

THE USE OF ELECTRICAL AND ELECTRONIC DEVICES ON SHABBAT

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Committee on Jewish Law and Standards

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Contents:

- Introduction, p. 2
- *Melakhah*: The Prohibition of Transformative Labor, p. 6
- *Shvut*: The Obligation to Rest, p. 39
- Competing Halakhic Values, p.47
- Summary and Halakhic Conclusions, p.54
- Appendix: Table of Rulings, p. 57
- Endnotes, p. 58

Question:

May electrical appliances and electronic devices² be used on Shabbat? If not, then why not? If so, then with what restrictions? What other halakhic values should be considered regarding the use of electricity on Shabbat? May some restrictions on the use of electricity be waived in favor of the needs of disabled or frail individuals?

Response:³

In the tempestuous ocean of time and toil there are islands of stillness where man may enter a harbor and reclaim his dignity. The island is the seventh day, the Sabbath, a day of detachment from things, instruments and practical affairs, as well as of attachment to the spirit.

*--Abraham Joshua Heschel, *The Sabbath*⁴*

Introduction

The flick of a switch. This action, so effortless and casual, is nonetheless a powerful marker of modernity. The switch completes or breaks a circuit, unleashing or suspending the flow of electrons which power every conceivable type of machine.⁵ With electricity we control our physical environment, altering the shape and structure of objects and yielding light and dark, heat and cool, sound and silence, and innumerable other environmental adaptations. Electrical motors⁶ move people and objects in every direction, enabling those with disabilities to function more fully, and all to avoid unwanted exertion. Motion sensors are increasingly embedded in appliances such as public sinks, toilets, lights and doors, and security cameras have proliferated, making it challenging to function in modern buildings⁷ without an electronic transaction.⁸

We use electricity to control not only our physical reality, but also the digital information which is integral to contemporary life. The prevalence of batteries and wireless networks has untethered the digital device, giving us instant access to people and information to help us navigate our lives no matter where we are. Adults and older children seldom venture forth without some sort of electronic assistant. Electronic networks are tapped for transactions which once required physical acts such as entering a store and handling currency. Smart phones are increasingly employed to manage physical tasks such as unlocking and heating cars and homes as well as commercial transactions; the emerging technology of near field communications is accelerating this process.⁹ Digital devices are rapidly replacing their analog predecessors, with e-readers edging out printed books.¹⁰ Social networking programs are playing an increasing role in the establishment and maintenance of personal identity. The pervasive use of electricity and electronics defines modern living,¹¹ and the integration of electronics into all aspects of life has been accelerating. For example, a new form of eyeglasses is reportedly being developed by Google that integrates the use of global positioning software and wireless networking to augment a user's view of the physical environment, with viewers able to scroll through information about their surroundings by tilting their head.¹² Wearable technology and augmented reality systems such as this will presumably become commonplace in the coming years.

Using electricity makes us powerful, yet there is a cost to being permanently networked. Our digital servants have the tendency to become tyrants, and it is nearly impossible to escape their reach. Instant access leads to the loss of privacy and the erosion of social intimacy.¹³ Work that used to end when we left the office now follows

us out the door, down the street, and into our homes. Even on vacation it is common to see people with laptops and smart phones busily keeping up with their demanding tasks. Simple pleasures such as sitting with family and friends over an undisturbed meal, reading in a quiet room, and taking a leisurely stroll have become rare in our culture. We need a break, and Shabbat is here to help us, even as it helped earlier generations rest from the physically intensive tasks that typified their work.

As we will see, Shabbat fosters a different state of consciousness through its detailed regulation of human behavior. Each action is analyzed through two lenses: Is it *melakhah*, the type of work prohibited by *halakhah*? And, does it undermine *shvut*, the positive obligation to rest on Shabbat? This paper will examine these questions and will lead us to conclusions which are grounded in tradition and reflect the realities of contemporary technology and culture.

Why is all of this necessary? Why can't everyone simply rest when and how they like? Of course, they may; Jewish practice today is voluntary, at least for most Jews. This paper, like many contemporary presentations of *halakhah*, is an effort to explain the meaning and the benefits of normative observance in addition to clarifying the technical legal aspects of the matter. What differentiates Shabbat from an ordinary vacation is that it is a communal and sacred enterprise. When Shabbat is observed as a day of intentional rest, it allows community to emerge. When Shabbat is sanctified, then our resting becomes something more than relaxation; it becomes an act of devotion, highlighting those values and relationships which have ultimate significance. Contemporary Jews suffer from a lack of Shabbat and a consequent erosion of purposeful community. Studying and reclaiming these sacred traditions is an essential step to rebuilding a meaningful and hardy Jewish life.

Once a week many Shabbat observant people already power down their devices and choose a Sabbath of abstention from their use.¹⁴ To be more precise, they avoid *directly operating* electrical devices on Shabbat, but nearly all continue to benefit from the lights, refrigerators, thermostats, clocks and countless other devices which carry on their assigned tasks. Shabbat law applies to Jews and to an extent also to non-Jewish employees.¹⁵ It applies even to work-animals owned by Jews, but not to appliances so long as they are left to function on their own.¹⁶ Sometimes these devices are programmed before Shabbat with timers to heat, elevate, illumine and darken at appointed times, thereby giving many of the benefits of electrical use even while avoiding the direct performance of forbidden labor on Shabbat.¹⁷

For many Shabbat observers, the flick of an electrical switch is tantamount to *חילול שבת*, the desecration of Shabbat. This is such a profound transgression that it may be considered a capital offense (Exodus 31:14), although Judaism has not practiced the death penalty for two millennia.¹⁸ The identification as a *shomer Shabbat*—a Sabbath observer—is in many circles associated with rendering electrical switches inaccessible or inoperative on Friday afternoon, and in the setting of timers to adjust lights and other appliances as necessary.

Maintaining a comprehensive ban on the operation of electrical and electronic devices on Shabbat is a policy with many advantages. It is relatively simple to explain and to enforce—even a toddler can be trained to avoid operating electronics on Shabbat. Forbidding even arguably permissible actions may be considered a *סייג לתורה*, a fence around the Torah, preventing people from inadvertent performance of truly forbidden activities. And the result of a comprehensive “electric Sabbath” is to create a day which is dramatically differentiated from the rest of the week. Moreover, the motivations for not using electricity on Shabbat go well beyond the formal requirements of the law. Some young adults have recently published a “Sabbath Manifesto” promoting a weekly 24 hour respite from technology,¹⁹ though not necessarily within the bounds of the Jewish Sabbath, and many people cherish vacations from their digital devices.²⁰ Finally, reducing the use of electricity once a week can help train people to consume less power overall, and thus mitigate the harmful impact of our consumption habits on the environment.

Nevertheless, other Shabbat observant Jews make distinctions between electrical appliances whose operation they find to be permitted and those which they deem prohibited. Such people claim that it is possible to avoid forbidden activities and to achieve the necessary state of tranquility on Shabbat even while making limited use of electricity.²¹ For example, dozens of Orthodox rabbis have endorsed a special light switch that is designed to avoid forbidden labor and is promoted under the slogan, “Control Electricity on Shabbos!”²² The Zomet institute in Israel has justified specially designed public telephones²³ and computer keyboards²⁴ to allow Shabbat observers to gain access to data without violating the laws of Shabbat. Some may shun the use of electricity unless it is indicated by another Jewish value such as assisting people who are ill, frail or disabled, performing necessary military services, avoiding great exertion and waste on Shabbat, or preventing animal suffering.²⁵ Since many Shabbat observers

leave unused appliances such as lights, air conditioners and elevators running all day, the refusal to adjust appliances according to need is not necessarily a green solution.

This subject is complicated, requiring sustained study of the issues and vigilance in practice. Not every action that is permitted should be recommended. The extensive use of timers and specially adapted appliances can easily undermine the distinctive atmosphere of Shabbat. Yet in some cases the trade-off in Jewish values may be justified. This subject is complex, but being *shomer Shabbat* has always required study of the laws of Shabbat, and simplicity itself is not a halakhic goal. Just as there are detailed regulations about how, for example, one may re-heat food on Shabbat without transgressing the ban on cooking, or use house keys without violating the ban on carrying, so too is it possible to develop careful policies about what electrical appliances may be used without violating the laws of Shabbat.

Whether one adopts a comprehensive ban or a partial permission, it is worthwhile to study the halakhic issues involved in operating electronics on Shabbat. The purpose of this paper is to examine the salient issues and give guidance to people who wish to observe the traditional Sabbath rules while also guarding Jewish values such as protecting the dignity of people who are frail or have physical disabilities, the preservation of the environment, and the joy of Shabbat. Instead of presenting a narrow discussion of one particular action, we have chosen to begin with a broad review of Shabbat laws. This survey will allow our more narrow findings to be judged within their broader context and will also provide our community with a better sense of this important area of Jewish law. Because the use of electricity has come to permeate nearly every aspect of contemporary life, and because prior halakhic studies of the use of electricity have generated considerable ambiguity on core concepts, it is not possible to issue a simple and terse ruling. This project has become extensive, yet it too will require expansion and revision as the technology continues to develop.

Our project begins in Section I with a technical discussion of *melakhah* (מלאכה), the form of creative work prohibited on Shabbat. Some actions are considered אסור דאורייתא, forbidden by the rabbis' understanding of the biblical prohibition, and call for severe punishment in the classical literature. Other actions are considered אסור אבל פטור, exempt from full liability, but still banned by the rabbis' own authority. Finally, some actions are considered מותר לכתחילה, permissible from the outset.²⁶ We will discuss various actions involving electricity and seek to clarify to what extent the categories of *melakhah* (labor) are involved.

Yet our subject is not limited to determining whether operating a given electrical appliance is physically comparable to the work traditionally prohibited on Shabbat. Another category known as שבות, or “rest” is designed to protect the special atmosphere of Shabbat and to safeguard the observant from unwitting transgression. But what is שבות, and how should it be defined in contemporary life? This is the focus of Section II, and involves the exploration of rabbinic values specific to Shabbat and Yom Tov such as: טירחא יתירא, avoiding excessive exertion; עובדא דחול, distinguishing Shabbat from workdays; and מוקצה, keeping a protective distance from the performance of forbidden labor.

The observance of Shabbat does not occur in a vacuum devoid of other halakhic values. Section III explores the interaction between such values, some of which reinforce a ban on using electricity, while others would rather mandate its use in certain situations. In it we consider a representative sample of electrical devices which may be helpful to frail and disabled individuals in light of the laws of Shabbat. Finally, in Section IV, we summarize our conclusions, indicating which actions involve *melakhah*, and are thus forbidden unless needed to safeguard health; which actions involve considerations of *shvut*, and are thus forbidden unless overridden by competing Jewish values; and which are to be considered permitted. An appendix applies these findings to a representative sample of electrical and electronic appliances and applications. We begin now with a technical discussion of the definition of *melakhah* before considering its relevance for the use of electricity.

I: מלאכה The Prohibition of Transformative Labor

A. Defining *Melakhah*—Biblical Sources

The primary halakhic vocabulary used to regulate Shabbat is that of *melakhah* (מלאכה—transformative labor). The Torah emphatically prohibits all *melakhah* on pain of death (Exodus 31:14), but it is vague about the definition of such activity. What is this *melakhah*? In the Torah God commands Israel not to burn fire in all of its habitations (Ex. 35:3), to stone to death a man who gathers firewood (Numbers 15:32-35), and not to plow or harvest in the field (Ex. 34:21).²⁷ Jeremiah adds a ban on carrying from one domain to another (17:21-22),²⁸ and Nehemiah admonishes the men of Judah for treading on winepresses and loading wares on Shabbat (13:15-18).²⁹ Jeffrey Tigay observes that a ban on cooking is implicit in the Exodus manna narrative.³⁰ Barukh Schwartz reviews the treatment of Shabbat in the Torah’s four documentary traditions,

arguing that each source is distinctive and consistent in its presentation of the purpose of the seventh day.³¹

Nevertheless, it is unclear from the biblical texts how many discrete actions are cumulatively included in the *melakhah* prohibition, and how these activities are to be differentiated from other, permitted, behaviors. Ancient Jewish writings such as the *Book of Jubilees* and the Dead Sea sect's *Damascus Document* include distinctive lists of prohibited Sabbath labors,³² but these are not in accord with the (generally more lenient) standards later adopted by the rabbis,³³ nor do they clarify the theoretical framework of the ban on *melakhah*.

While the Torah repeatedly bans *melakhah* in the strongest of terms, it does not provide an *abstract* description of the nature of *melakhah* which could fill the void left by its sparse list of banned activities. Still, we may extrapolate some of the meaning of the term from other contexts in which *melakhah* is mentioned. The term *melakhah* is employed in reference to God's creation of the cosmos in *Genesis* (2:2-3) and to Israel's construction of the tabernacle in *Exodus* (esp. ch. 36). These associations imply that there is something *creative* about *melakhah*—it is the language of creation for both God and for people.³⁴ In desisting from creative labor on Shabbat, even the labor of tabernacle construction, the Israelite identifies with both the active and the resting states of God. The type of creativity discussed here is one in which material reality is *transformed*, rather than the creativity of song, speech and other expressions of emotion and ideas. In fact, the cessation of physical creativity functions as a catalyst for spiritual creativity on Shabbat, as it says of God, שבת וינפש, *He ceased from work and was refreshed* (Ex. 31:17).³⁵ Rabbi Shimon ben Lakish taught that the cessation of physical labor and all of its frustrations leads to the gift of נשמה יתירה, an “additional soul” on Shabbat.³⁶ The seventh day has long functioned as an incubator for the most spiritually creative and productive hours of the week.

The importance of Shabbat is indicated by the fact that it is the only ritual practice included within the Decalogue. In the *Exodus* version the command to desist from *melakhah* is explained as a reminder of how God desisted from *melakhah* on the seventh day (Ex. 20:7-10).³⁷ Yet in the second rendition, Shabbat is said to be a reminder of Israel's liberation from slavery (Deuteronomy 5:14). Curiously, the Torah does not spell out precisely *how* observing Shabbat is reminiscent of the exodus from Egypt. Perhaps it is because slaves are unable to rest, and so Shabbat reminds the Israelite that s/he was once enslaved and was rescued by the Lord. The point of resting is thus to

inspire gratitude to God for our freedom. This explanation is supported by Rabbi Abraham ibn Ezra in his comments to Deut. 5:14, וי"א, כי העבד לא ינוח. והנה השם הוציאך מעבדות, "Some say that [it is because] the slave may not rest. Behold, the Lord took you out of slavery and commanded you to rest so that you would remember that you were a slave." Yet this explanation is rejected by Ramban, for whom Shabbat functions purely as a reminder of God's creation; the Exodus from Egypt is yet another demonstration of God's renewal of creation, חדוש העולם. Sabbath rest therefore reminds us of God's creative power, not of our improved circumstances. Bernard Goldstein and Alan Cooper suggest that Deuteronomy's version of the Decalogue originally included *hag ha-matzot* as the fourth commandment, since Shabbat was not significant to the Northern tradition; later priestly editing in Judea substituted Shabbat but incongruously left the motive-clause regarding the Exodus in place.³⁸ In any event, the two associations of Shabbat with the creation and the exodus were combined by the sages in the *kiddush* prayer for Friday night. *The command not to work thus reminds Israel of the Lord's great gifts of life and liberty.*³⁹

A different (and perhaps primary) motivation for the Sabbath laws is implicit in the narrative regarding the manna in Exodus 16:22-30, where the Israelites are instructed to collect a double portion on the sixth day so that they might rest from food gathering on the seventh day. This narrative precedes the prohibition of Sabbath labor, which is first mentioned in Ex. 20:7. The statement in 16:30 that, "the people rested on the seventh day" is a unique claim in the Torah.⁴⁰ The purpose of Shabbat here seems to be an amplification of the lesson of manna—to foster a sense of trust in God's reliability as a provider for the people's physical sustenance. Shabbat is called a sign *between* God and Israel (Ex. 31:13, 17), apparently because the Lord and His people share the experience of working during the week and resting on Shabbat. According to Moshe Greenberg, it is this shared experience of resting from manna production and collection that Israel is commanded to "remember" in the Decalogue (Exodus 20:7).

Stephen Geller argues that Exodus chapter 16 contains two distinct traditions about the manna and Shabbat, one covenantal, and the second cultic or priestly.⁴¹ The covenantal tradition views both the manna and the Sabbath as examples of God *testing* Israel's obedience. Despite the warnings about not hoarding manna from day to day, and then not going out to collect it on the Sabbath, some Israelites persist in disobedience, drawing rebuke from Moses and God. The point of Shabbat rest in this perspective is for the Israelite to accept divine sovereignty. The second and more

extensive perspective is priestly in nature. The daily gift of manna is a *reenactment* of the creation narrative in Genesis 1, and the double portion of manna on the sixth day recalls the emphatic pronouncement that the creation was “very good.” The command to rest from collecting manna on Shabbat is an Israelite imitation of the divine act of separation between ordinary and sacred times: “Observant humanity makes each Sabbath a shared act of creation with God.” This priestly perspective also connects the Sabbath to a later mechanism of divine-human partnership, the tabernacle.

The command not to perform *melakhah* on Shabbat is repeated just before the section detailing the command to build the tabernacle (Ex. 35:1-3). The rabbis understand this juxtaposition to indicate the primacy of Shabbat over the tabernacle project,⁴² and also to limit the scope of *melakhah* forbidden on Shabbat to those acts involved in the tabernacle. In tractate *Hagigah* 10b, the rabbis explain that *melakhah* is categorically limited to מלאכה מהשבת—actions intended for the same purpose as their equivalent activities in the tabernacle.⁴³

Modern Bible scholars have observed that the institution of Shabbat rose in prominence following the destruction of the first temple in 586 BCE and came to be seen as a symbol of the entire covenant at that time.⁴⁴ Whereas the festivals required a physical center for full ritual observance, the Sabbath could be observed anywhere, including in exile. Moreover, as Michael Fishbane has written, post-exilic ideology “saw in the desecration of the Sabbath the principal reason for Judea’s destruction, and, correspondingly, believed its reconsecration to be vital.”⁴⁵

B. Defining *Melakhah*—Rabbinic Sources

The association of Shabbat with the great biblical narratives of the creation, exodus, tabernacle, exile and restoration lends extraordinary significance to *melakhah* but does not define it with legal precision. What is *melakhah*? The biblical materials alone do not suffice to explain how, exactly, one might observe this day. Into the void steps Mishnah Shabbat (7:2), proclaiming a list of “forty less one”⁴⁶ primary categories of forbidden labor (אבות מלאכות):

אבות מלאכות ארבעים חסר אחת הזורע והחורש והקוצר והמעמר הדש והזורע הבורר הטוחן והמרקד והלש והאופה הגוזז את הצמר המלבנו והמנפצו והצובעו והטווה והמיסך והעושה שתי בתי גירין והאורג שני חוטין והפוצע ב' חוטין הקושר והמתיר והתופר שתי תפירות הקורע ע"מ לתפור שתי תפירות הצד צבי השוחטו והמפשיטו המולחו והמעבד את עורו והמוחקו והמחטכו הכותב שתי

אותיות והמוחק על מנת לכתוב שתי אותיות הבונה והסותר המכבה והמבעיר המכה בפטיש המוציא מרשות לרשות הרי אלו אבות מלאכות ארבעים חסר אחת:

Principal occupations there are forty less one: to sow, to plough, to mow, to gather into sheaves, to thrash, to winnow, to sift [grain], to grind, to sieve, to knead, to bake, to shear wool, to wash wool, to card, to dye, to spin, to warp, to shoot two threads, to weave two threads, to cut and tie two threads, to tie, to untie, to sew two stitches, to tear thread with intent to sew two stitches, to catch a stag [game], to slaughter it, to skin, to salt [cure] a hide, to singe a hide, to tan, to cut up a skin, to write two letters, to erase with intent to write two letters, to build, to demolish, to extinguish fire, to kindle fire, to hammer, to carry [or convey] from one *reshuth* [domain] into another. Thus these principal occupations are forty less one.⁴⁷

This list may be broken into five functions. #1-11: the production of bread; #12-24: the production of clothing; #25-33: hunting and preparing hides as parchment for writing; #34-38: the construction of tools and shelter; and #39: the transportation of goods. We may summarize the list by stating that the rabbinic understanding of *melakhah* regards *the transformation of material reality* to serve the needs of civilized people for food, clothing, writing, shelter and tools.⁴⁸

Labors which leave no durable impact on the material environment are not considered to be forbidden as *melakhah*. As Mishnah *Shabbat* 12:1 declares, *זה הכלל כל העושה מלאכה ומלאכתו מתקיימת בשבת חייב* “this is the rule: anyone who performs work and his work is stable (or endures) on the Sabbath⁴⁹ is culpable.” This general principle is stated in a Mishnah which functions as a header to the second half of the tractate and its discussion of the first 38 labors. The immediate focus of this Mishnah is on the cluster of building activities, but the principle of durable impact relates to other clusters as well. For example, tying a knot is the 21st archetype of labor, but the rabbis limited this ban to “permanent” knots intended to last for at least 24 hours. A professional knot used to secure a camel’s bridle, which is forbidden, is in this way distinguished from tying a shoelace, which is allowed. Durability is the focus of the sections dealing with writing⁵⁰ and is implicit in the later ruling about cooking that from a halakhic perspective, a substance may be cooked only once.⁵¹ Rabbi Vidal di Tolosa states in *Maggid Mishnah*, his commentary to Rambam’s *Mishneh Torah*, that *שבכל מלאכת שבת בעיני דבר המתקיים* “all Sabbath labors require a durable result.”⁵²

The one *melakhah* which appears to be an exception to this rule is the final one, *והמוציא מרשות לרשות*, “and one who carries from domain to domain” since the change in location does not necessarily alter the object itself. Indeed, this category is viewed as a

non sequitur in the list of *melakhot*, as Avraham Goldberg discusses in his commentary to *Mishnah Shabbat*, and this may account for the Bavli and Yerushalmi's attempts to base it separately on verses in the Torah⁵³ and the overwhelming attention to carrying on *Mishnah Shabbat* (which occupies the first half of the tractate). It may be that the transportation of tools is considered to be essential to the building process described in the prior set of categories, or that once an item is completed it is then carried for use. Only when the object has been put to use is the labor of construction deemed complete. In any event, transporting goods from domain to domain is ultimately a transformation of material reality and conforms to our general understanding of *melakhah*.

It is not evident how the early rabbis of the Talmud (Tannaim, 70-200 CE) transitioned from the Torah's rather vague prohibition of *melakhah* to the detailed list of *Mishnah Shabbat* 7:2. In *Bavli Shabbat* 49b the later rabbis (Amoraim, 200-450 CE) discuss this subject among themselves as an apparently unsettled question: *הא דתנן אבות מלאכות* *הא דתנן אבות מלאכות*? *ארבעים חסר אחת כנגד מי* "That Mishnah which lists forty minus one *melakhot*—what is its basis?" Rabbi Hanina bar Hama asserts that the Mishnah's list is in accord with the tabernacle labors; other theories indicate that the Torah supplied the *quantity* but not the *identity* of the labors. One view claims 39 as the *number of references* to the word *melakhah* (in three forms) in the entire Torah; at *B. Shabbat* 49b the rabbis struggle to identify which instances should be included on the list. Elsewhere in the Bavli⁵⁴ and in the Yerushalmi,⁵⁵ the rabbis derive the number 39 from plays on the *gematria* (numerical value) of the words *אלה הדברים* in Exodus 35:1.⁵⁶

These theories may address the *quantity* of categories, but not their specific *identities*. Are the 39 categories an accurate and exhaustive list of the tasks of tabernacle construction? Where does the Torah mention or at least imply activities such as those described by the Rabbis? After all, the most extensive description of the tabernacle construction comes in *Exodus* chapters 36-39, where the dominant verb is simply *ויעש*, "he made." The physical actions involved in this making are largely left to the imagination. From a logical perspective, how could desert nomads have performed extensive agricultural tasks such as plowing, sowing, and harvesting, especially during the few months between the Exodus and the building of the tabernacle?⁵⁷ Given the Torah's description of the tabernacle labors, why are so many of the rabbis' *avot melakhot* focused on food and cloth production, and so few on carpentry and metalwork? For example, why did the Mishnah identify *אופה*, *baking*, as the banned archetype, whereas the Amoraim considered it to be a mere sub-category of *בישול*,

seething, an activity said to have been performed to boil the dyes for the tabernacle coverings?

Notwithstanding such basic questions, the view that the banned Sabbath labors were derived from the tabernacle labors came to dominate rabbinic thought. The Yerushalmi states, כל אבות מלאכות מן המשכן למדו “All of the principle categories of labor were learned from the tabernacle.”⁵⁸ *Bavli* Shabbat 49b states that any labor not performed in the tabernacle cannot be considered to be one of the archetypes.⁵⁹ Indeed, the Torah itself links Shabbat to the tabernacle with the expression, את שבתתי תשמרו ומקדשי את שבתתי תיראו אני ה' (Lev. 19:30 and 26:2). We may think of the Sabbath as a mirror image of the tabernacle. The tabernacle is built through 39 discrete *actions*; the Sabbath is “built” through 39 discrete *inactions*. While the Sabbath appears to be less substantial than the tabernacle, it is the Sabbath which has endured as a permanent structure of Jewish life, whereas the tabernacle has receded into mythic memory. The Rabbis wax eloquent in their praise of Shabbat, saying that guarding Shabbat is the equivalent of keeping all mitzvot in the Torah, and that should Israel only guard the Sabbath properly, the messiah would promptly arrive.⁶⁰ Later mystical authors go further, seeing proper Sabbath observance as instrumental in maintaining cosmic harmony.⁶¹ This extraordinary praise of Shabbat should give pause to our desire to expand the use of tools, whether mechanical or electronic, on a day whose most valuable feature may be its enforced break from *melakhah*, physical creativity.

C. Primary and Derivative Labors: אבות ותולדות מלאכות

Although the *melakhot* were initially limited to a list of 39, many other activities were banned by association. One of the many complicated questions in the laws of Shabbat is the relationship between the primary categories (אבות) and their derivatives (תולדותיהם). In the Talmud Yerushalmi we read that Rabbi Yohanan and Rabbi Shimon ben Lakish studied the topic of אבות מלאכות for three and a half years and produced a list of 39 *toledot* for each of the 39 *avot* (!).⁶² Rabbi Joel Roth and Yitzhak Gilat have each produced detailed studies of this subject.⁶³

Shabbat is not the only halakhic topic in which the terms *avot* and *toledot* appear—they are found also in the definition of damages (נזיקין)⁶⁴ and of the sources of ritual impurity (טומאה).⁶⁵ In the latter usage, derivative sources of ritual impurity have

diminished severity, but regarding both damages and Shabbat labor, derivative acts have legal consequences *equal* to those of the primary categories.⁶⁶

Derivative Shabbat prohibitions are said to resemble the primary categories in their physical function, purpose *or* result.⁶⁷ One example of a *toledah* is watering plants; this is forbidden as a derivative of the primary category of sowing seeds (זורע). Both activities have the purpose of making a plant grow in the soil, but the mechanisms are physically distinct. Thus watering is not banned as a form of sowing, but rather is a derivative labor sharing the same goal of causing plants to grow. *Avot* and *toledot* are further differentiated by the fact that the primary categories generally appear on the list of Mishnah Shabbat 7:2, whereas derivatives include forms of labor absent from the list but comparable to its categories.⁶⁸ Primary categories are also said to have been “important” to the work of building the tabernacle, which was not the case for the derivatives.⁶⁹ In the classical setting, the major purpose of differentiating primary and derivative Sabbath labors was to determine how many sacrifices of purification (קרבתן) (הטאת) were necessary to restore a transgressor to good standing before God.

