

אי דרך נפילה: 21 Daf Ditty Bava Metziah

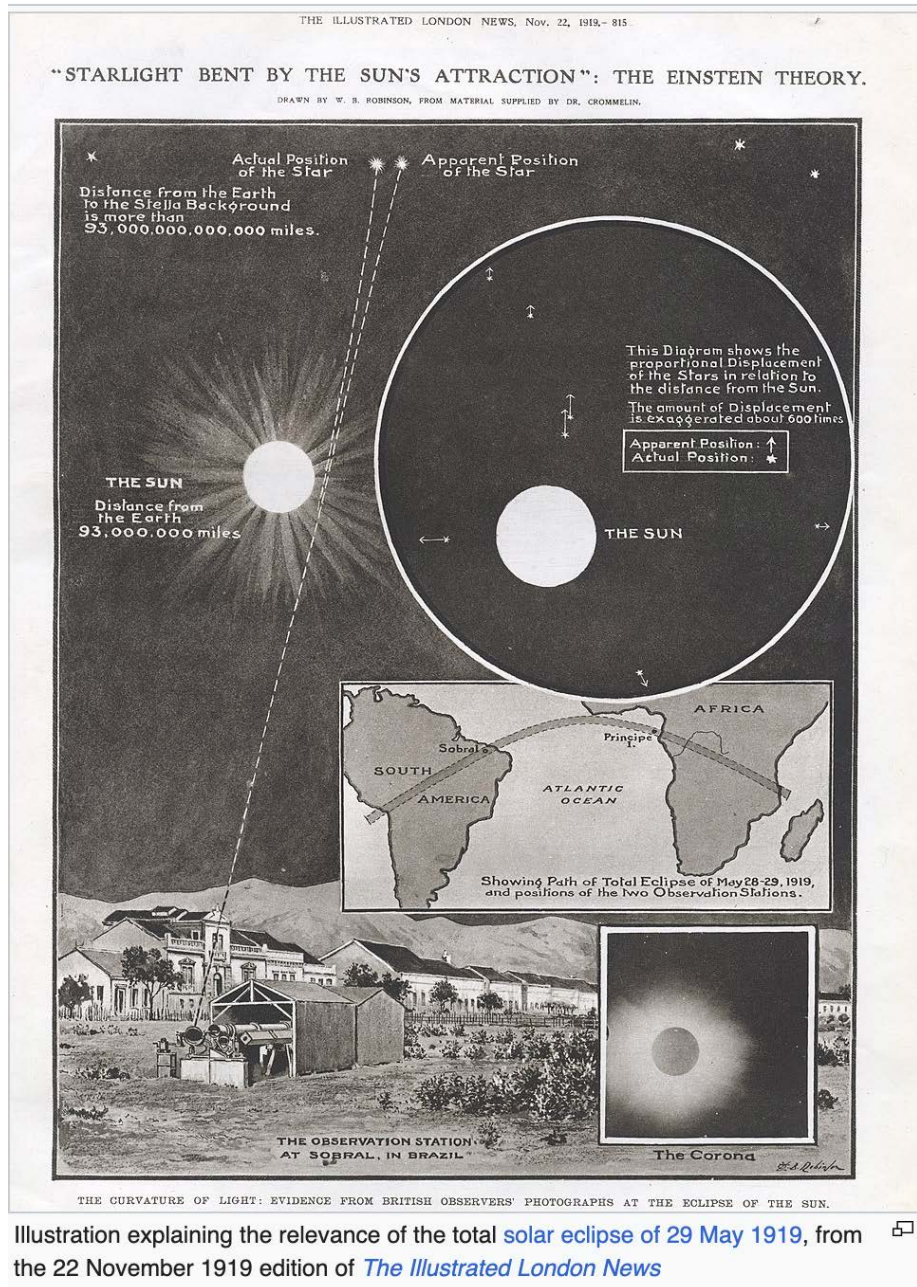


Illustration explaining the relevance of the total solar eclipse of 29 May 1919, from the 22 November 1919 edition of *The Illustrated London News*

הדרן עלך שנים אוחזין

אלו מצאיות שלו ואלו חייב להכריז אלו
מצאיות שלו מצא פירות מפוזרין
מעות מפוזרות כריכות ברשות הרבים
ועגולי דבילה ככרות של נחתום* מחרוזות
של דגים ודתיכות של בשר וגיוי צמר
הלקודין ממדינתו ואניצי פשתן ולשונות
של ארגמן הרי אלו שלו* דברי רבי מאיר
ר' יהודה אומר* כל שיש בו שינוי חייב
להכריז כיצד מצא עגול ובתוכו דרס
כבר ובתוכו מעות רבי שמעון בן אלעזר
אומר כל כלי אנפוריא אין חייב להכריז:
גמ' מצא פירות מפוזרין וכמה א"ר יצחק קב

הדרן עלך שנים אוחזין

מתני' אלו מצאיות שלו, ואלו חייב להכריז.

MISHNA: In a case where one discovers lost items, **which found items** belong **to him**, and for **which** items is **one obligated to proclaim** his find so that the owner of the lost items can come and reclaim them?

אלו מצאיות שלו: מצא פירות מפוזרין, מעות מפוזרות, כריכות
ברשות הרבים, ועגולי דבילה, ככרות של נחתום, מחרוזות של
דגים, ודתיכות של בשר, וגיוי צמר הלקודין ממדינתו, ואניצי פשתן,
ולשונות של ארגמן – הרי אלו שלו, דברי רבי מאיר.

These found items belong to him: If one **found scattered produce, scattered coins, bundles** of grain **in a public area, round cakes** of pressed figs, **baker's loaves, strings of fish, cuts of meat**, unprocessed **wool fleeces that are taken from their state** of origin directly after shearing, bound **flax stalks**, or bound **strips of** combed **purple wool**, **these** belong **to him**, as they have no distinguishing marks that would enable their owners to claim them. This is **the statement of Rabbi Meir**.

רבי יהודה אומר: כל שיש בו שינוי – חייב להכריז. כיצד? מצא
עגול ובתוכו חרס, פֶּכֶר ובתוכו מעות.

Rabbi Yehuda says: If one finds **any** lost item **in which there is an alteration**, he is **obligated to proclaim** his find. **How so?** If he **found a round** cake of pressed figs with an **earthenware** shard **inside it** or **a loaf** of bread **with coins inside it**, he is obligated to proclaim his find, as perhaps the owner of the item inserted them as a distinguishing mark by means of which he could reclaim his property in case it became lost.

רבי שמעון בן אלעזר אומר: כל כלי אנפוריא אין חייב להכריז.

Rabbi Shimon ben Elazar says: If one finds **any anpurya vessels**, since their shape is uniform and they are indistinguishable, he is **not obligated to proclaim** his find.

גמ' מצא פירות מפוזרין. וכמה? אמר רבי יצחק: קב בארבע אמות.

GEMARA: The mishna teaches as an example of items that one finds without any distinguishing mark: If one **found scattered produce**. The Gemara asks: **And how much** produce in how large an area constitutes scattered produce? **Rabbi Yitzhak says:** It is considered scattered produce when it has a dispersal ratio of one **kav in** an area of **four by four cubits**.

היכי דמי? אי דרוך נפילה – אפילו טובא נמי! ואי דרוך הינוח –
אפילו בציר מהכי נמי לא!

The Gemara asks: **What are the circumstances?** **If** he found the produce scattered in **a manner** indicating that it came there by **falling** and was not deliberately placed there, then **even** if the volume of produce in that area was **greater** than this limit, it should **also** belong to him, because there is no distinguishing mark that would enable the owner to reclaim it. **And if** he found produce scattered in **a manner** indicating intentional **placement**, then **even** if the volume of produce in an area that size was **less** than this limit, he should

also not be allowed to keep the produce, as clearly the owner plans on returning to reclaim his produce.

אמר רב עוקבא בר חמא: במכנשתא דבי דרי עסקינו. קב בארבע
אמות דנפיש טרחיהו – לא טרח איניש ולא הדר אתי ושקיל להו,
אפקורי מפקר להו. בציר מהכי – טרח והדר אתי ושקיל להו, ולא
מפקר להו.

Rav Ukva bar ḥama said: We are dealing with kernels of wheat that remained during **the gathering** of grain **on the threshing floor**. For kernels scattered with a dispersal ratio of one **kav** in an area of **four** by four **cubits**, **whose** gathering requires **great exertion**, **a person does not exert** himself **and does not return** and **take them**. Therefore, **he renounces** his **ownership** of **them** and one who finds the kernels may keep them. For kernels scattered in an area **smaller than that**, the owner **exerts** himself **and returns** and **takes them**. **And** therefore, **he does not renounce** his **ownership** of **them**.

איתמר:

§ **It was stated:**

יאוש שלא מדעת? אביי אמר: לא הוי יאוש. ורבא אמר: הוי יאוש.

With regard to one's **despair** of recovering his lost item **that is not a conscious** feeling, i.e., where he aware of the loss of his property, he would have despaired of its recovery, but he was unaware of his loss when the finder discovered the item, **Abaye said: It is not** considered **despair**; the owner maintains ownership of the item, and the finder may not keep it. **And Rava said: It is** considered **despair** and the finder may keep it.

בְּדָבָר שֶׁיֵּשׁ בוֹ סִמָּן – כּוֹלֵי עֲלָמָא לָא פְּלִיגֵי דְלָא הוּי יְאוּשׁ. וְאִף עַל
גַּב דְּשִׁמְעִינְיָה דְּמִיָּאֵשׁ לְסוּף, לָא הוּי יְאוּשׁ, דְּכִי אֲתָא לִידֵיהּ –
בְּאִסּוּרָא הוּא דְאֲתָא לִידֵיהּ, דְּלִכִּי יָדַע דְּנִפְל מֵינֵיהּ לָא מִיָּאֵשׁ, מִימָר
אָמַר: סִמָּנָא אֵית לִי בְּגוּיָהּ, יְהִבְנָא סִמָּנָא וְשִׁקִּילְנָא לֵיהּ.

The Gemara limits the scope of the dispute. **In the case of an item on which there is a distinguishing mark, everyone agrees** that despair that is not conscious **is not** considered **despair**. **And even though we hear that he ultimately despairs** of recovering the item, it is **not** considered **despair, as when the item came into the possession** of the finder, it was **in a prohibited manner that it came into his possession**. It is prohibited **because when the owner learns that it fell from his possession, he does not despair** of its recovery immediately. Instead, **he says: I have a distinguishing mark on the item; I will provide the distinguishing mark to the finder, and I will take it.**

בְּזוּטוֹ שֶׁל יָם וּבְשִׁלּוּלֵיתוֹ שֶׁל נָהָר, אִף עַל גַּב דְּאֵית בֵּיהּ סִמָּן,
רַחֲמָנָא שְׂרִייהּ, כְּדָבְעִינוּ לְמִימָר לְקָמּוֹ.

With regard to an item swept away **by the tide of the sea or by the flooding of a river, even though the item has a distinguishing mark, the Merciful One permits** the finder to keep **it as we seek to state below**, later in the discussion.

כִּי פְּלִיגֵי בְּדָבָר שֶׁאֵין בוֹ סִמָּן. אָבַי אָמַר: לָא הוּי יְאוּשׁ, דְּהָא לָא
יָדַע דְּנִפְל מֵינֵיהּ. רַבָּא אָמַר: הוּי יְאוּשׁ, דְּלִכִּי יָדַע דְּנִפְל מֵינֵיהּ –
מִיָּאֵשׁ. מִימָר אָמַר: סִמָּנָא לֵית לִי בְּגוּיָהּ, מַהֲשָׁתָא הוּא דְּמִיָּאֵשׁ.

When they disagree, it is with regard to an item in which there is no distinguishing mark. Abaye said: Despair that is not conscious **is not** considered **despair, as he did not know that the item fell from him;** therefore, he cannot despair of recovering it. **Rava said:** Despair that is not conscious **is** considered **despair, as when he discovers that it fell from him, he will despair** of its recovery; **as he says** upon this discovery: **I have no distinguishing mark on the item.** Therefore, it is considered **from now, when the item fell, that he despairs.**

Summary

הדרן עלך שנים אוחזין

2) **MISHNAH:** The Mishnah presents a list of lost objects that a finder could keep for himself.

3) Scattered produce

R' Yitzchok elaborates on what quantity of fruit scattered over what size area allows the finder to keep the fruit for himself.

This ruling is challenged and R' Ukva bar Chama adds further details to justify R' Yitzchok's explanation.

R' Yirmiyah presents four questions that relate to applying the proportions presented by R' Yitzchok.

The four questions are left unresolved.

4) Abandonment without awareness – **יאוּשׁ שְׁלֵא מַדְעַת**

Abaye and Rava disagree whether abandonment without awareness constitutes abandonment.

The Gemara presents two cases in which Abaye and Rava agree and then identifies the exact case in which they disagree.

