha*?

The Rabbis in the Gemara debated this question (*Shabbat* 70a) and offered two options. The first suggestion is that by singling out *hav’ara*, the Torah teaches us that one who performs more than one *melakha* unintentionally (*be’shogeg*) on Shabbat must bring a separate sin-offering for each *melakha*.

In this understanding, one *melakha* was randomly chosen to be singled out, to teach us that every *melakha* of the 39 has its own significance.

However, some suggest that *hav’ara* is singled out to teach us that unlike all other *melakhot*, which are punishable by death, one who lights a fire on Shabbat receives “only” lashes. According to this explanation, there is an essential difference between this *melakha* and the other *melakhot*, and it is considered “less” of a violation of Shabbat. Why would that be?

Rabbi Yehuda Loew ben Bezalel (the Maharal of Prague) suggests that lighting a fire is not a *melakha gemura* (full *melakha*). He reasons that nature itself can provide fire and heat, thus man’s involvement is not essential for the creation of fire.[[4]](#footnote-4)

It seems that according to the Maharal, *melakhot* of *Shabbat* are defined by human intervention and creation, which is lacking in our case.

Another possibility is rooted in the fact that the 39 *melakhot* of Shabbat are all acts of *tikkun* (fixing) rather than destroying. The Mishna (*Shabbat* 13:3) says *melakha* that involves destruction alone is not biblically prohibited on Shabbat. For example, it is biblically prohibited to erase writing only if the purpose is to write something else on the parchment. Destroying a building is biblically prohibited only if the goal is to build.

The Rabbis in the Gemara (*Shabbat* 106a) debated whether this rule applies to *hav’ara*: Is lighting any type of fire on Shabbat biblically prohibited, or only if it involves creating something, such as burning wood to create coals or ashes? Although this question is in dispute, one can argue that in its essence, creating fire is a destructive act. Perhaps this explains the opinion that lighting a fire is not a classic *melakha*.[[5]](#footnote-5)

**Is turning on an incandescent light bulb prohibited on Shabbat?**

The *poskim* agreed that it is prohibited to turn on an incandescent bulb on Shabbat but debated whether it is a biblical violation. The commonly accepted ruling is that it is biblically prohibited. Although rabbis have suggested that other *melakhot* may be involved, such as *bishul* (cooking) and *makeh be’patish* (an important act that completes a *melakha*), most are of the opinion is that it is a violation of *hav’ara*.[[6]](#footnote-6)

The great *posek* of Germany, Rav David Tzvi Hoffman (1843-1921), quotes another well-known *posek*, Rav Yosef Shaul Nathanson (1808–1875), who addressed this question in a letter in 1892.[[7]](#footnote-7) The letter was responding to an opinion that noted there can be no fire burning in a light bulb, as there is no oxygen in the glass bulb! Therefore, in this view, the *melakha* of *hav’ara* does not apply to a light bulb.

Rav Nathanson opposed this position; he argued that there must be some air in the bulb, and that the fact that the bulb is extinguished at some point proves there is some process of burning that takes place.

Rav Hoffman adds that it seems turning on a light bulb would be prohibited even if there is no air in it, because the Torah prohibited the creation of a fire rather than maintaining one. Even if a fire cannot burn in an airless light bulb, clearly something happened when it was turned on.

As an interesting historical note, *poskim* mention that some great Rabbis, such as Rav Chaim Soloveitchik and Rav Chaim Ozer Grodzinski, used an incandescent light bulb for their Havdala “candle” because they wanted it to be known that they considered the halakhic status of a light bulb to be the same as fire**.[[8]](#footnote-8)**

**The traditional symbol of the candle**

Following these debates, the rabbis discussed whether this “new” light/fire could be used in other religious customs in which candles were traditionally used, such as Shabbat candles, Chanuka candles,[[9]](#footnote-9) lighting a *yahrzeit* candle, and *bedikat* *chametz* (searching for *chametz*).

Regarding each of these cases, rabbis discussed whether the specific custom requires fire or light, and whether a light bulb could be considered a suitable halakhic replacement. However, besides the halakhic debate of how to understand Edison’s invention, it seems to me that the religious community was also concerned about the potential for new developments to replace classic traditional practices. In some cases, concerns were raised about the religious symbolism of the traditional candle and whether that symbolic aspect is crucial for fulfilling certain rituals.