For our purpose, it is immaterial whether a *melakhah* said to be involved in the use of electricity is considered to be a primary or derivative category; all are equally forbidden. Nor are we immediately concerned with the quantity of sacrifices required in the ancient Temple. However we will see that the *av/toledah* relationship is essential when considering whether a *melakhah* such as cooking or writing when performed in a completely distinct process (such as using a microwave oven, or writing to digital memory) should be forbidden as a derivative form of the primary prohibition. *If the physical mechanism (פעולה) is different from that of the primary prohibition, but the purpose and the result (תכלית) are identical, then an activity is considered forbidden as a toledah or derivative of the primary category. If the mechanism, purpose and result are different, then the activity under consideration would not be forbidden as melakhah, though it might still be inconsistent with the command to rest on Shabbat.*

D. Intentional Labor

In Mishnah *Hagigah* 1:8 the rabbis famously declare that, “the laws of Shabbat ... are like mountains suspended by a hair, for they have few verses, but many laws.”⁷⁰ Given the large number of references to Shabbat across the Hebrew Bible, the significance of this claim is unclear. In the Bavli (*Hagigah* 10b), the rabbis clarify the Mishnah’s puzzling statement by saying that while there are in fact many verses about

Shabbat in the Torah, the matter of *intentional labor* is not explained in the text, but must be inferred:מלאכת מחשבת אסרה תורה, ומלאכת מחשבת לא כתיבא.⁷¹ Indeed, the question of *intention* is essential to the rabbis' determination of whether any given action is considered to have violated an established prohibition.

The great significance granted to intention indicates that the Sabbath rules as developed by the rabbis are concerned not merely with external reality, but also with the internal experience of the Sabbath observer. Indeed, Mishnah Shabbat 7:2 is set within a larger chapter named for its first Mishnah, כלל גדול whose subject is the psychological context of Sabbath transgressions. Stephen Wald writes in his commentary to Bavli Shabbat Chapter 7 that the "root idea" of the chapter is, "that one is not liable for the number of transgressions performed but rather for the number of errors which caused the transgressions. This root idea moves the focus of our attention from the concrete and objective plane, to the more abstract and subjective plane of discourse."⁷² Understanding both the physical and psychological impact of each activity involving electricity on Shabbat will likewise be essential to our project.

There are four categories of intention significant to *hilkhot Shabbat*:

A) דבר שאינו מתכוון **Unintended and unanticipated melakhah**. If a person performs a permitted act on Shabbat knowing that it is *possible* but not inevitable that a *melakhah* might result from his/her activity, such action is permitted despite the unintended consequence. The classic examples are dragging a chair on a dirt floor, which could cause a rut, but is not considered to be "plowing," and walking across a lawn, which could uproot some grass, but is not considered "harvesting."

B) פסיק רישיה ולא ימות **Unavoidable melakhah**. If a person likewise performs an action on Shabbat for a permitted purpose but knows that it is *inevitable* that a beneficial *melakhah* will result from the activity, such action is deemed by the rabbis to be forbidden by biblical law as an unavoidable and beneficial consequence.⁷³ This category's name comes from its classic example—a man wants to give a child a chicken head to play with on Shabbat; he cuts off the head, not intending to kill the chicken per se, but, פסיק רישא ולא ימות "if you cut off its head, will it not die?"⁷⁴

C) **פסיק רישיה ולא ניהא ליה** **Unavoidable and undesirable melakhah**. Similarly, if a person intends to perform a permitted act on Shabbat knowing that it is *inevitable* that a *melakhah* will result from the activity, except that he will receive no benefit from this result (and may suffer a loss), many authorities permit the action, though some Ashkenazi *poskim* rule stringently.⁷⁵

D) **מלאכה שאינה צריכה לגופה** **Intentional act, but for a purpose different from the melakhah**. Finally, if a person intentionally performs a *melakhah* on Shabbat, but for a permitted purpose unrelated to its forbidden result, this is the subject of debate. In the Talmud, Rabbi Shimon considers such an act to be permitted, whereas Rabbi Yehudah forbids it. Later authorities mostly side with Rabbi Shimon's leniency, ruling that such an action is not banned by the Torah, but they nevertheless ban it by force of rabbinic decree.⁷⁶ The classic citation of מלאכה שאינה צריכה לגופה is *Bavli Shabbat 73b*, though there are other references to the debate throughout the tractate and other volumes. This case refers to a man who digs a hole on Shabbat, which is normally forbidden as either the *melakhah* of "digging" (חופר) or "building" (בונה) depending on whether the hole is inside or outside of the home. In this case, however, this man's interest is not in producing a hole, but rather in gathering some dirt. Rabbi Shimon permits the act, whereas Rabbi Yehudah forbids it—almost. In the end, even Rabbi Yehudah permits this because in this case the act of digging is considered to be קלקול, destructive (since it leaves an unhelpful and even hazardous hole in the field or floor). While the majority view is that such *melakhah* does not violate the biblical ban, the rabbis prohibited it of their own authority.

The question of intention is significant when considering the *melakhah* possibly involved in using electricity. For example, some electrical switches may create an arc of flame when flipped. It is forbidden to light a fire (מבעיר), but in this case, the creation of sparks is not *inevitable* and is not the actor's *intention* and is generally not even *observed*.⁷⁷ Causing such sparks would therefore be considered only a *possible* consequence of the act, and certainly not one which benefits the actor. Thus we would deem their creation to be permitted as unintended and unanticipated, דבר שאינו מתכוון.⁷⁸

To summarize this introductory discussion, in order to establish that a given action is *biblically prohibited* as *melakhah*, one must show that the act is physically comparable or has comparable intentions and results to one of the primary categories (אבות) or its derivations (תולדות). Absent such results and intentions, the act may still be

forbidden by authority of the rabbis (אסור דרבנן), but will not be considered biblically prohibited (אסור דאורייתא). Rabbinic prohibitions are generally binding, but they bear lesser penalties and may be superseded by competing halakhic values as we will see in Section III. We now consider various categories of *melakhah* and their applicability to the operation of electrical appliances and electronic devices.

E. Categories of *Melakhah* Most Relevant to the Use of Electricity:⁷⁹

From the outset of this discussion we should note that there are many established forms of *melakhah* which are performed through the operation of various electrical appliances. From sowing seed to transporting produce, all thirty-nine categories of labor might be performed with electrical assistance, and all would be banned under the same rubric as if done without electricity. Here the prohibition is in the activity itself, the פעולה, whereas the use of electricity to facilitate the labor is of secondary importance. One may not claim that s/he did not intend, for example, to trim shrubs, but merely pushed the button which operated the motor of the power trimmer.⁸⁰ If one's action is intended to result in a *melakhah*, then one is liable for that *melakhah* on Shabbat or Yom Tov whether the tool was manual or powered. We cannot list every type of appliance, but the following brief list should alert the Sabbath observer to the types of labors to consider with some household appliances used to perform them:

קוצר — *pruning* — electric trimmer or lawn mower.

טוחן — *grinding* — electric coffee grinder or pepper mill.

לש ואופה — *kneading and baking* — electric bread maker.

גוזז — *shearing* — electric shaver.

תופר — *sewing* — sewing machine.

כותב — using an electric typewriter or printer to apply ink to paper.

*Any labor which is forbidden manually is also forbidden with electrical assistance since the physical mechanism of labor is either similar or identical, and the intention and product of the manual and power-assisted actions are identical. Moreover, לא פלוג רבנן, the Sages do not permit unsustainable distinctions.*⁸¹

Most electrical appliances and electronic devices, however, do not involve the direct performance of established *melakhot* with the same physical mechanism as their manual predecessors. Is the use of electricity inherently problematic, as implied by the blanket prohibition on the use of electricity by many Shabbat observers? If so, then

why? The following *avot melakhot* have been frequently mentioned as *general* objections to the operation of electrical circuits:

מוליד *Molid*, “Making New.” When a live circuit is closed, electrical current is caused to flow into an appliance, generally with desired results (sometimes, of course, the results are negative). One 19th century rabbi, Yitzhak Schmelkis,⁸² argued that this action could be compared to a case discussed in the Talmud (*Beitzah* 23a) in which a cup of perfume was spilled onto a piece of ceramic or a garment in order to infuse it with fragrance.⁸³ This action was rabbinically forbidden because the absorbing agent was permanently transformed by the infusion. So too, argued Rabbi Schmelkis, should the operation of all electrical appliances be *rabbinically* banned on Shabbat as a form of *molid* because the appliance absorbs the current and is transformed by the change.

If this comparison were accepted, then the closing of any electrical circuit would be banned rabbinically regardless of the function of the device itself. However, prominent 20th century halakhic authorities such as Rabbi Shlomo Zalman Auerbach⁸⁴ and Rabbi Eliezer Waldenberg⁸⁵ rebutted this argument. *Molid reicha* is not used in halakhah as a source from which to extrapolate other prohibitions. Even within the case of transferring fragrance, the rabbis banned only perfuming clothes, presumably because this was a permanent (or at least durable) transformation. In contrast, electrical appliances are constantly being turned on and off; introducing current does not make them “new” or render a durable transformation.⁸⁶ Perhaps the *initial use* of an appliance which had never been previously tested could sustain this argument,⁸⁷ but *molid* makes little sense when applied to the ordinary use of electrical appliances.

בונה *Boneh*, “Building.” A more influential argument for the prohibition of operating all electrical appliances was advanced by the Tel Aviv-based Rabbi Avrohom Isaiah Karelitz, generally known for his book of responsa, “*Hazon Ish*.”⁸⁸ He argues that closing an electrical circuit may be compared to the primary category of labor called building, noting that in the Talmud the ban on Sabbath “building” is applied even to the assembly of pre-existing parts (like sections of a pole which were attached together for use in whitewashing walls).⁸⁹ So too, according to Rabbi Karelitz, should the introduction of electrical current into an appliance be banned as a form of construction. The category of building is linked to its opposite: *breaking* (סותר). It is forbidden to break something down, though this ban is generally limited to cases where the intention is to prepare the site or materials for new construction, rather than just breaking something

for the sake of disposal (קלקול). Turning off an appliance would, according to Hazon Ish's reasoning, be forbidden as "breaking" it down in order to prepare it to be "built" again.

While Rabbi Karelitz's position banning the operation of electrical appliances based on *boneh* has received more support than has the ban based on *molid*, it too has been refuted, most vigorously by Rabbi Auerbach. He argues that opening and closing a circuit is comparable to opening and closing a door or window, and is unlike building a wall. When we close a door we don't consider that we have built a wall, nor do we say that we have destroyed a building when we open the door to exit. So too, closing a circuit is not properly considered to be building, nor is opening the circuit considered to be destroying. *Doors and windows are designed to be opened and closed constantly, and so too are electrical circuits.* On a technical level, appliances which operate with alternating current can be considered to be constantly turning on and off. If so, then turning off an AC appliance can be viewed as merely preventing it from turning on or off again—all the more reason to refute this line of prohibition. Battery-powered electronic devices which have no moving switches and are not connected to a power grid are even more resistant to this argument. Within the Orthodox world, Rabbi Auerbach's critique of the Hazon Ish's reasoning has been accepted by many *poskim*.⁹⁰ Rabbi Auerbach's arguments are convincing for electrical appliances and even more so for electronic devices which have no moving parts.

מכה בפטיש *Makeh B'fatish*, "Completing Labor." Rabbi Karelitz also mentions this category of *melakhah* in connection to closing an electrical circuit. *Makeh b'fatish*, literally, "the final hammer blow," refers to completing a type of building. מכה בפטיש is a broader category than בונה, which generally is limited to actions involving hard construction materials used to create an object, whereas מכה בפטיש can also refer to building with pliable materials like cloth. In Mishnah Shabbat 12:1, מכה בפטיש is included in the general principle mentioned above, ומלאכתו מתקיימת בשבת חייב זה הכלל כל העושה מלאכה ומלאכתו מתקיימת בשבת חייב "this is the rule: anyone who performs work and his work is stable (or endures) on the Sabbath is culpable." The Gemara adds in the name of Rabba and Rabbi Zeira that any action which completes labor, גמר מלאכה, is also deemed מכה בפטיש.⁹¹ Rashi explains the source activity as the final step in chiseling a square of stone from a cliff and states that any other construction technique which requires a final blow is considered a derivative of מכה בפטיש.⁹² The Tosafist Rabbi Yitzhak questions whether stone-carving was a

tabernacle labor, and explains that מכה בפטיש refers to the final hammer blow for creating a utensil.⁹³ Rambam applies this category to the final stage of creating utensils of glass, ceramic and metal.⁹⁴ The Talmud Yerushalmi cited above (which claims that Rabbi Yohanan and Rabbi Shimon ben Lakish identified 39 derivatives for each primary category of labor) also states that whatever they couldn't identify they called a derivative of מכה בפטיש.⁹⁵

This category thus has broad application, but can it be applied to the normal operation of electrical appliances? The same objections summoned above may be applied here: electrical circuits are designed to be opened and closed constantly. Turning on an appliance is no more the “completion” of its construction than is twisting a doorknob or shutting a window. מכה בפטיש refers to the *permanent* completion of a labor, as in the case of a hammer splitting rock or driving a nail into a wood plank. Perhaps soldering electrical wire to a circuit board could qualify for this labor, but it is implausible for daily operation. As mentioned above, AC appliances are constantly cycling between states; solid state electronics have no moving parts. This category is not convincing as a catch-all prohibition for electrical appliances (but see further discussion below).

מתקן מנה *Mitakein Mana, Preparing a Utensil.* This term falls under the prior one of מכה בפטיש, but it is often listed separately. Rabbi Eliezer Waldenberg argues that closing an electrical circuit to allow for the operation of an electrical appliance is forbidden as “preparing a utensil,” citing the precedent of winding a watch, which had been forbidden by several early modern authorities.⁹⁶ As with the previous two arguments, this one comes down to whether one considers an electrical appliance, in Rabbi Waldenberg’s words, to be “dead” without electricity and “alive” with it, and whether its operation should be considered to be a type of construction. Our opinion remains that electrical appliances are prepared at the time of their assembly. Adding current allows them to function, just as causing water to run through a tap or toilet allows those appliances to function, but we do not consider these normal operations to be acts of creation which cause durable change. They are rather mechanical manipulations akin to dozens of other activities done by Sabbath observers such as opening doors, cabinets and windows. Increasingly, modern appliances and electronics do not truly turn on and off, but merely switch from “standby” to “active” mode. Activating an electrical appliance is not to be viewed as a form of construction.

That said, this category of *mitakein mana* does plausibly fit actions which involve *assembling* an appliance, *connecting* it to the electric power grid, or *inserting* a battery without which it would be useless.⁹⁷ Just as considerations of *molid* would indicate that new appliances should not be used for the first time on Shabbat, so too would concerns of *mitakein mana* indicate that repairs to electrical and electronic appliances and their attachment to a power source would be forbidden on Shabbat, as would recharging batteries.⁹⁸

בישול Bishul, “Cooking.” Rabbi Karelitz writes that the phenomenon of electrical wires growing warm as a result of resistance might be beneficial to the conduction of electricity. If so, then the heating of the wires could be considered forbidden as a type of cooking. This theory is flawed on many levels. The generation of heat through resistance is the result of inefficiency in electrical wiring which is undesired and unhelpful to the transmission. Indeed, the hotter the wires, the less efficient they become at transmitting current.⁹⁹ Moreover, the wire does not generally get hot to the point of halakhic significance known as יד סולדת בו (*yad soledet bo*--the hand retracts from it),¹⁰⁰ and thus the warming of wires is not considered *bishul*. Even if the wire *did* get sufficiently hot and there *were* some benefit to the heating, people are not generally *aware* of the warmth of electrical wires, and this action would therefore be permitted as דבר שאינו מתכוון, an unintentional act. Finally, there is a general principle of אין בישול אחר בישול (*ein bishul achar bishul*—a substance is not cooked twice).¹⁰¹ All of these arguments are augmented when considering solid state circuits which do not generate noticeable heat.

Nevertheless, there is one type of heating of electrical wires which could meet the conditions of *bishul*—the intentional use of a resistor to generate heat as in the case of an electric range or oven, a space heater, electric kettle or a hair dryer. The ancient rabbis considered “cooking” to be forbidden whether or not the cooked substance was a food (the source activity in the tabernacle was the boiling of dyes), and whether or not the cooked item came into direct contact with the fire. If food is cooked in a substance such as water which had been heated and then removed from the fire (e.g., an egg in a pot which had boiled and then been turned off), this is forbidden as a derivative form of cooking (*toledat ha-or* or *toledat ha-esh*; see SA OH 318:3).

Still, in all of these cases, *bishul* requires actual fire. What about “cooking” with electricity? Many contemporary families do *all* of their cooking with electric ovens,

microwaves and toasters and do not even own a gas oven or range top. The ancient rabbis too knew of ways to cook without a fire—for example, in sand which had been heated by the sun or in the hot springs of Tiberias¹⁰²—is this type of cooking forbidden as *bishul*? The source text for this discussion is Bavli *Shabbat* 39a, and there is a full discussion in the medieval commentaries and codes. Rambam rules leniently, but the *Shulhan Arukh* considers such cooking to be forbidden.¹⁰³

Rabbi Moshe Feinstein reviews these sources, arguing that activities which are similar to those performed in the tabernacle are rightly considered to be forbidden as derivative prohibitions (תולדות).¹⁰⁴ He interprets the lenient rulings of Rashi, Ra"N and other authorities who permit cooking with the sun to have referred to a different and less effective cooking method, and argues that a microwave oven is designed to cook food just as effectively as fire does, and therefore is biblically forbidden as a *toledah* of *bishul*. Rabbi Feinstein's arguments are convincing.¹⁰⁵ Electric ovens are far closer in function and result to gas ovens than to the indirect and inefficient forms of cooking mentioned in the Talmud such as using thermal springs or solar-heated sand and rooftops to cook eggs. Both the intention and the result of cooking are identical, whether the source of the heat is gas or electric. *For this reason we consider the use of electrical heating elements to cook food, or to heat air or water to be toledat bishul, a derivative form of cooking, and biblically forbidden on Shabbat.*¹⁰⁶ Any device which directly heats food or water to a scalding temperature may not be operated on Shabbat.¹⁰⁷ On Yom Tov, when cooking with fire is permitted לצורך אוכל, for food preparation, the normal use of electrical heating elements should also be permitted.¹⁰⁸

What about the incandescent light bulb? This device also runs an electrical current across a metal resistor so that it generates light and heat. The filament, and indeed the entire fixture, certainly gets hot to the point of יד סולדת בו. As we will see below, Ravad¹⁰⁹ (in contrast to Rambam) argues that heating metal to the glowing point for the purpose of softening or annealing it is banned under the category of *bishul*. Nevertheless, we would argue that operating a light bulb is *not* a form of cooking for the simple reason that the generation of heat does not produce any durable change in the metal, and provides no benefit whatsoever. The metal returns to its former state after cooling, and is not “cooked.” There is no benefit to the metal filament's heat as described in the Talmud and codes—not to warm water, nor to sweeten mustard, nor to soften the metal itself for shaping or annealing. Indeed, the heat is extremely inefficient, wasting up to 90% of the energy used by the appliance.

Moreover, when a person flips a light switch today, s/he is often unaware whether the fixture is incandescent, fluorescent or LED. The latter two forms of lighting are gaining in market share, and they do not involve heating metal to the glowing point (fluorescents excite mercury vapor, which emits ultraviolet light, which in turn causes phosphor to glow in the visible spectrum; LEDs allow electrons to recombine with electron holes and release photons of different colors).¹¹⁰ Even if a person is aware that by turning on an incandescent light fixture s/he is heating metal, there is no intention, nor indeed any possibility of accessing and reshaping the metal, much less of dousing the glowing filament in water to anneal it. For all of these reasons it is not appropriate to ban the use of incandescent light bulbs under the rubric of “cooking.”¹¹¹

מבעיר *Mavir*, “Burning” and **מכבה** *M'khabeh*, “Extinguishing.”¹¹² Surprisingly, the most severe and prolific argument against the use of some forms of electrical appliances, among many Orthodox *poskim* at least, is also the one which is most at odds with physical reality. This is the argument that turning on lights is forbidden as **מבעיר** “burning” and that turning them off is forbidden as **מכבה** “extinguishing.” Burning wood or any other combustible material is, of course, explicitly forbidden by the Torah (Ex. 35:3). It is perhaps no coincidence that the creation of light was the first act ascribed to God in Genesis, and that creating fire is the Torah’s most clearly prohibited labor.¹¹³ Lighting fire is used as a type of bracketing ritual to indicate the start and conclusion of Shabbat. Both in Hebrew and in English it is conventional to speak of “kindling” electric lights.

Nevertheless, *electrical* lights are not on fire, no matter how often we use words associated with fire to describe them, and the rabbis prohibited *burning*, not causing light to shine.¹¹⁴ Indeed, we insist on the use of actual fire for mitzvot such as lighting candles for Shabbat, Yom Tov, Hanukah and *havdalah*.¹¹⁵ The incandescent light bulb generates light when its metal filament is heated to the glowing point by its resistance to an electrical current. There is no combustion, no flame and no production of charcoal, and yet many rabbis still consider the operation of an electric light bulb to be forbidden on Shabbat as if it were truly “burning.”¹¹⁶

This argument is made with greatest force and thoroughness by Rabbi Shlomo Zalman Auerbach in his book, **מאורי אש** and in his collection of responsa, **מנחת שלמה**. His focus on the incandescent light bulb is perhaps a consequence of the fact that for over a century (and his entire lifetime) it was the most popular and useful electrical appliance.

This humble device was the “killer app”—the appliance which motivated cities and nations to construct vast power grids for the distribution of electricity so that homes and businesses could be illuminated in a way which was dramatically easier, cleaner, safer and cheaper than using fire. Coincidentally, this appliance functions in a way which is not completely unknown to classical *halakhic* sources: by heating a piece of metal.

The Talmud discusses the status of a hot metal ember, גחלת של מתכת, in several locations. Mishnah *Shabbat* 3:5 describes a metal pot containing water which has been removed from the stove on Shabbat:

המיחם שפינהו לא יתן לתוכו צונן בשביל שיחמו אבל נותן הוא לתוכו או לתוך הכוס כדי להפשיך.
If one removed a boiler, he must not put cold water into it to make it hot, but some may be put in it or into a cup to make it lukewarm.¹¹⁷

This Mishnah is difficult to understand, but it is discussed rather extensively in the Bavli (*Shabbat* 41a-42a) and in later commentaries.¹¹⁸ According to the Bavli, the Mishnah describes the case of a metal utensil which has absorbed heat from a fire and then been removed while still hot. Putting a small amount of liquid into the pot might boil the liquid, which would be forbidden as cooking, but putting a large quantity of liquid which will merely be warmed is permitted. If the pot had been emptied of liquid, then dousing it with water could have the effect of צרוף, annealing¹¹⁹ the metal, which is a rabbinic prohibition.

This discussion leads to a statement (42a) in the name of Shmuel which differentiates the metal ember from a burning piece of wood: מכבין גחלת של מתכת ברשות: אבלי לא גחלת של עץ. “one may put out a metal ember in the public thoroughfare [on Shabbat] lest it cause people injury, but not a wood ember.” Rashi makes explicit the Talmud’s distinction between hot metal and burning wood in two successive comments:#

גחלת של מתכת - שמשליכין לחוץ פסולת של ברזל, דלא שייך כבוי בהכי מדאורייתא, ומדרבנן אסורה, והיכא דאיכא נזקא לרבים - לא גזרו על השבות.
אבל לא של עץ - דאיסורא דאורייתא היא, וחייב סקילה.

A metal ember [may be doused]—One may toss outside [hot] metal waste, for the biblical category of “extinguishing” does not apply to [hot metal], though the rabbinic [form of the prohibition] does ban it, but where there is a public hazard, they did not enforce *shout* [i.e. a rabbinic ban].

But not so with [a burning ember of] wood—For this [dousing a burning wood ember] is a biblical prohibition [of “extinguishing”] punishable by stoning.

It seems likely that the metal being discussed here is not “glowing” but is rather very hot. Hot metal is particularly dangerous since it is impossible to discern its temperature simply by looking at it, which is not the case with burning wood. Since the metal is not “burning,” causing it to cool down by dousing it with water is not the *melakhah* of “extinguishing” but is merely a rabbinic prohibition lest he douse the metal in order to anneal it. But since the presence of this hot piece of metal is a danger in the public domain, it may be doused. Rashi teaches us that the Sages did not enforce their rule of *shvut* in consideration of public safety.

In his great code of law, the *Mishneh Torah*, Rambam discusses the heating of metal in several locations. In the *Laws of Shabbat* 9:6 he refers to heating metal until it glows in order to soften and then shape it as *cooking*, but in halakhah 12:1 he states the following:

המחמם את הברזל כדי לצרפו במים הרי זה תולדת מבעיר וחייב.

A person who heats metal in order to anneal it in water—this is a derivative form of burning, and is forbidden.

Rabbi Auerbach seizes on this line despite its explicit qualification in order to prove that Rambam generally considers heating metal to be considered “burning.” Even though Rambam earlier calls heating metal a form of cooking, בישול,¹²⁰ and Ravad protests Rambam’s designation here of burning, מבעיר,¹²¹ and even though Rambam himself includes the condition “in order to anneal it in water,” Rabbi Auerbach insists that Rambam would (if available for comment on modern technology) ban the heating of a metal filament in an incandescent light bulb under the category of burning. Rabbi Auerbach reads the words כדי לצרפו במים to mean not “in order to anneal it in water,” but rather, “to the temperature sufficient for it to be annealed in water.” This reading assumes that Rambam considers heating metal until it is hot enough to *shape* to be considered “cooking,” but heating it a little further so that it is hot enough to then be *annealed* in water to be “burning.” How a person is supposed to measure this distinction is nowhere evident.¹²² As Ravad points out, annealing metal, צרוף, is not biblically forbidden on Shabbat, but only by rabbinic authority. Yet Rabbi Auerbach uses this text as the foundation for claiming that turning on an incandescent light bulb should be considered biblically banned as burning.

Why does Rabbi Auerbach insist on this unsustainable argument despite his awareness that the metal is not “burning”?¹²³ Having systematically refuted all of the other arguments for prohibition he seems to feel that this is the only way to establish a biblical prohibition on using electricity on Shabbat. As he says in section 2 of his responsum, “if we do not claim that hot metal is considered fire, then even cooking with electrical heating elements would not be cooking” and there would be no biblical prohibition.¹²⁴

Rabbi Shlomo Goren¹²⁵ published two essays in the Israeli journal *Sinai* in 1949 arguing that the use of electricity cannot be compared to the biblical prohibitions of burning and extinguishing on Shabbat.¹²⁶ After examining our text from Tractate Shabbat, Rabbi Goren proceeds to compare it to Yerushalmi *Yoma* 3:5,¹²⁷ and then to Bavli *Pesahim* 75a.¹²⁸ The most compelling explanation of these texts is that the rabbis did not consider heating metal to be a form of burning, nor did they consider cooling metal to be extinguishing for the simple reason that metal does not undergo combustion to create heat, but rather absorbs energy from another source, and returns to its prior state after releasing the energy as radiant heat. Rabbi Goren cites the words of Magen Avraham to OH 334:35, ובשל מתכת ליכא כבוי דאינו שורף, “but regarding metal there is no [prohibition of extinguishing] for it is not burning.” Rabbi Goren insists on an accurate physical description of fire—a substance which combusts material and creates flame—and concludes that the heat generated by a metal resistor to an electrical current is neither fire nor even a derivative form of fire (*toledat eish*).

Rabbi Goren proceeds with a straightforward interpretation of Rambam: only when one heats metal and then suddenly cools it with the intention to anneal it can the process be associated with “burning” and “extinguishing.” It was, according to Goren, the comparison of annealing to extinguishing—both involve suddenly cooling a substance to preserve its altered state—that led Rambam to categorize heating metal in this situation alone to be a derivative form of burning. But since both stages (heating and cooling) are necessary for the *melakhah* of annealing to be completed, and since neither action is intended nor accomplished with the operation of an electrical lamp, the category of burning is inapplicable to electrical lights. In the conclusion to his first essay, Rabbi Goren categorically rejects the application of both “burning” and “cooking” as reasons to ban the use of electrical lights on Shabbat.