Introduction to Perek II¹

If you encounter your enemy's ox or his donkey going astray, you shall return it to him. If you see the donkey of him that hates you collapsed under its burden, you shall forgo passing him by; you shall release it with him. (Exodus 23:4-5)

You shall not see your brother's ox or his sheep wandering and disregard them; you shall return them to your brother. And if your brother be not near to you, and you know him not, then you shall bring it home to your house, and it shall be with you until your brother require it, and you shall restore it to him. And so shall you do with his donkey; and so shall you do with his garment; and so shall you do with every lost item of your brother, which shall be lost from him, and you have found it; you may not disregard it. You shall

¹ https://www.sefaria.org/Bava_Metzia.21a.7?lang=bi&with=Introduction%20to%20Perek%20II|Essay&lang2=en

not see your brother's donkey or his ox fallen down by the way and disregard them; you shall lift them with him. (Deuteronomy 22:1-4)

If thou see the ass of him that hates thee lying under its burden, and wouldst forbear to unload it, thou shalt surely unload it with him. (Exodus 23:5)

Thou shalt not see thy brother's ass or his ox fall down by the way and hide thyself from them: thou shalt surely help him to lift them up again. (Deuteronomy 22:4)

The halakhot of returning a lost item in a case where the identity of its owner is clear are stated in considerable detail in the Torah. Less clear is the disposition of a lost item when it is temporarily or permanently impossible to locate the owner. It is necessary to examine the rights of the finder with regard to that item during the period that it is in his possession. Even in the relatively simple circumstance when the finder proclaims his find and another person claims ownership, the process through which that claim is verified also requires elaboration.

More fundamental questions arise in a case where it is impossible to identify the owner of the lost item. While in that case the lost item presumably belongs to the finder, there is a fundamental question with regard to the conditions under which one may conclude that it is impossible to return the item. In other words, which lost items belong to the finder? How does one define the legal status of the ownership rights of the one who lost the item, and how does the finder eliminate those rights and acquire that item?

The determining factor in this process is the owner's despair of recovering the item. When the owner of the lost item despairs of its recovery, it is tantamount to renouncing ownership of it, thereby rendering it available to all takers. Therefore, it is crucial to ascertain whether the owner despaired of its recovery and at what point that despair occurred. This question is tied to the matter of distinguishing marks on the item, the relationship between those marks and the owner's despair, the validity of those marks as definitive proof of ownership, and more.

The Gemara also addresses issues related to a lost item that is not acquired by the finder, e.g., the finder's obligation vis-à-vis the item and the degree of his responsibility. It further considers whether the finder has the right to utilize the item, and under what circumstances. The mitzva of returning a lost item is related to the mitzva of assisting another to load or unload his animal, e.g., if it collapsed under a burden, both in terms of their juxtaposition in the Torah and in terms of their essence. The Gemara analyzes when one is obligated to assist in unloading and loading, who is obligated, and who is exempt. The

Gemara also clarifies whether the requirement to prevent suffering to animals plays a role in determining the application of this mitzva. These problems and others that emerge from them are the primary focus of this chapter.

Summary of Perek II²

This chapter is devoted primarily to halakhot of returning lost items, and it examines situations where the owners despair of recovering an item and situations where the owners do not despair. In principle, when there are clear-cut distinguishing marks on the item, one may assume that the owner would not despair of recovering it unless the item remained in the place that it was discovered for an extended period, or it was swept from the owner's domain by means of a natural disaster or other circumstances beyond his control. Even with regard to items on which there are no distinguishing marks, the Gemara concluded that the location where it was found, its size, its weight, and the number of its units can serve as distinguishing marks.

The most fundamental dispute in this chapter is with regard to despair that is not conscious. The halakha is in accordance with the opinion of Abaye that despair is effective only when it is conscious. Therefore, unless it is clear that the despair predated finding the item, the finder does not acquire the lost item.

With regard to an item that the finder is obligated to proclaim that he found, the Gemara determined that it is permitted for the finder to utilize the item for its sake, i.e., to maintain it in good condition, but not for his own sake. The Gemara also issued rulings concerning the period during which the finder is obligated to tend to found animals or other items that require extensive care. It is permitted for the finder to make use of money he receives when selling a lost item, but his legal status with regard to that money is that of a paid bailee.

There are three mitzvot tied to the return of lost items: A prohibition against disregarding the lost item, an obligation to see to its return, and a prohibition against keeping an item that belongs to its owner. These mitzvot apply in most circumstances, with few exceptions, e.g., when return of the lost item is not in keeping with the dignity of the finder, when there is a prohibition preventing the finder from returning it, or when return of the item will engender monetary loss for the finder. Although the Torah lists specific examples of lost items that one is obligated to return, the Gemara established that the obligation includes

² https://www.sefaria.org/Bava_Metzia.21a.7?lang=bi&with=Summary%20of%20Perek%20II|Essay&lang2=en

not only return of lost items, but also assistance to others in any case where it is possible to spare them monetary loss.

The Gemara concluded that return of a lost item to one's teacher takes precedence over return of a lost item to one's father, and the return of an item to his father takes precedence over the return of an item to another. Recovering one's own item takes precedence over returning a lost item to anyone else.

Various aspects of the halakhot of assisting another in unloading a burden from his animal and loading it were discussed. Primarily, the Gemara investigated the dispute with regard to the requirement to prevent suffering to animals. There are many elements in common between the halakhot of unloading and loading an animal and the halakhot of returning a lost item.

Mishnah Bava Metzia 2:1³

In a case where one discovers lost items, **which found items** belong **to him**, **and** for **which** items is **one obligated to proclaim** his find so that the owner of the lost items can come and reclaim them? **These found items** belong **to him**: If one **found scattered produce, scattered coins, bundles** of grain **in a public area, round cakes** of pressed **figs, baker's loaves, strings of fish, cuts of meat**, unprocessed **wool fleeces that are taken from their state** of origin directly after shearing, bound **flax stalks, or** bound **strips of combed purple wool, these** belong **to him**, as they have no distinguishing marks that would enable their owners to claim them. This is **the statement of Rabbi Meir. Rabbi Yehuda says**: If one finds **any** lost item **in which there is an alteration**, he is **obligated to proclaim** his find. **How so?** If he **found a round** cake of pressed figs with an **earthenware** shard **inside it** or **a loaf** of bread **with coins inside it**, he is obligated to proclaim his find, as perhaps the owner of the item inserted them as a distinguishing mark by means of which he could reclaim his property in case it became lost. **Rabbi Shimon ben Elazar says**: If one finds **any anpurya vessels**, since their shape is uniform and they are indistinguishable, he is **not obligated to proclaim** his find.

Introduction⁴

³ https://www.sefaria.org/Bava_Metzia.21a.7?lang=bi&with=Mishnah%20Bava%20Metzia&lang2=en

⁴ https://www.sefaria.org/Bava_Metzia.21a.7?lang=bi&p2=Mishnah_Bava_Metzia.2.1&lang2=bi&w2=English%20Explanation%20of%20Mishnah&lang3=en

The second chapter of Bava Metziah deals exclusively with returning lost objects. According to Exodus 23:4 and Deuteronomy 22:1-4, a person has an obligation to return lost objects to their owner. The mishnah is concerned with which objects are included in this obligation and with the question of the owner claiming his object by identifying it.

Since the Torah states that a person must return lost objects, it is necessary to decide which lost objects must be returned. A society could not operate if every lost object had to be returned. Imagine if every time you found a pen, or a coin or some other small not valuable item, you had to spend time trying to find the owners. Furthermore, there are some lost items which could not be identified by their owner as belonging to them, such as money or mass produced merchandise. If a person should lose one of these types of things, meaning either something that cannot be identified as his or something of little value, he does not expect to ever have it returned. Such a situation is called in Hebrew "yeush" despair, and the legal consequence is that the finder may keep the lost object.

Which found objects belong to the finder and which ones must be proclaimed [in the lost and found]? These found objects belong to the finder: if a man found scattered fruit, scattered money, small sheaves in the public domain, cakes of figs, bakers' loaves, strings of fish, pieces of meat, wool shearings [as they come] from the country of origin, stalks of flax and strips of purple wool, according to Rabbi Meir. Rabbi Judah says: "Anything which has in it something unusual, must be proclaimed. How is this so? If he found a fig cake with a potsherd in it or a loaf with coins in it [he must proclaim them]." Rabbi Shimon ben Elazar says: "New merchandise need not be proclaimed."

Section one lists objects that are either not identifiable as belonging to a specific person, or of little value. We will learn the opposites of these items, meaning things that are of value and identifiable in the following mishnah. Therefore we will explain them more fully later on. According to Rabbi Judah, if there was an unidentifiable object which had something unusual about it, he must proclaim it. (We will learn the process of proclaiming a lost object later in the chapter.) For instance, a normal loaf of bread could not be identified as belonging to a certain person, and therefore the finder may keep it. If, however, there was money in the bread, the owner could identify it, and therefore the finder must proclaim it.

According to Rabbi Shimon ben Elazar, mass produced merchandise need not be proclaimed. This would be something akin to tupperware in our day. Certainly before the item has been used its owner would not be able to give any special identification marks. Therefore the finder may keep it.

SUMMARY⁵

A receipt in the hands of the lender which has been affirmed by Beis Din is Kosher, but if it is not affirmed by Beis Din it is Pasul.

If a receipt is not affirmed but it was deposited with a third party or the receipt was written on the Shtar underneath the signatures it is Kosher. (1)

If someone finds scattered fruit, scattered money, bundles in the Reshus ha'Rabim, pressed fogs, or bakers' loaves, strings of fish, pieces of meat standard sheerings of wool, bundles of flax or strands of combed purple wool he may keep it. (2)

R. Yehudah says that if a person finds a lost object with something different about it, such as presses figs with earthenware inside or a loaf with money inside, he must announce it.

R. Shimon Ben Elazar says that if new utensils are found that the owner is not yet familiar with it he does not have to announce it. (3)

If fruit is found and it was obvious that it fell from its owner without his knowledge even if it is not scattered it belongs to the founder because there is no Siman.

If the fruit that was found was placed there by its owner and he forgot about it even if it is very scattered the finder may not take it. (4)

If scattered grain is found that was left by the owner on the threshing floor if a Kav of grain is scattered over an area of four Amos the finder may take it. (5)

If a half of a Kav of grain scattered in an area of two Amos, or two Kav of

⁵ <https://www.dafyomi.co.il/memdb/revdaf.php?tid=22&id=21>

grain scattered in an area of eight Amos was found on the threshing floor it is a Safek if the finder may take it. (6)

If a Kav of sesame, or dates, or pomegranates is found in an area of four Amos on the threshing floor it is a Safek if the finder may keep it. (7)

If someone finds a lost object that has a Siman he may not keep it even if the owner was subsequently Meya'esh since it came into his hand before Yi'ush.

If someone finds a lost object that was flooded away by a tidal wave or a river which overflowed its banks he may keep it even if it has a Siman.

If someone finds a lost object that doesn't have a Siman but the owner doesn't yet know that he lost it according to Abaye he may not keep it since it came into his hands prior to Yi'ush, while Rava argues.

If money is found in a Beis Keneses or Beis Midrash or any place which is frequented by the public he may keep the money.

Once Nemushos have gone through the field the Leket is permitted for everyone to take.

R. Yochanan says Nemushos are the old people who walk slowly through the field with their canes, while Reish Lakish says the Nemushos are the people who touch everything. (8)

If someone finds dry figs on the side of the road even if they are found next to a field where dry figs are laid out to dry he may keep them and they are Patur from Ma'aser. (9)

If a fig tree overhangs a Reshus ha'Rabim it is permitted to take the figs that are found in the Reshus ha'Rabim underneath the tree, but if it is an olive or carob tree it is forbidden to take the fruit underneath the tree. (10)

Notes:

(1). If the receipt was deposited with a third party it is Kosher because the lender who deposited it put his trust in the third party. If the receipt is written in the Shtar it is Kosher because if the loan had not already been paid off he would not have written the receipt in the Shtar.

(2). None of these items have a Siman and therefore the owner is Meya'esh and it is Hefker.

(3). A Metz'ah is returned to a Talmid Chacham with Tevi'as Ayin (he doesn't have a Siman but he recognizes that it is his), but if it is new since there is no Siman and there is no possibility of Tevi'as Ayin he doesn't have to announce it.

(4). Since the owner placed it there he knows where it is and when he remembers that he forgot it he will come back and get it and therefore the finder shall leave it where it is.

(5). The owner was Mafkir it because it is too much trouble to gather it up, but if a Kav of grain was scattered over a smaller area than four Amos the finder may not take it because the owner will come back and gather it up.

(6). It is a Safek if the reason why a Kav in four Amos may be taken is because it is too much trouble for the owner to pick up and he is Mafkir it and consequently a half of Kav is not as difficult to pick up and therefore the finder may not take it, however if he finds two Kav in eight Amos the finder certainly may take it because it is even more difficult to pick up, or maybe the reason why the owner is Mafkir a Kav in four Amos is because it is not valuable enough to make it worthwhile for him to come back for it and consequently a half of a Kav is certainly not worthwhile to come back for and the finder may keep it, however two Kav is more valuable and therefore the finder may not keep it.

(7). It is a Safek if the reason why a Kav in four Amos may be taken is because it is not valuable enough to make it worthwhile for him to come back for it and consequently if he finds sesame he may not keep it because it is valuable and the owner will come back for it, but dates and pomegranates are not that valuable and therefore the owner may keep it, or maybe the reason a Kav in four Amos may be taken because it is too difficult to pick up and therefore sesame certainly may be kept because it is even more difficult to pick up, however if he dates or pomegranates he may keep it because it is not difficult to pick up.