What happens when a light bulb is actually halakhically preferred, but the traditional element of the candle itself is lost?

*Yahrzeit* candles and *bedikat* *chametz* seem to be good examples in which we find this dilemma.

Rav Ovadya Yosef was one of those to discuss using an “electric candle” as a yahrzeit candle.[[10]](#footnote-10) After proving that lighting a candle in memory of the departed is an important religious custom, he rules that using electric candles is preferable (in a shul) because smoke from candles blackens the shul walls and their odor disturbs people. One might also add the potential fire hazard to these concerns. However, other *poskim*, such as Rabbi Dov Berish Weidenfeld (1881–1965), disagree and prefer a wax candle, arguing that there is religious meaning in the classic candle, attached to the verse “the soul of a person is the lamp of God” (*Mishlei* 20:27).[[11]](#footnote-11)

Regarding *bedikat chametz*, the Mishna states that one must check one’s house on the night before Pesach.[[12]](#footnote-12) The Gemara explains that this must be done by candlelight, and quotes *pesukim* from Tanakh which prove that a candle is a tool which is used to look and find things.[[13]](#footnote-13) However, the alternatives to candlelight that the Gemara rejects are sunlight, moonlight, and the light of a torch. What about a flashlight?

It would seem that a flashlight has several advantages over a candle:

1. Its light can reach all corners of a house.
2. It does not involve a fire hazard.
3. There is no concern of wax dripping.

These reasons led some *poskim* to prefer a flashlight for *bedikat chametz*!

However, others preferred the original traditional light of a candle.[[14]](#footnote-14)

Rav Yaakov Medan argues that the *pesukim* quoted by the Gemara do not merely serve as a technical source for using a candle; rather, they illustrate a symbolic connection between searching for *chametz* and searching one’s personality and *yetzer hara* (evil inclination). He therefore suggests that both a flashlight and a candle should be used.[[15]](#footnote-15)

To conclude, the invention of the incandescent light bulb is a wonderful example of how the development of technology has challenged the religious community on different levels. Is new technology a problem? Can it be used for fulfilling *mitzvot*, or should the old traditional ways be kept?

1. For a summary of this topic, see <https://www.livescience.com/43424-who-invented-the-light-bulb.html>. [↑](#footnote-ref-1)
2. Rav Shlomo Zalman Auerbach in his youth dedicated an entire book to this topic, called *Meorei Eish*. For a summary of these discussions, see *Encyclopedia Talmudit* vol.18, pp. 181-190. [↑](#footnote-ref-2)
3. Although sowing and plowing are also mentioned explicitly in the Torah (*Shemot* 34:21), *Chazal* understood that verse as a reference to *shemita*. [↑](#footnote-ref-3)
4. *Gur Aryeh* on *Shemot* 35:3. [↑](#footnote-ref-4)
5. My uncle, Rabbi Professor Yosef Tabory, suggested this idea. [↑](#footnote-ref-5)
6. See Rav Ovadya Yosef in *Chazon* *Ovadya*, *Shabbat* vol. 1, *hadlakat nerot* 19, for a list of these *poskim*. [↑](#footnote-ref-6)
7. *Melamed Le-ho'il* 1:49. [↑](#footnote-ref-7)
8. See Rav Ovadya above, note 6, and *Yechave* *Daat* 2:39. [↑](#footnote-ref-8)
9. Regarding Chanuka, see *Techumin* 9, pp.317-340. [↑](#footnote-ref-9)
10. *Yechave Daat* 5:60. [↑](#footnote-ref-10)
11. For a summary of this opinion, see Rabbi Chaim Binyamin Goldberg’s book on mourning, *Pnei Baruch*, Jerusalem 1986, p. 424. This book is also available in translation, titled *Mourning in Halachah* (ArtScroll). [↑](#footnote-ref-11)
12. Mishna *Pesachim* 1:1. [↑](#footnote-ref-12)
13. *Pesachim* 7b-8a. [↑](#footnote-ref-13)
14. Rav Ovadya Yosef prefers a candle because of some *poskim* who suggest the glass cover of a flashlight is halakhically problematic. See his *teshuva* in *Yabia Omer* vol. 4, OC 40. [↑](#footnote-ref-14)
15. *Be’er Miriam* series, Pesach volume, *Yediot Achronoth* 2014, pp.109-111. [↑](#footnote-ref-15)