In his second essay Rabbi Goren expands on his former reasoning, citing *geonim* and later medieval sources to buttress his argument that heating metal and cooling it

without the purpose or effect of annealing are not biblically forbidden. He boldly writes that the use of a telephone on Shabbat may be completely permitted (he was obviously referring to land lines, not to cellular phones which hadn't been invented yet, and which pose other halakhic issues as discussed below; in any event, he maintained a rabbinic ban on using phones on Shabbat). However, he argues that there is still a rabbinic prohibition on turning off an electric light based on the Talmud's description of dousing a metal ember as *shvut*, and of turning on a light based on the rabbinic prohibition of מוליד אור, starting a new fire.¹²⁹ These arguments of his are not well developed. The Talmud's *shvut* category refers to dousing a hot piece of metal with water, which could cause annealing. It makes sense to prohibit this rabbinically, but that is not at all the case with turning off a light switch. "Starting a new fire" refers to making physical sparks for the sake of igniting combustible materials, which is not relevant here. Since Rabbi Goren has amply proven that a metal filament is not on fire, this claim to a rabbinic prohibition is unclear. It seems to us that Rabbi Goren has made a convincing case against the biblical prohibition of using incandescent lights on Shabbat, and has not established a rabbinical prohibition in its place.

Nevertheless, the מחמירים "stringent ones" (as Rabbi Goren calls them) who agree with Rabbi Auerbach's argument that turning on incandescent lights is prohibited as מבעיר, burning, have won broad acceptance in the Orthodox community. Indeed, disabling light switches prior to Shabbat is a standard marker of Shabbat observance in the Orthodox community and is also common among observant Conservative Jews, as is the idea that the operation of electrical lighting fixtures is biblically prohibited.

From our perspective, the claim that heating a metal filament is to be banned on Shabbat as "burning" is not convincing for incandescent light bulbs, and is not even relevant for other types of lighting fixtures or for any other electrical or electronic appliances. Already in 1950 Rabbi Arthur Neulander wrote for the CJLS a simple but clear refutation of the use of מבעיר as a reason to ban electrical lights, and his argument remains cogent today.

אור חדש בציון? A New Light in Zion?

The fact that incandescent light bulbs are gradually being replaced by compact fluorescent bulbs, light emitting diodes (LEDs) and other cool-running appliances which do not heat metal to the glowing point augments this perspective. The new lighting fixtures do not involve the concerns mentioned by twentieth century *poskim*;

they do not result in any material change to the substance; and they are designed to run relatively cool and to last for thousands of hours of use. As such, the concerns discussed above about the *melakhah* of cooking, building, completing and burning all appear to be irrelevant to the operation of such fixtures.

Rabbi Avram Reisner has countered this perspective, arguing that the creation of light is one purpose of the *melakhah* of *mavir*.¹³⁰ He supports this position with the Torah commentary of Ramban to *לֹא תִבְעֵרוּ אֵשׁ* (Exodus 35:3) in which Ramban mentions a variety of uses of fire, arguably including for the sake of light.¹³¹ Ramban's point here is that, in contrast to Yom Tov, when it is permitted to burn fire for the sake of cooking, on Shabbat the prohibition on burning is absolute, regardless of the desired result, whether it be for food preparation or for physical pleasure in the heat and light of the fire. Rabbi Reisner believes that this implies that any action which yields the *results* of fire, including the creation of light, is included within the *melakhah* of *מִבְעִיר*, burning, regardless of the mechanism. This understanding would result in a biblical-level ban on the use of all lighting fixtures on Shabbat.

Rabbi Reisner's argument accords with our explanation of derivative labors, *toledot*, which accomplish a forbidden purpose (תכלית) via a mechanism (פעולה) distinct from that of the primary labor, and are considered to be biblically forbidden. Nevertheless, we respectfully disagree with his analysis. The prohibition of burning known as *mavir*, which is the thirty-eighth *melakhah*, was associated with heating a kettle to make dyes in the tabernacle, or to create charcoal for use in smelting metal.¹³² As Rabbi Goren demonstrated, the prohibition of *מִבְעִיר* is dependent upon the physical action of burning, because burning causes a lasting change in a substance. The luminescence caused by electrical appliances does not involve burning, so even for Ramban it is not included in the category of *מִבְעִיר*. Creating a fire on Shabbat is forbidden, whether for the purpose of cooking, heating a room or enjoying the light. But electrical lighting is distinct in both the original tabernacle-related purpose and the mechanism from the *melakhah* of burning, and should therefore not be included in this category of prohibition.

*The creation of light itself is not mentioned as a melakhah in classical or contemporary sources. Indeed, "light" does not exist independently of the eye, which perceives certain wavelengths of radiant energy to be light of various colors.*¹³³ Light is emitted and manipulated via an extraordinary range of physical and chemical interactions, including bioluminescence, none of which are considered in the halakhic literature. The

conversion of potential energy to kinetic energy (as in lowering an object, or in allowing the flow of electrons from a cell to a LED) is not itself forbidden as *melakhah*. The creation of light does not meet the standard of *melakhah* established in the Mishnah—the creation of a durable change in material reality—unless the light is a by-product of combustion. It is evident from the rabbinic sources that the basis for banning burning was the combustion of the fuel, and the durable transformation of materials cooked by its heat.

Rabbi Dr. Dror Fixler of *Yeshivat Sha'alvim* and of Bar Ilan University's engineering faculty¹³⁴ examines the question of whether creating light (with a LED bulb) is itself prohibited on Shabbat, and concludes that there is no such prohibition.¹³⁵ As he notes, Moroccan and Egyptian rabbis generally permitted the use of electricity on Yom Tov until the middle of the twentieth century, but eventually came to ban it because of concerns of *עובדין דהול*, the erosion of the special atmosphere of Yom Tov and the possibility that the leniency would be extended to Shabbat, where they felt there was a prohibition of “burning” at stake in operating incandescent lightbulbs (following the position of the “stringent ones” as Rabbi Goren called them above). Rabbi Fixler accepts this stringent ruling for incandescent light bulbs because of their heating of metal to the glowing point, but finds that the creation of light with a LED bulb is not forbidden as either *melakhah* or *shvut*.¹³⁶ Nevertheless, he concludes that because LEDs are used with consumer electronics they should be banned as *עובדין דהול*, leading to activity inappropriate for Shabbat and Yom Tov.

We shall return to the subject of protecting the tranquility of Shabbat below in Section 2. For now, we may conclude that creating light with an electrical fixture is not properly considered to be *toledat mavir*, a derivative form of the *melakhah* of burning, since the process, the purpose and the result of using an electrical lighting fixture are all dissimilar to the process, purpose and result of burning wood, gas or any other fuel. Furthermore, we have argued that *melakhah* is limited to actions which result in a *durable change* in physical reality. Causing light to shine with a lighting fixture does not meet this standard.¹³⁷ As Rabbi Goren demonstrated, *mavir* is paired with *mikhabe'eh*, just as *boneh* and *soteir* are paired. An item which cannot be “extinguished” in the sense of saving an altered state such as turning wood to charcoal or annealing metal, also cannot be “burned.” For this reason we insist that the category of *mavir* does not apply to the normal operation of light bulbs or other electrical appliances. It obviously does apply,

however, to any appliance which uses an electric starter to generate sparks for the ignition of gas or other fuels.

Generating Electricity

Before we conclude our discussion of burning, we must address the *generation* of electricity. Electricity is generated by numerous processes—nuclear fission, hydroelectric turbines, windmills, biomass, etc., but the most common source of electricity in the United States and many other countries remains the burning of coal.¹³⁸ A person who uses electricity on Shabbat could be considered to be indirectly causing such combustion to occur. However, this is not a halakhic concern for several reasons. The power grid is constructed to generate a steady supply of electricity in response to general demand; when one appliance is turned on, it is probable that another is turned off, resulting in no net increase in demand. Indeed, there is equipment to ensure that power production and consumption are kept equal. Turning on household appliances has no direct effect upon the power plant unless it is a mass phenomenon (such as the use of air conditioning units in hot weather) and even then no individual action by a consumer would directly affect the burning of coal or natural gas at the power plant. Moreover, power is generated for the general population, most of which is not Jewish, and thus one is using a resource which is not produced by an action forbidden on Shabbat specifically on behalf of a Jew. This is less the case in Israel where many utility workers and most of the population are Jewish, but even there the generation of electricity is generally an automated and steady process which does not require human interventions in response to typical consumer activity. If we were to worry about generation issues, then we would also ban the use of tap water on Shabbat since water pressure is maintained by electric pumps which are triggered by the use of water. Thus the generation of electricity is not of immediate concern to the Sabbath observer; this is even more the case when using battery-powered devices.

To summarize our discussion so far, we have concluded that opening or closing an electrical circuit should not be prohibited as a form of *building*, that the warming of wires is not *cooking*, and that the generation of light in electrical appliances, including incandescent light bulbs which heat metal until it glows, should not be prohibited as either *cooking* or *burning*. Thus there is no comprehensive ban on all uses of electricity as *melakhah*. On the other hand we have found that the use of electricity to generate heat for the sake of cooking food or heating air and water is forbidden as a derivative form

of cooking even without the use of fire. We have also noted that new appliances should not be used for the first time on Shabbat, and that devices should also not be assembled on Shabbat (e.g. by replacing the bulb, the battery, or plugging the appliance into a socket). *Our discussion of melakhah so far would result in a ban on operating any electrical appliances designed to generate heat for the purpose of cooking food or heating air or water on Shabbat, but would not ban the operation of circuits in general for other electrical appliances.* In Section II we will discuss other halakhic considerations which would limit the use of electrical appliances out of concern for *shvut*, the imperative to rest.

Even for those who consider opening or closing circuits to involve one or more *melakhot*, solutions have been found to use such devices, whether with a timer or with a buffer mechanism (called a “*grama*” device) which uses a capacitor to render the action indirect.¹³⁹ This can be understood as moving a switch into a position in which it is likely to be activated soon, rather than activating it directly.¹⁴⁰ The circuit is left open prior to Shabbat, and the operator controls the intensity of electrical current indirectly. Adjusting the accelerator of a scooter yields a delayed response, and is therefore considered indirect. But if the general electricity ban based on *melakhah* is unconvincing, as we have argued, then such measures are unnecessary.

כתיב Koteiv, “Writing.” A category of *melakhah* which is of particular relevance to the use of electronic devices is the prohibition of “erasing two letters” and “writing two letters” on Shabbat. Many digital devices automatically generate electronic logs of their activities and are regularly used to record and display information. While video displays (whether CRT, LCD or LED¹⁴¹) are volatile, constantly being erased and refreshed, and are therefore dissimilar to the permanent form of writing banned as *melakhah*, the storage of digital information to flash memory or disk is non-volatile and is comparable to forbidden forms of writing.¹⁴²

It is interesting that Mishnah Shabbat 7:2 establishes a “two letter” standard for writing. According to Mishnah 12:3 this standard recalls the practice of marking the bottom of the planks for the tabernacle with a two letter code. This limitation is apparently linked to the fact that Hebrew has no single-letter words (though individual letters are used to indicate numbers). Likewise in the various binary codes which have been developed in recent decades, such as ASCII, Unicode etc., letters, numbers and other symbols are each formed by distinctive series of zeroes and ones. True, writing generally involves some sort of graphical representation that is visible to the eye, but

digital data is stored for future display and is thus similar in function to classical forms of writing.

With electronic appliances, we “write” all manner of data files (text, sound, images etc.) through a process of translation in which analog inputs (e.g., typing on a keyboard or speaking into a microphone) are digitized and then stored in vast strings of binary code. Mishnah Shabbat 12:3 includes any language or symbolic system within the realm of writing: בין משני סממניות בכל לשון חייב, “whether with two symbols¹⁴³ or in any language he is liable,” and this policy is reasonable for our situation as well. The normal method of writing today involves digital devices which we use to store and display information just as we do with printed media.

However, a contrary perspective about the broad prohibition of writing emerges from the Talmud Yerushalmi. In reference to Mishnah 12:3, it states: מאן תנא סימיונות רבי, “Who taught *simiyonot*? Rabbi Yossi. What is “every language”? Even *aleph/alpha*.”¹⁴⁴ On this basis the 12th century Rabbi Eliezer ben R. Yoel Halevi (Ra'avayah) took a distinctive stand limiting the biblical prohibition of “writing” to either Hebrew or Greek:

ואף על פי שפירש רבינו [שלמה] בפרק הבונה הכותב שתי אותיות בכל לשון חייב בגופן של כל אומה, שגגה היא, דגרסינן בירושלמי מהו בכל לשון אלף אלפא ביתא ביטא, והוא לשון יונית, אבל שאר לשונות אינו חייב, מה שפרשתי ימים בשכבר.¹⁴⁵

Even though *Rabbeinu* [Shlomo, viz. Rashi] explains in *Perek HaBoneh* that one who writes two letters in any language is liable, in the script-appearance of every people, it is a mistake, for we read in the Yerushalmi, “what is ‘every language’? *aleph/alpha, beith/beta*,” namely, in [Hebrew or in] Greek. But as for [writing in] other languages he is not liable, as I have previously written.

Ra'avaya makes a bold and unusual claim—that the Mishnah’s prohibition of “writing” on Shabbat is limited to writing in either Hebrew or Greek.¹⁴⁶ On this basis writing to binary code would arguably not qualify as the biblically banned form of writing on Shabbat. This leniency, while attractive, does not appear to be convincing. Rashi and other commentaries to the Mishnah such as Rambam and Bartanura understand the Mishnah to prohibit writing in any script. It is not clear why the *melakhah* would be limited to Hebrew and Greek—especially if we consider the *melakhah* to originate with the tabernacle project. In any event, Ra'avaya’s position is idiosyncratic, and today we consider the prohibition of writing to include the creation of a physical record of any letter or symbolic system.

Aside from the issue of what letters are written, the rabbis also consider the type of ink and surface used as well as the writing method. In chapter 12 of Mishnah Shabbat the rabbis limit liability for writing on Shabbat on the basis of all these considerations. A person is not liable for “writing” unless s/he uses the dominant hand to write two or more letters in one session with a durable ink¹⁴⁷ on a durable surface. Mishnah Shabbat 12:5 states, כִּתְבָהּ בְּמִשְׁקִין בְּמֵי פִירוֹת בְּאֵבֶק דְּרָכִים בְּאֵבֶק הַסּוּפְרִים וּבְכָל דָּבָר שֶׁאֵינוֹ מִתְקִיִּים פְּטוֹר, “If anyone wrote with liquids, or with fruit juice, or in road-dust, or in writer’s-sand, or with anything which does not last, he is exempt.”¹⁴⁸ Tosefta Shabbat 11:8 summarizes: פְּטוֹר עַד פְּטוֹר עַד, “He is exempt [from liability for writing on Shabbat] until he writes with a durable substance on a durable surface.”¹⁴⁹ Rambam restates this law thoroughly in the *Laws of Shabbat* 11:15¹⁵⁰ and the Hofetz Hayyim provides an extended comment on the subject in *Mishnah B’rurah* to OH 340, s.k.22.

Some rabbis have argued that recording to electronic media may be differentiated from pen and ink writing on the basis of another distinction offered by the Mishnah: כְּלֹאֲהָר יָד, *like [writing] with the back of the hand*. For example, the Mishnah states that if a person writes with his or her non-dominant hand, or uses their foot or even neck to scratch two letters, that person is not liable for the *melakhah* of writing. The theory seems to relate to the idea of מְלָאכָה מְחֻשְׁבֶּת “intentional labor.” If one’s intention was really to perform labor, then s/he would have done it in the most efficient and effective way possible. Writing with the back of the hand, foot or neck may allow the creation of a legible mark, but it is not the intentional labor prohibited by the Mishnah. Therefore a person who writes כְּלֹאֲהָר יָד is not biblically liable for the labor or “writing.”¹⁵¹

Obviously, writing with a keyboard—whether physical or virtual—or any other input device is not the “normal” way of writing known to our ancestors. Yet the principle of כְּלֹאֲהָר יָד refers to an *awkward and imprecise* form of labor. No one today would consider typing on a keyboard or touch screen to be a form of writing which is more awkward or imprecise than writing with pen and paper. On the contrary, using digital recording devices is extremely precise and efficient. Which is likely to be more accurate and legible for a later reader, a typed transcript, or scrawled notes? Which will be more realistic, a digital photograph of a bird, or a pen and ink drawing? The various forms of recording data to digital memory are the modern equivalent of writing with quill and parchment, and are often a more durable and effective medium for recording information.

During the 1980s, the CJLS discussed the question of recording video to magnetic tape on Shabbat. In his 1989 responsum Rabbi Arnold Goodman cited earlier discussions from the 1950s regarding audio recordings and argued that tape recording is not forbidden since it is *כלאחר יד*, indirect, and not *כדרך עשייתו*, the way that “they did the labor.”¹⁵² Yet other CJLS authors and committee members disagreed, arguing that recording on magnetic tape performs the same function of preserving a record as do traditional methods with ink and paper, and therefore it is forbidden on Shabbat as a form of writing.¹⁵³ Rabbi Gordon Tucker argued that the operation of video or audio equipment by a Jew on Shabbat or Yom Tov is forbidden under the rubric of “writing.” However he (and later he together with Rabbi Elliot Dorff) allowed for such operation by a non-Jew or by an automatic recording device.¹⁵⁴ Rabbi Mayer Rabinowitz rejected Rabbi Goodman’s arguments and also rejected the hiring of a gentile to record services.¹⁵⁵ Committee members added additional aesthetic and spiritual concerns in opposition to the practice of recording Shabbat services.

We agree with the arguments made by Rabbis Tucker, Dorff and Rabinowitz in the 1980s that recording audio and video on magnetic tape is to be considered forbidden on Shabbat under the category of “writing” unless the process was set up before Shabbat to operate automatically. The same is true for the use of contemporary digital storage media such as hard drives and flash memory. This is also true for “cloud computing,” since in the end the data will be stored in some non-volatile device. In this discussion Rabbi Rabinowitz made the same comparison used by Rabbi Feinstein regarding microwave ovens: the purpose of cooking is to transform food from a raw to an edible state; the purpose of writing is to store information for later recall. What matters is not the process but the purpose and the result. However, we would clarify that the process does matter somewhat—writing to digital memory can be considered “*toledat koteiv*,” a *derivative* form of writing rather than the original form or *av*. As such it remains biblically prohibited on Shabbat, but other concerns about writing and erasing divine names on digital displays and memory media are not involved.

Digital writing performs the same *function* as conventional writing, though the *process* is different. As seen above in the discussion of cooking, an activity which shares the same purpose and result as a primary form of *melakhah* but via a different process is viewed as a *toledah*, a derivative form of the labor. This differentiation is significant, since the category of writing has other halakhic ramifications. If we were to consider “writing” to digital memory or to a video display to be the exact equivalent of the *av* of

“writing,” then we would never be allowed to “erase” a screen view or digital file which contains one of the divine names. The CJLS has already approved Rabbi Avram I. Reisner’s arguments against considering such erasures to be forbidden.¹⁵⁶ For our purposes then, the issue is whether “writing” with electronic devices is the *functional* equivalent of writing with pen and ink; if so, then it is forbidden as a *toledah*, a derivative form of the activity called כוּתֵב, “writing,” just as watering plants is forbidden as a derivative form of זֹרַע “planting,” and using a microwave oven is forbidden as a derivative form of בִּישוּל “cooking.”

Although “writing” is associated with letters and numbers, this creative labor equally applies to recording imagery, sound and other types of data. Rabbi Joel Roth has written, “If the function of writing is appropriately defined as the production of a lasting imprint upon some substance, it seems virtually incontrovertible that the function of photography would have to be considered forbidden under the category of writing.”¹⁵⁷ As with Rabbi Feinstein regarding cooking, we find Rabbi Roth’s conclusions about writing to be convincing.

What about the use of electronic paper in the e-readers which have recently become popular? The technology is quite remarkable—it is still evolving but has already penetrated the market and is likely to expand further, eventually reducing the need for printed materials.¹⁵⁸ If our concerns about writing to digital memory could be addressed by disabling network functions,¹⁵⁹ it remains the case that each fresh page view effectively creates a new image which is durable. Within the electronic paper are microcapsules which are arranged by electrical charge to display pigment and form an image. This image endures even without any refreshing of the display. E-ink is a stable form of writing and would therefore appear to be biblically forbidden as *toledat koteiv*.

Nevertheless, most current e-readers are set automatically to erase the written image after a brief period of inactivity, either by darkening the screen or by displaying a stock image in place of the written text.¹⁶⁰ If so, then the creation of a screen-view does not meet the halakhic standard of liability seen above in Tosefta *Shabbat* 11:8 of “writing something with a durable substance on a durable surface.” The status of creating a screen-view which will auto-erase after a few minutes would be that of פְּטוּר אֲבֵל אֶסוּר, exempt from full liability for the biblical *melakhah*, but still forbidden by rabbinic decree, much as writing in sand on Shabbat is rabbinically banned.

The use of e-readers on Shabbat raises additional halakhic problems. Beyond displaying text, they also provide users with the ability to record notes and to

download additional content. Both of these activities are forbidden under the biblical category of *toledat koteiv*, a derivative form of writing. Purchasing content would also violate the *shvut* ban on commerce discussed below in Section II. Many e-readers are really tablet computers with full functionality and can quickly lead the user away from passive reading and into active writing and the creation of new content. True, one could say the same of reading a paper book—the passive activity of reading can lead to using a pencil or highlighter to mark the book, and therefore to violation of Shabbat. Yet this distinction is more sustainable since marking up a paper book is frequently impermissible—if the book is borrowed from another person or a library, for example—and writing in the book requires a separate tool. In contrast, computers use the same input devices (keyboard, trackpad and mouse etc.) for reading and writing and these markings are easily removed and considered inconsequential, thus making the distinction unsustainable. *For all of these reasons it seems that the use of e-readers as currently configured is not permitted on Shabbat.*¹⁶¹ We will discuss possible accommodations for disabled users in Section III.

The intentional recording of data—whether of text, images or sound—is forbidden on Shabbat as a derivative form of writing. While this form of recording may not employ the same mechanism as the writing used in the tabernacle (whatever that was), it has the same purpose and result—to preserve information for later display. We cannot claim that such writing is akin to the category called כלאחר יד, with the back of the hand, because this form of writing is efficient and effective to an extent which is equal to or greater than that of conventional writing. Rather, this form of writing should be considered a derivative form of the prohibition (תולדה כותב) which is biblically prohibited on Shabbat and Yom Tov. *Thus we would prohibit the Sabbath operation of a digital camera, voice recorder, or computer used for writing text or recording audio or video files. These activities are all derivative forms of “writing” and are therefore biblically forbidden on Shabbat and Yom Tov.*

What about the use of cellular phones? These devices, which are growing more powerful and prevalent by the day, automatically record activity such as the time, number, duration and even location of each call on the phone and also on the service provider's register for billing purposes. While such recording may not be the primary intention of a person who initiates or accepts a call, this recording of data is unavoidable and beneficial, and is thus banned as *pesik reisha*, an unintended but unavoidable consequence. Moreover, the categories of phone and computer have now

converged, and even the simplest cellular phones are also being used to send and receive text messages, take photos, and complete financial transactions. Absent extraordinary circumstances necessary for preserving life, the use of such phones would appear to be biblically forbidden as the *melakhah* of *toledat koteiv* on Shabbat and Yom Tov. We will discuss the use of phones further below under the rubric of *shvut*.

Another ubiquitous form of electronic device is the magnetic stripe card, “a type of card capable of storing data by modifying the magnetism of tiny iron-based magnetic particles on a band of magnetic material on the card.”¹⁶² Such cards come in a variety of formats, with black, brown and silver tapes typically containing three bands for the storage of data. Some magnetic stripe cards such as those used for automatic teller machines, credit and debit cards, drivers’ licenses, telephone cards etc., contain basic information about the user, but account balance and other detailed information is stored on a remote data base which must be accessed in order to process transactions. Other forms of stripe cards, such as hotel key cards and bus and subway fare cards, store data and account balances on the card itself and can be used without immediate reference to a networked data base.

The type of card which is used to transfer data across the network (ATM, credit card etc.), involves the recording of transaction data and would therefore be forbidden as *פסיק רישיה*, an action that inevitably results in *תולדת כותב*, a derivative form of writing. Bus and subway cards which store account balances on them are also problematic in that each swipe of the card results in a notation on the magnetic strip. This too involves a derivative form of writing as well as a commercial transaction.¹⁶³ We shall refer to both categories of cards as “Type I.” However, hotel key cards arguably avoid both of these issues. As long as they are programmed prior to Shabbat, their use on Shabbat would not seem to involve either writing or commerce. When swiped they merely show the proper entry code to unlock the door (as established above, the LED indicator light is of no halakhic significance).¹⁶⁴ This system is similar to the contact-less tokens often included as keychain fobs which are also used to unlock doors and to authorize the operation of various machines. We shall refer to the latter form of stripe card (and contact-less fobs) as “Type II.” Because there is no intention, and often no result of recording entry data from their use, they may be considered permitted. Keys are generally used to secure an area and safeguard a person and his/her property. We may cite Rashi in saying *לא גזרו שבות במקום סכנה*, that safety concerns may supersede those of *shvut* in this case, and therefore justify permission to use such a magnetic key card.

Is it permissible to request of a gentile the service of swiping one's Type I magnetic card for a commercial transaction (thus creating a durable record)? Asking a non-Jew to perform *melakhah* on one's behalf is considered to be rabbinically prohibited. Such a request may also be viewed as a *הילול ה'*, a desecration of God's name in that it publicly demonstrates desire to circumvent the laws of Shabbat. Asking non-Jews to perform an act of *shvut* for the sake of a mitzvah is, however, permitted under the rubric of *שבות דשבות*.¹⁶⁵

Therefore we consider the use of Type I magnetic stripe cards to be forbidden as a derivative form of writing and often also as a commercial transaction. The one practical exception at this point would be the use of Type II cards and fobs of the sort used in hotels and dormitories as room keys. So long as these cards are not carried outside of a single domain and are not used for commercial purposes, they may be used without performing melakhah and without compromising the experience of Shabbat as a day of rest.

F. A Non-Formalistic Definition of *Melakhah*

Until now we have considered classical definitions of *melakhah* and their relevance to contemporary electrical and electronic appliances. However it is worth considering a modern approach which adopts a non-formalistic definition. Rabbi Joel Roth, in agreement with Rabbi Isaac Klein, cites modern theological writings from scholars as diverse as Samson Raphael Hirsch, Mordecai Kaplan and Abraham Joshua Heschel to argue that the classical ban on *melakhah* is meant to prevent people from exercising "mastery" over their environment.¹⁶⁶ In addition to the standard methods for identifying *melakhah* by comparison to established forms, Rabbi Roth writes that any activity which demonstrates mastery is by definition forbidden on Shabbat as a *melakhah*, even if the intention is *not* similar to that of an established category of *melakhah*. In other words, the issue in evaluating the permissibility of any given action is *not only* whether it resembles a forbidden category in mechanism, in intention or in result, *but also* whether it demonstrates "mastery over nature." Rabbi Roth considers operating electric lights on Shabbat to be biblically banned as *melakhah* since they demonstrate mastery over nature. Following the example of Rabban Yochanan and Rabbi Shimon ben Lakish as cited in the Yerushalmi, he classifies such actions under the general category of *makeh b'fatish*.¹⁶⁷ Turning on an electric light may not resemble any particular category of *melakhah*—as we have seen, the rabbis prohibited cooking and

burning, not making light—but it would still be forbidden according to Rabbi Roth because this action demonstrates mastery over nature.

This approach is initially persuasive but is problematic on several levels. The Yerushalmi text bears the hallmarks of *aggaddah*, claiming that these rabbis had identified 1,521 forbidden forms of labor, but giving no examples. What does it mean that they “found” labors? Were they relying on oral traditions or making up their own system? When they assigned miscellaneous actions to *makeh b’fatish*, did they have any rubric? This Yerushalmi text gives us no useful information, which is perhaps why it is not cited in the halakhic codes.

Rabbi Roth suggests a system—actions which exhibit mastery over nature may be called *makeh b’fatish*. As we have seen from the Mishnah, however, *makeh b’fatish* is linked to *boneh* and is generally associated with the construction of objects of stone, metal or glass. Moreover, if we accept this argument, then why stop at electricity? Modern plumbing is an equally impressive and complex system—should we ban taps and toilets because they exhibit mastery over nature? This theory of “mastery” to explain the purpose of banning *melakhah* has no source in biblical or classical rabbinical literature, as Rabbi Roth concedes, and it seems unwieldy in practice.