(8). Once the Nemushos go through the field the poor people in town are Meya'esh on any Leket that may be remaining in the field and therefore everyone is free to collect it even people who are not poor.

(9). The owner was Meya'esh on the figs and he is Mafkir them and Hefker is Patur from Ma'aser.

(10). Figs get ruined when they fall off the tree and the owner is Meya'esh however olives and carobs are edible even after they fall and the owner is not Meya'esh because it is obvious that they fell off his tree and he expects that they will be returned to him.

TIDAL WAVE

If someone finds a lost object that was flooded away by a tidal wave or a river

that overflowed its banks he may keep it even if it has a Siman. The Rema Paskens that even though one is not obligated to return the Aveidah it is the proper thing to do to return it. Also if the King or the Beis Din decrees that a person is obligated to return a Metziah that was flooded away he must return it because it is Dina d'Malchusa Dina or because of Hefker Beis Din Hefker. The Shach asks that Dina d'Malchusa Dina doesn't apply if it goes against the Din of the Torah. The Ketzos ha'Choshen answers that since a person who returns a Metziah after Yi'ush is commended and it is the fulfillment of the Pasuk which states that a person should do what is just and good the Rabanan instituted that a person is obligated to return it especially since the Malchus also decreed that one must do so.

SHTAR IN A KLI

If someone finds scattered fruit in the granary if a Kav is scattered in four Amos, or more than four Amos, he may keep it because the owner is no longer going to gather it. If it was found in less than four Amos he may not take it because the owner may have left it there and the same Din is true if he finds more than a Kav in four Amos. If he finds a half of a Kav in two Amos or two Kav in eight Amos, or he finds a Kav of a few types of fruit, such as a dates and sesame, it is a Safek and he should not take it, however if he does take it he is not obligated to announce it. According to some opinions even if he finds only dates which is easy to pick up or he finds sesame alone which is Chashuv it is a Safek. (Shulchan Aruch CM 160:7)

According to one answer in Tosfos when he finds half of a Kav in two Amos by two Amos it is a Safek but if he finds half of a Kav in two Amos by four Amos he may keep it. (Shach)

Rav Avrohom Adler writes:⁶

Lost and Found

The Torah mandates that one return a lost item to its owner. This obligation is limited to items which the owner has a chance of recovering, due to some identifying sign. The Mishna lists lost items that one may keep, due to their having no identifying sign, and lost items that one must announce, to fulfill the obligation to return the lost item to its owner. The Mishna begins with the list of lost items that one may keep:

⁶ https://dafnotes.com/wp-content/uploads/2016/10/Bava_Metzia_21.pdf

1. Scattered produce
2. Scattered coins
3. Bundles of grain, when found in the street
4. Pressed dried figs, in a standard round container
5. Bakery loaves of bread
6. Fish, hanging off a string
7. Meat slices
8. Standard bundles of wool
9. Bundles of linen
10. Purple strips of wool

Rabbi Yehudah says that any item that is out of the ordinary must be announced. Therefore, if one finds a container of pressed dried figs, but in it is a piece of clay, or a loaf of bread, containing embedded coins, he must announce the item. Rabbi Shimon ben Elozar says that if one finds new utensils, he need not announce them.

Scattered Produce

Rabbi Yitzchak defines scattered produce as a kav of produce that is spread in an area of 4 square amos. The Gemora explains that Rabbi Yitzchak says the Mishna is discussing a case where one left some grain in the threshing floor. If he left a kav over an area of 4 square amos, the produce is not significant enough to warrant the effort to collect it, and he therefore relinquishes it. In a standard case of lost fruit, if they seem to have been purposely left, one may never take them, while if they look lost, one may always take them, independent of the amount. The Gemora questions whether the small amount of produce or the work involved in gathering it from this area is the reason for one to relinquish it. The cases where this question is relevant are:

1. Half a kav in 2 amos : less work, but less produce
2. 2 kavs in 8 amos : more work, but more produce
3. A kav of sesame in 4 amos : more work, but more valuable produce
4. A kav of pomegranates or dates : less work, but less valuable produce

All are left unresolved with a taiku.

Realizing the Loss

A fundamental concept of returning a lost item is ye'ush – the lost item's owner despairing of retrieving it. When an item has no identifying sign, we assume that the owner despairs of retrieving it.

The Gemora cites a dispute between Abaye and Rava about whether ye'ush shelo midaas, ye'ush that has not yet occurred but will occur later, is effective. Abaye says that ye'ush is only effective once the owner realizes he lost his item, and consciously despairs of retrieving it. Rava says that even before the owner realizes he lost an item, his future ye'ush is effective once the item is lost.

The Gemora clarifies that even Rava agrees that if someone found and took an item with an identifying sign – which one would normally not despair of retrieving – even if the owner later despairs of finding it, the finder may not keep the item, since he took it when it was prohibited. Only ye'ush that is technically missing knowledge is effective, but not ye'ush which may not occur.

Abaye also agrees that if an item is swept away by the sea or a river, even if it has a sign, the finder may keep it, since it is lost from everyone. The only dispute of Abaye and Rava is a case of an item with no identifying sign (which the owner will despair of retrieving), but which the owner hasn't realized he lost.

The Gemora cites the cases of our Mishna which seem to indicate that ye'ush is effective before the owner is aware, and deflects each proof:

1. Scattered produce may be taken, even though the owner may not be aware of their loss. The *Gemora* deflects this by citing Rabbi Yitzchak, who limits the *Mishna* to a case of conscious abandonment in the field
2. Scattered coins may be taken, even though the owner may not have realized their loss. The *Gemora* applies Rabbi Yitzchak's statement that a person constantly checks his pockets, and will therefore immediately realize his loss of the coins
3. Loaves of bread and pressed dried figs are heavy, so one will immediately realize they are lost
4. Purple strips of wool are expensive, so Rabbi Yitzchak's statement of one checking his pockets applies

[See Gra 21b:1 for a discussion of the cases the *Gemora* did not cite.]

The *Gemora* then brings other sources to try to prove Abaye or Rava's position.

The braisa says that if one finds coins in a shul or Beis Medrash, or any place of congregation, he may keep them. Rabbi Yitzchak says that one constantly checks his pockets, so the owner will immediately realize his loss. The *Mishna* in Pe'ah says that when *nemushos* pass through a field, anyone may take produce left over from the *leket* (dropped sheaves), which must be left for the poor.

[Rabbi Yochanan identifies nemushos as old poor people who walk slowly and thoroughly inspect the land, while Raish Lakish identifies them as the second pass of poor people]. Once these pass through the field, the poor of the town despair of finding much produce there, and therefore anyone may take the remaining produce.

However, the poor of other towns don't know when this happens, so they can't consciously despair, yet we allow people to take the produce, indicating that unconscious despair is sufficient. The *Gemora* deflects this by saying that the poor of other towns despair at the outset, since the poor of this town will collect the gifts.

The Mishna says that if one finds dried figs on the road, even adjacent to a field of drying figs, or figs on the road under an overhanging fig tree, they are considered ownerless. He may therefore take them, and they are not obligating in any tithes. However, similar situations with olives or carob are not considered ownerless.

Abaye can explain that the first two cases are ones where the owner consciously has despaired of his fruit: dried figs are valuable, so one constantly checks them, and one knows that figs constantly fall off a tree, and therefore relinquishes them a priori. However, he does not know about the olives and carob that fell off, and therefore does not consciously relinquish them, and therefore one may not take them. We assume that once the owner discovers any fallen fruit, he will relinquish them, so the end of the Mishna therefore seems to disprove Rava.

The Gemora explains that the owner will not relinquish his olives and carobs, since people can see that the fruit came from the overhanging tree and will not take them. Figs that fall from a tree get dirty, and therefore the owner will relinquish them. The braisa says that if an item is transferred from one person to another as a result of theft, robbery, or a strong river, the recipient may keep the item. While the original owner sees a river or robber taking his item and can relinquish it, a thief takes the item without his knowledge, but the braisa still gives possession of the item to the recipient. This seems to prove Rava's position.

Rav Pappa explains that the thief in this braisa is an armed robber, so the owner does know about the theft. He is still considered a thief since he is not brazening enough to rob without the security of a weapon.

Scattered Produce

Rabbi Yechezkel Khayyat

The Gemora asked what amount of produce is considered scattered, and Rabbi Yitzchak answered that the limit is a kav of produce in an area of 4 square amos.

The Gemora then proceeds to challenge the premise of the discussion, saying that if the produce was purposely placed, any amount should not be taken, and if the produce was dropped, any amount should be taken.

The Gemora explains that Rabbi Yitzchak was discussing a case of one leaving leftover produce after threshing, and not a standard case of lost produce. Tosfos (21a v'kama) explains that Rabbi Yitzchak was the one who asked the

question, and therefore the Gemora challenges the premise of the question itself. Rabbi Yitzchak did not understand the Mishna as a case of produce that was left by accident, since he holds like Abaye on the issue of yeush shelo midaas. Therefore, if the scattered produce was a standard lost item, the finder could not take it since the owner may not have realized the loss and despaired.

The Rambam (Gezeila v'aveida 15:8), however, rules that if scattered produce was dropped, the finder may keep it. The Tur (HM 262) challenges this ruling, since we follow Abaye, and therefore should not allow the finder to take the scattered produce. The Ramban explains that Rabbi Yitzchak felt compelled to limit the case of the Mishna to the leftover grain on the threshing floor, only before the Gemora deflected the later cases of the Mishna with the statement that one immediately realizes the loss of heavy items.

Once the Gemora introduced the concept that one immediately realizes the loss of a heavy item, this will allow us to apply the Mishna's statement of scattered produce to a standard lost item as well. Two Halves make a Whole? The Gemora questioned how to apply Rabbi Yitzchak's measure to other situations.

The first set of cases are different measures – instead of one kav in 4 amos, there are $\frac{1}{2}$ a kav in 2 amos, or 2 kavs in 8 amos. Tosfos (21a chatzi) asks why the Gemora considered these different than the case of 1 kav in 4 amos. If Rabbi Yitzchak is indicating that the grain owner does not consider the cost of collecting produce over 4 amos in order to earn 1 kav to be worthwhile, the same cost benefit ratio applies to half that amount or double that amount.

Tosfos points out that a kav in 4 amos is just two subareas, each one of $\frac{1}{2}$ a kav in 2 amos. If one would consider it worth the effort to collect the $\frac{1}{2}$ kav in 2 amos, he would do the same for a kav in 4 amos. Tosfos offers two answers:

1. Psychologically, one is overwhelmed by a large job more than by a smaller job, even when proportionally the cost benefit ratio is the same. When one sees a manageable area of 2 *amos*, he will consider the job easily done, and worthwhile, and therefore do it. When he sees a larger absolute area of 4 *amos* – even with proportionally the same benefit for the work in terms of produce – he will consider the job too large, and abandon it. [*One may take a lesson for heavenly matters, that the key to accomplishing large tasks is to isolate them into smaller steps, so as not to become overwhelmed and discouraged.*]
2. The areas discussed are always in square *amos*. Therefore, the case of $\frac{1}{2}$ a *kav* is in 2 square *amos*, which is only a quarter of 4 square *amos*. The *Gemora* was asking whether the smaller area compensates for the less produce.

Taiku in Lost and Found

The *Gemora* leaves the further scenarios of Rabbi Yitzchak's case unresolved as a *taiku*. A *taiku* is considered a bona fide doubt in halachah, and the general rules of doubtful situations apply. The *Rishonim* disagree on how to deal with such a doubt regarding a lost item.

Rosh says that one should be stringent and take the item and announce its loss to find the owner.

The *Rambam* (*Gezeila v'aveida* 15:12) rules that one should treat the doubt with passivity. The finder should not take the item, since it may not be a lost item, or it may be an item that he can keep. The *Noda Be'yehudah* explains that the *Rosh* does not consider a finder to be in possession of the lost item, and therefore the standard rule of doubt applies, and the finder must be stringent.

However, the *Rambam* considers the finder to be in possession of the item once he took it, and therefore, he need not announce it, since in monetary halachah, one who tries to remove an item from its current possession has the burden of proof. The finder can maintain that he is allowed to keep it, and the owner must prove otherwise.

The *Noda Be'yehudah* maintains that even the *Rambam* does not allow the finder who took the item to use it. He must keep it in escrow until *Eliyahu*

Hanavi comes. Yeush Shelo Midaas the Raavad suggests that the dispute of Abaye and Rava is simply a dispute over bereirah – retroactively applying a clarification. Since we know the owner will despair on discovering his loss, Rava says bereirah allows us to consider him despaired now, while Abaye holds that bereirah is not effective, and the despair can only take effect at the time of discovery.

The Ritva disagrees, and says that Rava considers the item despaired, even if the owner never does despair. The situation of an item for which there truly is no hope of recovery is sufficient, even if the owner never reaches this realization. See Chidushei Rabbi Shimon Shkop (BM 20) for further discussion of the mechanism of yeush and why Abaye requires it to be actualized to be effective.