In fact, resting on Shabbat is itself an assertion of mastery. Israel is told to imitate both the creativity and the tranquility of God—and to feel secure enough in their efforts that they can stop working each week and enjoy their accomplishments. Observing Shabbat is a form of *imitatio Dei*—God rested from labor on the seventh day, and so should Israel. God stopped providing manna on the seventh day, and Israel stopped collecting it. As noted above, Shabbat is a “sign between Me and the Children of Israel;” that is, it is a shared experience which binds creator and creature. Thus Shabbat is hardly an experience of submission; it is a day when the children of Israel don garments of glory, eat fine foods without effort, and imagine themselves already to reside in a tranquil world of perfection.

Rather, it appears to us that with their 39 categories of *melakhah* the rabbis were concerned with *making permanent, or at least durable, changes to one’s physical environment*. Labor is an indication of inadequacy, of lack, and Israel is commanded on Shabbat to rest and appreciate the resources which they already possess. As we have seen, the understanding of *melakhah* as an action which renders durable and constructive change is stated explicitly in Mishnah Shabbat 12:1 with regard to the labors of *בונה* and *מכה* *בפטיש* and is also stated regarding labors such as *קושר* and *כותב*. Using available resources

and leaving the minimum impact on our environment during the holy hours of Shabbat is a way of focusing the mind on the divine creation and on the twin gifts of life and liberty which are mentioned in the Torah and in our liturgy. The Mishnah's list focuses specifically on labors needed for the production of food, clothing, writing and shelter. Until recently, such activities absorbed the greater part of the day for most people. Resting from such exertions on Shabbat is a weekly form of thanksgiving. Nevertheless, Rabbi Roth is certainly correct to focus on the *intention* of any given activity as relevant to whether it should be permitted or forbidden. While we may not agree with this line of reasoning with regard to *melakhah*, it will be useful when considering the secondary level of Shabbat restrictions called *shvut*.

II: שבות. The Obligation to Rest

ששת ימים תעשה מעשיך וביום השביעי תשבת למען ינוח שורך וחמורך וינפש בן אמתך והגר:
(שמות כג, יב)

Six days you shall do your labor, and on the seventh day you shall rest; so that your ox and donkey will rest, and your servant's child and the stranger will relax. (Exodus 23:12)

This verse differs from those examined at the beginning of Section I regarding *melakhah*.¹⁶⁸ Instead of prohibiting the Israelite from working on Shabbat, it gives a positive commandment to rest.¹⁶⁹ The Torah is interested not only in creating an internal state of tranquility, but also in fostering a public atmosphere of rest which includes not only the free Israelite but also his or her livestock and servants. The command to rest is repeated in Exodus 34:21, and there are numerous references to “guarding” Shabbat and to making it and other festivals into a *שבתון*, or day of rest.¹⁷⁰

Medieval lists of the 613 mitzvot mention *resting* as one of the 248 positive commandments¹⁷¹ though the status of the *shvut* restrictions is considered to be rabbinical. The term *shvut* (rest) is used somewhat loosely in halakhic discourse. In a masterful address delivered to the Rabbinical Assembly in 1945, Rabbi Boaz Cohen traces the development of *shvut* from the Tannaitic period through the works of the Amoraim, Geonim and medieval codifiers.¹⁷²

One of the earliest texts regarding *shvut* comes from the description of how to observe Passover in Exodus 12:6. Midrash *Mekhilta D' Rabbi Yishmael* states:

ושמרתם את היום הזה לדורותיכם למה נאמר והלא כבר נאמר כל מלאכה לא יעשה בהם. אין לי אלא דברים שהם משום מלאכה דברים שהם משום שבות מנין ת"ל ושמרתם את היום הזה להביא דברים שהם משום שבות.¹⁷³

Therefore shall ye observe this day. Why is this said? Has it not already been said: “no manner of work shall be done in them” (v.16)? From this I would know only about work that can be regarded as labor [*melakhah*]. How about activities which can be regarded only as detracting from the restfulness of the day [*shvut*]? Scripture therefore says: “Therefore, shall you observe this day,” thus prohibiting even such work as only detracts from the restfulness of the day.¹⁷⁴

It is noteworthy that this Midrash does not frame *shvut* as a rabbinic fence around the Torah’s prohibitions, גזירה שמה—a decree lest any specific *melakhah* be performed. Rather, it describes *shvut* as its own biblical imperative—to rest on Shabbat beyond the bare minimum of avoiding *melakhah*.

Two other early Midrashic sources examine *shvut* and enumerate its various categories. *Midrash Sifra* lists eighteen forms,¹⁷⁵ whereas *Mekhilta D’Rabbi Shimon bar Yohai* lists only ten.¹⁷⁶ The most authoritative source, Mishnah *Beitza* 5:2 provides fourteen examples of *shvut*, divided into three categories:

כל שהייבין עליו משום שבות משום רשות משום מצוה בשבת חייבין עליו ביום טוב ואלו הן משום שבות לא עולין באילן ולא רוכבין על גבי בהמה ולא שטין על פני המים ולא מטפחין ולא מספקין ולא מרקדין ואלו הן משום רשות לא דנין ולא מקדשין ולא חולצין ולא מיבמין ואלו הן משום מצוה לא מקדשין ולא מעריכין ולא מחרימין ולא מגביהין תרומה ומעשר כל אלו ביום טוב אמרו קל וחומר בשבת אין בין יום טוב לשבת אלא אוכל נפש בלבד:

Any act for which one is liable on the Sabbath, whether because it is a *Rabbinical abstention from work acts*, or by virtue of an optional act, or regarding a religious duty, on the Sabbath, they are culpable on it on a Holy-day. And these are the ones under the category of *Rabbinical abstention from work acts*: they must not ascend a tree, nor may they ride upon a beast, nor swim on the water, nor clap hands, nor slap the thighs, nor dance. And these come under the category of optional acts: they must not sit in judgment, nor may they betroth, nor may they perform the ceremony of *halitzah*; nor contract a *levirate* marriage. And these come under the category of pious duties: they must not dedicate, or make any valuation vow, or devote anything, or separate priest’s dues or tithes. All these they have prescribed [*sic.*] on a Holy-day, all the more so on the Sabbath. There is no differentiation between a Holy-day and the Sabbath except on the preparation of necessary food.¹⁷⁷

This Mishnah has been parsed by many scholars who are puzzled by its three apparently distinct categories of *shvut*, *reshut* and *mitzvah*. The consensus seems to be that the Mishnah’s three categories are all forms of *shvut*. The latter two categories are

distinct categories of *shvut* in that they are generally performed as part of a religious or judicial rite.

It is conventional to explain each of the Mishnah's forbidden acts as a safeguard to prevent a person from violating the more serious category of *melakhah*. One mustn't climb a tree lest s/he break off a limb, nor swim lest s/he displace water or later squeeze out wet garments. One doesn't perform acts of court or make dedications to the Temple lest s/he be tempted to write a record of the activities. All of these explanations can be described as גזירה שמא, decrees lest any specific *melakhah* be performed, as a פייג הרחקה or סייג, a buffer between the states of permission and prohibition. Yet if one reads the Mishnah without this preconception, it prohibits these activities without reference to *melakhah*. It is possible to understand *shvut* in this Mishnah, as in the early Midrashim, as an independent category of activities which are viewed as inappropriate for a day dedicated to rest.

Although this view of *shvut* as an independent tradition about Shabbat laws is evident in the earliest rabbinic sources, the category of *shvut* came to describe activities surrounding *melakhah*, such as labors done imperfectly (with the back of the hand, or impermanently as seen above) or without full intention. In all of these cases, *shvut* prohibitions are considered to be of rabbinic provenance despite the clear biblical origin for the core concept. Of the many scholars to study this paradox, the most influential is Ramban. *Leviticus* 23, which is one of the fullest descriptions of the festival calendar, includes in v.24 the positive commandment to rest in reference to the day of shofar blasts, which is known to us as Rosh HaShanah:

דבר אל בני ישראל לאמר בחדש השביעי באחד לחדש יהיה לכם שבתון זכרון תרועה מקרא קדש:
Speak to Israel, saying, in the seventh month the first day will be a *Shabbaton*, for recalling trumpet blasts, a holy occasion.

From this verse the Bavli derives the idea that "resting" is a positive commandment from the Torah (*Shabbat* 24b-25a). In his Torah commentary to Lev. 23:24 Ramban comments on this verse in light of the Midrash *Mekhilta* cited above:

ונראה לי שהמדרש הזה לומר שנצטוינו מן התורה להיות לנו מנוחה ב"ט אפילו מדברים שאינן מלאכה, לא שיטרח כל היום למדוד התבואות ולשקול הפירות והמתנות ולמלא החביות יין, ולפנות הכלים וגם האבנים מבית לבית וממקום למקום, ואם היתה עיר מוקפת חומה ודלתות נעולות בלילה יהיו עומסים על החמורים ואף יין וענבים ותאנים וכל משא יביאו ב"ט ויהיה השוק מלא לכל מקח וממכר, ותהיה החנות פתוחה והחנוני מקיף והשלחנים על שלחנם והזהובים לפניהם, ויהיו הפועלים משכימין למלאכתן ומשכירין עצמם כחול לדברים אלו וכיוצא בהן, והותרו הימים הטובים האלו

ואפילו השבת עצמה שבכל זה אין בהם משום מלאכה, לכך אמרה תורה "שבתון" שיהיה יום שבתה ומנוחה לא יום טורה. וזהו פירוש טוב ויפה:

It seems to me that this Midrash is saying that we have been commanded from the Torah to have rest on the festival even from activities which are not *melakhah*: a person should not labor all the day measuring grains, weighing fruits and merchandise, filling casks of wine, emptying vessels and transporting stones from house to house and place to place. And should the city be walled and locked by night, they could be loading the donkeys, and delivering wine, grapes, figs and all goods on the festival so that the market would be full of all forms of buying and selling, with the shops open and the merchants attending and the vendors with all their wares displayed with their coins before them, and the workers would be rising early to hire themselves out for these and similar tasks as if it were a weekday—and all this is permitted on the festivals and even on Shabbat itself, for there is no *melakhah* in all of this! For this reason the Torah said “Shabbaton”—that it be a day of rest and relaxation, not a day of effort. And this is a good and accurate explanation.

Yitzhak Gilat traces the evolution of Ramban’s thoughts from this passage in his Torah commentary to his notes on Rambam’s *Sefer HaMitzvot*, to his sermon for Rosh HaShanah.¹⁷⁸ Ramban was apparently troubled that such a clearly stated and important biblical commandment could be treated as a mere rabbinic decree, and he kept returning to this topic and refining his position. According to Gilat, Ramban’s final verdict is that *shvut* is differentiated from *melakhah* not in essence but in degree. Both are biblical laws, but *melakhah* is forbidden in even the most minor action, whereas *shvut* restrictions are forbidden biblically only when accomplished with great effort. A minor transgression of *shvut* is considered to be just a rabbinical ban. The positive commandment is to create an atmosphere of rest; minor deviations from this psychological goal are tolerable, but at the point that a person changes the atmosphere of Shabbat to *hol* (weekday), then s/he has failed to fulfill the biblical command to rest. In contemporary terms, speaking briefly and socially with a business associate at a Shabbat *kiddush* is different from sitting down afterwards to discuss marketing strategies. In the latter scenario the commandment of *shvut* would be violated even if the partners were careful not to write down their ideas.¹⁷⁹

Some rabbis piously extended the concept of *shvut* to include even aesthetic and introspective concerns. Not only did they prohibit conducting business on Shabbat, but even *thinking* about business. Not only did the sages prohibit playing instruments on Shabbat,¹⁸⁰ but also making loud noises (or even excessive conversation).¹⁸¹ Rabbi Abbahu states in the Talmud Yerushalmi that we are to imitate the divine silence on Shabbat: *Rest to the Lord—like the Lord! Just as the Holy One rested from speaking so too should you rest from speaking.*¹⁸²

Even the method of walking on Shabbat was meant to be differentiated from the hurried scurrying of the workweek.¹⁸³ Some of these practices were embellished in legends such as the famous story of the man who noticed a breach in his fence on Shabbat and then vowed not to repair it since the forbidden thought had come to him, and was rewarded for his piety.¹⁸⁴ Nevertheless, the Talmud declares that thoughts of labor are permitted, and these directives to think and move differently on Shabbat are considered to be aspirational rather than normative.¹⁸⁵

A complex category of Shabbat and Yom Tov law deals with handling objects and has come to be known as מוקצה *muktzeh*, literally “set aside.” Mishnah Shabbat 17:4 (B. *Shabbat* 124) preserves debates among Rabbi Akiva’s students about what types of objects may be handled and for what purpose. Rambam explains that the ban on handling items which have no Sabbath-appropriate use is designed to protect the distinctly tranquil nature of the day, but Ravad maintains that the purpose of *muktzeh* is to prevent inadvertent transgression (MT *Shabbat* 24:12-13). This is a replay of the classic definition of *shvut*—is it primarily a safeguard to prevent *melakhah*, or does it have its own psychological value? Rambam points us in the more expansive direction whereby *shvut* is broader than a mere protective measure; it is a guide to making Shabbat and Yom Tov distinctive and holy.

The Shulhan Arukh (OH 308:1) summarizes the rules of *muktzeh* this way:

כל הכלים נטלים בשבת חוץ ממוקצה מחמת חסרון כיס, כגון סכין של שחיטה או של מילה, ואיזמל של ספרים, וסכין של סופרים שמתקנים בהם הקולמוסים כיון שמקפידים שלא לעשות בהם תשיש אחר, אסור לטלטלו בשבת ואפילו לצורך מקומו או לצורך גופו....

All utensils may be handled on Shabbat, except for *muktzeh*, out of concern for financial loss. For example: a knife used for ritual slaughter or circumcision, and a barber’s shears, and a knife used by scribes to sharpen their quills [may be moved for safekeeping]. Since they are cautious not to use [any of] these utensils for another [permitted] purpose, it is forbidden to carry them on Shabbat, even if only to clear the space they are occupying, or to use their mass [e.g. as a paper weight].

Objects which have a permitted use on Shabbat may be handled in order to protect them, or to clear the space which they occupy. Only items which are used exclusively for a forbidden purpose, such as matches, may not be touched on Shabbat. This rule thus plays a dual function: it helps to preserve the special atmosphere of Shabbat, and it safeguards against inadvertent transgression.

To summarize our introduction to *shvut*: actions banned by the Rabbis as *shvut* may be divided into three categories:

1. **גזירה שמא, A decree to prevent violation of a *melakhah*.** This is perhaps the most common form of *shvut* and is presumably behind the Tannaitic examples. Thus one should not climb a tree lest he break a branch, nor make legal rulings lest he write down the verdict. In these cases the act banned as *shvut* is not inherently problematic, but is to be avoided as סייג לתורה, a fence around the Torah.

2. **בשינוי, Actions done in a way distinct from the biblical prohibition.** Liability for performing *melakhah* on Shabbat is limited by the restrictions of action and intention described in Section I. As we saw, writing is defined as forming two letters using durable ink on a durable surface with one's dominant hand. Absent these conditions, the action cannot be considered the biblical *melakhah* of writing, yet the rabbis still prohibited writing in a different fashion. This rabbinic level of prohibition is known as a *shvut*. So too the biblical prohibition on carrying was limited to instances where the object was lifted, carried four cubits in רשות הרבים, a public domain,¹⁸⁶ and then put down, all by the same person. This category of *shvut* also includes אמירה לנכרי, asking a gentile to perform a *melakhah* on Shabbat. Such instruction is considered to be banned by the rabbis, even though the biblical prohibition covers only work done by a Jew. This second form of *shvut* may be understood in two ways—it is either another type of fence around the Torah to prevent a Jew from getting used to a behavior and inadvertently violating the prohibited form, or the rabbis can be understood to have been enforcing the spirit as well as the letter of the law.¹⁸⁷

3. **ואת שבתותי תשמרו, Protecting the restful nature of the day.** The third and perhaps most interesting category of *shvut* describes activities which are truly distinct from the *melakhah* but are considered incompatible with Sabbath rest. From a very early time commerce was considered improper on Shabbat, and not only because it might lead to writing, but because Shabbat was designed to be a day of delight. Isaiah's words וְכַבְּדְתוּ מַעֲשׂוֹת דְרָכַי מִמְצוֹא חֶפְצֶךָ וְדַבַּר דָּבָר (58:13) were understood to exclude business dealings from Shabbat.¹⁸⁸ So too was טירחא יתירה, excessive exertion, considered to be forbidden under the category of *shvut*. For example, one should not carry heavy furniture up and down stairs within the home, even though this is not banned as *melakhah* either by the Torah or by the rabbis. Making loud noises, אולודי קלא, or even talking excessively was considered by some to be

inappropriate on Shabbat. A vague but important application of this category was called עובדא/עובדין זחול, [avoiding] weekday behaviors.¹⁸⁹ Actions which are commonly associated with working even though they do not involve *melakhah* should be avoided. Eventually, even *thinking* about weekday activities like business and politics¹⁹⁰ came to be included in the prohibition called *shvut*, though this level of observance was considered the practice of saintly individuals and was not banned by halakhah.

Returning to our topic of electricity, the obligation of *shvut*, to rest on Shabbat, has multiple applications. If the use of a particular electrical appliance or electronic device does not involve *melakhah*, one still must ask whether it could expose one to the risk of performing *melakhah*. For example, some e-readers may be used in a “read-only” manner in which images are displayed in a transient fashion which would not be deemed “writing.” Nevertheless, the normal operation of these devices is to follow links to download new content, whether free or for a fee, thus leading to both *melakhah* (*toldat koteiv*) and violation of *shvut*. Moreover, the device tracks one’s usage and stores information such as the current page view so that when the reader returns it will be easy to resume reading. Each of these objections could arguably be addressed, and in this way allow for the reading of content on Shabbat which would otherwise be inaccessible. At this point it appears to us that the border between permitted and prohibited activity with e-readers remains impossible to articulate, leaving the operation of such devices in the middle category of פטור אבל אסור, exempt from liability but still forbidden absent a competing value as described below.¹⁹¹

Moreover, the use of many electronic devices undermines the distinctive tranquil nature of Shabbat or Yom Tov. For example, turning on a radio or television may not involve any form of *melakhah*, and yet it introduces audio and video which are broadcast from another locale, bringing with them music, news and commercial advertisements which may distract the listener from his or her immediate surroundings and from the special atmosphere of Shabbat. Using the phone can also shatter the distinctive culture of Shabbat as a day focused on one’s immediate surroundings and the people with whom one is “making” Shabbat. Shabbat is a day dedicated to localism, as the Torah says, אַל יֵצֵא אִישׁ מִמְּקוֹמוֹ בַּיּוֹם הַשְּׁבִיעִי, “one should not leave his place on the seventh day” (*Exodus 16:29*).¹⁹²

Contemporary families spend much of their time together focused on individual electronic devices. Faces lit by glowing screens large and small, ears attached to headphones, they busily interact with friends and strangers across the world while making minimal contact with the people around them. Shabbat can and should be different. Aside from the issues of *melakhah* which have occupied most of our attention to this point, there is the positive value of creating a tranquil environment of spiritual community on this holy day. It is understood that one person's tranquility is another person's boredom, but Shabbat can be a day to reclaim interactive entertainments occurring in real time without the mediation of technology. Focusing on the people around us rather than on communication with those far away creates a powerful sense of community which is not virtual. Refraining from calling, texting, video-chatting and the ever expanding menu of social media for 25 hours preserves the simple art of face to face communication and differentiates Shabbat from other days. *Shvut*, the positive command to rest on Shabbat, is undermined by the use of electronic communication.

We must acknowledge, however, that for some people who are physically isolated, it is not possible to "make Shabbat" with others. For them, telecommunications may be the only avenue for connecting with friends and family and even for participating in Torah study or communal prayer.¹⁹³ The principle of acting for the sake of a mitzvah, לצורך מצווה, will be discussed below, and might ameliorate concerns of *shvut*, but it would not suffice to permit the *melakhah* of writing on Shabbat.

If Shabbat and Yom Tov are to succeed in focusing the mind on Torah and on appreciation for the natural environment created by God, then we have a positive reason to avoid digital distractions and make Shabbat a day unlike any other. Of course the same may be said about reading newspapers and business journals. Ideally one should spend Shabbat reading and discussing Torah and other subjects which increase one's sense of appreciation for the world and which do not engage one in business. However, most of the Shabbat observant community does engage in reading secular literature on Shabbat, and this has become normative. Nevertheless, the principle of *shvut* indicates that one should make special effort on Shabbat to study Torah and to avoid subjects such as business and finance which are antithetical to the spiritual focus of the seventh day.¹⁹⁴

Under normal circumstances one therefore should not use a phone, radio, television, computer or any other electronic device which distracts attention from one's immediate surroundings. Yet what about the use of digital devices necessary to protect

human dignity such as hearing aids, or the use of a phone to check in on an isolated and vulnerable person, or the use of a motorized chair, cart or lift to help a disabled or frail individual get about the home or congregation? Such questions pit the value of *shvut* against competing Jewish values such as human dignity and call for nuanced prioritization. This is the focus of our next section.

III. Competing Halakhic Values

Since the period of the Maccabees there has been consideration for the balance between observing Shabbat and פקוה נפש, protecting human life.¹⁹⁵ The rabbis declared that פקוה נפש is so important that it overrides the prohibition of doing *melakhah* on Shabbat. They debated the precise *drashah* or literary clue to this important principle,¹⁹⁶ but determined that whenever a person's health is at serious risk,¹⁹⁷ considerations of *melakhah* and, all the more so, *shvut*, are waived.¹⁹⁸ The rabbis were emphatic on this point, instructing a rescuer not to hesitate to violate Shabbat, and even making allowances for the rescuer to violate Shabbat again in order to return home after his or her heroic act, lest the observant public hesitate to take life-saving action.¹⁹⁹ As Rav Yehudah says in the name of Shmuel, "the Torah says, *you shall live by them* [the mitzvot]—not die by them."²⁰⁰ This principle naturally applies whether or not the action involves the use of electricity.

The rabbinic prohibitions that are classed together under the rubric of *shvut* are treated leniently in the face of צורך מצווה, the "demands of a mitzvah," though the permission to request such actions from non-Jews is often limited to tasks associated with the performance of ברית מילה.²⁰¹ The rabbis have a general principle of מצווה הבאה בעבירה, that one may not violate one mitzvah in order to fulfill another one, especially when the violation is active, and the failure to fulfill the second mitzvah is passive (for example, one may not steal in order to give charity or to fulfill the mitzvah of *lulav*).²⁰² As such, it does not generally suffice to claim a positive purpose to justify the performance of *melakhah*.

Additional halakhic norms bear upon our discussion of electricity on Shabbat, but none has the same legal force as פקוה נפש, the preservation of life. Only serious risks to health can permit the performance of *melakhah* on Shabbat. Still, other halakhic norms are relevant when determining whether a given action which is arguably banned as *shvut* should be permitted in certain circumstances. The most important such value is

the dignity of people, or כבוד הבריות.²⁰³ Jewish law requires us to prevent the humiliation of others, and to act to protect that precious quality known as dignity which derives from the divine reflection evident in every human life. While considerations of dignity do not supersede *biblical* prohibitions, they do trump later additions made by the rabbis to Jewish law. If we were to determine that a given activity was prohibited by rabbinic law, but was necessary to preserve human dignity, then an accommodation would be mandated.

Within the Orthodox community consideration for human dignity has led to lenient rulings regarding the use of a hearing aid on Shabbat,²⁰⁴ and also the permissibility of using an electrical wheelchair or scooter which is equipped with a *grama* switch (see discussion above). Conservative rabbis have likewise permitted the use of assistive devices to allow people with various physical disabilities to participate more fully in communal life. For this reason we would permit the use of devices which could be considered rabbinically prohibited such as an infrared radio transmitter to allow people who are hard of hearing to participate in prayer and Torah study. This same concern justifies the use of microphones and other technologies to amplify voice,²⁰⁵ and also the use of electric-powered wheelchairs, carts, lifts and elevators on Shabbat since these do not involve *melakhah*. Indeed, the same consideration for avoiding טירחא יתירא, excessive strain on Shabbat which serves as a form of *shvut*, limiting us from activities such as moving furniture, may also justify the use of electricity, for example by use of an elevator²⁰⁶ rather than climbing stairs.

Returning to the subject of e-readers, as we have seen above the use of these devices on Shabbat is problematic on many levels. Downloading new content and making notations are biblically prohibited activities under the category of *toledat koteiv*, derivative forms of writing. Purchasing new content is additionally forbidden by the rabbis under the rubric of *shvut*. Using e-readers to display new screen views which are transient in that they automatically shut off after a few minutes of inactivity would not be biblically prohibited but would be banned rabbinically as *toldat koteiv d'rabbanan*. *However, if such an e-reader had its network functions disabled and were used to display text in a temporary fashion (thus reducing the prohibition of writing to the rabbinic level of כותב דרבנן) for the sake of a visually disabled person who had no other way to read, we would override the rabbinic level prohibitions in deference to כבוד הבריות, the demands of human dignity.*

The prophet Isaiah praises a person who calls Shabbat a “delight” (וקראת לשבת), and the Sages develop the concept of עונג שבת to involve eating delicious foods and

avoiding fasting on Shabbat.²⁰⁷ In Midrash Yalkut Shimoni the concept of *oneg Shabbat* is extended to “even a small thing.”²⁰⁸ While this value (which was traditionally applied to allow keeping foods warm, or to prohibit anxiety-inducing activities such as sea-travel close to Shabbat)²⁰⁹ has arguably been overextended and used to justify violation of Shabbat norms for the sake of individual pleasure, there is some legal history for treating issues of *shvut* leniently in order to augment the celebration of Shabbat.

Another halakhic value relevant to our discussion is *בל תשחית*: we are commanded not to waste physical resources.²¹⁰ Desisting from using electrical devices altogether is certainly one way to reduce one’s carbon footprint, and is therefore consistent with Jewish values every day, and not only on Shabbat. Likewise, the practice of walking to synagogue and to meals is a “green solution” which is particularly appropriate for a day dedicated to recalling God’s creation.²¹¹ On the other hand, we are not expected to sit in the dark on Shabbat as did the Karaites and make the day one of gloom. Rather, we should make reasonable use of our resources on Shabbat, carefully avoiding *melakhah* and creating a positive atmosphere of rest, *shvut*.

If we are commanded to remember the majesty of God’s creation on Shabbat, then surely we should not observe it in a way which wastes the resources which God has so graciously provided. Many observant Jews leave lights, air conditioners and other appliances running all of Shabbat even when unneeded. This practice is understandable if one considers the operation of all electrical switches to be biblically forbidden, because the principle of not wasting resources does not supersede the prohibition of *melakhah*. Thus if we were to consider turning off an appliance to involve a *melakhah*, then we would not permit it just to save energy.

Indeed, Mishnah *Shabbat* 2:5 rules out saving resources as an excuse for performing the *melakhah* of *כבוי*, extinguishing, while permitting such action when motivated by concerns for physical health and safety:²¹²

המכבה את הנר מפני שהוא מתירא מפני עובדי כוכבים מפני לסטים מפני רוח רעה ואם בשביל (ונ"א מפני) החולה שיישן פטור כחס על הנר כחס על השמן כחס על הפתילה חייב ורבי יוסי פוטר בכלן חוץ מן הפתילה מפני שהוא עושה פחם:

One who extinguishes a lamp out of fear of idolaters, thieves or evil spirits, or in order to help an ill person sleep is exempt. If [he extinguished the lamp] from concern for the lamp, or the oil or the wick, he is liable. Rabbi Yossi exempts him from all of these except for the wick, since it makes charcoal.