How Important

The Gemora explicitly discussed, according to Abaye, why five out of the ten items in the Mishna are taken by the finder. The Gemora omitted:

1. Bundles of grain, when found in the street
2. Fish, hanging off a string
3. Meat slices
4. Standard bundles of wool
5. Bundles of linen

The Rosh (siman 2) says that fish and meat are important items (like coins), since they are food, and we assume their owner is constantly checking for them. Bundles of linen and wool are expensive items, and one will also constantly check them. Our text of the Gemora says that loaves of bread and pressed figs are heavy, and their owner therefore immediately realizes their loss. The Gra suggests the Rosh had a text in our Gemora that explained that loaves of bread and pressed figs are important. The Rosh understood this to be due to their being food items and applied this to meat and fish. The Rosh then applied the concept of money, with its intrinsic value, to the bundles of wool and linen. The Gra explains, based on Tosfos (21a krichos) that bundles of grain are a case where we assume the owner placed them there on purpose and forgot them there, and will realize his loss immediately.

All or nothing

We have learnt in our sugya that an owner of a kav of fruit (according to Chazon Ish, 2.4 liters or, according to Rav Chayim Noeh, 1.38 liters) that have scattered within four square cubits abandons hope of gathering them and

anyone may claim them. However, the Gemara then raises the question of half a kav within 2 square cubits.

At first thought, the proportion between the cases is identical, both as to the amount of fruit and their manner of being scattered. What could be the difference? Tosfos (s.v. "Chatzi") explain that a person may make an effort to gather half a kav whereas a large amount is troublesome to gather.

Still, we may wonder: If so, why may the finder take the entire kav scattered in four cubits? Why do we assume that the owner of the fruit would not bother to gather half of the amount lying within only two cubits? HaGaon Rav Chayim Berman wisely remarks that the question shows a deep comprehension of human nature. Someone who sees a tremendous chore before him starts to feel lazy or even does not begin. This tendency may also trouble a person who decides to finish Shas in the Daf HaYomi program.

He may suddenly ask himself, "Finish the whole Shas? Now that's really too much!" He thus gets discouraged and eventually may not even finish one tractate. "The wise", however, "have their eyes in their heads". He must make up his mind to learn one tractate first. He thus succeeds in gathering half a kav and, with HaShem's help, proves the blessing "Taste and see that HaShem is good" (Tehillim 34:9), earning renewed strength to finish the whole Shas.

Ownerless Produce and Competing Rights⁷

We learn a new Mishna to begin Perek II: Found items should be proclaimed. Rabbi Meir says that the following items belong to the person who finds them: scattered produce, coins, bundles of grain in a public area, round fig cakes, baker's loaves, strings of fish, cuts of meat, unprocessed wool fleeces that are taken from their state of origin directly after shearing, bound flax stalks, and bound strips of combed purple wool. Rabbi Yehuda says that found items that have been altered must be proclaimed. Rabbi Shimon ben Elazar says that 'anpurya' vessels need not be proclaimed as they are identical.

The Gemara breaks down each of these found items that a person can claim as his/her own. What is scattered produce? Are we speaking of one kav of kernels scattered within an area of four by four cubits? Are we discussing grain or whet that was accidentally dropped onto the threshing floor? What if we are speaking of one-half kav of kernels scattered in an area of two by four cubits? Does it matter if collecting the kernels requires exertion on the part

⁷ <https://dafyomibeginner.blogspot.com/2016/10/bava-metzia-21-ownerless-produce-and.html>

of the owner? Why else would s/he denounce ownership of them? What if we are discussing pomegranates or sesame seeds or dates? These dilemmas are left unresolved.

The rabbis consider whether or not lost items must be despaired for them to be declared ownerless. Ye'ush, despair, describes the feeling one has when one recognizes that an item is lost and is now considered to be ownerless. Ye'ush sh'lo mida'at is despair without a conscious feeling - in other words, the state before one realizes that his/her item has been lost. If the item has a distinguishing mark on it, its owner might not despair, for s/he might assume that when found, the item will be proclaimed and s/he will take it again.

In amud (b) the rabbis move on to consider whether or not it is reasonable to assume that an owner would know that his/her property had fallen and become ownerless. For example, a person values his/her money and thus feels his/her money pouch frequently to ensure that nothing has fallen from the pouch. And perhaps what has fallen is to be gleaned as pe'a. The rabbis discuss fruit trees that drop their fruit - that fruit may be taken as it is considered to be ownerless. Some fruit must be tithed if it is collected from the bottom of a fruit tree. Figs are exempt, perhaps because they are said to become disgusting after they have fallen from the fig tree.

The rabbis are clearly attempting to balance the rights of owners against the rights of the poor who require the produce that has been left behind by an owner. We continue to work toward balancing those competing rights today.

"YE'USH SHE'LO MI'DA'AS"

Rav Mordechai Kornfeld writes:⁸

Rava and Abaye argue about whether "Ye'ush she'Lo mi'Da'as" is considered Ye'ush or not. May the finder of a lost object keep for himself the object when the owner, who at present does not realize that he lost it, eventually will have Ye'ush when he realizes that he lost it? The Gemara explains that their dispute is limited to a specific case. If the object was lost because it was swept away by the sea or a river, even Abaye agrees that one may keep it, for the verse itself permits such an object as the Beraisa later (22b) explains. The dispute

⁸ <https://www.dafyomi.co.il/bmetzia/insites/bm-dt-021.htm>

between Rava and Abaye applies only to an object which was lost in a normal manner (and has no Siman). Abaye maintains that the finder may not keep it; since the owner does not know that he lost it, he does not have Ye'ush. Rava maintains that since the owner eventually will have Ye'ush, the Ye'ush is considered to have taken effect already.

The Gemara attempts to support the opinion of Rava from the Mishnah which states that a person who finds money scattered on the ground may keep it, even though he cannot be certain that the owner already knows that he lost the money. The Gemara rejects this proof with the argument that the finder may indeed assume that the owner knows about the loss already, based on the principle of Rabbi Yitzchak. Rabbi Yitzchak teaches that a person constantly checks his pockets for his money, and thus it is logical to assume that the owner became aware that he lost the money as soon as it was lost.

The Gemara's argument, however, does not seem to fully explain why the finder may keep the money. The logic of Rabbi Yitzchak only provides a reason to assume that the owner is aware of his loss. It does not provide a reason to assume that the owner had Ye'ush and gave up hope of ever retrieving his money. Why may the finder assume that the owner had Ye'ush as soon as he found out about the loss?

The simplest explanation seems to be that because the object has no Siman, the owner is assumed to have Ye'ush since he knows that he will not be able to reclaim it. This explanation is problematic, however. If a person who loses an object without a Siman is always assumed to have Ye'ush, then how is this case different from the case of an object swept away by the sea? Even Abaye permits the finder to keep an object -- even with a Siman -- that was swept away by the sea, because the finder may assume that the owner gave up hope of ever retrieving it.

*(See **RASHI** to Bava Kama 66a, DH Motzei; **RAMBAM**, Hilchos Gezeilah v'Aveidah 11:10; and **RITVA** to 26b. The Rambam there explains that the finder may keep an object swept away by the sea because the owner is assumed to have had Ye'ush. The **RAMBAN** (Milchamos to 22b) gives the same explanation, and he cites **RABEINU CHANANEL** who says this as well.)*

When the Beraisa says that an object swept away by the sea is "lost to all mankind" (and therefore the finder may keep it), the Beraisa's intention is to explain why it is assumed that the owner had Ye'ush. If the possibility had remained that another person might find the object, the owner would not have given up hope of retrieving it; he would have thought that he might conceivably convince the finder that the object is his, even if it does not have a Siman. However, if an object is lost in such a way that it is clear that no person will ever find it, then the owner certainly despairs of ever retrieving it. An object that is swept away by the sea is lost in such a way that it seems

that it will never be found. Therefore, the owner is assumed to have Ye'ush. The Gemara says that even if the owner protests that he did not have Ye'ush, or if he is seen running after his object to try to retrieve it, the Halachah assumes that he does not really mean what he says, and he really *does* have Ye'ush. In such a case, Beis Din can be certain (with an "Umdena") of his thoughts of Ye'ush, and those thoughts ("Devarim sheb'Lev") override his actions and words. (See Ritva to Kesuvos 3a.)

Abaye agrees that when an object is swept away by the sea, even before the owner is aware of his loss it is as if he has already found out about it and proclaimed his Ye'ush. Why, then, does Abaye disagree with Rava when an object without a Siman is lost in a normal manner? It must be that it is *not* absolutely certain that the owner will give up hope of retrieving it. In fact, if one finds an object without a Siman and then sees that the owner clearly did not give up hope of retrieving it, he is not permitted to keep it, as the Gemara says later (26b). (This is also implicit in the words of the Beraisa which states that only when an object is "lost to all of mankind" is it assumed that the owner has Ye'ush.) Why, then, does the Gemara conclude, based on the principle of Rabbi Yitzchak, that the finder may keep the money? It is clear that the mere fact that an object does not have a Siman is not a sufficient reason to assume that the owner had Ye'ush. The only conclusion the Gemara should be able to make is that the owner is aware of the loss but not that he actually had Ye'ush. Why does the Gemara assume that the owner had Ye'ush?

*(Although the **RASHBA** (21b) explains the Halachah of an object swept away by the sea differently and says that such an object is permitted because the Torah gives it a status of Hefker (and not just because of Ye'ush), nevertheless the Rashba's explanation is also based on the assumption that the owner had Ye'ush. The Torah gives the object a status of Hefker because the situation is such that a person normally despairs of ever retrieving the object that was lost. Since most people would have Ye'ush in such a situation, the Torah dictates that even if a particular person does not have Ye'ush, his Da'as is disregarded ("Batel Da'ato Etzel Kol Adam"), and it is considered as though he made the object Hefker. In contrast, the Torah does not give the status of Hefker to a lost object that has no Siman; this indicates that it is not certain that a person will have Ye'ush when he loses an object that has no Siman. Hence, the above difficulty applies even according to the Rashba's opinion: why is a person allowed to keep money that he finds that has no Siman, if he cannot be certain that the owner had Ye'ush?)*

When a person finds an object that has no Siman and it is not known whether the owner had Ye'ush, the finder is allowed to assume that the owner had Ye'ush due to a Rov. Most people have Ye'ush when they lose something that has no Siman, and therefore the finder is not required to suspect that the one who lost it is part of the Mi'ut, the minority, who do not have Ye'ush. However,

there is a general rule that "Ein Holchin b'Mamon Achar ha'Rov" -- the concept of Rov does not apply to monetary matters (as Shmuel rules in Bava Kama 26b). Why, then, does the Rov here allow the finder to keep the Aveidah?

TOSFOS (23a, and Bava Basra 23b) explains that the reason for the general rule of "Ein Holchin b'Mamon Achar ha'Rov" is that a Chazakah, which is created when a person is in possession of an object, is a more powerful proof of ownership than a Rov. Thus, the Chezkas Mamon proves that the object belongs to the holder even if a Rov indicates otherwise, and thus Beis Din cannot take the object away from him. In the case of an Aveidah, however, the object is not in anyone's possession. Therefore, when the person who finds the Aveidah takes possession of it, a Rov is accepted to determine that the owner probably had Ye'ush and to allow the finder to keep it. Since there is no Chazakah to counter it, the Rov dictates the Halachah even though it is a monetary matter.

This explanation sheds light on the exact issue about which Rava and Abaye disagree. Abaye agrees with Rava that the finder may keep an object that was swept away by the sea. In that case, it is absolutely clear (through an "Umdena") that the person who lost the object would have Ye'ush; even if he would deny that he had Ye'ush, the Halachah would assume that he had Ye'ush. Since it is so certain that the owner will have Ye'ush, Abaye agrees that it is considered as though he had Ye'ush even before he becomes aware of his loss. However, Abaye rules this way only when there is *absolute certainty* that the owner will have Ye'ush. Rava, on the other hand, maintains that even a Rov suffices; even if a Rov indicates that the owner will have Ye'ush, it is considered as though he had Ye'ush even before he knows that he lost the object. Rava views a Rov just like an "Umdena" of absolute certainty. Abaye, on the other hand, maintains that "Ye'ush she'Lo mi'Da'as" is not Ye'ush. Abaye's position is that although a Rov can clarify what was already done, a Rov that indicates what *will* take place cannot affect the object's present status. If the fact that the owner will have Ye'ush is known only because of a Rov, that is not sufficient for it to be considered as though he already had Ye'ush. According to Abaye, only an "Umdena" can do that.