This text indicates that it is permitted to perform the *melakhah* of “extinguishing” for the sake of safety and health, but not in order to preserve material resources. Of course, the

Mishnah's concern is not the reduction of carbon emissions, but the preservation of a person's property. Rambam notes in his commentary that the stringencies of the second half of the Mishnah reflect the view of Rabbi Yehudah that labor done for a purpose other than its forbidden result (i.e., creating charcoal) is still forbidden. He also notes that putting out the lamp prepares it to be used to burn fuel again in the future, so this action cannot truly be called דבר שאינו מתכוון, an unintentional form of labor.²¹³

In any event, we have determined that turning electrical appliances off does not involve *melakhah*, whether intentional or unintentional; turning an appliance off does not make it easier to turn it on, as is the case with relighting wicks, and this Mishnah therefore does not apply. The principle of בל תשחית, conserving natural resources, indicates that we should indeed turn off unneeded appliances on Shabbat.

This principle may also be applied to the use of e-readers, since purchasing or borrowing books in electronic form avoids many wasteful activities such as producing paper, printing, transporting and storing the finished product. Some reading materials may be accessible only in digital form. For these reasons there is a positive motivation to use e-readers on Shabbat which could arguably justify the relaxation of certain *shvut* concerns. Nevertheless, as discussed above, the current generation of e-readers and tablets include many applications which record data in a way which we understand to be biblically forbidden as writing. Indeed, these devices are becoming more fully featured and networked with each generation. A Shabbat-observant Jew who wishes to use an e-reader would need to address all concerns of data downloading, recording and display lest s/he violate fundamental principles of Shabbat law.

A related halakhic value which is often considered in reference to Shabbat and holidays is known as הפסד מרובה, preventing substantial financial hardship.²¹⁴ One example in the codes regards a wedding which was delayed on a Friday afternoon until after dark. While the Mishnah from *Beitza* 5:2 states that we do not perform weddings on Shabbat (because of *shvut*, lest one write the ketubah), in this case delaying the wedding would waste all of the food which had been prepared and would embarrass the family; Rabbi Moses Isserles rules that the wedding is permitted, but this leniency is limited to emergency situations (בשעת הדחק), not for planned events (לכתחלה).²¹⁵ This consideration of הפסד מרובה does not suffice to permit *melakhah*; still, if inaction will result in great financial loss, and a simple response can prevent the loss, one need not worry about *shvut*. Thus one can and should put leftover foods back in a refrigerator for use

after Shabbat, and not worry that this is to be considered *הכנה*, “preparation” on Shabbat for afterwards.²¹⁶

The rabbis declared that certain *shvut* prohibitions did not apply within the ancient Temple (*אין שבות במקדש*), but this permission was not extended to other worship spaces.²¹⁷ In cases of need, especially to perform a mitzvah, they permitted asking a non-Jew to perform an act of *shvut*.²¹⁸ Thus within a modern congregation Jews should not perform acts banned as *shvut* but may request such support from non-Jewish staff.²¹⁹ Janitorial staff might be instructed to keep the building clean, lit and organized for congregational use (e.g. unstacking and arranging chairs for a service), and catering staff might set tables and otherwise arrange a dining space on Shabbat, but even non-Jewish staff should not be instructed on Shabbat to perform *melakhah* such as cooking, transporting supplies to the synagogue, performing construction work etc.

Rabbinic prohibitions are generally treated leniently “for the sake of a mitzvah” at dusk.²²⁰ The Talmud and codes also permit certain violations of *shvut* for *צורך מצווה*, a sacred obligation such as accommodating unanticipated guests for a Shabbat meal. For example, if one did not have sufficient space cleared away to seat all of the guests, s/he could move produce out of a storage area to make room for them so long as this did not require excessive effort.²²¹ So too is it permissible to accommodate the non-*melakhah* needs of a person who is ill but not in danger, *חולה שאין בו סכנה*, and to ask a non-Jewish attendant to perform such tasks and even *melakhah* on such a person’s behalf.²²² People who would not otherwise use electricity on Shabbat would be justified asking a non-Jewish attendant to help in this way in order to assist a frail or ill person and make them more comfortable. In addition, there is a long tradition of doing an action which is not ordinarily associated with Shabbat, but is not specifically prohibited, *בשינוי*, through a variation which highlights the action and self-consciously differentiates it from weekday behavior.²²³

To summarize this discussion, Shabbat is meant to be a day of delight which augments one’s appreciation of the twin blessings of life and liberty, and allows a person to become attuned to the spiritual partnership with God. In general, the rules of *melakhah* and *shvut* function well in fostering this sensibility, but other Jewish values such as the preservation of human life, health and dignity as well as our resources may at times supersede considerations of *shvut* and even rabbinic forms of *melakhah*. When electrical appliances and electronic devices are needed to further these values, they are in essence allowing one to fulfill the positive mandate of *זכור את יום השבת לקדשו*, to

remember and sanctify Shabbat, and may therefore be used in the manner described below.

As mentioned at the end of Section I, there is a broad permission for the performance of *melakhah* on Shabbat in order to save life and prevent significant threats to human health. Yet many of the assistive devices used by people who are ill, frail or disabled are not necessarily of a life-saving nature. They may be necessary for such people to become physically comfortable, and to overcome isolation. There is a continuum of physical and social comfort which is directly related to health. People who experience physical or psychological distress often also experience a decline in health, and it is not always apparent at what point such declines become serious enough to invoke the *pikuah nefesh* exception to the ban on *melakhah*. *The benefit of the doubt in matters of health must always be towards leniency, and the judge of medical necessity must be the patient or their medical surrogate.*

We must realize that every such accommodation has the potential to involve other problematic actions. For example, if it is permissible to use a wheelchair lift on Shabbat, is it also permissible to repair such a wheelchair lift? To call the company that services such lifts? May one pay the workman and sign an invoice? Such activities are all banned on Shabbat unless there is danger to an individual (for example one stranded on the lift or in an unsafe area). There is an understandable tendency therefore to prohibit even related activities out of concern for their unintended consequences. We should not allow such slippery slope arguments to incapacitate decision making, but it is appropriate to try to anticipate such issues.²²⁴ There is already precedent for allowing Jewish ambulance drivers and other rescue workers to drive not only towards the hospital bearing a patient who is urgently ill, but also to drive home, lest they become hesitant to violate Shabbat in order to save a life again. Still, we must exercise caution to minimize Shabbat violations to those directly necessary for protecting health.

When considering the permissibility of using any particular device on Shabbat we first consider potential violations of the ban on *melakhah*, and then whether the proposed action is compatible with the general obligation to rest. While the use of electricity is not inherently forbidden, we have seen that many issues of both *melakhah* and *shvut* can arise from the ordinary use of common devices. Most electronics generate durable records even if that is not the user's primary intention, and should not be used on Shabbat. *Simple appliances such as fans, lights and elevators can be used without performing melakhah or violating the tranquil spirit of Shabbat. Other appliances are often*

problematic and should be avoided unless mandated by one of the contravening halakhic values described above.

Finally, we return to the matter of intention. There is a difference between intentionally recording data by, for example, operating a digital camera, and unintentionally being recorded by, for example, walking past a security camera. The former action is forbidden as the performance of *melakhah*, but the latter is permitted as an unintentional consequence of a permitted action. We hold this distinction to be true even when there is awareness of the possible recording of data, as in the case of a hotel key card noting the time of use, or walking across a lobby equipped with cameras, so long as that data is not accessible to the user. Moreover, the equipment is automated and the field of view is recorded regardless of the presence of a given individual. In such cases we properly consider the recording of data to be an unintended consequence that is permitted under the category of דבר שאינו מתכוון.

Over the course of these three sections we have examined the core concepts of labor (מלאכה) and rest (שבות) and considered how the contemporary uses of electricity interact with Jewish teachings about marking the seventh day as a differentiated and sacred time. From the biblical materials, we have learned that Shabbat is a day dedicated to appreciating the gifts of life and liberty. From the Rabbis, we learned to avoid actions which make a durable change to our surroundings, and to preserve a tranquil atmosphere on Shabbat which can amplify the sense of divine presence.

While we have found support for some uses of electricity in certain situations, we have also discovered numerous ways in which the operation of electrical appliances is incompatible with the observance of Shabbat. This is a countercultural finding, because the constant use of electronics is extremely seductive to our generation. In the face of this great desire to “stay connected,” we often forget the cost of losing the precious hours of quiet that Shabbat offers to those who cherish her. It is appropriate to quote the resounding words of Rabbi Abraham Joshua Heschel in his classic book, *The Sabbath*:

To set apart one day a week for freedom, a day on which we would not use the instruments which have been so easily turned into weapons of destruction, a day for being with ourselves, a day of detachment from the vulgar, of independence of external obligations, a day on which we stop worshipping the idols of technical civilization, a day on which we use no money...is there any institution that holds out a greater hope for man's progress than the Sabbath?²²⁵

IV. Summary and Halakhic Conclusions

In this responsum we have discussed the laws of Shabbat with attention to specific forms of *melakhah* and *shvut*. These concepts remind observers of God's gifts of life and liberty by requiring us to act in distinctive patterns on the seventh day. *Melakhah* is understood to refer primarily to actions which result in a durable physical change; *shvut* overlaps with this category but also includes actions and even thoughts which compromise the tranquility of Shabbat and erode the distinctiveness of the seventh day. By desisting from *melakhah*, we begin to appreciate the natural resources of our remarkable world and become able to resist the temptation to define life's value primarily in terms of our own actions. By dedicating the day to tranquility, we dignify our lives and are refreshed for the tasks awaiting us on the six days of labor.

We have learned that the operation of electrical and electronic circuits may not be categorically banned as *melakhah* but that many specific actions involving such appliances violate the laws of Shabbat. For example, any appliance used to cook food or heat air and water is banned under the category of *toledat bishul*, a derivative form of cooking. The operation of any appliance which records data—whether text, audio or images—is banned under the category of *toledat koteiv*, a derivative form of writing. Most consumer electronics fall within this category and are therefore incompatible with Shabbat observance.

While a comprehensive ban on all uses of electricity may be justified as a fence around the Torah, some uses are not only permissible but even positively indicated. Certainly any action needed to save a life—even if it involves biblically banned forms of *melakhah*—may be permitted under the rubric of *pikuah nefesh*. Actions which are forbidden under the authority of rabbinic law must be avoided unless they are required for the preservation of human dignity. In some cases such actions may also be indicated in order to avoid waste and excessive exertion. The balancing of these norms is complex and requires consultation with halakhic experts based on the particulars of any given situation and appliance.

Having completed our review of *melakhah*, *shvut* and other relevant halakhic principles, we may summarize our conclusions as follows:

Considerations of *Melakhah*

1. The operation of electrical circuits is not inherently forbidden as either *melakhah* or *shvut*. However, the use of electricity to power an appliance which performs *melakhah* with the same mechanism and intent as the original manual labor is biblically forbidden on Shabbat. For example, grinding coffee, trimming trees, sewing etc. are all forbidden with electrical appliances in the same way as these activities are forbidden without the use of electricity, as an *av melakhah*.
2. The use of electricity to perform an activity with a *different* mechanism but for the same purpose as a *melakhah* is forbidden to Jews on Shabbat as a derivative labor (*toledah*). Such prohibitions share with the primary forms the severe status of being biblically forbidden, אסור דאורייתא. Thus cooking with an electrical heating element or a microwave oven on Shabbat is forbidden as *toledat bishul*,²²⁶ though it is permitted on Yom Tov. Recording text, sound, images or other data with an electronic device is forbidden as *toledat koteiv*, a derivative form of writing. Sabbath and Yom Tov operation of any electronic recording device, camera, computer, tablet, or cellular phone is forbidden by this standard.²²⁷ Moreover, the creation of a durable image, as with a printer, is also forbidden as a derivative form of writing. Automation may be employed prior to Shabbat to set some such processes in motion, but even here one must be cautious about the temptation to make adjustments to such devices, as well as their capacity to undermine the distinct atmosphere of Shabbat.
3. For the sake of protecting life, even biblical prohibitions are superseded. Thus all electrical and electronic devices needed to administer medicine and medically necessary therapies or to summon medical assistance are permitted on Shabbat. If the health challenge is not life-threatening, then Jewish people should not perform *melakhah*, but it may be permissible to employ non-Jewish assistants or use automated systems to help the patient.

Considerations of *Shvut*

4. The positive commandment of *shvut*, to rest on Shabbat, demands a day of differentiation in which one avoids commerce, the creation of loud sounds and anything which would replicate the atmosphere of the work week. Electrical appliances like fans, lighting fixtures and magnetic key cards and fobs may be used without violating either the law or the spirit of Shabbat. However, even if

some electronic communication devices are not forbidden as a form of *melakhah*, the tranquility of Shabbat may be compromised by such activities. Rabbinical teachings indicate that Shabbat should be dedicated to prayer, Torah study, meals and rest, not to weekday concerns. We ought to anchor our day in physical environments such as the synagogue and Shabbat dinner table that reinforce the holy nature of the day and allow the spiritual potential of the day to be realized.²²⁸ However, Sabbath observant people can be trusted to decide what formally permitted activities are consonant with their Shabbat tranquility.

5. Positive halakhic values such as protecting human dignity, avoiding excessive strain, financial hardship, and not wasting natural resources may supersede the *rabbinic* restraint on using electricity as indicated by *shvut*. The use of electrical motors to assist frail and disabled people to move around, and the use of assistive devices to enhance hearing, speech and vision may be justified based on the demands of human dignity despite the possibility that such tools might lead one to an activity which is rabbinically banned. The use of elevators to reduce strain on Shabbat is likewise permitted. Turning off unneeded appliances is permissible to avoid financial hardship and the wasting of natural resources. In all of these cases, halakhic imperatives such as protecting human dignity, avoiding excessive strain, and conserving resources may supersede rabbinic restrictions (*shvut*), but not biblical prohibitions (*melakhah*).
6. Refraining from operating lights and other permitted electrical appliances is a pious behavior which can prevent inadvertent transgression and reinforce the distinctiveness of Shabbat. In many of our communities a ban on operating all appliances, including lights, has become the operative practice, and should therefore be maintained. Those who do make limited use of electricity must be attentive to the distinctions explained in this responsum, avoiding any activities which would result in cooking, recording or other labors on Shabbat. They also would be well-advised to be sensitive to the practice of visitors who seek to avoid any operation of circuits, and may wish to defer to the more stringent practice of much of the observant community. In this way Shabbat may provide its observers with a distinctive day of delight dedicated to prayer, Torah study and fellowship. Then Shabbat will continue its powerful role as a sign of the covenant between God and Israel, transmitting holiness from generation to generation, and supporting the creation of sacred communities.

APPENDIX

Table of Rulings for Common Electronics

The variety of electrical appliances and electronic applications is vast and growing by the day. It is impossible to discuss every form available today or to anticipate what innovations will be introduced in the coming years. For this reason our project has focused on broad principles and applied them to some of the more common devices from which other applications may be extrapolated. There will certainly be need for further studies as technology and its surrounding culture continue to develop. Recall that even permitted activities may be avoided in order to further differentiate Shabbat from the weekday. Even forbidden activities may be permitted as discussed above when overridden by countervailing halakhic values such as *pikuah nefesh*, saving a life. We here designate activities which are biblically forbidden except to protect life as אסור. Activities which are rabbinically forbidden unless superseded by a countervailing halakhic value are categorized as (פטור א"א). Another name for this is אסור דרבנן. Activities which we consider to be permitted outright are categorized as מותר.

Appliance	Possible Concern(s)	Shabbat	Yom Tov	Comments
Cellular/Smart Phone	תולדת כותב, שבות	אסור	אסור	Records call and text info
Computer (desktop, laptop, hand-held, tablet etc.)	תולדת כותב	אסור	אסור	Captures user data; downloads and saves files.
Digital Camera, Voice Recorder	תולדת כותב	אסור	אסור	Unless automated
Electric scooter or wheelchair	טלטול, גזירה שמא יתקן	פטור א"א	פטור א"א	משום כבוד הבריות for disabled people.
Electric Dishwasher	תולדת בישול	אסור	מותר	Heats water; timer operation permissible
Elevator	שבות	מותר	מותר	משום טירחא
E-reader	תולדת כותב	פטור א"א	פטור א"א	Permitted for vision-disabled users in passive mode כבוד הבריות
Fan (air)	מכה בפטיש	מותר	מותר	
Heating element (cook range, hair dryer; kettle; instant hot tap; pool heater etc.)	תולדת בישול	אסור	מותר	
Inserting batteries, connecting power cords	מתקן מנא	אסור	אסור	
Intercom	שבות	מותר	מותר	לא גזרו שבות במקום סכנה
Lighting fixture (Incandescent, fluorescent, LED)	מבעיר, בונה, מכה בפטיש	מותר	מותר	
Magnetic stripe card Type I (credit, debit, fare cards)	תולדת כותב, שבות	אסור	אסור	
Magnetic stripe card Type II (key cards)	שבות	מותר	מותר	לא גזרו שבות במקום סכנה
Microwave oven	תולדת בישול	אסור	מותר	
Music player (MP3)	שבות	פטור א"א	פטור א"א	
Analog Telephone	שבות	פטור א"א	פטור א"א	To be avoided; permitted for חולה שאין בו סכנה

End Notes

¹ I wish to thank Rabbis Miriam Berkowitz, Elliot Dorff, Joshua Heller, Avram Reisner, Michael Pitkowsky, Paul Plotkin, Aaron Alexander and Jeremy Kalmanofsky for their comments to this responsum, and to clarify that they may not agree with my conclusions. All errors of fact and judgment are of course my own responsibility.

² The distinction between electrical and electronic devices is generally based upon the employment of transistors in electronic devices. Yet this distinction is not precise, since many electrical appliances now employ transistors. Some differentiate electronics in that they use electricity primarily to manipulate *information*, whereas electrical appliances are designed primarily to perform *physical* tasks. Others view the difference as dependent on whether the flow of electrical current within the appliance is controlled by means of a mechanical device or by another current or voltage. In general, the two classes of appliance often overlap as information technology pervades ever more domains of physical activity. See the articles and discussions in *Wikipedia*: “[Electronics](http://en.wikipedia.org/wiki/Electronics)” <http://en.wikipedia.org/wiki/Electronics>, “[Electricity](http://en.wikipedia.org/wiki/Electricity)” <http://en.wikipedia.org/wiki/Electricity> and “[Transistor](http://en.wikipedia.org/wiki/Transistor)” <http://en.wikipedia.org/wiki/Transistor> (accessed June 2010).

Our focus is primarily on hardware since the distinction between different software applications (or apps) is difficult to maintain. For example, one might suggest that reading a pdf or Word document on a laptop is permitted, whereas using the same programs to write or annotate a document is forbidden. Likewise, that using a web browser to read Internet content could be permitted while using the same browser to download content or fill in forms would be forbidden. Our position is that such distinctions are unsustainable, and if some of these activities are forbidden under the category of “writing” then other uses should also be banned.

³ Prior studies regarding electricity and Shabbat within the Conservative Movement begin with Rabbi Arthur Neulander’s 1950 CJLS responsum, “The Use of Electricity on the Sabbath.” He argues that the use of electricity cannot be compared to lighting fire on either halakhic or scientific grounds, and that the use of electrical appliances should be banned only in those instances when the result is *melakhah* or the action is not “in consonance with the spirit of Shabbat.” Much has changed in the subsequent 61 years, both in the scholarship regarding this subject and in the ever-expanding uses of electricity, but Rabbi Neulander’s basic observations are sound. Other responsa and the published discussion regarding Shabbat in the 1950 *Proceedings of The Rabbinical Assembly* (and republished in several places, including *Tradition and Change*, ed. Mordecai Waxman, RA, 1958, 1994) also touch upon the use of electricity. Rabbi Joel Roth addresses this subject briefly in his article, “*Melakhah U’Shevut: A Theoretical Framework*,” in *Conservative Judaism* (Spring 1982), pp.15-16. In 1982 and 1989 the CJLS issued various responsa regarding the use of audio and video recording equipment on Shabbat which addressed the question of whether recording onto magnetic tape can be compared to the “writing” forbidden as *melakhah* on Shabbat. These are available on the RA [website](#), and are published within *Proceedings of the CJLS, 1980-1985* (RA, 1988). Rabbis Michael Katz and Gershon Schwartz z”l discuss this subject in their chapter “Shabbat,” in *The Observant Life: The Wisdom of Conservative Judaism for Contemporary Jews*, edited by Martin S. Cohen and Michael Katz (NY: The Rabbinical Assembly, 2012), pp.133-135. Other essential resources regarding the conceptual framework of Shabbat, though not electricity, include the masterful essay on שבות by Boaz Cohen in *The Proceedings of the Rabbinical Assembly* (1945), and chapters on מלאכה and שבות in Yitzhak Gilat’s Hebrew book, פרקים בהשתלשלות ההלכה. Abraham Joshua Heschel’s classic, *The Sabbath: Its Meaning for Modern Man* (NY: Farrar, Straus, Giroux, LLC, 1951; republished by Shambhala Publications, 2003), gives a profound meditation on the role of Shabbat in modern civilization. The rapid spread of technology in the subsequent six decades has underscored many of Heschel’s points.

Many studies regarding the use of electricity on Shabbat and Yom Tov have been published by Orthodox scholars. The entry השמל in the אינציקלופדיה תלמודית is supplemented with a lengthy (60 page) appendix in volume 18 which deals with many of these issues in great depth (while avoiding making a *p'sak din*). Whereas the main entry deals with basic questions about the use of electronics, the appendix considers specific types of appliances and the halakhic issues which they raise. The book השמל ושבח and several responsa by Rabbi [Shlomo Zalman Auerbach](#) in his collection מנחת שלמה give comprehensive overviews. Rabbi Auerbach also wrote a monograph on electricity and halakhah called מאורי אש. The volume קונטרס השמל בשבת ולחולה: הלכות כלי השמל בשבת וביום טוב is encyclopedic in scope. Yirmiahu Ben Asher (1992) deals in depth with accommodations for disabled and ill persons. The Israeli Zomet Institute has relevant articles on its web site, <http://www.zomet.org.il/>. In English, several reviews of the halakhic literature have also been published: “[The Use of Electricity on Shabbat and Yom Tov](#)” by Rabbis Michael Broyde and Howard Jachter in *The Journal of Halacha and Contemporary Society* (XXI Spring 1991) generally supports Rabbi Auerbach’s position:

http://www.daat.ac.il/DAAT/english/Journal/broyde_1.htm. *Shabbat and Electricity* by Rabbi L.Y. Halperin (Jerusalem: Institute for Science and Halacha, 1993) combines all of the stringencies. These Orthodox works all consider the operation of electrical appliances to be biblically forbidden as מלאכה though not without disagreements about which labor is involved. One of the many surveys of Shabbat law is by Rabbi Shimon D. Eider, *The Halachos of Shabbos* (Lakewood, NJ, 1970).

⁴ p. 20 in Shambhala Library’s 2003 edition.

⁵ Electrical switches are no longer limited to structures of metal and plastic, but now include microscopic transistors which may be controlled by motions such as the tap of a finger on a touch screen or through touchless technologies which track gestures and eye movements in order to control an application. There are even neural interface systems that allow the control of electronics through the use of electrodes inserted in the brain or placed on its surface. See “Reach and grasp by people with tetraplegia using a neurally controlled robotic arm” in *Nature* 485, pp.372-375, May 16, 2012. The progression of such technologies from science fiction to practical application in recent years has been rapid and remarkable.

⁶ See the Wikipedia article on electric motors, especially the section regarding sparking in brushed DC motors: http://en.wikipedia.org/wiki/Electric_motor.

⁷ Smart home technologies are already altering the way that household appliances operate and interact with one another and with the occupants of the home. There is a vast on-line literature on this subject. Here is one survey article:

http://articles.castelarhost.com/smart_home_technology.ht. In the foreseeable future it may become impossible to use necessary appliances like toilets without triggering some sort of electronic monitoring of the device.

⁸ Already 61 years ago Arthur Neulander pointed out that simply by being alive and moving we constantly create electrical impulses and that our motions inevitably affect thermostats and other electrical appliances in our vicinity. As we shall discuss below, the halakhic codes have banned as פסיק רישיה any activity which inevitably results in מלאכה unless the result is ליהא ליה (detrimental); this strict standard, if taken literally, would prevent a Sabbath observer from opening a refrigerator or even an external window or door, since these actions change the temperature and trigger beneficial responses from heating and cooling systems. Indeed, the use of water taps, toilets and drains eventually causes pumps to operate and should arguably be banned by the same reasoning. Yet the application of such a strict standard has proven to be unpalatable and indeed unfeasible for even the most strictly observant. These actions are often justified as only indirectly causing (*grama*) the appliance to respond but the line between direct and indirect causation is not always easily identified.

While devices set in motion prior to Shabbat are generally permitted (an exception being a flour mill which makes excessive noise and may lead the public to assume that the owner is milling on Shabbat), there remains debate about setting timers to *commence* labor on Shabbat. However, dominant practice is lenient in this regard as well.

¹⁷ This contemporary practice recalls the classic debate between medieval Karaites and mainstream Jews (Rabbanites) regarding Exodus 35:3, “Do not burn fire in all your dwellings on the sabbath day.” The early Karaites claimed that the Torah here requires Jews to sit in the cold and dark on Shabbat (*Eshkol Ha-kofer*, No. 146), while the Rabbanites interpreted the verse only to prohibit kindling and tending fires on Shabbat, but to permit the use of fires lit before Shabbat. The Rabbinic position, which yielded an increasingly sophisticated set of technological strategies to augment שבת, Sabbath joy, is first described in *Midrash Mekhilta D’Rabbi Yishmael, Massechta D’Shabta, Vayakhel*, 1: ת”ל לא תבערו אש בכל “The verse, do not kindle fire in all your dwellings on the sabbath day, means, on the sabbath day you may not kindle, but you may kindle on the eve of the sabbath for the sabbath.” Indeed, the custom of lighting candles to start Shabbat may have originated as a demonstrative separation from the Karaite practice. For a review of these sources, see Chancellor Ismar Schorsch’s Torah commentary to Shabbat *Beha’alotekha* 5762 (2002):

<http://www.jtsa.edu/PreBuilt/ParashahArchives/5762/behaalothekha.shtml>.

¹⁸ Under the theocratic government understood by early rabbinic literature to have been operative during the Second Temple and earlier periods, *intentional* (במזיד) violation of the ban on Sabbath labor could be punished by stoning (סקילה) if the violator had been forewarned (בהתראה), or otherwise by the divine punishment called כרת (literally, being “cut off;” this may refer to a premature death or to some sort of spiritual destruction). The rules for *unintentional* violation (בשוגג) would have required the offender to bring a purification offering (קרבן הטאת), in order to be restored to good standing before God and the community. See Rambam, MT, *Hilkhot Shabbat* 7:1. On the cessation of the death penalty, see Bavli Sanhedrin 41a and 52b. There is some evidence during medieval times of emergency applications of the death penalty for protection of the Jewish community against informers but not, as far as I am aware, for Sabbath violations. See Menachem Elon, *Jewish Law: History, Sources and Principles* (Phila.: JPS, 1994), V. 1, p.11, esp. note 25, and also V. 2, pp.696-7. There are social ramifications for those who violate Sabbath laws in observant communities, and of course, כרת may remain in effect, though there is no evidence of truncated lifespans for Sabbath violaters.

¹⁹ See “The Sabbath Manifesto” web site: <http://www.sabbathmanifesto.org/about>. They sell a “cell-phone sleeping bag” and have declared an annual “National Day of Unplugging.”

²⁰ Judith Shulevitz writes of the utility of Shabbat to prevent the complete breakdown of “universal time” as electronic communication makes individualized “mobile time” the norm. See *The Sabbath World: Glimpses of a Different Order of Time* (NY: Random House, 2010) chapter 7, esp. pp. 197-8.

²¹ There is also a documented phenomenon of otherwise Shabbat observant youth using hand-held computers for texting and then describing themselves as keeping “half-Shabbos.” See Steve Lipman, “For Many Orthodox Teens, ‘Half Shabbos’ Is A Way Of Life” in *The Jewish Week*, June 22, 2011. For such people, there is no attempt made to regulate the use of electronics in light of halakhah. In contrast, our project seeks to apply halakhic categories to regulate the use of electronics, whether the result is permission or prohibition.

²² <http://www.kosherlightswitch.com/> There is a lengthy responsum available on this site justifying the use of this switch based on a patented technology in which the switch increases the *probability* of completion of the circuit but does not directly close it.