This answers the question of the **RA'AVAD**. The Ra'avad asks that the dispute between Abaye and Rava about "Ye'ush she'Lo Mi'Da'as" seems to be connected to the issue of "Bereirah" which is discussed in many places in the Gemara. "Bereirah" refers to a retroactive clarification of the status of a past event based on an event which occurs in the future. A person makes a Kinyan but stipulates that it depends on the occurrence of a future event. If the Halachah is "Ein Bereirah" (there is no "Bereirah"), then the Kinyan does not take effect since the future event is not known at the time of the Kinyan and the effectiveness of the Kinyan cannot be determined retroactively by a future event. The opinion of "Yesh Bereirah" maintains that the effect of a

Kinyan *can* be determined retroactively. This issue seems to be directly related to the issue of "Ye'ush she'Lo mi'Da'as," which is based on the assumption that the owner will have Ye'ush in the future. The Halachah of "Ye'ush she'Lo mi'Da'as" should depend on whether or not Bereirah works. If the Halachah is "Ein Bereirah," the Ye'ush should not take effect since the owner's Ye'ush has not happened yet. If the Halachah is "Yesh Bereirah," the Ye'ush should take effect now when the finder finds the object. Why is the discussion of Abaye and Rava not contingent on the issue of Bereirah?

Perhaps the answer is that even if the Halachah follows the opinion of "Ein Bereirah," that means only that a Kinyan that is contingent on a future event cannot take effect because the future event cannot have a retroactive impact on the Kinyan. With regard to Ye'ush, however, the efficacy of "Ye'ush she'Lo mi'Da'as" is not a result of the future Ye'ush of the owner. An actual Ye'ush is not necessary. Rather, the very fact that a person probably will have Ye'ush takes the place -- and accomplishes the function -- of the actual Ye'ush. Rava, who maintains that it is effective, equates "Ye'ush she'Lo mi'Da'as" to an "Umdena," another instrument that states that the probability that a person will say something makes it as if he has already said it. Thus, Rava's position applies only to the future decisions of a person that can be ascertained by a Rov. Rava would not necessarily consider other future events, which are completely unknown, to have an impact on a current Kinyan; such a case would be subject to the general rule of Bereirah.

This explains how the opinion of Rava can be consistent even with the opinion of "Ein Bereirah." However, the opinion of Abaye must also be reconciled with the opposing opinion of "Yesh Bereirah." If future events can impact on a present Kinyan, then why is it not obvious that "Ye'ush she'Lo mi'Da'as" is considered Ye'ush? After all, in the case of "Ye'ush she'Lo mi'Da'as," the fact that the owner ultimately will have Ye'ush is even more obvious than the future events that affect the Kinyanim in most cases of Bereirah.

The answer to this question should be clear based on the above definition of Bereirah. Bereirah affects a Kinyan only when the Kinyan is made with a clear stipulation that it should be dependent on a future event. When the Kinyan is not made with such a stipulation, there is no reason for a future event to affect a Kinyan that was already made. (See **TOSFOS** to Bechoros 56b, DH Livror, and Temurah 30a, DH v'Idach.) In the case of "Ye'ush she'Lo mi'Da'as," the owner never makes a verbal stipulation that the status of the object should depend on whether he is Me'ya'esh in the future. Therefore, there is no reason to compare the case of "Ye'ush she'Lo mi'Da'as" to the issue of Bereirah. Even if the Halachah is "Yesh Bereirah," it would have no bearing on the case of "Ye'ush she'Lo mi'Da'as" because it is not a case of a Kinyan made with the intention that it should be affected by a future Ye'ush. Similarly, Rava's argument is not based on the concept of Bereirah. Rather, Rava maintains

that even if "Ein Bereirah," the fact that most people are Me'ya'esh should make it as though the one who lost the object was actually Me'ya'esh at the moment that he lost the object.

THE "YE'USH" OF A MINOR

The Gemara quotes the Mishnah in Pe'ah (8:1) which says that after the "Nemushos" (the last group of poor people) pass through the fields to collect Leket, anyone else -- even one who is not poor -- may take whatever is left from the Leket. The Gemara explains that once the Nemushos pass through the fields, the other poor people in the city are Me'ya'esh from anything that might be left in the field, and the poor people from other cities were Me'ya'esh from the Leket in this city from the beginning because they assumed that the poor people of this city would collect it all and leave nothing.

REBBI AKIVA EIGER (in Gilyon ha'Shas, Derush v'Chidush, and Tosfos Rabbi Akiva Eiger on the Mishnayos) asks why the Ye'ush of the poor people in other cities should make the Leket in this city permissible for anyone to take. After all, there are poor Ketanim, minors, in neighboring cities who also are entitled to collect the Leket. The Gemara (22b; see Tosfos there, DH d'Lav) states that the Ye'ush of a Katan is considered "Ye'ush she'Lo mi'Da'as" until he becomes an adult. How can the "Ye'ush" of poor Ketanim from other cities permit people to take the Leket? This issue would seem to depend on the dispute of Abaye and Rava, but the Gemara gives this explanation even according to Abaye.

(a) The **SHA'AREI YOSHER** (5:19) and **DIBROS MOSHE** (31:8) quote the Gemara in Chulin (134b) which tells about a landowner who lived in a city that had no poor people to collect the Leket from his field. He asked Rav Sheshes what to do, and Rav Sheshes ruled that he could take the Leket for himself, because the verse states that Leket is to be left "le'Ani vela'Ger" -- "for the poor person and the stranger" (Vayikra 19:10), and not for animals of the wild. This means that there is an obligation to leave Leket only when it will be taken by poor people, but there is no obligation to leave Leket when it will be consumed by animals. The Gemara there implies that the reason one may take Leket when there are no poor people to take it is that the verse makes a special allowance. Consequently, it is not necessary for the poor people to be Me'ya'esh in order to permit others to take the Leket. Rather, if no poor people claim the Leket, the Torah permits anyone to take it. The **RAMBAM** (Hilchos Matnos Aniyim 1:10) cites the Mishnah quoted by the Gemara here which permits Leket to be taken by anyone after the last wave of poor people, and he prefaces this ruling with the teaching of the Gemara in Chulin that the Torah does not want people to leave Leket for the wild animals to take. The Rambam implies that the Gemara here does not rely on Ye'ush to permit Leket to others, and thus the fact that there are poor minors in other cities presents no problem since their Ye'ush is not necessary to make the Leket permissible.

Although the Gemara states that the poor people in other cities have Ye'ush, the Acharonim reconcile the words of the Gemara with the position of the Rambam. They explain that the Gemara does not mean that the actual Ye'ush of the poor in other cities is what permits the Leket for everyone. Rather, the Gemara means that the poor in other cities despair of ever receiving the Leket, and therefore they do not make any attempt to collect it. The Leket then becomes permitted for anyone to take because no poor people collect it.

However, the words of the Rambam imply that the Gemara in Chulin and the Gemara here actually address two separate issues that pertain to Leket that is forsaken by Aniyim. The Derashah in Chulin does not address the monetary issue, the fact that Leket is the "property" of Aniyim and if someone else takes it, he is considered to have stolen from the Aniyim. Rather, the Gemara addresses an issue of Isur v'Heter: is Ma'aser Ani similar to Terumah, which is not permitted to those who are not Kohanim and which must be delivered to Kohanim by the owner? The Gemara in Chulin proves from the verse that Leket is not prohibited to those who are not Aniyim, and that there is no Mitzvah to deliver the Leket to Aniyim. Therefore, if Aniyim do not take the Leket, the Leket is not considered an item that is prohibited to the owner in such a way that it would prevent him from taking it for himself.

The Gemara here addresses a different issue. Even if there is no Isur involved, the Leket is "Mamon Aniyim" -- it is considered the property of the poor people of the world. Even if the poor people are not interested in taking the Leket, if a person who is not poor takes it his act should be considered an act of theft. The Gemara answers this question with the assumption that poor people are Mafkir, or have Ye'ush from, the remaining Leket.

Accordingly, the Rambam implies that the Ye'ush of the poor people in other cities is necessary to make the Leket permissible for everyone and, consequently, Rabbi Akiva Eiger's question remains difficult. Since the poor minors are not able to be Mafkir or have Ye'ush from their portion of the Leket, why should others be permitted to take the Leket?

(b) Perhaps Ye'ush in the case of Matnos Aniyim differs from Ye'ush in the case of an object that is privately owned. In general, the Ye'ush of a minor cannot permit his object to be taken by others, just as the minor cannot make a Kinyan because he has no Da'as. Matnos Aniyim, however, do not actually belong to the minor. Rather, they are the collective property of the general group known as Aniyim, poor people. This is not the same as a partnership, in which many people own one object, because the Matnos Aniyim can be given to any single poor person without a need to compensate the others. Thus, Matnos Aniyim must be viewed as property which can *potentially* be given to any poor person but is not the personal property of any one of them (yet). Hence, the minor Aniyim do not yet own this Leket, and therefore it is not necessary for them to actually give it away through Ye'ush or Hefker.

Rather, they simply have to remove themselves from the group of Aniyim who candidates are to receive this Matanah. The Ye'ush of minors suffices to remove them from this group of candidates. Since they do not expect to receive it, they will not present themselves as candidates. That is why even Ye'ush of minors permits others to take the Leket. (M. Kornfeld)

ACQUIRING "LEKET" THROUGH "KINYAN CHATZER"

The Gemara quotes the Mishnah in Pe'ah (8:1) which says that after the "Nemushos" (the last group of poor people) pass through the fields to collect Leket, anyone else -- even one who is not poor -- may take whatever is left from the Leket. Why should the Leket not be acquired automatically by the owner of the field, through Kinyan Chatzer? After all, the Gemara says earlier (12a) that a person's Chatzer is Koneh an item for him "she'Lo mi'Da'ato," even when he does not know about it. (**TOSFOS REBBI AKIVA EIGER**, Pe'ah 8:1)

Perhaps the Mishnah in Pe'ah refers specifically to a "Chatzer she'Einah Mishtameres" -- an unprotected field, which cannot be Koneh for the owner when the owner is not near it and does not have intention to be Koneh with it, as the Gemara earlier (12a) states. (It is logical to assume that the Mishnah there refers to a Chatzer that is not Mishtameres, because the owner must leave the gates open to allow the poor people to enter and collect the Leket.)

However, Rebbi Akiva Eiger asks that if this is correct, the Gemara earlier (12a) should have cited the Mishnah in Pe'ah as proof that a "Chatzer she'Einah Mishtameres" does not acquire for a person "she'Lo mi'Da'ato," without his knowledge. Although the Gemara discusses at length the question of whether such a Chatzer acquires for a person "she'lo mi'Da'ato," it does not cite this Mishnah as support. This seems to imply that there is a different reason for why the owner of the field does not acquire the Leket through Kinyan Chatzer.

(a) The **DEVAR AVRAHAM** (1:13, in footnote there) suggests that perhaps the Gemara does not cite the Mishnah in Pe'ah as proof that a "Chatzer she'Einah Mishtameres" is not Koneh because, in truth, such a Chatzer may be Koneh even according to the Mishnah. The Mishnah might not mean that every person may take the Leket, but rather that the *owner* is Koneh the Leket through Kinyan Chatzer. Why, then, does the Mishnah state that "Kol Adam" ("any person") is permitted to take it? These words mean that the owner may acquire the Leket for himself if he so desires, and if he has no interest in acquiring it for himself, then anyone else may take it.

(b) Another answer may be suggested based on a statement of **TOSFOS** (26a, DH d'Shasich). Tosfos writes that a Chatzer, even if it is Mishtameres, cannot be Koneh any object of which the owner is not aware

and that he may never find, (see Insights to 26b). It is very likely that the Leket which remains after all of the groups of poor people have combed the field will not be found by anyone. Since the owner may never find it, his Chatzer cannot acquire it for him.

FIGS THAT FALL INTO PUBLIC PROPERTY FROM A PRIVATE TREE

The Gemara cites proof for Abaye's view from the Mishnah in Ma'aseros (3:4) which discusses whether a person may take fruits that he finds beneath a tree which stands in a private yard but which leans over the public thoroughfare. The Mishnah says that one may take figs found beneath a fig tree, but he may not take olives or carobs from beneath a private olive or carob tree. The Gemara interprets this Mishnah in accordance with Abaye's opinion. The finder may take the figs because fig trees often shed their figs and therefore the owner of the tree is presumed to have had Ye'ush, and it is considered "Ye'ush mi'Da'as." The owner of a fig tree realizes that the figs will fall and expects people to take them thinking that they were dropped by a passer-by. In contrast, olives and carobs normally do not fall off the tree, and therefore the owner does not expect them to fall and is not presumed to have had Ye'ush (until he actually discovers that the fruits fell). Such a case is one of "Ye'ush she'Lo mi'Da'as." According to Rava, however, even olives and carobs should be permitted to take, because Rava maintains that "Ye'ush she'Lo mi'Da'as" is considered Ye'ush.

Rav Papa rejects the proof and explains the Mishnah according to the opinion of Rava. A passer-by normally assumes that any fruit found on the public road beneath a tree fell from that tree; he does not assume that it was dropped by other passers-by. Therefore, the owner of an olive or carob tree is not Me'ya'esh from fruits that fall beneath his tree. (They are similar to a "Davar she'Yesh Bo Siman," a lost object that has a Siman, for which there is no "Ye'ush she'Lo mi'Da'as.") In contrast, when figs fall from a tree they become disgusting, and the owner is no longer interested in them. Therefore, he is Mafkir whatever falls. **RASHI** (DH Im Nefilasah) explains that since figs become disgusting when they fall, and the owner knows that they are going to fall, he has Ye'ush and makes them Hefker from the beginning.

Rashi's words are problematic. The Gemara's answer reconciles the Mishnah with Rava's opinion that "Ye'ush she'Lo mi'Da'as" is considered Ye'ush. Accordingly, even if the owner did *not* expect the figs to fall, since he would have had Ye'ush had he known that the figs fell, they should be permitted now. Why, then, does Rashi write that the owner knew that the figs would fall and therefore he had Ye'ush from the beginning? It is not necessary to say this according to Rava, who says that the owner's *future* Ye'ush suffices. (**MAHARAM SHIF, LECHEM MISHNEH** in Hilchos Gezeilah v'Aveidah 15:15)

Perhaps Rashi understands that the answer of the Gemara is not given exclusively for Rava. Rather, once the Gemara gives this answer, it retracts its original understanding of the Mishnah even according to Abaye. The Gemara now understands, according to both Rava and Abaye, that the difference between figs and carobs is that figs become disgusting when they fall, and therefore the owner is Mafkir them, whereas when carobs fall the owner is not Me'ya'esh from them at all. That is why Rashi writes that the owner knew all along that his figs would fall and was Me'ya'esh from them. Rashi indicates that the Gemara's conclusion applies to Abaye as well as to Rava.

This is evident from the Rishonim who state that according to the Gemara's conclusion, Abaye understand the Mishnah the way that Rava understands it. (See **RAMBAN** to 22b in Milchamos, and **TOSFOS** to 22b, DH me'Achar.)

Why does Rashi understand that the Gemara revises its interpretation of the Mishnah even according to Abaye? Perhaps Rashi takes this position because the Gemara later (22b) states that when dates fall beneath a palm tree, the owner has Ye'ush because of the insects and pests that tend to get to the fruits before he does. According to Rashi there (22b, DH Heichi), the Gemara is discussing the exact same situation that the Mishnah cited here discusses. If the Gemara did not alter its understanding of Abaye's interpretation of the Mishnah, it should not be necessary for that Gemara to state that the owner has Ye'ush because of the insects. After all, the Gemara here initially understands that the reason the owner has Ye'ush from retrieving fallen fruits is that passers-by will take them, and not that they will be eaten by insects. If the Gemara here had understood that the owner has Ye'ush because he assumes that insects will eat the fruit, then the fact that the fruit is directly beneath the owner's tree would not prevent the insects from eating it, and it should still be considered a case of "Ye'ush she'Lo mi'Da'as." Rashi therefore explains that the Gemara revises its understanding and now assumes that even according to Abaye, the owner does not believe that passers-by will take fruits from under his tree. Rather, Abaye understands that the owner has Ye'ush because of the insects that will eat the fruits. (In the case of the trees mentioned in the Mishnah in Ma'aseros, the assumption is that the owner is not concerned about insects, either because the fruits discussed here are not as sweet as dates and therefore do not attract insects, or because the Mishnah refers to an area where there are fewer insects. See **RITVA** to 22b.)

Finders Keepers

Steinsaltz (OBM) writes:⁹

Returning lost objects is a topic covered in some detail in the Torah (see *Shemot* 23:4-5, *Devarim* 22:1-4), but the Torah does not discuss a situation when the owner of the lost object cannot be located easily. What rights and responsibilities does the finder have with regard to the object? When might he be able to claim it as his own? These are the issues discussed in the second *perek* of *Massekhet Bava Metzia, Elu Metz'ot*, which begins on ***our daf***.

The first Mishna in the *perek* opens with a list of lost objects that belong to the finder and a list of lost objects that must be announced in an attempt to locate the owner. The general principle is clear. Those objects that have a *siman* – some identifying mark that will allow the object to be claimed by its rightful owner – must be announced. Things that do not have identifying marks can be claimed by the individual who found them.

The Ritva points out that the Mishna does not distinguish between objects that must be announced and those that do not need to be announced, rather it clearly states that some lost objects belong to the finder. By doing so the Mishna teaches that even if the original owner brings witnesses who testify that the object belonged to him and that he lost it, nevertheless the finder keeps it if it does not have identifying marks. The reason for this ruling is explained by Rabbeinu Ḥananel – although *ye'ush* (literally “despair,” i.e. when the owner of an object gives up hope of recovering it) on its own may not allow an object to transfer from one owner to another in all cases, when an object is lost, all agree that *ye'ush* will allow that transfer to take place – and we always assume that there is *ye'ush* on an object with no *siman*.

⁹ <https://steinsaltz.org/daf/bavametzia21/>



Lost Objects that the Finder May Keep (Finds)

Mark Kerzner writes:¹⁰

When an object without an identifying mark is lost, the owner despairs recovering it because he knows that even if it is found, he will be unable to prove it is his. Therefore, the following objects belong to the finder: scattered produce, scattered coins, small sheaves in the public domain, round cakes of pressed figs, and baker's loaves.

When someone loses such an object, but before he discovers his loss - Rava says that the thing is already abandoned, but Abaye disagrees. The law in this case follows Abaye: until the owner has consciously despaired of recovering the lost object, the finder is not permitted to keep it.

¹⁰ https://talmudilluminated.com/bava_metzia/bava_metzia21.html

This is the "Y" in the six cases abbreviated Y A L K G M, where the law follows Abaye against Rava.

Rules for Finders

Rabbi Elliot Goldberg writes:¹¹

On *our daf*, we start chapter two of Bava Metzia with a mishnah that lists items that, if you find, you get to keep:

Scattered produce, scattered coins, bundles (of grain) in a public area, round cakes of figs, baker's loaves, strings of fish, cuts of meat, wool fleeces that are taken from their state (of origin directly after shearing), flax stalks, or strips of purple wool.

What is common to this list of items that makes it permissible for someone who finds them to claim them as their own? All of them are devoid of distinguishing marks that would enable their owners to claim them. A pile of loose change, loaves of bread, bundles of grain — all these are indistinguishable from one another, which would make it impossible for an owner to establish that a particular one belongs to them. So it makes good sense that if they are found, the finder can keep them.

In a few pages, we're going to encounter another mishnah with a list of found items about which the public must be notified so the owner can claim them. Whereas our mishnah says that you can keep scattered produce, that mishnah says that produce inside a vessel and piles of produce must be announced.

What's the difference between a pile of fruit and scattered fruit? The former appears to have been placed, whereas the latter appears to have been dropped. If the produce was intentionally left where it was, it's likely the owner is aware that it's there and is coming back to get it. And if they are coming back for it, it's not lost, so someone who finds it shouldn't be permitted to take it.

On the other hand, if the produce fell, the owner might not even know that it's missing. When they eventually discover that it is, they will most likely have no clue where they dropped it and will despair of its return. In such a case, it's finders keepers.

¹¹ Talmud from my Jewish learning

Since the right of the finder hinges on whether produce is scattered or in a pile, naturally the Gemara is curious about how we distinguish between these two arrangements. Fortunately, Rabbi Yitzhak gives us a clear rule:

Rabbi Yitzhak says: One kav in four cubits.

This is a great answer, since it provides a clear formula for determining whether produce is scattered. If one kav (a little over a quart) of produce is found in an area of four by four cubits, it's a pile and belongs to the one who placed it there. Anything less is scattered and up for grabs.

Not so fast, says the Gemara. The density of the produce shouldn't matter as much as its appearance. If it appears to have fallen, it should belong to the finder even if the density is above the limit. And if it looks like a pile, the finder should announce it even if the density is below the limit.

Rav Ukva bar Hama comes to explain that Rabbi Yitzhak's density principle was created specifically for use during the harvest season to evaluate wheat that remains on the threshing floor. How so?

One kav in four cubits, whose (gathering requires) great exertion, a person does not exert himself and does not return and take them. He renounces ownership of them. Smaller than that area, (the owner) exerts and returns and takes them and does not renounce ownership of them.

In other words, the formula proposed by Rabbi Yitzhak was merely a way of estimating whether fallen produce on the threshing floor was worth the exertion of collecting it. What matters is not ultimately the specific density of the fallen produce, but how much effort is required to reclaim it. If it is worth the effort for someone to come back and get what has fallen, then the produce still belongs to them. If it's not, the one who found it can keep it, since the owner is not coming back for it.

As the opening conversation of this chapter makes clear, there is no one rule that determines which objects can be kept and which must be returned. Instead, it suggests a number of factors that we should take into account. Does the item have an identifying mark? Was it placed or dropped? Is it worth the effort to come back and get it?

As an occasional finder of things, I understand well that the decision about what to do with what I've found is not black and white. Although it does not give clear and concrete directions, neither does the Talmud leave us to muddle

along in the gray zone. Rather, it provides a list of factors to consider. And there's much wisdom to be found in this approach.

Rabbi Johnny Solomon writes:¹²

Our daf (Bava Metzia 21b) contains a word that I and so many others have wrestled with over the past months, along with a phrase which has been interpreted by one of Judaism's greatest teachers to provide us with a better sense of our place and role in the world.

The word **יאוש**, sometimes translated as 'despair' but more accurately translated as 'the loss of hope that something (or someone) will be found or returned,' is used in today's daf with respect to someone who has lost a possession who has given up hope of finding it or of it being returned to them. Once this occurs, the possession is then considered to be ownerless.

However, the question then asked by the Gemara is whether **יאוש** occurs even before an owner discovers that they have lost that possession? In response to this question, we are informed of two different positions. According to Rava, **יאוש שלא מדעת הוי יאוש** – 'the loss of hope without one's awareness is still considered to be the loss of hope', while Abaye is of the opinion that, **יאוש שלא מדעת לא הוי יאוש** – 'the loss of hope without one's awareness is not considered to be the loss of hope'.

Reflecting on the first half of this phrase (**יאוש שלא מדעת** – 'the loss of hope without one's awareness'), Rabbi Menachem Mendel of Kotzk (1787–1859) teaches an incredibly powerful lesson - that the only reason we encounter despair and hopelessness in our life is because we lack awareness: 'when a person comes to losing hope (**יאוש**), it is only because they lack the full knowledge (**דעת**) and awareness of what is going on.'

This interpretation of the Kotzker Rebbe captures one of Judaism's most inspiring and affirming values that despite everything, the Jewish people are a people of hope (**תקווה**). This is why Israel's national anthem is called 'HaTikvah' (The Hope), and why it includes the words **עוד לא אבדה תקוותנו** – '[despite everything] we have not lost our hope'.

This brings me back two days to Mount Herzl where I, along with thousands of others, attended the funeral of Captain Daniel Perez hy'd. After hoping and praying for his return for 164 days, it was recently discovered by Israeli intelligence that Daniel had been murdered by Hamas terrorists on October

¹² www.rabbijohnnysolomon.com

7th, and while his blood and bloodied clothes were buried that day, his body still remains in Gaza.

On facts alone, this is a story which arguably ended with a sharp expression of **גאוש**. However, this was not the message delivered by Daniel's friends, mentors, siblings and parents. Instead, in that moment, each one of them looked back at the past 164 days and came to realize that more had been going on over this period of time than they had fully realized. His brother Yonatan explained that when he got married, he was so pained by Daniel's absence, but having heard the bitter news, Yonatan was comforted in knowing that Daniel was truly alongside him at his wedding. His sister Adina explained that looking back at those difficult days, while the family were praying for Daniel, it was clear that Daniel was ultimately giving them strength. And then his father R' Doron explained that in Daniel's final battle, he heroically fought against Hamas and in addition to saving the lives of hundreds of others, likely saved the life of his brother Yonatan who was very close by.

To say that I am overcome with ache and pain for the Perez family is an understatement. At the same time, their words were a powerful affirmation of hope (**תקווה**) even in a moment of such unbearable loss, because they humbly came to realize, and powerfully taught us all, that more had been going on than they had known or were aware of.



Intro to Talmud

Rabbi Jay Kelman writes:¹³

I, probably like many of you began my formal study of Talmud learning Eilu Metziot, the second chapter of masechet Bava Metzia. "These are the lost objects one can keep, and these are the ones that one must declare." (Bava Metzia 21a) For many years I thought this was a rather poor choice as an introductory Talmud text. It deals with complex and abstract issues more suited to law school than elementary. On the first page we are introduced to what has become one of the more famous Talmudic disputes, that between Abaye and Rava in the case of *yeush shelo meda'at*.

One of the conditions necessary for one who finds an object to be able to keep it is that of *yeush*, that the owner give up hope of recovery. Until that happens a finder cannot keep an object. What if one loses an object but is unaware of such when the finder picks it up? Yet had he been aware of such loss, he would have given up hope of recovery; and when he does discover his loss, he has *yeush*. Abaye and Rava debate whether or not the *yeush* that he would have had but did not yet have counts so that the finder can be said to retroactively acquire the object. Of course, this case raises many questions, starting with how a finder of an object is supposed to know if *yeush* has occurred? How can he know how long the object has been lying there? This is a fascinating debate – and is one of only six places the halacha is in accordance with Abaye in his hundreds of disputes with Rava – but hardly material one would think for an introduction to Talmud.

The reason it was the first *pererk* I studied is based on historical factors that have little application to Jewish education in the West. Traditionally only the intellectual (and financial) elite studied Talmud, perhaps some 2-3% of the population. Having the masses study Talmud was just not economically feasible. By the age of bar-mitzva most men (the notion of mass Talmud study for woman was inconceivable) had already begun to learn a trade. Fortunate were those who received any formal education in any field beyond bar-mitzva.