²³ See <http://www.timesofisrael.com/new-smart-shabbatphone-is-kosher-even-on-the-weekend/>.

²⁴ See http://www.israelhayom.com/site/newsletter_article.php?id=3653.

²⁵ Rav Avraham Yitzhak Ha-Kohen Kuk permitted asking a non-Jew to milk Jewish-owned cows on Shabbat since the rabbinic ban on אמירה לנכרי is superseded by the biblical ban on בעלי חיים. From this precedent permission has been extrapolated to use automated milking devices for Jewish-owned dairy cows on Shabbat. See Howard Jachter and Ezra Frazer, *Gray Matter*, volume 1, p. 202.

²⁶ See Rambam's discussion of these categories at the beginning of the *Laws of Shabbat*, Chapter 1:2-4.

²⁷ ששת ימים תעבד וביום השביעי תשבת בהריש ובקציר תשבת, *Six days shall you work, but on the seventh day shall you rest—from plowing and reaping shall you rest.*

²⁸ ירמיהו פרק יז (כא) כה אמר יקוק השמר בנפשותיכם ואל תשאו משא ביום השבת והבאתם בשערי ירושלם: (כב) ולא תוציאו משא מבתיכם ביום השבת וכל מלאכה לא תעשו וקדשתם את יום השבת כאשר צויתי את אבותיכם:

See Moshe Greenberg's essay:

משה גרינברג, פרשת השבת בירמיהו, דברי החוג העיון בתנך בבית נשיא המדינה, עיונים בספר ירמיהו חלק ב' (1971), ע' 26-37. העורך בן ציון לוריא.

²⁹ נחמיה פרק יג. (טו) בימים ההמה ראיתי ביהודה דרכים גתות בשבת ומביאים הערמות ועמסים על החמרים ואף יין ענבים ותאנים וכל משא ומביאים ירושלם ביום השבת ואעיד ביום מכרם ציד: (טז) והצרים ישבו בה מביאים דאג וכל מכר ומכרים בשבת לבני יהודה ובירושלם: (יז) ואריבה את חרי יהודה ואמרה להם מה הדבר הרע הזה אשר אתם עשים ומחללים את יום השבת: (יח) הלוא כה עשו אבותיכם ויבא אלהינו עלינו את כל הרעה הזאת ועל העיר הזאת ואתם מוסיפים חרון על ישראל לחלל את השבת:

³⁰ Jeffrey Tigay, article שבת in מקראית, אנציקלופדיה מקראית, 7:504-517 (Jerusalem, 1976), see esp. section 3.

³¹ Baruch Schwartz, "Sabbath in Torah Sources," address to the Society of Biblical Literature (2007). It is available on-line at: www.biblicallaw.net/2007/schwartz.pdf. Schwartz gives a novel explanation for the juxtaposition of Shabbat to the tabernacle narrative in P. The idea is that Shabbat is a holy day dedicated solely to the Lord, and that the act of dedication cannot be completed until the tabernacle is in place.

³² See *Jubilees* 50:6-13 and *The Damascus Document*, Section 10. For the text of *Jubilees* 50, see <http://www.pseudepigrapha.com/jubilees/50.htm>. In verse 8, the author announces a ban on marital sex on the Sabbath (the rabbis also considered such a ban, especially regarding the initial act of intercourse with a virgin since it likely creates a wound or opening in the hymen, but ultimately permitted and indeed encouraged Shabbat intercourse. See B. Ketubot 5b, 62b and Y. Ketubot 5:11 30b). The *Damascus Document's* list is quite extensive. See Geza Vermes, *The Complete Dead Sea Scrolls in English* (NY: Penguin Books, 1995) pp.139-40. An English translation is also available on-line:

http://www.bibliotecapleyades.net/scrolls_deadsea/deadseascrolls_english/05.htm. More recent studies consider the evidence of Qumran halakha in texts such as MMT (מקצת מעשי תורה). See "Halakhah at Qumran: Genre and Authority," by Aharon Shemesh and Cana Werman, in *Dead Sea Discoveries*, Vol. 10, No. 1, *Authorizing Texts, Interpretations, and Laws at Qumran* (2003), pp. 104-129. Lawrence Schiffman's book, *The Halakhah at Qumran* (Leiden: E.J. Brill, 1975) provides an extended study on Sabbath law in Qumran, especially in Section III.

³³ To give just a few examples, rabbinic law allowed for food preparation so long as it did not involve cooking or fine chopping; the Qumran sect apparently prohibited even the peeling of vegetables; rabbinic law allowed one to carry four cubits in the public domain on Shabbat; the Qumran sect did not allow any carrying at all; rabbinic law allowed one to walk 2,000 cubits out of town on Shabbat; the Qumran community capped such journeys at 1,000 cubits, and some sources indicate remaining within the home for the duration of Shabbat in literal compliance with Ex. 16:29. It seems possible that the Qumran sect either rejected the doctrine of *pikuah nefesh* or severely limited it (CDC 11:16f). See Schiffman for these and further examples. In his conclusion he speculates that the medieval Karaites might have had access to some of the Qumran sect's documents (which we know from the Cairo Geniza to have been in circulation) and been influenced by these in their attempt to "turn back the clock" and purge Judaism of rabbinic influence.

For a comprehensive study of Shabbat during the Roman period, see Robert Goldenberg's chapter, "The Jewish Sabbath in the Roman World Up to the Time of Constantine the Great" in *Aufstieg und*

In contrast, *Midrash Tehillim* to Psalm 92 claims that Israel kept two Sabbaths prior to the revelation at Sinai, and that for the entire 40 year period the Sabbath was a shared experience of God and Israel. God rested from manna production while Israel rested from manna collection. In this way it became בני ובין בני "an eternal sign between Me and Israel" (Ex. 31:17):

מדרש תהלים (בובר) מזמור צב ד"ה [ב] דבר אחר. תדע לך שכן הוא, שכל ארבעים שנה שהיו ישראל במדבר, בששת ימי המעשה היה נותן להם את המן, ובשבת לא היה יורד, לא מפני שלא היה בו כח ליתן, אלא מפני ששבת לפניו, כיון שראו העם כן, שבתו גם הם, שנאמר וישבתו העם ביום השביעי (שמות טו ל). אמר הקב"ה השבת הזה נתתי לישראל אות בני לבנים, בששת ימי המעשה פעלתי את העולם, ובשבת נחתי, לפיכך נאמר בני ובין בני ישראל [אות היא לעולם] (שם/שמות/ לא יז).

⁴¹ Stephen A. Geller, "Manna and Sabbath: A Literary-Theological Reading of Exodus 16" in *Interpretation*, 59/1 (Jan. 2005) pp. 5-16.

⁴² **מכילתא דרבי ישמעאל ויקהל - מסכתא דשבתא פרשה א.** פרשת ויקהל ויקהל משה וגו'. למה נאמרה פרשה זו, לפי שהוא אומר +שמות כה ++ ועשו לי מקדש, שומע אני בין בחול בין בשבת, ומה אני מקיים מחלליה מות יומת, בשאר כל מלאכות חוץ ממלאכת המשכן; במלאכת המשכן, ומה אני מקיים, ועשו לי מקדש, בשאר כל הימים חוץ מן השבת; או אף בשבת, והדין נותן, ומה עבודה שאינה באה אלא מכה המכשירין הרי היא דוחה שבת, מכשירי עבודה שאין עבודה באה אלא מכה, אינו דין שידחו את השבת, כגון שניטלה קרנו של מזבח או שנפגמה הסכין, שומע אני יתקנם בשבת, תלמוד לומר ויקהל משה, בחול ולא בשבת.

⁴³ See especially the *Tosfot* on *Hagigah* 10b, s.v. *Meleket Mahshevet*:

תוספות מסכת חגיגה דף י עמוד ב. מלאכת מחשבת אסרה תורה - פרש"י שאינה צריכה לגופה במין מלאכה זאת שברצונו לא היה בנין זה בעולם ולא יתכן דאם כן בכל מלאכות נמי כגון סותר ע"מ לבנות במקומו למה מייחייב דהא לא ניחא ליה שהיה הבנין בעולם וכן בקורע ע"מ לתפור ג"כ לא ניחא ליה בקרע זה מעולם וקורע הבא באבלו או מחמת טרדא וקורע בחמתו למרמי אימתיה לכן נראה להר"י לפרש שאינו צריך לעיקר שורש האיסור כגון הכא שאינו צריך לגומא שהיא המלאכה וכן מוציא מת במטה והרבה דחשיב פ' המצניע (שבת דף צג:) ולא דמו למלאכת המשכן שהיו צריכים לעיקר המלאכה מכבה משום צורך הפחמין וצידת תחשים וחלזון וכן כולם כיוצא בהן.

⁴⁴ As many have noted, no biblical figure in the period of judges, prophets and kings is described as having rested from labor on Shabbat. In addition to Moshe Greenberg's essay on Jeremiah cited above (note 26) see his article in *The Encyclopedia Judaica* (First edition, Jerusalem, 1971), 14:558-562. Michael Fishbane studies the phenomenon of intra-biblical legal exegesis regarding Shabbat and Jeremiah's expansion of the Deuteronomistic rendition in *Biblical Interpretation in Ancient Israel* (Oxford: Clarendon Press, 1985), pp.132-134.

⁴⁵ Michael Fishbane, *Biblical Interpretation in Ancient Israel*, p.479f.

⁴⁶ Perhaps there is a theological message to the curious formulation of "forty less one;" 40 is a numerical indicator of creation and destruction (the Sinai theophany and Noah's flood). God uses 40 to create and destroy; the human capacity for creation and destruction is little less than divine, as Psalm 8 puts it. It is also interesting that creation and destruction are linked in the *melakhah* pairs: מבעיר/מכבה, בונה/סותר, קושר/מתיר. The rabbis explain that the latter acts of destruction are required for the former acts of construction, but there is also an acknowledgement that these two modalities of change (+/-) are hinged together, like poles of an electric circuit.

⁴⁷ Translation: D. A. Sola and M. J. Raphall.

⁴⁸ Avraham Goldberg, in פירוש למשנה מסכת שבת [Tractate Shabbat Mishnah Commentary] (Jerusalem: JTS Press, 1976), p.234, provides a complex analysis of the structure of this list and of the entire volume of Mishnah Shabbat. The book examines the 39 categories in reverse order, starting with הוצאה, but it treats each cluster of *melakhot* in forward order. Even this complicated scheme is not observed consistently. Sometimes, the tanna associates *melakhot* which share a characteristic such as the use of doubles to quantify the prohibited activity of writing, sewing etc.

⁴⁹ Goldberg argues that the word "on Shabbat" refers to the action of "does labor" rather than on the resulting "enduring work." See notes to 12:1. The standard of "durable change" is at the minimum for a day, and more likely for several days.

⁵⁰ We will consider the issue of durable impact below in asking whether recording data to a non-volatile digital memory device is to be deemed a permanent act such as writing with ink on paper, or rather, is comparable to one of the non-durable forms of writing which are excluded from the biblical labor or כותב.

⁵¹ See Tur and S.A. OH 318:4 and sources cited there (and our discussion of בישול below). The rules regarding reheating wet vs. dry foods on Shabbat are complex and somewhat subjective since the issue is at what point the food becomes edible, and what amount of reheating improves its quality.

⁵² *Maggid Mishnah* to MT Shabbat 11:15. See also Tur, OH 340, SA there 340:5, and esp. the extended comments of *Mishnah B'rurah* there, s.k.22.

⁵³ Goldberg, p. 153, citing B. *Shabbat* 96b and Y. *Shabbat* 3:2.

⁵⁴ תלמוד בבלי מסכת שבת דף ע עמוד א. לפי שנאמר +שמות לה+ ויקהל משה את כל עדת בני ישראל אלה הדברים וגו' ששת ימים תעשה מלאכה. דברים, הדברים - אלה הדברים - אלו שלשים ותשע מלאכות שנאמרו למשה בסיני.

⁵⁵ תלמוד ירושלמי מסכת שבת פרק ז דף ט טור ב/ה"ב. רבנין דקיסרין אמרין מן אתרה לא חסרה כלום אל"ף חד למ"ד תלתין ח' תמניא לא מתמנעין רבנן דרשין בין ה"א לחי"ת

⁵⁶ According to the Bavli, the word אלה indicates the *letter-values* of 1+30+5, whereas the plural noun דברים adds a *concept value* of 2; the definite article ה adds 1 to reach the sum of 39. According to the Caesarean rabbis cited in the Yerushalmi, the entire sum of 39 is contained within the *letter values* of the word אלה since they allowed themselves to substitute ה (8) for ה (5). Thus אלה means 1+30+8 (!).

⁵⁷ See Yitzhak Gilat, p.35, note 16, citing the struggles of *Hatam Sofer*, *Nishmat Adam* and *Pnei Yehoshua* to resolve this conundrum.

⁵⁸ תלמוד ירושלמי מסכת שבת פרק ז דף ט טור ד/ה"ב.

⁵⁹ תלמוד בבלי מסכת שבת דף מט עמוד ב. תניא כמאן דאמר כנגד עבודות המשכן, דתניא: אין חייבין אלא על מלאכה שכיוצא בה היתה במשכן, הם זרעו - ואתם לא תזרעו, הם קצרו - ואתם לא תקצרו וכו'.

⁶⁰ See Yerushalmi *Brakhot* 3c, Y. *Nedarim* 38b, *Mekhilta DRY*, *BiShalah*, *Vayisa* #5 (p.170 in Hurwitz ed), and especially, *Shmot Rabbah* 25:12:

א"ר לוי אם משמרים ישראל את השבת כראוי אפילו יום אחד בן דוד בא, למה שהיא שקולה כנגד כל המצות, וכה"א (תהלים צה) כי הוא אלהינו ואנחנו עם מרעיתו וצאן ידו היום אם בקולו תשמעו, א"ר יוחנן אמר הקב"ה לישראל אע"פ שנתתי קצבה לקץ שיבא בין עושין תשובה בין שאין עושין בעונתה היא באה, אם עושין תשובה אפילו יום אחד אני מביא אותה שלא בעונתה, הוי היום אם בקולו תשמעו, וכשם שמצינו שעל כל המצות בן דוד בא, על שמירת יום אחד של שבת בן דוד בא, לפי שהשבת שקולה כנגד כל המצות, א"ר אלעזר בר אבינא מצינו בתורה ובנביאים ובכתובים ושקולה שבת כנגד כל המצות, בתורה מנין שבשעה ששכח משה לומר להם מצות שבת אמר לו הקב"ה (שמות טז) עד אנה מאנתם לשמור מצותי וגו', ומה כתיב אחריו ראו כי ה' נתן לכם את השבת, בבניאים מנין שנאמר (יחזקאל כ) וימרו בי בית ישראל במדבר בחוקותי לא הלכו, מה כתיב אחריו (שם/יחזקאל כ') ואת שבתותי חללו, בכתובים מנין שנאמר (נחמיה ט) ועל הר סיני ירדת ודברת עמהם, מה כתיב אחריו ואת שבת קדשך הודעת להם, אמר להם הקב"ה לישראל אם תזכו לשמור שבת מעלה אני עליכם כאלו שמרתם כל המצות שבתורה ואם חללתם אותה מעלה אני עליכם כאלו חללתם כל המצות, וכן הוא אומר (ישעיה נז) שומר שבת מחללו ושומר ידו מעשות כל רע, בעת שאדם שומר את השבת גוזר גזירה והקב"ה מקיימה שנאמר (שם/ישעיהו/ נח) אם תשיב משבת רגלך, מה כתיב אחריו אז תתענג על ה', כמה דתימא (תהלים לז) והתענג על ה' ויתן לך משאלות לבך, ולא עוד אלא כל מה שאתה אוכל בעולם הזה אינו אלא מן הפירות, אבל הקרן קיימת לך לעוה"ב שנאמר (ישעיה נח) והאכלתיך נחלת יעקב אביך כי פי ה' דבר.

⁶¹ See Elliot K. Ginsburg, *The Sabbath in the Classical Kabbalah* (Albany: State University of New York, 1989), esp. chapter 2.

⁶² Yerushalmi *Shabbat* Ch. 7, halakhah 1 (9b):

ר' יוחנן ור"ש בן לקיש עבדין הוויי בהדא פירקא תלת שנין ופלוג אפקון מיניה ארבעין חסר אחת תולדו' על כל חדא וחדא. מן דאשכחון מיסמוך סמכין הא דלא אשכחון מיסמוך עבדוניה משום מכה בפטיש.

This reference to a 3 1/2 year cycle is reminiscent of the Palestinian custom of completing the Torah in 3 1/2 years. Perhaps the number is typological, indicating that the observance of Shabbat is of equivalent importance or complexity to the entire Torah. In any event, this claim of 1,521 *toledot melakhot* would seem to be a *guzma b'alma*, a simple exaggeration.

⁶³ See Rabbi Joel Roth's discussion in "*Melakhah and Shevut*," pp.6-18, as well as Yitzhak Gilat, שלשים ותשעה, אבות מלאכה ותולדותיהם, section 6, pp. 43-47. See note 3 for citations.

⁶⁴ M. *Bava Kama* 1:1. See the opening discussion of Bavli *Bava Kama* for a comparison and contrast between the various uses of *avot* and *toledot* in the three contexts.

⁶⁵ M. *Kelim* 1:1.

⁶⁶ The main differentiation is the punishment of the multiple-act offender during Temple times. If a person unintentionally performs several acts on Shabbat which are forbidden under different primary

categories of *melakhah*, then s/he would be liable for a purification sacrifice (הטאת) for each discrete violation. However, if s/he were to violate one primary category as well as one or more of its derivative prohibitions on a given Shabbat, s/he would be liable only for one sacrifice.

⁶⁷ Rambam has a distinctive theory of the *toledot* emphasizing their difference from the labors involved in building the tabernacle. See Hil. Shabbat 7:4-7. From his perspective, any activity which closely resembles an *av* is included within the *av*; *toledot* only partially resemble the *avot*. See Magid Mishnah to Hil. Shabbat 7:4, and discussion in Roth and Gilat.

⁶⁸ As noted previously, אופה, baking, is said by some authorities not to have been part of the tabernacle construction, but to be banned by association with בישול, cooking (lit. boiling) of dyes. Why then did the Mishnah list baking rather than cooking? Because it followed other labors involved with producing bread. Another explanation would be that Mishnah Shabbat 7:2 originally had nothing to do with the tabernacle. Rabbi Shimon Eider writes of an in-between category in *The Halachos of Shabbos*, “If an act is similar both in פעולה (action) and תכלית (purpose) to an *Av Melacha* which was in the Mishkan, it is a מעין מלאכה אחת.” See *The Halachos of Shabbos* (Lakewood, NJ, 1970), V.1, pp.7-9.

⁶⁹ But see Joel Roth, pp.9-10. “In sum, it is clear that not all *melakhot* involved in the *mishkan* are *avot*, and plausible that not all *avot* were involved in the *mishkan*.”

⁷⁰ משנה מסכת חגיגה פרק א משנה ח. הלכות שבת... הרי הם כהררים התלויין בשערה שהן מקרא מועט והלכות מרובות.

⁷¹ רש"י מסכת חגיגה דף י עמוד ב. מלאכת מחשבת - שהמחשבה חשבה בדעתו ונתכוון לה, וזה לא נתכוון לה לבנין זה - לפיכך פטור, וזהו רמז מועט, דאילו מלאכת מחשבת בשבת לא כתיבא, אלא במשכן הוא דכתיב, ולפי שסמך בפרשת ויקהל פרשת שבת לפרשת משכן - אנו למדין מלאכת מחשבת לשבת.

⁷² *Talmud Ha-Igud*, edited by Shamma Friedman, *BT Shabbat Chapter VII with Comprehensive Commentary* by Stephen G. Wald (Jerusalem: The Society for the Interpretation of the Talmud, 2007), English section, p.xi.

⁷³ רמב"ם הלכות שבת פרק א הלכה ו. עשה מעשה ונעשית בגללו מלאכה שודאי תעשה בשביל אותו מעשה אע"פ שלא נתכוין לה חייב, שהדבר ידוע שאי אפשר שלא תעשה אותה מלאכה, כיצד הרי שצרך לראש עוף לשחק בו לקטן וחתך ראשו בשבת אע"פ שאין סוף מגמתו ד להריגת העוף בלבד חייב שהדבר ידוע שאי אפשר שיחתוך ראש החי ויחיה אלא המות בא בשבילו וכן כל כיוצא בזה. ועיין משנה ברורה סימן שכ ס"ק נב, כלי - דממילא היין הנסחט הולך לאיבוד כיון שהנקב בדופן החבית בצדה אבל אם היה תחתיו כלי שנוסף בה טיפת הנטיפה [נב] וכן אם היה הפקיקה בסתימת הנקב שלמעלה שהיין הנסחט יורד לתוך החבית בכל זה [נג] הוא איסור דאורייתא להדק או להסיר הפקיקה גם לשיטה זה:

⁷⁴ See *Bavli Shabbat 75a*.

⁷⁵ This is based on a case on Shabbat 103a. See in particular the Tosefot there, s.v. לא צריכא דעביד בארעא. Furthermore, see SA OH 320:18, and summary comments of *Mishnah Berurah* to 314:1:11. See too the responsum of Rabbi Eliezer Waldenberg, בנידונו, כעת, ד"ה כ סימן טז ד"ה כעת, who notes that Ashkenazi practice is to be stringent with *Pesik reishet d'lah nicha leih*. However, if the prohibition is not biblical but rather rabbinic, then the rabbis rule leniently in permitting *pesik reishet d'lah nicha leih*. See comments of *Magen Avraham* to SA OH 314:5.

⁷⁶ Rabbenu Ḥannanel, Rava"ד, Rashb"a and then Rabbi Caro in the *Shulhan Arukh* all side with Rabbi Shimon, whereas Rambam follows the stricter position of Rabbi Yehudah. See comments of Rava"ד to MT, *Hilkhos Shabbat 1:7*.

⁷⁷ It is also not evident that creating sparks alone constitutes the act of *ma'oir*—that may require a “completion” of the labor by the ignition of a combustible material with the sparks.

⁷⁸ But see discussion of Hazon Ish below. By his reasoning creating such sparks may be rabbinically banned in the same way that it is rabbinically prohibited to generate sparks by tapping rocks together (presumably a piece of flint and a rock containing iron pyrites). The comparison is unconvincing since the act of tapping rocks to create sparks is done intentionally and the result is immediately visible, which is not the case with any sparks in an electrical switch. The prevalence of solid state switches reduces this consideration in any event.

⁷⁹ I am indebted to the work of Rabbi Shlomo Zalman Auerbach, *Minhat Shlomo*, for many of these arguments, and to Rabbis Michael Broyde and Howard Jachter for their review of 20th century Orthodox

responsa in [“The Use of Electricity on Shabbat and Yom Tov”](#), *The Journal of Halacha and Contemporary Society* (XXI Spring 1991). The Israeli Zomet Institute also offers a brief [article](#) on the subject. Previous Conservative responsa have not offered a comprehensive review of these categories, but see Rabbi Isaac Klein’s survey in *A Guide to Jewish Religious Practice* (NY: JTS, 1979), chapter 5, esp. sections 5 and 11.

⁸⁰ Unless, that is, the button is equipped as a “gramma” switch which prevents the action from following directly upon the action. See discussion below.

⁸¹ See BT *Yevamot* 117a, *Ketubot* 52b, BM 53b etc. and SA HM 117:3.

⁸² Lemberg/Lvov, 1828-1906, known by the title of his responsa, *Beit Yitzhak*.

⁸³ *Beit Yitzhak* 2:31.

⁸⁴ *Minhat Shlomo*, pp. 71-74. Rabbi Auerbach was born, lived and died in Jerusalem, 1910-1995, Jerusalem. See his Wikipedia [biography](#).

⁸⁵ *Tzitz Eliezer*, 1:20:10. Rabbi Waldenberg was born, lived and died in Jerusalem, 1915-2006, and was a prominent authority on halakhah and medical ethics. See his Wikipedia [biography](#).

⁸⁶ The weakness of the *molid* argument can be readily demonstrated when comparing electricity to water. If one allows water to flow into a container like a pitcher or a glass, one has thereby transformed the container from empty to full and made it useful, even though it will revert to its prior empty state once the water is poured out. By this logic one would never be allowed to transfer any substance from one container or another on Shabbat.

⁸⁷ New appliances have often been tested prior to sale as documented on the outside package, though it is possible that any particular unit may indeed be used for the first time by the consumer. As such it is better to avoid the initial use of an appliance on Shabbat.

⁸⁸ Rabbi Avrohom Yeshaya Karelitz, b. 1878 in Kosava, Belarus, d. 1953 in B’nei B’rak, Israel. His responsa were first published in 1911 (the title *חזון איש* – *vision of a man* – alludes to the letters of his name: אברהם ישרעיהו). See his English Wikipedia [biography](#) and the expanded [version](#) in Hebrew. His main discussion of electricity occurs in *חזון איש לאורה חיים*, סימן נ' After reviewing many topics in the Talmud and the medieval commentaries and codes, Rabbi Karelitz states (p.74) that it is possible that heating the metal filament to the glowing point is a form of cooking, even though there is generally no “cooking after cooking” and the metal returns to its prior state. Even if this heating would be considered unintentional and unproductive (*pesik reisha d’lah niha lei*) it would still be rabbinically banned, and he supposes that perhaps the heating of the filament is after all necessary for the flow of the current. He also considers the possibility that the generation of sparks would be forbidden as *shvut* as in the classical case of knocking stones together. Having considered these possible rabbinic prohibitions, he focuses on the biblical ban on “building” as the most compelling argument against using electricity on Shabbat.

⁸⁹ See Bavli Shabbat 47a, where assembling the whitewasher’s pole is considered “forbidden but exempt.” That is, this type of loose construction is not really considered to be complete building since the pole is constantly being adjusted, but should nevertheless be avoided. מיתבי: המחזיר קנה מנורה בשבת - חייב חטאת, קנה. See Rashi’s comments there. פטור אבל אסור.

⁹⁰ According to Rabbis Broyde and Jachter, Rabbi Moshe Tendler claimed during a lecture at Yeshiva University that Rabbi Moshe Feinstein agreed with Rabbi Auerbach and rejected the Hazon Ish’s view. See their article, p.15, note 25.

⁹¹ In his volume *ירושלמי כפשוטו* (NY: JTS, 2008), pp.138-139, Rabbi Saul Lieberman observes that the Yerushalmi applies the category of *מכה בפטיש* to final stage of any *melakhah*, even cooking, שהרי בכל אב מלאכה, יש גם מכה בפטיש.

⁹² רש"י *מסכת שבת דף קב עמוד ב*. המכה בפטיש - גם הוא באבות מלאכות, והוא בלעז פי"ק +פטיש גדול+, שמפוצץ בו את האבן מן הסלע לאחר שחצב את האבן סביב, ומבדיל מן ההר קצת - הוא מכה בפטיש מכה גדולה, והיא מתפרקת ונופלת, וזהו גמר מלאכה של חוצבי אבן, וכל הגומר בשבת מלאכה - תולדת מכה בפטיש היא.

is untenable, especially since such ovens heat foods unevenly, bringing some parts (especially with fat) to a boiling point (which for liquids is considered the biblically banned activity of *bishul* even if previously boiled) while leaving others relatively cool. In order to avoid error, I think it necessary to refrain from using microwave ovens on Shabbat even for warming foods. The same can be said of some stove covers (i.e. a *blech*) which have a flame beneath them and can get very hot. It is best on Shabbat to use a warming tray or oven which is designed for warming but not cooking food.

¹⁰⁷ A brief note regarding the use of hot water taps is unavoidable here. Many appliances such as the Instant Hot tap, or a water cooler which draws water into a boiling chamber, cannot be used without directly boiling water, and are therefore prohibited on Shabbat, but not Yom Tov. Much has been written about the various forms of residential and commercial boilers, and whether drawing hot tap water in a sink or shower necessarily causes cold water to flow into the boiler and there to be heated or cooked. The most prudent policy is to avoid drawing hot water through taps on Shabbat. Yet in most cases the use of hot water will not immediately cause cold water to be heated. Rather, as with all cases of appliances equipped with thermostats (opening a refrigerator door or even an external house door, which accelerates temperature exchange), we may view these acts of heating as *grama*, or indirect, and therefore permissible.