But the non-study of Talmud went beyond economics. A person was expected to learn a trade or start a business to provide for his family. Torah observance was learned mimetically with children seeing how their parents practiced our

¹³ <https://torahinmotion.org/discussions-and-blogs/bava-metzia-21-intro-to-talmud>

faith. While great honour was given to Torah scholars the general populace was expected to lead pious lives with whatever time could be allowed for study spent on Torah, Mishna, or ethical teaching. Whatever Talmud study there was, was limited to Ein Yaakov, a compilation of aggadic or non-legal teaching of the Talmud, mainly stories of our Sages. The notion of kollel study for all was not a goal, even if it could have been made economically feasible.

The Talmud itself was written by and for Torah scholars – and likely not intended for the masses. Some of the sharp language and attitudes expressed were meant for scholarly eyes and ears only. Just as lawyers, doctors and other professionals communicate with each other in a language not meant for laymen so too our Sages communicated with each other in a language only one well versed in Talmudic syntax and culture could appreciate[1]. Those who did study Talmud, being the most gifted of the students, were expected to do most of their learning on their own. Shiurim were thus generally delivered on the most difficult of masechtot, generally those found in (parts of) Nashim and Nezikin.

After the war, in their heroic efforts to recreate the learning of the great Eastern European yeshivot, our day schools (something that did not exist in Eastern Europe) and yeshivot taught that which was taught in Europe – despite the fact that the student population was radically changed. The *cheder* system of Europe was replaced by day schools and a much different type of yeshiva. For the first time in Jewish history all were expected to study Talmud - and for the Modern Orthodox community from the 1970's onwards that included women. Many of the teachers in schools through the 70's were refugees from European Yeshivot - or their students - and thus it was Nashim[2] and Nezikin that was the standard curriculum[3].

While in Europe Eilu Metzot made much sense, the masechtot of Moed, easier and more relevant to the day-to-day lives of today's students seemed to be the way to go. And in fact today many schools today do exactly that.

Yet over time I have come to see great merit in the "traditional" approach. Our introduction to Talmud begins with the important ethical message that not all we may have belongs to us. One learns the intricate details of the mitzva of *hashavat aveidah*, balancing the efforts one must make to guard the object and locate the original owner vs. the right to take advantage of one's good fortune and efforts. We must take great care with the property of others. Even if the legal concepts may be technical and complex the moral messages hopefully ring very clear.

At the same time that which is complex need not be difficult. Talmud properly taught is challenging, stimulating, exciting and tremendously relevant. Improperly taught it is boring, archaic, difficult, and irrelevant. As the Mishna itself notes "one who wants to gain wisdom should study monetary law for

there is no subject of Torah greater than them for they are like an overflowing stream.” (Bava Batra 10:4)

This not only refers to the intellectual depths and logical constructs of monetary law but is a moral statement as well. There is no area of Torah with more mitzvot than that of monetary law. With man’s insatiable appetite for money we must have mitzvot at every possible turn. Our Sages (Shabbat 31a) note that the first question the heavenly court will ask us is “were your business dealings done faithfully?” The study of Nezikin, the laws of “damages” in its broadest sense is meant to sensitize us to the great moral obligations placed upon us. Let’s begin with Eilu Metziot.

[1] This at times harsh language is not at all uncommon in rabbinic literature, where some of the greatest rabbis used language that would make our hair stand on edge. They could feel comfortable expressing themselves in such a manner because they knew the limited readership of their comments and the sharpness of tone reflects the seriousness with which the subject matter was treated. Such is inappropriate today, where there is no longer the luxury of private communication.

[2] One of my more memorable high school experiences was going to the Beit Din of Toronto to witness the giving of a *get* – we were learning masechet Gittin. I vividly recall many of the details and it was a fascinating experience – though one might think of many other hands on experiences that may have been equally interesting.

[3] While ArtScroll has greatly increased Talmud study I believe the ArtScroll phenomenon is the result of Talmud becoming mainstreamed not its cause. As more and more students studied Talmud study aids became more and more necessary including and perhaps especially sources in English. It seems to me ArtScroll’s great influence has been in the adult study of Daf Yomi – and if one wants to ever gain proficiency in Talmud learning, translations (at least initially) is actually more of a hindrance than an aid. Hard work, sweat and figuring out things on one’s own is still the way to go.

Introduction to Talmud Eilu Metziot

Rav Joshua Amaru writes:¹⁴

Introduction

The second chapter of tractate Bava Metzia is traditionally the first chapter taught to children who are first beginning to study Talmud. One should not understand that the contents of this chapter are childish in any way. On the

¹⁴ <https://etzion.org.il/en/talmud/seder-nezikin/massekhet-bava-metzia/introduction-talmud-elu-metziot>

contrary, this chapter deals with property law, specifically the laws pertaining to lost objects. In my opinion, *'Elu metziot'*, as our chapter is called, is used as an introductory chapter for several reasons. First of all, traditionally the laws concerning monetary affairs (the laws covered in the *Choshen Mishpat* section of the *Shulchan Aruch*, the Code of Jewish Law) are considered to be the 'meat and potatoes' of a Talmudic education. The breadth of understanding and depth of analysis required for these subjects surpass all others. Our chapter is not an exception to this rule, yet at the same time, the laws discussed in it can be understood through the application of relatively few principles and concepts. Thus we have an opportunity to experience authentic Talmudic reasoning without having to spend too much time filling in the background. In addition, the tradition of beginning from a chapter dealing with property law has its own educational point. Ritual law that we practice at regular intervals, like the laws of Shabbat or the laws of blessings, may seem to be a more pressing item on the Talmud curriculum. By beginning with a chapter that is on the one hand applicable to our lives but at the same time not part of its ritual aspect, we are sending a message to our students and ourselves that the Torah demands integration. The holiness demanded of us cannot be achieved solely through ritual or conventional religiosity. We are commanded to pursue holiness in our interpersonal dealings, as exemplified in the commandment to return a lost object. Finally, starting with *'Elu metziot'* sends us another message. Most of the legal discussion that we will encounter is not directly applicable to our lives, even if the general topic of returning lost objects is. By beginning with such a chapter, we train ourselves in the value of Torah Le-Shma, of Torah for its own sake. We join in the community of learning for whom the point of the learning is the fulfillment of the divine command to learn. Learning becomes an end in itself, and ultimately, one of the central ways in which a Jew worships the Creator.

Chapter *Elu Metziot*

As mentioned above, the subject of our chapter is the laws pertaining to lost objects. The Talmud, in its way, does not introduce a topic in a logical order but rather dives right into a discussion of particular cases and laws. This discussion assumes the knowledge of the basic norms and concepts that underwrite the specifics being discussed. In our case, the issue at hand is the fulfillment of two commandments: The first is the positive commandment to return lost objects. The second is the prohibition to ignore a lost object so as not to be responsible for returning it. These commandments appear in the Torah in two places:

Shemot (Exodus) 23:4

“If thou meet thine enemy's ox or his ass going astray, thou shalt surely bring it back to him again.”

Devarim (Deuteronomy) 22:1-3

1) Thou shalt not see thy brother's ox or his sheep driven away and hide thyself from them; thou shalt surely bring them back unto thy brother. 2) And if thy brother be not nigh unto thee, and thou know him not, then thou shalt bring it home to thy house, and it shall be with thee until thy brother require it, and thou shalt restore it to him. 3) And so shalt thou do with his ass; and so shalt thou do with his garment; and so shalt thou do with every lost thing of thy brother's, which he hath lost, and thou hast found; thou mayest not hide thyself. (JPS translation).

We can see that the Torah rejects the principle “finders keepers, loser’s weepers’. One is commanded to return lost objects to their rightful owner. If this is too difficult, then one must hold the lost object until it can be returned to its owner. The verses provide us with the general attitude of the Torah as related to lost objects, but much remains unsaid: Must all lost objects be kept for the owner? How is the owner to identify that the object is his or hers? How do we prevent someone from “collecting” a lost object does not

really belong to him or her? What if it is impossible to identify the owner of the lost object? All of these questions and more are addressed in the Talmudic discussion of these mitzvot. At times this might not be obvious, as the Talmud generally deals with very concrete cases. As we proceed, part of what we need to learn how to do is to find how the specifics discussed in the Mishna and Gemara addresses the questions listed above. Now to work!

Open your gemara to page 21a or [click here](#). Read the mishna. When interpreting the mishna, you should make use of the following technique: many mishnayot(plural of mishna) that have legal content (and almost all of them do) can be analyzed into component parts of a case, and the relevant law (*din*) as applied to that case. The case is the setting, the real world situation to addressed, while the *din* is the normative response to that setting. There will never be a *machloket* (disagreement) about a case – that would make no sense since the case is merely the description of a situation.

On the other hand, you will find disagreements (*machlokot* – plural) about *dinim* (plural of *din*) in nearly every mishna. The *din*, depending upon the context, will be described usually using words with normative or regulative content: Chayav (liable), patur (not liable), asur (forbidden), mutar (permitted). Occasionally, you will come across mishnayot that are not structured this way, either because they do not contain legal content at all (e.g. Pirkei Avot) or because they are straight descriptions of legal principles (e.g. The first two chapters of Bava Kama). As you become more familiar with the material, it will become easy to recognize which mishnayot fit this model and when this analytical technique is appropriate. It is a good idea to train yourself to automatically analyze a mishna (or other halachic statement) that is structured in this way in terms of case and *din*. Let us apply this technique to our mishna.

The mishna begins with a generalization: “Some finds belong to the finder; others must be announced.” Subsequently the mishna lists articles

belonging to the first category: "These belong to the finder: If one finds scattered fruit, scattered money etc." This list continues to the end of the mishna. The second category of things that must be announced, is not elaborated here; it is taken up in the next mishna (see p. 24b) that begins "And this one is obligated to announce..." Let us apply our analytical technique to our mishna. Which elements constitute the case(s)? Where would you say the language of the mishna shifts from description of the case to the assertion of the *din*? Take a moment and try to do this for yourself before you read on.

The case is the description of a person who has found certain lost objects. "One who found scattered fruit, scattered coins, small sheaves in a public area, round cakes of pressed figs, a baker's loaves, strings of fishes, pieces of meat, fleeces of wool that have been brought from the country, bundles of flax and stripes of purple colored wool." The *din* immediately follows: "all these are his (the finder's)." This *din*, however, is not the consensus, as the mishna goes on "so says R. Meir". We will come back to this list in a moment.

The next part of the mishna seems to diverge from the case/*din* structure. R. Yehuda asserts a general legal principle: "Anything that has in it something unusual must be announced." along with an example illustrating that principle: "How? If one finds a round [of figs] containing a potsherd or a loaf containing money." Subsequently, we are taught, in the name of R. Shimon ben Elazar a different principle: "All *klei anforia* do not need to be announced.

At this point I want to look more closely at the case and the *din* mentioned in the name of R. Meir. We will return to the opinions of R. Yehuda and R. Shimon ben Elazar in a later *shiur* (lesson). What are we to make of the list of items that belong to the finder? Presumably, these items are ordinary 2nd century C.E. consumer items.

Why does the finder get to keep them and why does he not need to fulfill the commandment of *"hashavat aveidah"* (returning a lost object) that we mentioned above? Before we answer, let us take a look at the next mishna, which appears on p. 24b.

As we can see, this mishna is the continuation of our own, and completes the list begun in our mishna. Here we are told "These (found objects) one is obliged to announce - If one finds fruit in a vessel, or a vessel by itself, money in a purse, or a purse by itself, piles of fruit, piles of coins, three coins one on top of another, bundles of sheaves in private premises, homemade loaves, fleeces of wool from the craftsman's workshop, jars of wine or jars of oil – these must be proclaimed" In the following table, you can see a comparison of the lists in the two mishnayot. Can you determine the defining feature(s) of the list in the first mishna, such that these items do not need to be returned while those listed in the second must be proclaimed (in order to return them)?

Mishna 1 – items that belong to the finder	Mishna 2 – items that must be proclaimed
Scattered fruit	Fruit in a vessel, piles of fruit
scattered coins	money in a purse, piles of coins, three coins one on top of another
	vessel by itself, a purse by itself
sheaves in a public area	sheaves in private premises
round cakes of pressed figs	
a baker's loaves	Home-made loaves
strings of fishes	
pieces of meat	
fleeces of wool that have been brought from the country	fleeces of wool from the craftsman's workshop
bundles of flax	
stripes of purple colored wool	
	jars of wine or jars of oil

Make a note of what you have come up with.

We will now directly address the question why the finder of the items listed in our mishna is not required to fulfill the commandment of *hashavat aveidah* (returning a lost object). We will do this by looking in the most essential Talmudic commentary, that of Rashi. Ideally, you have the text of

Rashi in front of you, on the inside column (in this case, the right) of the page, in Rashi script. If you don't, or have trouble reading it, scroll to the end of this shiur for Rashi on the Mishna in Hebrew and English. Read Rashi's first comment now. Note how each comment is prefaced by a quote from the text, called a "*dibur hamatchil*." We will follow the English convention and write s.v. (Latin for sub voce) to refer to the opening quote of a commentary. At the beginning of the chapter, Rashi writes the first words of the chapter, in this case, "*Elu metziot*". The first comment Rashi makes directly addresses our question:

one who found scattered fruit – the owners have been *mityaesh* (despaired of recovering them), as it says in the gemara, and they are *hefker* (ownerless).