¹⁰⁸ Our primary focus is not on cooking food, but it is worth mentioning the question of whether the traditional restriction on *מוליד אור*, creating new fire on Yom Tov is relevant to electrical appliances. Since we will argue below that electricity is not itself considered fire, there would seem to be no reason to limit Yom Tov use of electrical ovens to the adjustment of heat, and not permit turning such ovens and ranges on or off. There is no creation of charcoal when the element is turned off, as is indeed the case with gas ovens and ranges as well, nor is the metal improved by being “doused” as is the case in the Talmudic examples of *צרוף*. In his comments to Shabbat 42a, Rashi explains that dousing a metal ember is forbidden by the rabbis as a form of *shvut*, but is permitted in order to eliminate a public hazard. This would seem even more so in our case where there is no benefit to cooling the metal heating element. As such it would seem to be permissible to *turn off* an electric oven or range, but if there is no danger to leaving the oven or range on, then it should be left undisturbed for the sake of differentiating between holy and profane times. Gas ranges should be lit on Yom Tov by the transfer of an existing flame. Turning off a gas burner on Yom Tov in order to avoid danger from an untended flame (or gas, should the flame go out) would seem to be permitted since there is no creation of charcoal from the act of extinguishing. Still, if it can be left on safely then the gas stove should not be extinguished even on Yom Tov for the sake of emphasizing the sacred nature of the day. In general, the codes teach us to do whatever food preparation is possible prior to Yom Tov in order to amplify the experience of rest on the holiday.

¹⁰⁹ Rabbi Abraham ben David, Provence and Posquieres, 1125-1198. See his *Wikipedia* [entry](#).

¹¹⁰ See the *Wikipedia* articles, [Compact fluorescent lamp](#), [Fluorescent Lamp](#), and [Light-emitting diode](#). CFLs can achieve 75% greater efficiency than incandescent lamps, though the savings is somewhat reduced in colder climates where the inadvertent heat by-product of ILBs needs to be replaced by furnaces or other heating systems.

We should also note that there is one appliance which does make use of the enormous amount of heat generated by incandescent light bulbs—the Easy-Bake Oven. Yet even this toy oven is getting a new heating element to replace the 100 watt light bulb. Many buildings today have no incandescent light bulbs. Federal legislation originally scheduled to go into effect in January 2012 (but subsequently delayed) would raise efficiency requirements for new light fixtures to the point that ILB’s will be effectively banned. There is a backlash from political conservatives who resent government regulations promoting energy efficiency as chronicled in this March 12, 2011 *NY Times* [article](#). Still, it appears that the combined effect of energy savings, legislation, and improvements in lighting technology will end the

dominance of the incandescent light bulb in the near future. CFLs are dropping in price and acquiring desirable qualities such as reduced size, dimmability and warmer colors. LEDs are increasingly capable of replicating the warm spectrum of light favored by many consumers. See “[Bulb In, Bulb Out](#),” by Andrew Rice in *The New York Times Magazine* (June 3, 2011).

¹¹¹ Some fluorescent lamps do employ a bi-metallic filament which is warmed as part of the starting mechanism, but the process and purpose are both distinct from the heating of metal for the purposes of softening and annealing which are rabbinically prohibited as *bishul*. See again the *Wikipedia* article, [Compact fluorescent lamp](#).

¹¹² Goldberg notes that the four-step progression והמבעיר המכבה והסותר הבונה functions as a chiasmic structure of A-B-B-A, or constructive-destructive-destructive-constructive.

¹¹³ This is apparently linked to one of the few other labors explicitly forbidden in the Torah, gathering firewood.

¹¹⁴ For example, there is no ban on opening or closing a window shade to brighten or darken a room. Likewise it is not prohibited to use a mirror intentionally to control reflections of visible light.

¹¹⁵ In settings where it is unsafe or forbidden to light a fire, such as in hospitals and nursing homes where oxygen and other combustible gases are present, we allow patients to say candle-lighting blessings over electric lamps so that they not feel excluded from the experience of remembering Shabbat and other holidays. Still, this practice is clearly understood to be a concession to safety concerns, and is not the ideal performance of the ritual.

¹¹⁶ At the end of the life of an incandescent bulb the filament crumbles and leaves a powdery detritus. This is not comparable to charcoal, is not accessible, and is not likely to be generated in any given use since bulbs are designed to last for hundreds or even thousands of hours. As such this creation would certainly be unintentional.

¹¹⁷ Translation by Philip Blackman.

¹¹⁸ In his comments to this Mishnah, Maimonides explains that it reflects the minority view of Rabbi Yehudah--that even if the person has no intention to harden the metal, but just to warm some water, it would be prohibited as an unintentional act. פירוש המשנה לרמב"ם מסכת שבת פרק ג משנה ד. ומיחם שפינה ממנו מים לא יתן לתוכו מים כל עיקר מפני שהוא מצרף, ומשנה זו לר' יהודה ודבריו דחויין, אלא מותר לתת לתוכו מים ואפילו לא השאיר בו מן המים כלום דדבר שאין מתכוין הוא ומותר.

¹¹⁹ On annealing, see http://en.wikipedia.org/wiki/Annealing_%28metallurgy%29.

¹²⁰ רמב"ם הלכות שבת פרק ט הלכה ו. המחמם את המתכת ב עד שתעשה גחלת הרי זה תולדת מבשל.

¹²¹ רמב"ם הלכות שבת פרק יב הלכה א. השגת הראב"ד/ הרי זה תולדת מבעיר וחייב. א"א ולמה לא משום מבשל כמו סיכתא לאתונא דמרפא רפי והדר קמיט (שבת עד), והמחמם את הגחלת והמצרפו במים אינו מכבה אבל הוא מכה בפטיש שגומר את חסומו מ"מ חיוב אין בו דצרוף דרבנן הוא.

¹²² Indeed, there may be no difference at all, since softening the metal is the first stage of the annealing process. More likely it would seem that Rambam is differentiating melakhot based upon the subsequent actions of the metalworker. See this *Wikipedia* article on annealing metals:

http://en.wikipedia.org/wiki/Annealing_%28metallurgy%29

¹²³ He even makes a pun on this, saying in a note that it is possibly מעביר (“transmitting” fire) rather than truly מבעיר (burning). Later in life he admitted to doubts about the equation of incandescence with burning.

¹²⁴ He tells a remarkable story in footnote 3 of a conversation he had as a young man with the Hazon Ish on the permissibility of heating water with an electrical coil, and how the Hazon Ish offered a new theory to prohibit the use of such an element because it is “pregnant” with fire, to which Rabbi Auerbach responded with shocked disbelief. Rabbi Auerbach returns to this subject in a later responsum, where he admits that his claim that electrical lighting is fire is not impregnable, and suggests a much lower level

rabbinic prohibition on making light, based on a case in Bavli *Beitza* 33b of a person generating sparks by tapping rocks together. Yet even that was for the purpose of starting a real fire, which is not our case:

שו"ת מנחת שלמה תנינא (ב - ג) סימן כו. ואף אם נאמר שאין מבעיר במתכת כמו שאין בו כבוי מה"ת, אבל מדרבנן בודאי יש בו מבעיר כמו שבכבוי יש איסור דרבנן אם יעשה זה בשבת, וממילא אם נתחבר הזרם להמכונה מעט לכאורה דמי לטלטול גר הדולק דאפילו ר"ש מודה בזה, ולא מבעי בזה לצו"ג וצו"מ, ואף שיש בו גם שאר חלקים - הנה גם בנר יש בו חלקים שונים וכולם בסיס להאור (שבת מ"ז), ואם עושה זה בשבת יש בו ג"כ משום מוליד אור אם הברזל נתאדם וגרע ממוציא אור מעצים ואבנים (ביצה ל"ג ע"ב), דהתם הוצאת האור אינו בכלל מבעיר כיון שאין המלאכה מתקיימת עד שמדליק מזה קיסם או נייר והרי הדלקה ביו"ט מותרת והוצאת האור בעצם הוי רק מוליד ואחר כל הפלפול שהיו בזה פשוט דהוא דרבנן, אבל הכא מוליד האש שיש בו קיום ותועלת מצד עצמו כי כח הזרם והלבון אהוים ודבוקים זב"ו.

¹²⁵ Born February 3, 1918 in Poland, originally known as Shlomo Gorontzik (still at the time of this article), he immigrated to Palestine with his parents in 1925 and served as rabbi of the IDF and eventually as chief rabbi of Israel from 1973-1983. He died on October 29, 1994. See his [biography](#) in *Encyclopedia of Founders and Builders of Israel*, volume 3:1482 [Hebrew], and another [biography](#) in Wikipedia [Hebrew]. I thank Rabbi Michael Pitkowsky for directing me to this source.

¹²⁶ סיני: ירחון לתורה, למדע ולספרות, כרך כד, חוברת א-ו. "הדלקת החשמל בשבת," ע' קמח-קנב וע' שכו-שכט.

¹²⁷ תלמוד ירושלמי מסכת יומא פרק ג דף מ טור ג/ה"ה. תני אמר רבי יהודה עשות של ברזל היו מרתחין אותן מערב יום הכיפורים ומטילין לתוך הצוננין כדי שתפוג צינתן ולא נמצא כמכבה ביום הכיפורים אלא מסבור סבר רבי יודה שאין אבות מלאכות ביום הכיפורים אלא רבי יודה ורבי שמעון אמרו דבר אחד לא כן סבר מימור רבי יוסי ורבי שמעון שניהם אמרו דבר אחד נימר רבי יוסי ורבי יודה ורבי שמעון שלשתן אמרו דבר אחד אלא מיסבור סבר רבי יודה שאין תולדת האש כאש אלא כיני רבי יודה סבר מימר שאין תולדת אש כאש ורבנן סברין מימר תולדת אש כאש ויחם לו חמין

¹²⁸ תלמוד בבלי מסכת פסחים דף עה עמוד א. אמר ליה גחלת של עץ לא איצטריך קרא לרבויי. כי איצטריך קרא - לגחלת של מתכת. וגחלים של מתכת לאו אש הוא? והא גבי בת כהן, דכתיב +ויקרא כ+ באש תשרף ואמר רב מתנה: פתילה של אבר היו עושין לה! - שאני התם, דאמר קרא באש תשרף לרבות כל שריפות הבאות מן האש, וכל שכן אש עצמה.

¹²⁹ See above for Rabbi Auerbach's explanation of this rabbinic prohibition.

¹³⁰ Rabbi Avram Israel Reisner, personal communication, April 4, 2011.

¹³¹ רמב"ן שמות פרק לה (ג) לא תבערו אש בכל מושבותיכם ביום השבת - ענין הכתוב הזה ודאי לאסור בשבת גם מלאכת אוכל נפש, כי אמר כל העושה בו מלאכה יומת, ופירש שלא יבערו גם אש לאפות לחם ולבשל בשר כי האש צורך כל מאכל. והוצרך לומר כן מפני שלא אמר "העושה בו כל מלאכה" כאשר אמר בעשרת הדברות (לעיל כ ט) לא תעשה כל מלאכה, ואמר מלאכה סתם, והיה אפשר שנוציא מן הכלל מלאכת אוכל נפש, כי כן נאמר בחג המצות (דברים טז ח) לא תעשה מלאכה ואין אוכל נפש בכלל, ולכך הזכיר בפירוש שאף אוכל נפש אסור בו: וכלשון הזה מצאתי במדרש (מכילתא כאן) רבי נתן אומר לא תבערו אש בכל מושבותיכם ביום השבת למה נאמר, לפי שהוא אומר ויקהל משה את כל עדת בני ישראל, שומע אני יהא רשאי להדליק לו את הנר, להטמין לו את החמין, ולעשות לו מדורה בשבת, ת"ל לא תבערו אש בכל מושבותיכם ביום השבת. וזה קרוב למה שאמרנו, שלא היו מלאכות הללו שהן הנאה לגופו בכלל איסור הראשון. ורצה רבי נתן לומר שלא הוצרך הכתוב לאסור אפייה ובשול ושאר צרכי אוכל נפש, שכבר אמר להם את אשר תאפו אפו ואת אשר תבשלו בשלו (לעיל טז כג), אבל עדיין כל מלאכות שאדם נהנה בהן ואינן עושין אלא הנאה לגוף כגון הדלקת הנר ומדורה ורחיצת גופו בחמין יהיו מותרות כי זה מעונג שבת, לכך נאמר לא תבערו אש לאסור הכל:

¹³² For the former explanation see Rashi on M. Shabbat 7:2 at Bavli 73a, s.v. *Mikhabehe u-mavir*; for the latter explanation see Tosfot at 94a, s.v. *Rabbi Shimon*. See Eider, *Halachos of Shabbos*, V. 1, p. 1, note 42.

¹³³ See again Andrew Rice, "Bulb in, Bulb Out," in *The New York Times Magazine*, June 3, 2011 (mentioned above in note 84): "What we term 'light' does not exist without the human eye — it's just radiation," says Nadarajah Narendran, a professor at the Lighting Research Center at Rensselaer Polytechnic Institute. "Your eye is a detector that senses this energy coming to it at different wavelengths." Those wavelengths are perceived as colors. Natural light combines all the colors of the visual spectrum. When people complain that fluorescent light is cold, what they're really describing is an overload of radiation at the bluish wavelengths." Of course, the same could be said of sound—that it does not exist without an ear to translate the sound waves into discernible noise, and the brain to interpret this noise so that it resolves into speech, music etc.

¹³⁴ <http://faculty.biu.ac.il/~fixeled/>

¹³⁵ <http://www.shaalvim.co.il/torah/maayan-article.asp?id=491> (LED) הדלקת נורות לְד בשבת

¹³⁶ לפי כל האמור לעיל נראה לכאורה שאין איסור מהתורה או מדברי חכמים בהפעלת נורת LED בשבת. ברם הטכנולוגיה שנורות אלו מבוססות עליה אינה מצמצמת בתחום התאורה. גם מסכי מחשב, מקרנים, ערוצי תקשורת, מכשירי טלפון נייד ומכשירי חשמל נוספים עושים

שימוש במוליכים למחצה להעברת אותות חשמליים ולהדלקת צגים. נראה שהדילמה שעמדה בפני חכמי הספרדים לפני שישים שנה עומדת כיום בפנינו בבואנו לדון בשאלת הדלקת LED בשבת.

¹³⁷ If light is caused to shine on a photo-sensitive surface such as a plant, a photographic film, or a digital light sensor, then there would be a resultant derivative *melakhah* such as *zorea* or *koteiv*, but not *mavir*.

¹³⁸ This is likely to remain the case for the foreseeable future, as James Fallows argues in the December 2010 [cover story](http://www.theatlantic.com/magazine/archive/2010/12/dirty-coal-clean-future/8307/) for *The Atlantic Monthly*: <http://www.theatlantic.com/magazine/archive/2010/12/dirty-coal-clean-future/8307/>. Both the United States and Israel have recently begun to develop substantial sources for natural gas, indicating that electricity for these countries (where the large majority of world Jewry resides) will continue to be generated through the burning of fuel for many years to come. There is a proposal for harvesting electricity from natural gas without the need for combustion by using solid oxide fuel cells “at high electrical efficiency (74%HHV) and zero atmospheric emissions.” See Thomas A. Adams II and Paul I. Barton in their article “High-efficiency power production from natural gas with carbon capture,” in *Journal of Power Sources*, Volume 195, Issue 7, 2 April 2010, pp. 1971–1983.

¹³⁹ See this [article](http://www.zomet.org.il/Eng/?CategoryID=198&ArticleID=409&SearchParam=grama) from the Zomet Institute: <http://www.zomet.org.il/Eng/?CategoryID=198&ArticleID=409&SearchParam=grama>. Such devices have been integrated into products such as the *Amigo*, an electric scooter used for frail or disabled individuals to get around on Shabbat.

¹⁴⁰ *Grama* is a solution to mitigate other potential violations of *melakhah* as well. Indeed, the use of thermostats to control the temperature of refrigerators, ovens, etc. means that one need not assume that s/he is directly responsible for causing the heating or cooling mechanism to operate each time that the door is opened.

¹⁴¹ See Wikipedia articles, “[Cathode Ray Tube](#),” and “[Liquid Crystal Display](#).” See also the article, “[Refresh Rate](#).” The newest display technology is organic light emitting diodes (OLED), which are already in commercial production. These displays have many benefits such as their ability to project darker blacks, their low energy consumption, and the fact they can be embedded in materials which are extremely thin, pliable and shatterproof. See the Wikipedia article, “[Organic Light-Emitting Diode](#).”

¹⁴² For an overview on digital memory, see the Wikipedia article, “[Computer Memory](#).”

¹⁴³ See comments of Rabbi Saul Lieberman, *Tosefta Kifeshutah, Shabbat*, p. 173, note 25, citing Rambam, R’ Hai Gaon and *Maggid Mishneh*. This apparently means סימנים, namely a symbol such as א to indicate 1, ב to indicate 2, etc.

¹⁴⁴ תלמוד ירושלמי מסכת שבת פרק יב דף יג טור ג/ה"ג.

¹⁴⁵ ראבי"ה ח"א - הלכות עירובין סימן שצא ד"ה ומה שדימה. See discussion by Boaz Cohen, *op cit.*, p.142.

¹⁴⁶ Rabbi Joshua Heller notes other places in rabbinic literature such as B. *Megillah* 9a and *Gittin* 19b where Greek is listed with Hebrew as one of the two languages of significance. He reasons that this was either due to the influence of the Septuagint or to the general hegemony of Greek as the legal language of the Eastern Mediterranean. Personal communication.

¹⁴⁷ Mishnah Shabbat 12:4 lists כותב בדיו, בסם, בסיקרא, בקומוס, ובקנקנתום, ובכל דבר שהוא רושם, “Whether he wrote in ink or in orpiment or in red paint or in gum ink or in vitriol-ink or with anything whatsoever that marks...” (Translation by Philip Blackman, V. 2, p. 61).

¹⁴⁸ Blackman translation, V.2, p.62.

¹⁴⁹ See comments of Rabbi Saul Lieberman, *Tosefta Kifeshutah, Shabbat*, pp. 173f and note 27, citing Tanhuma (Warsaw) Ki Tissa #33. Rabbi Lieberman considers whether the primary labor is not restricted to רושם, inscribing letters, and whether כותב, writing, is not a derivative labor. In his Mishneh Commentary (12:3), Rambam says that according to Rabbi Yose, רושם and כותב are discrete categories of labor, with the former including the inscription of a solitary letter on the first ten and the twentieth of the planks in the tabernacle, whereas writing requires two letters (planks 11-19, יא-יט).

¹⁵⁰ אין הכותב חייב עד שיכתוב בדבר הרושם ועומד כגון דיו ושחור וסקרא וקומוס וקלקנתום וכיוצא בהם, ויכתוב על דבר שמתקיים הכתב עליו כגון עור וקלף ונייר ועץ וכיוצא בהם, אבל הכותב בדבר שאין רישומו עומד כגון משקין ומי פירות, או שכתב בדיו וכיוצא בו על עלי

ירקות ועל כל דבר שאינו עומד פטור, אינו חייב עד שיכתוב בדבר העומד על דבר העומד, וכן אין המוחק חייב עד שימוחק כתב העומד מעל דבר העומד.

¹⁵¹ Still, this labor is forbidden by the rabbis and therefore may not be performed *ab initio*, לכתחילה.

¹⁵² Rabbi Arnold Goodman, "[May a Shabbat Service be Taped?](#)," passed by the CJLS on September 13, 1989, with 9 in favor, 11 opposed, 1 abstaining. Published in *Proceedings of the CJLS, 1986-1990*. I have been unable to find Rabbi Goodman's expression כדרך עשייתו in halakhic literature except in Beit Yosef, OH 475, in reference to making *shmurah matzah*. The sole usage in reference to Shabbat (according to the Bar Ilan Responsa Project 16+) is from the entry in the *Intzayklopedia Talmudit* entry on "Koteiv". But the distinction here is that writing יד כלאחר demonstrates inferior intention—if you really wanted to write you'd do it the normal way, with your dominant hand. These sources do not imply that writing with a new and superior technology is יד כלאחר. In any event, even such secondary writing methods are considered אסור דרבנן, rabbinically forbidden.

אנציקלופדיה תלמודית כרך כז, כותב [טור תקפט] ב. הכתיבה. הכותב בשבת שחייב, הרי זה דווקא אם כתב כדרך הכותבים - כשאר [טור תקצה] מלאכות שבת, שאין חייב עליהן אם עשאן שלא כדרך עשייתן אלא כלאחר-יד* - שאין חייבים בשבת אלא על "מלאכת-מחשבת", וכתביה שלא כדרך הכותבים - כשאר מלאכות הנעשות שלא כדרך - אינה "מלאכת מחשבת".

¹⁵³ Rabbi Mayer Rabinowitz and Dvora Weisberg, "[Tape Recording and Photography on Shabbat](#)," approved by the CJLS on Nov. 7, 1984, 7-7-3, printed in *PCJLS 1980-85*, p.247, and also Rabbi Gordon Tucker's responsum, "[The Use of a Remote Audio/Video Monitor on Shabbat](#)," which was approved on February 8, 1989, 16-1-2. Rabbi Tucker and Rabbi Elliot Dorff also filed a concurring opinion to Rabbi Goodman agreeing with his conclusions (restricting permission to cases where non-Jews operated the camera), but not with his substantive arguments: "[On Recording Shabbat and Yom Tov Services](#)."

¹⁵⁴ Many synagogues have installed automated audio and video recording devices for bar and bat mitzvah services, or trained non-Jewish staff to turn on this equipment on Shabbat. These activities are somewhat problematic. Congregations which have this practice should take special caution to avoid instructing the staff about the recording on Shabbat itself, and the equipment should be hidden from view lest the congregation come to think that it is permissible to operate recording devices on Shabbat.

¹⁵⁵ We cannot here address the extremely complicated subject of אמירה לנכרי/אינו יהודי which has evolved in a radically more lenient direction than evidenced in early rabbinic literature. See Jacob Katz, *The Shabbos Goy: A Study in Halakhic Flexibility*, (Phila. JPS, 1989).

¹⁵⁶ Rabbi Avram I. Reisner, "[On the Exodus \(and Genesis\) of Shemot](#)" approved by the CJLS on December 5, 2003, 14-3-4. See esp. pp.13-14.

¹⁵⁷ Rabbi Joel Roth, "*Melakhah U'Shevut*," p. 15.

¹⁵⁸ See the Wikipedia article, [Electronic Paper](#). I am intentionally avoiding discussion of specific products such as the Kindle, Nook, iPad etc. since the technology is rapidly evolving. Rather I am focusing on halakhic issues which will hopefully remain relevant even for the next generation of consumer products.

¹⁵⁹ For such a suggestion see Rabbi Gil Student's blog, <http://torahmusings.com/2010/12/e-readers-and-shabbos/>.

¹⁶⁰ The current generation of Kindle typically replaces the text screen with a stock photo after five minutes of inactivity.

¹⁶¹ This finding would apply to the current market leaders, Apple's iPad and Amazon's Kindle, as well as similar products.

¹⁶² Wikipedia article, "[Magnetic Stripe Card](#)."

¹⁶³ I have been asked about the use of the New York Metropolitan Transportation Authority's unlimited Metrocards on Shabbat. On the one hand, each swipe does not result in a reduction in account value, and thus is not the equivalent of a cash transaction. On the other hand, the system does make a notation of the time and location of each swipe and the serial number of the card since it does not permit repeated swipes in quick succession (there is an eighteen minute interval imposed between uses). See

<http://www.mta.info/metrocard/easyuse.htm#sub>. There is also an issue with carrying the card unless the entire route is within the Shabbat boundaries. Moreover, the use of a Metrocard involves a commercial transaction of the sort associated with the workweek, and therefore seems inconsistent with *shvut*, the obligation to rest, as discussed in Section II. Should use of the transportation system become permitted, the experience of resting in place on Shabbat as declared by the Torah, אל יצא איש ממקומו ביום השביעי, would quickly be forfeited. Certain cities such as Berlin have train systems which do not require users to handle a fare card (though they are supposed to be kept on one's person and presented upon demand by an official). Some Shabbat observant people use the Berlin system without any activity which could be deemed *melakhah* and justify the use of transportation as a necessity for maintaining a Jewish community. Rabbi Gesa Ederberg of the [Oranienburger Strasse Synagogue](#) wrote a 2002 responsum on this subject for the Schechter Institute in Jerusalem entitled, נטיעה בתחבורה ציבורית בשבת בעיר ברלין, and found grounds for permission to use the Berlin system because of its particular features. The halakhic issues involved in using public transportation on Shabbat are less severe than those pertaining to operating private automobiles with internal combustion engines. We discuss a possible exception for the use of public transportation by disabled people on Shabbat in Section III below.

¹⁶⁴ There has been substantial public controversy about precisely what types of data are kept by hotels on their key cards. Generally these are encoded with the guest's name, check-in and check-out date, and access permission for their room and other areas of the property. Some hotels allow guests to use the key card to charge services to their room bill, although the key merely verifies that a valid credit card authorization is on file with the hotel. From the 2011 incident regarding Dominique Strauss-Kahn at the Sofitel Hotel in New York we learned that key cards are also capable of recording times of entry. See the *NY Times* article:

http://www.nytimes.com/2011/05/18/nyregion/strauss-kahns-hotel-key-may-tell-tale-in-sex-case.html?_r=2&hp.

If so, swiping key cards could be considered a form of writing, though the time-stamp data is not available to the user, and is not necessarily done in each case. As such we can rule leniently and consider such a recording to be an unintentional act, דבר שאינו מתכוון. In fact, hotel doors are programmed to record information about each entry, the time a door is left ajar etc.; if key cards are banned then so too might be the opening of a door altogether, even to exit.

¹⁶⁵ I thank Rabbi Aaron Alexander for encouraging me to add reference to this important concept. See, among many others, *Hiddushei Ha-Ramban*, *Ha-Rashba* and *Ha-Ritba* to B. *Shabbat* 130b. In the codes see Rambam *Hilkhot Shabbat* 6:9-10, Tur OH 586, Beit Yosef OH 307:5,

¹⁶⁶ Rabbi Joel Roth, "Melakhah U'Shevut: A Theoretical Framework," p. 5f, and Rabbi Isaac Klein, p.79 of *A Guide to Jewish Religious Practice* (see note 3 for bibliographic information). Rabbi Roth cites Rabbi Israel Lipshitz (1782-1860) as the first proponent of this theory in his Mishnah commentary *Tiferet Yisrael*.

¹⁶⁷ I thank Rabbi Roth for correcting my use of the common pronunciation, *makeh b'fatish*. There should not be a *dagesh* in the *peh* following the prefix. Regarding the use of this category for general acts of "labor," see the aggadah found at Yerushalmi *Shabbat* 7:2, 9b-c. It seems to me based on this source's phrasing "for whatever *melakhah* that they could not find an *av*," that these Tannaim were depending upon an oral tradition which identified certain actions as *melakhah* without specifying which of the 39 categories was involved. They used *makeh b'fatish* as their general category. However, we do not have an authoritative oral tradition defining electricity as *melakhah*, so Rabbi Roth's declaration requires an external argument about the nature of *melakhah*. Moreover, *makeh b'fatish* involves an action which leaves a permanent result (i.e. a hammer blow), which is not the case in shining a light. See Rambam's commentary on Mishnah *Shabbat* 12:1 and our discussion above.

¹⁶⁸ It is notable that this text does not even refer to *melakhah*, but speaks instead of *ma'asekha*, "your acts."

¹⁶⁹ Interestingly, the motive clause which begins למען, “so that” focuses not on the Israelite’s experience of rest and reflection, but on those subservient to his control—servants, foreigners and beasts of burden. If Shabbat is, as Deuteronomy 5:14 claims, a “reminder of the Exodus from Egypt,” here it serves to break not our memory of enslavement, but our taste for power over others. Of course, the Exodus association may be completely foreign to this biblical author for whom Shabbat is purely a day of rest.

¹⁷⁰ In reference to Shabbat: Ex. 16:23, 31:15; 35:2, and Lev. 23:3. In reference to Yom Kippurim, Lev. 16:31 and 23:32; with reference to New Year Lev. 23:24 (see discussion below), and regarding Sukkot, Lev. 23:39.

¹⁷¹ Rambam lists it as positive command 154 in his *Book of Mitzvot*:

המצוה הקנ"ד היא שצונו שנשבות בשבת והוא אמרו ית' (משפטי' כג) וביום השביעי תשבות. והנה נכפל צווי מצוה זו פעמים (נרשם בעמ' קנז). ובאר לנו יתעלה (עשה"ד) שהשבתה מן המלאכות היא חובה עלינו ועל בהמתנו ועבדינו. והנה התבאר משפטי מצוה זו במסכת שבת ובמסכת יום טוב:

See also *Sefer Mitzvot Gadol*, at negative mitzvah 75, and in *Sefer Ha-Hinukh*, command 85 (he lists it separately for each of the festivals as well).

¹⁷² *Proceedings of The Rabbinical Assembly*, 1945.

¹⁷³ **מכילתא דרבי ישמעאל**, בא - מסכתא דפסחא פרשה ט.

¹⁷⁴ Translation by Jacob Lauterbach, *Mekhilta D'Rabbi Yishmael* (Jewish Publication Society, 1983).

¹⁷⁵ **ספרא אחרי מות**, פרשה ה. (ט) אין לי אלא מלאכה שהיביב על מינה כרת מלאכה שאין חייבין על מינה כרת מנין שלא יעלה באילן ושלא ירכב על גבי בהמה ולא ישוט על המים, ולא יספוק ולא ישפח ולא ירקד תלמוד לומר שבתון שבות, אין לי אלא שבתון שבות, שבתון שבות מנין לא יקדיש ולא יעריך ולא יחרים ולא יגביה ולא יתרום ולא יעשר ולא יקדש ולא יגרש ולא ימאן ולא יחלוץ ולא ייבם ולא יפדה נטע רביעי ומעשר שני, תלמוד לומר שבתון שבות.

¹⁷⁶ **מכילתא דרבי שמעון בר יוחאי**, פרק לה. אין לי אלא מלאכות ותולדות שהן אסורין מנין לאיסור שבות ת"ל כל מלאכה יכול יהוא חייבין חטאת על איסור שבות ת"ל מלאכה מלאכה המיוחדת חייבין עליה ואין חייבין על איסור שבות. מנין למקח וממכר והלוואה ופקדונות שנקראו מלאכה ת"ל אם לא שלח ידו במלאכת רעהו (שמ' כב י). מנין לדינין ולטענות ולערעורין ולכל מעשה בית דין שנקראו מלאכה ת"ל כנניהו ובניו למלאכה החיצונה על ישראל לשוטרים ולשופטים (דה"א כו כט). מנין לקידושין ולגטין שנקראו מלאכה ת"ל אבל העם רב והעת גשמים והמלאכה לא ליום אחד ולא לשנים (עז' י יג). מנין לחשבונות שנקראו מלאכה ת"ל ויבא הביתה לעשות מלאכתו (בר' לט יא).

¹⁷⁷ Translation by Philip Blackman, *Mishnah Moed*, pp. 371-2.

¹⁷⁸ See Gilat, פרקים בהשתלשלות ההלכה, pp. 94-97. Ramban’s sermon is found in *Kitvei Ramban*, ed. Haim Dov Chavel (Jerusalem: Mosaad HaRav Kuk, 5742) V. 1, p.211.

¹⁷⁹ This dynamic is particularly challenging for congregational rabbis who are frequently approached by congregants on Shabbat to discuss synagogue business, life-cycle events and many other matters. The standard reply of “this is far too important to discuss informally; please call the office on Monday to make an appointment” can be amplified by reference to Shabbat and in this way to reinforce the value of *shout* for the rabbi and for the congregation.

¹⁸⁰ Rambam, MT Laws of Shabbat 23:4; Shulhan Arukh, OH 338:1. See too Rabbi Ethan Tucker’s essay on this subject, accessible as of April 2012 at:

<http://www.scribd.com/doc/23861930/Instruments-on-Shabbat-Full-Paper>.

¹⁸¹ MT Shabbat 24:4. See the story of Rabbi Shimon bar Yohai chiding his mother for talking too much on Shabbat:

תלמוד ירושלמי מסכת שבת, פרק טו דף טו טור ב/ה"ג. רבי חנינא מדוחק התיירו לשאול שלום בשבת אמר רבי חייב בר בא רבי שמעון בן יוחי כד הוה חמי לאימיה משתעיא סגין הוה אמר לה אימא שובתא היא....
¹⁸² שם, תלמוד ירושלמי מסכת שבת פרק טו דף טו טור א/ה"ג.

¹⁸³ **תלמוד בבלי מסכת שבת**, דף קיג עמוד ב. בשלמא כולהו - לחיי, אלא שלא יהא הילוכך של שבת כהילוכך של חול מאי היא? כי הא דאמר רב הונא אמר רב, ואמרי ליה אמר רבי אבא אמר רב הונא: היה מהלך בשבת ופגע באמת המים, אם יכול להניח את רגלו ראשונה קודם שתעקר שניה - מותר, ואם לאו - אסור. מתקיף לה רבא: היכי ליעביד? ליקף - קמפיש בהילוכא, ליעבר - זימנין דמיתווסן מאני מיא, ואתי לידי סחיטה! אלא: בהא, כיון דלא אפשר - שפיר דמי. אלא: כדבעא מיניה רבי מרבי ישמעאל ברבי יוסי: מהו לפסוע פסיעה גסה בשבת? אמר לו: וכי בחול מי הותרה? שאני אומר: פסיעה גסה נוטלת אחד מחמש מאות ממאור עיניו של אדם. ומהדר ליה בקידושא דבי שמש.

¹⁸⁴ *Pesikta Rabbati* 116b and *Y. Shabbat* 15b.

¹⁸⁵ הרהורים מותרים. See Bavli Shabbat 113b and 150a, among many other places, including the Shabbat song, מה ידידות.

¹⁸⁶ The rabbis came to understand a “public domain” as a large but bordered location which could hold the entire population of Israel in the desert. See Rashi on Shabbat 5a: לדגלי מדבר - וכל מלאכות דבשבת ממשכן גמרי. Since there are few such locations, most places where one might carry do not invoke the biblical prohibition, but rather a rabbinic ban on carrying in a כרמליה, an intermediary domain which is neither private nor fully “public.” This narrow definition of the public domain is not fully evident in the Bavli (see *Shabbat* 5a-6a and 98a-99b) or the early codes such as MT *Shabbat* 14:1. See comments of *Maggid Mishnah* there, and Ritba, וי”ל, א. עמוד א. וי”ל, *חידושי הריטב”א מסכת שבת דף ו עמוד א.* and *Tur* OH 345 with comments of *Beit Yosef* at 345:7. For a full exposition of the understanding of רשות הרבים in contemporary society, see the responsum of *Mishneh Halakhot* 15:126.

¹⁸⁷ As Rabbi Gordon Tucker has pointed out, the common dichotomy of דרבנן and דאורייתא, biblical and rabbinic law, is misleading since so many of the rules declared “biblical” by the rabbis are not in fact clearly stated in the Bible. That is to say, “biblical” law is actually rabbinic! And, we would add, “rabbinic” law is in a sense biblical since the rabbis understood Deuteronomy 17:11 to be a biblical foundation for their own authority: על פי התורה אשר יורוד ועל המשפט אשר יאמרו לה תעשה לא תסור מן הדבר אשר יגידו לה. On this verse see Bavli *Berakhot* 19b, and our discussion of the principle in Rabbis Elliot Dorff, Daniel Nevins and Avram Reisner, “Homosexuality, Human Dignity and Halakhah,” approved by the CJLS on December 6, 2006, 13-12. Nevertheless, the two categories of “biblical” and “rabbinic” do have significance within the halakhic system. Whether the rabbis believed that their understanding of biblical law was original to the intent of the Torah, or whether they applied this category only to laws which they themselves considered to be essential is immaterial for the final result. Biblical law has greater authority than rabbinic law, even if it is the rabbis who declare and define these laws.

¹⁸⁸ The full passage of Isaiah 58:13-14 reads:

אם־תִּשִׁיב מִשְׁבַּת רַגְלְךָ עֲשׂוֹת תְּפַצֵּיךָ כִּי־וּמַתְּ קִדְשֵׁי וְקִרְאתָ לְשַׁבָּת עֲנֵגָה לְקִדּוֹשׁ ה' מִכְבֹּד וְכַבְדָּתוֹ מַעֲשׂוֹת דְּרָכֶיךָ מִמִּצּוֹא תְּפַצֵּךָ וְדַבַּר דְּבָרֶיךָ אֵץ תִּתְעַנֵּג עֲלֶיהָ וְהִרְפַּבְתִּידָּ עַל־בְּמֹותַי [בְּמֹותַי] אֶרְץ וְהִאֲבִילתִּידָּ נְחִלַת יַעֲקֹב אֲבִיךָ כִּי פִי ה' דָּבַר:

If you refrain from trampling the Sabbath, from pursuing your affairs on My holy day; If you call the Sabbath “delight,” the Lord’s holy day “honored”; and if you honor it and go not your ways, nor look to your affairs nor strike bargains—Then you can seek the favor of the Lord. I will set you astride the heights of the earth, and let you enjoy the heritage of your father Jacob—for the mouth of the Lord has spoken. (NJPS translation).

מצודות דוד ישעיהו פרק נח פסוק יג, ודבר דבר - The extrapolation of a ban on business discussions is mentioned in - ומלדבר בו דבר הנאסר בשבת כחשבונות וכיוצא Also see Bavli *Shabbat* 113 a-b, and 150a.

¹⁸⁹ See for example *Mishnah Shabbat* 22:6 regarding the ban on ancient spa treatments, which is explained in the comments of Bartenura and *Tosfot Yom Tov* as “*uvdin d’hol*.” In Bavli *Beitza* 28a the rabbis discuss the ban on using a butcher’s scale on Shabbat even for a permitted purpose, and explain it under this rubric. Rabbi Michael Pitkowsky alerted me to an extensive treatment of this concept, though I have not yet had the opportunity to examine it:

קוסמן, אדמיאל, תפקידה המרכזי של קטגוריית איסורי “עובדין דחול” בטיעוניהם ההלכתיים של ה”חתם סופר” כנגד הקלות הרפורמה בשימוש במכשירי הטכנולוגיה המתפתחת בשבת וביום-טוב. *משפט והיסטוריה*, תשנט, 75-101.

¹⁹⁰ *מדרש אגדה (בובר) שמות פרק לא*. שבת וינפש. שבת ממלאכה וינפש ממחשבה:

¹⁹¹ For a similar example, electric carts and cars do not involve combustion, and indeed may not directly involve any form of *melakhah*. Yet their operation can lead to the need for maintenance, and may facilitate carrying in a public domain and traveling beyond the Sabbath limits (such concerns are far greater with an electric car than with a wheelchair). Operators may be required to carry a license and to engage in commercial activity as part of the operation, which involves the third category of *shvut* listed above. All of these concerns would argue for a rabbinic ban on the use of electrical vehicles as שבות under the rubric

of *gזירה שמא*, a protection against violating Shabbat unless a countervailing halakhic imperative such as human dignity supersedes them, as discussed below. Those who accept the 1950 CJLS minority position permitting people to drive to synagogue in a gas powered car would be justified extending this permission to electric cars.

¹⁹² See Mekhilta D' Rabbi Yishmael, *Bishalah, Vayisa* # 5, ed. Hurwitz, p. 170.

¹⁹³ On the general (not on Shabbat) permissibility of participating in a minyan through remote connection, see Rabbi Avram I. Reisner's responsum, "[Wired to the Kadosh Barukh Hu: Minyan Via Internet](#)," which was approved by the CJLS on March 13, 2001, by a vote of 18-2-1.

¹⁹⁴ This subject is endlessly complex and subjective. Is watching a sporting event (either in person or projected) compatible with keeping Shabbat? What about listening to a free musical or dramatic performance in the park? Such questions resist straightforward answers from the legal literature. Aside from the objective matters of avoiding *melakhah*, it is up to individuals and their spiritual guides to determine how to balance sacred and secular pleasures on Shabbat.

¹⁹⁵ See I *Maccabees* 2:40-41, Josephus, *Antiquities* 12:6:2, Tosefta *Eruvin* 3:7, Sifre Devarim 203, and discussion in Goldenberg, "The Jewish Sabbath..." pp.431-33.

¹⁹⁶ *Yoma* 85a. See also Mekhilta D' Rabbi Yishmael, *Ki Tissa*:

מכילתא דרבי ישמעאל, כי תשא - מס' דשבתא פרשה א ד"ה פרשת כי. כבר היה רבי ישמעאל ורבי אלעזר בן עזריה ורבי עקיבא מהלכין בדרך, ולוי הסדר ורבי ישמעאל בנו של רבי אלעזר בן עזריה מהלכין בדרך אחריהם, ונשאלה שאלה זו בפניהם, מנין לפיקוח נפש שדוחה את השבת; נענה רבי ישמעאל ואמר, הרי הוא אומר, +שמות כב א+ אם במחותרת ימצא הגנב, ומה זה הוא, ספק שבא לגנוב ספק שבא להרוג, והרי דברים קל וחומר, ומה שפיקוח דמים, שמטמא את הארץ ומסלקת את השכינה, הרי היא דוחה שבת, קל וחומר לפיקוח נפש, שדוחה את השבת; נענה רבי אלעזר בן עזריה ואמר, מה מילה שאינה אלא אחד מאיבריו של אדם דוחה שבת, קל וחומר לשאר כל גופו, אמרו לו, ממקום שבאת, מה להלן בודאי אף כאן בודאי; רבי עקיבא אומר, אם דוחה רציחה את העבודה שהיא דוחה שבת, קל וחומר לפיקוח נפש שדוחה את השבת. - רבי יוסי הגלילי אומר, כשהוא אומר, אך את שבתותי תשמורו, אך חלק, ויש שבתות שאתה דוחה, ויש שבתות שאתה שובת. - רבי שמעון בן מנסיא אומר, הרי הוא אומר, ושמרתם את השבת כי קדש היא לכם, לכם שבת מסורה, ואי אתם מסורין לשבת. - רבי נתן אומר, הרי הוא אומר, ושמרו בני ישראל את השבת לעשות את השבת לדורותם, חלל עליו שבת אחת, כדי שישמור שבתות הרבה.

¹⁹⁷ Even avoiding *risk* to health, is a valid excuse for performing otherwise forbidden labor. See Bavli *Shabbat* 129a, Rambam MT *Shabbat* 2:1 and 2:15; SA OH 128:10 and YD 263:2 (and see Rema considering and dismissing the idea that this leniency is limited to protecting women).

¹⁹⁸ For a comparison to the New Testament's synoptic Gospels traditions justifying violating Shabbat in order to heal and to pick produce for immediate consumption, see discussion in Goldenberg, "The Jewish Sabbath..." pp.423-24, esp. notes 53, 54.

¹⁹⁹ The first evidence of this latitude is found in Mishnah *Rosh HaShanah* 2:5.

חצר גדולה היתה בירושלים ובית יעזק היתה נקראת ולשם כל העדים מתכנסים ובית דין בודקין אותם שם וסעודות גדולות עושין להם בשביל שיהו רגילין לבא בראשונה לא היו זזין משם כל היום התקין רבן גמליאל הזקן שיהו מהלכין אלפים אמה לכל רוח ולא אלו בלבד אלא אף החכמה הבאה לילד והבא להציל מן הדליקה ומן הגייס ומן הנהר ומן המפולת הרי אלו כאנשי העיר ויש להם אלפים אמה לכל רוח:

²⁰⁰ תלמוד בבלי מסכת יומא דף פה עמוד ב. אמר רב יהודה אמר שמואל: אי הואי התם הוה אמינא: דידי עדיפא מדידהו, +ויקרא יח+ וחי בהם - ולא שימות בהם.

²⁰¹ See comments of Beit Yosef to Tur OH 307:

אבל התוספות כתבו שאסור לומר לו להביא שום דבר וכו'. בפרק קמא דגיטין (ח: ד"ה אע"ג) ובפרק מרובה (ב"ק פ: ד"ה אומר) וכן כתוב בהגהות פרק ו' (אות כ, ד"ק ה"י) בשם סה"ג (סמ"ג עשין כח, קטו ע"ג) שפסק רבינו יצחק דדוקא משום מילה שהיא גופה דחיה שבת התירו אמירה לגוי או משום ישוב ארץ ישראל בדבר שאין בו אלא משום איסור שבות אבל משום מצוה אחרת כגון להביא ספר תורה דרך כרמלית וכו"ג אסור לומר לגוי לעשותו עכ"ל וזהו דעת רבינו שכתב בסיומן של"ח (קרב): **שאבי העזרי (ראבי"ה ס"י תשצו) התיר לומר לגוי לנגן בכלי שיר בחופות דאמירה לגוי במקום מצוה שרי ואני כתבתי למעלה שאין להתיר אמירה לגוי אלא בדבר שהוא עצמו דוחה שבת כגון מילה עכ"ל**. וכן נראה שהוא דעת הרשב"א שכתב בתשובה (ח"א ס"י רצו, תשט) שאין אומרים בשבותין זו דומה לזו ואין לנו בהם אלא מה שהתירו בפירוש שהרי לעיתים מתירין אותם מחמת דבר אחר שיראה קל שמעלה וכותב בשבת בערכאות של גוים מפני קניית בית בארץ ישראל ולעיתים מעמידין אותם אפילו במקום כרת החמור כהזאה ואזמל (פסחים צב). עכ"ל (וכ"כ בדרכי משה סימן של"א בשם הר"ן פרק חבית (סא. ד"ה ובמקום) ומגיד משנה פרק ו' דשבת (ה"ט)):

²⁰² BT *Brakhot* 47b; *Sukkah* 30a; BK 94a. See esp. Tosfot to *Sukkah* 9a, s.v. ההוא מביעי ליה.

²⁰³ For a discussion of this concept see the CJLS responsum by Rabbis Elliot Dorff, Daniel Nevins and Avram Reisner, "[Homosexuality, Human Dignity and Halakhah](#)," esp. pp. 10-16.

²⁰⁴ שו"ת ציץ אליעזר חלק ו סימן ו. הפעלת מכונת חרשים לשבת.

²⁰⁵ Rabbi Pamela Barmash mentioned audio induction loop equipment which is used to assist people with cochlear implants and hearing aids to hear more effectively in noisy settings by transmitting the audio signal on an FM channel to a receiver worn on the body which amplifies the desired audio. See http://en.wikipedia.org/wiki/Audio_induction_loop.

²⁰⁶ Much has been written about the use of elevators on Shabbat. There are many mechanical systems involved and increasingly sophisticated electronics as well. Even systems set up for Shabbat operation have been challenged on the grounds that the elevator weighs its occupants and includes other safety features such as electronic eyes to prevent passenger injury and is thus not truly an automatic device. From our perspective the elevator is a repetitive device that does not effect any durable change nor does it transport occupants from one domain to another. As such, it does not generally involve *melakhah*. That said, there may be the generation of logs and the recording of video from security cameras in the elevator which could meet our standard of derivative writing. Because these processes are not intended by the passenger, are generally not even noticed, and because the data is not accessible to him or her, these actions may be considered permitted as *davar she'aino mitkavein*. Some might consider the use of elevators to be impermissible under the rubric of *shvut*, but such rabbinic limits would be subject to competing values as discussed below.

²⁰⁷ See the discussion at B. *Brakhot* 31b, in which a person who observes a fast on Shabbat (in response to a bad dream according to Tosfot, citing Rabbeinu Hannanel and Midrash Tehillim) is held "liable" for ignoring Shabbat delight:

תלמוד בבלי מסכת ברכות דף לא עמוד ב. ואמר רבי אלעזר משום רבי יוסי בן זמרא: כל היושב בתענית בשבת - קורעין לו גזר דינו של שבעים שנה, ואף על פי כן חוזרין ונפרעין ממנו דין עונג שבת. מאי תקנתיה? אמר רב נחמן בר יצחק: ליתבי תעניתא לתעניתא.
²⁰⁸ ילקוט שמעוני ישעיהו רמז תצו. וקראת לשבת עונג, אמר רב יהודה אמר רב כל המענג את השבת נותנים לו משאלות לבו שנאמר והתענג על ה' ויתן לך משאלות לבך, עונג זה אינו יודע מהו כשהוא אומר וקראת לשבת עונג הוא אומר זה עונג שבת, במה מענגו אמר רבי יהודה בריה דרבי שמואל בר שילת משמיה דרב בתבשיל של תרדין ובדגים גדולים ובראשי שומין, ורב חייא בר אסי אמר רב אפילו בדבר מועט ולכבוד השבת עשאהו הוי עונג.

²⁰⁹ See *Responsa of the Rif*, #317, and many others such as the Rashba, I: 127, who minimizes the application of *Oneg Shabbat* to modify even a minor violation such as tithing at dusk: עונג דחי עונג ואם איתא דכברי התוספות היכי דחי עונג שבת איסורא דאורייתא? והלא אפילו בין השמשות לא התירו הפרשה גופא משום עונג שבת

²¹⁰ The medieval sages debate whether the biblical prohibition of *bal tashhit* refers only to the destruction of fruit-bearing trees, or includes all forms of waste. If the former, then the broader ban on *bal tashhit* is of rabbinic origin. See the entry in the *Encyclopedia Talmudit*:

אנציקלופדיה תלמודית כרך ג, [בל תשחית] עמוד שלו טור 1. ונחלקו ראשונים: יש סוברים שבכל דבר עובר על בל תשחית מן התורה, וכן אמרו: מנין אף למשוך הימנה אמת המים, תלמוד לומר: לא תשחית את עצה, בכל דבר, היינו שמושך את אמת המים מן העיר שלא יהיה להם מים לשותת. ויש סוברים שעל שאר דברים שמלבד אילנות מאכל אינו לוקה אלא מכת-מרדות* מדבריהם, שמן התורה אין האיסור אלא באילנות, וחכמים הם שאסרו להשחית כל דבר.

²¹¹ Obviously walking also avoids all of the *melakhot* involved in driving on Shabbat such as burning fuel, carrying, and traveling beyond the *tehum*. Plus, it is a healthy activity.

²¹² I thank Rabbi Miriam Berkowitz for reminding me of this text and its applicability to our discussion.

²¹³ See also this gloss of Rabbi Meir ben Rabbi Yekutiel of Rothenburg in *Haghot Maimainiyot*:

הגהות מיימוניות הלכות יום טוב פרק א. שהרי הכביי הוא הכנה מפני שגורם להם להיות טובים להדלק ולאחוז בהן האור.

²¹⁴ This concept is found frequently in the Talmud, starting with *Pesahim* 15b, 20b and 55b. Abbaye states, "they were considerate of a major financial loss, but not of a minor loss." The debate then regards whether the sages didn't also consider a minor loss as cause for leniency in a variety of halakhic restrictions. Yet there is a broad view that *shvut* prohibitions are not superseded by concerns for financial loss. See citations in *Intzaiklopedia Talmudit* s.v. *hefsed merubah*, note 20.

²¹⁵ *Rema*, SA OH 339:4. As Rabbi Baruch Frydman-Kohl pointed out to me, there were other grounds for leniency in this case such as the timing at dusk (בין השמשות) and the concern that the couple be able to engage in the mitzvah of procreation.

²¹⁶ הכנה, or preparation, is another established form of *shout*. See the discussion in BT, *Beitza* 2b, *Eruvin* 38b-39a, the commentaries there, esp. *Tosefot*, and in the codes, e.g., SA OH 416:2. As Rabbah says, אמר רבה: התם - משום הכנה. דתניא: +שמות ט"ז+ והיה ביום הששי והכינו - חול מכות לשבת, וחול מכות ליום טוב, ואין יום טוב מכות לשבת, ואין שבת מכינה ליום טוב.

²¹⁷ Mishnah *Eruvin* 10:13; Bavli *Pesahim* 65a, *Beitza* 11a; Rambam MT *Shabbat* 21:27; *Korban Pesah* 1:16, 18 etc. See Tosfot to *Eruvin* 102b s.v. והעליין, and comments of *Arukh HaShulhan* to OH 306:7.

²¹⁸ See Rambam MT *Shabbat* 6:9.

²¹⁹ We should avoid asking non-Jewish guests and friends to perform Shabbat tasks for us since this is halakhically problematic and also can become a חילול ה' or desecration of the divine Name, since it makes it appear that Jews don't really accept the limits of Shabbat, and are prepared to use non-Jews to get their work done. These concerns are diminished when non-Jews are regularly employed for daily jobs that include tasks of *shout*. The Torah's vision of a Sabbath which is inclusive of non-Jewish employees should remain our ideal.

²²⁰ **טור אורח חיים סימן שמב.** כל שבות דרבנן מותר בין השמשות לצורך מצוה כגון ליטול עירובו המונח בכרמלית או לעלות אחריו באילן או ליטול ממנו לולב המונח עליו או שהיה טרוד והוצרך לעשר פירות בין השמשות וכ"כ הר"י שמותר לומר לעכו"ם ביהש"מ להדליק הנר:

²²¹ See Bavli *Shabbat* 126b-127a. The Tur (OH 333) suggests that if a large group of guests requires such accommodation that each person clear the space for himself:

טור אורח חיים סימן שלג. מי שיש לו אורחין בשבת ואין לו מקום להכניסם או שאין לו מקום לבה"מ ויש לו אוצר תבואה יכול לפנותו בשבת כדי להכניס האורחין או לפנות מקום לבה"מ אבל שלא לצורך מצוה אסור לפנותו וכיצד מפנהו היה האוצר גדול מפנה ממנו ה' קופות היה שם ה' קופות מפנה מהם ד' אבל כולו לא יפנה שמא יבא להשוות גומות וכשמפנה אלו ד' או ה' קופות לא יחלקם בקופות קטנות להוליכם בהרבה פעמים כדי להקל המשוי מפני שמרבה בהילוך ואוושא מלתא טפי ואלו ד' ה' קופות שמפנה היינו לאורה א' ואם באו לו הרבה מפנה כשיעור הזה לכל אורח ואורח ובלבד שלא יפנה אחד לכולם דאיכא טירחא יתירתא אלא כל אחד יפנה לעצמו:

²²² See B. *Shabbat* 30a, 61a and Rambam MT *Shabbat* 2:10 with commentaries there. This concept is also invoked to justify leniency in other contexts such as permission not to sleep in the Sukkah for a person who is ill but not endangered. See B. *Sukkah* 25a-26a.

²²³ For example, OH 254:7, and comments of MB at S.K. 44:

משנה ברורה סימן רנד ס"ק מד (מד) שיתחוב בו - וה"ה דיכול להוציא במקל דכ"ז הוא דרך שינוי ונראה [מג] דע"י א"י מותר להוציא אף ברחת [הוא הכלי שאנו מוציאים בו הפת בחול]:

²²⁴ Rabbi Pamela Barmash raised such questions in the first reading of this paper at the CJLS session of May 24, 2011.

²²⁵ Rabbi Abraham Joshua Heschel, *The Sabbath* (New York: Farrar, Straus and Young, 1951), p. 28.

²²⁶ As noted above, I believe that this restriction applies also to reheating previously cooked foods with an electric heating element or microwave oven on Shabbat since it is impossible to differentiate between "warming" and "cooking". In contrast, warming trays and drawers are designed specifically to warm food and do not raise food above about 180 degrees F. I recognize that some microwave ovens may make more precise warming possible, and that the matter is open to interpretation. Because cooking food is a biblical prohibition and the line between warming and cooking is very fine, I believe that caution is the wisest policy, לפק דאורייתא לחומרא.

²²⁷ I have avoided mention of specific models of electronics in the body of the responsum since they change so frequently.

²²⁸ I discuss the importance of physical presence without digital distraction in creating religious communities in my *New York Times* contribution to "Room for Debate," published September 8, 2011: <http://www.nytimes.com/roomfordebate/2011/09/08/will-online-faith-communities-replace-churches/seeing-god-in-others-faces>.