Why is the finder in our mishna not obliged to announce that he has found a lost object, and thus begin the process of its return? Rashi explains that in the case of scattered fruit, we can presume that the owners have undergone *yeush*; they have despaired of ever getting their object back. Once the owners have despaired, claims Rashi, a lost object becomes *hefker*, ownerless. Thus, there is no obligation on the part of the finder to return this object to its owner since there is no owner.

The question remains, however, as to why there is a presumption of *yeush* regarding scattered fruit (and presumably the other items listed in our mishna) and not about the things listed in the next mishna. What is it about the items on our list that gives rise to the presumption that the owners' of these objects were *mityaesh*? Rashi addresses this question in his next comment. Read s.v. *maot mefuzarim* (scattered coins) now and try to pinpoint how Rashi answers our question.

Rashi points out that the defining feature of the list in our mishna is that none of the objects therein have a *siman* (recognizable sign). Why does this matter?

Before we address Rashi's answer, let us consider the alternative. How would one go about returning some standard consumer good and such like, indistinguishable from others of its type? How does the owner to identify himself to the finder? If I announce that I have found a ten dollar bill, how can I distinguish between the real owner, to whom I want to return it, and the cheat who wants to make an easy ten bucks? One could propose that in the absence of *simanim*, of ways to identify the lost object as his own, the owner has no way to prove that it belongs to him and thus the finder gets to keep it by default. This is not the halacha's attitude to this question. One does not gain the right to take possession of someone else's property merely from his inability to prove his ownership. In order for the finder to gain access, the owner must withdraw his connection to his property. We have explained, with Rashi's help, that finders keepers only when there is *yeush*, which causes the original owner to fall out of the picture. Our problem then becomes determining whether or not *yeush* in fact took place.

Rashi makes the connection between *simanim* (plural of *siman*) and *yeush*. When one loses something that is not identifiable, that has no *simanim*, one despairs of getting it back and thus makes it *hefker* (According to Rashi). Since you have no way of proving to the finder that it is your lost object, we can presume that you have given up hope, that you were *mityaesh*. Thus, the finder of a lost object without *simanim* can presume that *yeush* has taken place and keep the object. Our list of items in the mishna is a list of typical lost objects that do not have *simanim*, and therefore, "*Elu metziot shelo*" – these found objects are the finder's.

Conclusion.

In our discussion of the mishna, we have encountered the two central concepts that are going to occupy us for the foreseeable future: *yeush* and *simanim*. We have seen that the finder can keep the lost object only when the owner has been *mityaesh*. We have also learnt that regarding an object that has no *simanim*, there is a presumption of *yeush* on

the part of the owners. The gemara, which we will begin learning next week, will discuss these two concepts and the relationship between them at great length. For next week, we will study the gemara that begins after the mishna on p.21a until the second to last word on the page, "teiku".

Having an introductory lesson to a course entitled "Introduction to the Study of Talmud" might seem redundant. The answer, however, is embedded in the title of the course. This is not an introduction to the Talmud, but an introduction to the STUDY of Talmud. If I were writing an introduction to the Talmud, we could easily reach an entire year's worth of introductory lectures, which I think would in fact be interesting and informative, without ever reaching the actual learning of the text. However, most of the important information included in those lectures would not really be appreciated until we got down into the workings of text itself. In fact, for nearly all of the history of Talmud study, the only way one learned "how to learn" was by jumping into the text, a text which for thousands of years has been called the "sea of Talmud," and that is the method I propose to base this course on. We shall directly attack selected text and, hopefully, progress. But first, for one lecture only, I shall present a few points, introductory points after all, before we begin the actual study.

For this course, I am assuming no background at all, a clean slate, so to speak. Some of these points may be known to many of you, and for that I beg your forbearance.

1. A word or two on text

Talmud consists of two distinct primary texts, the Mishna and the Gemara. Surrounding these two, there exists a huge literature, spanning 1800 years and thousands of books, of commentaries, summations, and

extended discussions, which continues to this day. When we study Talmud, we are in fact addressing that entire literature, though obviously much of it must wait for advanced levels of learning. But even on the beginning level of this course we are not studying a BOOK, but rather a literature, which in fact precedes the actual Talmud, and of course extends beyond it. From a literary point of view, the Talmud is the basis and core text, most importantly because it is authoritative, and hence is the starting point for any subsequent discussion.

The Mishna is printed as a distinct work, and often studied separately. In editions of the Talmud, the Mishna is printed together with the Gemara as a unit, and that is the way we shall be studying.

The Mishna is a halakhic code. It presents a set of rulings on all halakhic matters, in all areas of life. True to the nature of the Oral Law, it is not generally written in a monolithic manner, but rather preserves controversies and disagreements, hundreds of them, from the authorities of the Mishnaic period, roughly the first century and a half of the Common Era. Rabbi Yehuda HaNasi, the head of Palestinian Jewry, compiled the present form of the Mishna and thereby summarized and codified the halakhic rulings of the previous centuries. This was the first code of Jewish law.

The Gemara is the record of two centuries of discussion, argument, elucidation, and controversy surrounding the text of the Mishna, first in the land of Israel, and subsequently in the great Torah centers of Babylonia. Unlike the Mishna, the Gemara is not a code. It is more like the protocol of a debate, spanning several hundred years and more, where the basic literary form is question and answer, and the most common conveyor of meaning is disagreement. It is impossible to READ Gemara; you have to join the discussion in order to grasp the meaning of what is going on. In order to understand an answer, you have to understand the question, and that understanding is far more important than summarizing the conclusion. It

would be quite accurate to say that Gemara is more about halakhic reasoning than about halakha itself, though obviously the goal is halakha. In fact, in most cases, the halakhic conclusion is not explicit in the Talmudic text itself but will be found only in later rabbinic works. It is quite common to find an extensive rabbinic discussion of the "hava amina," the opening and ultimately rejected understanding, for the fact that this position did not survive the scrutiny of the Talmudic discussion does not make it unimportant. It is often correct to state that only by understanding the "hava amina" can we understand the conclusion, the "maskana."

The previous paragraph has illustrated, *inter alia*, an important technical aspect of our study. The Mishna is written in Hebrew (in a dialect that is called by the linguists, not surprisingly, Mishnaic Hebrew). The Talmud is written in a mixture of Hebrew and Aramaic. Both are filled with hundreds of technical terms, both legal and logical, which are often difficult to translate. I shall of course translate or explain them as they come up, but we shall prefer the use of the original terms even in an English-language lecture. Our goal, again, is to study text, and to enter into the world of Talmudic study. Every Talmudic discussion consists of a "hava amina," literally, "I would have said," and a "maskana," a conclusion. A standard question when reading a position that is rejected by the Gemara is to ask, "what was the hava amina?"; i.e., what was the (ultimately rejected) understanding of the subject that underlay the opening position expressed in the gemara. Once you answer that question, the teacher asks the opposite question - "now tell me what is the maskana," meaning not the conclusion itself, but the change in logic that caused the change in position.

I assume that Aramaic, and perhaps Mishnaic Hebrew is not a language in which most of you are fluent. All editions of the Talmud are accompanied by running explanatory commentaries, the most important of which is that of Rashi (R. Shlomo Yitzchaki, 11th century France). But, I must admit, Rashi himself wrote in a mix of Hebrew and Aramaic. I therefore recommend that

you acquire an English translation. While the text of each lesson will include a link to both the original and translated text, it will be far more efficient if you have a full text of the entire page in front of you. There are several translations of the Talmud, but, for our purposes, the best is the Schottenstein edition of the Talmud printed by ArtScroll Publishing. Our sections are found in Bava Metzia vol. I. I recommend that you buy it, if you are serious about the course, especially if you hope to continue in the study of Talmud. [I can also recommend the Steinsaltz addition, both the English and Hebrew versions. For those of you for whom Hebrew language is not an obstacle, the Hebrew Steinsaltz Talmud is a significantly cheaper option. Though I have not checked, I doubt that the Steinsaltz English edition is much of a saving, though it is a nice edition JA.]

(The Talmud as a whole is usually printed in 20 very large volumes. The Schottenstein translation is much larger, with each normal volume of the Hebrew original divided into three translated volumes with commentary. Buying the whole set will make a significant dent in your bank account but will enrich you immensely. For the purpose of this course, buying ONE volume will suffice. In any event, each page of Talmudic text will be posted on the web, so you can manage to get by without spending a penny.)

While I recommend a translation and will translate myself as we continue and provide a glossary, the text we are studying will be the original. The ability to read the Hebrew words is assumed. I shall be constantly referring to the Hebrew and Aramaic text (with explanation and translation), for again, the purpose is to introduce you to the study of Talmud as all students of Talmud study it, which is the original, with the traditional commentaries (all of which are not available in translation in any event).

2. The "daf" - a page of Talmud

Running down the middle of the page, in block Hebrew letters, is the text of the Talmud. On the page we are examining, in large block letters, appear the words "Hadran Alach Shenayim Ochazim." This is the conventional ending to the previous chapter, in which we say "Hadran Alach" "We shall return to you", "Shanayim Ochazim"- the name of the first chapter of Bava Metzia, after the first two words of the first mishna. Subsequently, there is a mishna which begins with the enlarged letters spelling "Elu". That is how the beginning of a chapter of Talmud appears. Later on, when we come across a mishna that is not in the beginning of a chapter, the mishna will be marked with the enlarged letters spelling "Matni," which is an abbreviating for "matnitin," which is the Aramaic for "our Mishna." After the few lines cited from the mishna, we find the letters "gimel-mem", which is the abbreviation for "gemara." This is where the gemara discussion of this mishna begins. Sometimes, but most often it will encompass several pages.

On either side of the main text are two commentaries. On the right side is the running commentary of Rashi, R. Shlomo Yitzchaki, who lived in Champagne in the 11th century. Rashi is the primary commentary on both the Talmud and the Bible, and every talmudic discussion will begin with his interpretation of the talmudic text. The lettering in the standard editions of the Talmud is in a different script than that of the central Talmud text. This script is popularly called "Rashi-script," although it was not used by Rashi himself. It is a printer's version of the cursive script used by scribes in the Middle Ages. If you are not familiar with it, it may be difficult to read, but I hope you will quickly get used to it.

On the left side is a commentary consisting of several extended comments, each beginning with the Talmudic text to which it refers marked in bold letters. This is the "Tosafot," which simply means addenda. In true talmudic tradition, the Tosafot do not have one particular author, but record the discussion in the French (and German) schools of Rashi's disciples for the next four or five generations. Very often, the starting point for these

discussions was the commentary of Rashi, and most often they will begin with a question which will give rise to an alternate explanation.

Gemara with Rashi and Tosafot is the bread-and-butter of Talmudic study. We are aiming at reaching that level.

The page contains an additional outer ring of various glosses of later authorities, citations to halakhic codes, and cross-references to other Talmudic passages. Aside from this, there are thousands of books that continue the discussion. In our study, we shall examine, occasionally, some of the more important of these additional commentaries.

Rashi on the mishna, daf 21a

[רש"י מסכת בבא מציעא דף כא עמוד א](#)

אלו מציאות, מצא פירות מפוזרין - נתיאשו הבעלים מהן, כדאמר בגמרא, והפקר הן.

מעות מפוזרות - הואיל ואין להם סימן ניכר - איאוש מיאש, והווי להו הפקר, וזהו טעם כולם.

כריכות - עומרים קטנים, כמו מאלמים אלומים ומתרגמינן בירושלמי: מכרכן כריכין ([בראשית לז](#)).

ברשות הרבים - שהכל דשין עלייהו, ואם היה סימן נקשר עליהן - הרי הוא נשחת.

של נחתום - כל ככרות הנחתומין שוין, אבל ככרות של בעל הבית יש בהן סימן.

ממדינתן - כמות שהן גוזזות כשאר כל גיזת המדינה, לאפוקי הבאות מבית האומן כדקתני סיפא.

אניצי פשתן - רישט"א בלשון אשכנז, ובמקומינו פופי"ר.

ולשון של ארגמן - צמר סרוק ומשוך כמין לשון, וצבוע ארגמן, ומצויין הן.

מצא עיגול - של דבילה.

אנפוריא - בגמרא מפרש.

Abbreviated translation of Rashi on the mishna:

These found objects, one who found scattered fruit – the owners have given up hope of recovering them, as it says in the gemara, and they are hefker (ownerless).

Scattered coins – since they do not have a recognizable sign, (the owner) has been mityaesh (has despaired of recovering them) and they are hefker, and this is the explanation for them all (all the items in the list).

Sheaves - small sheaves ...In the Reshut Harabim (public thoroughfare) – where everyone steps on them, and if there was a sign attached to them – it presumably was destroyed.

(Loaves)Of a Baker – All baker's loaves are the same but home baked loaves have a sign. (Shearings) From the country – In their original state like all shearings of that country, as opposed to wool that has come from the craftsman's workshop, as we are taught in the seifa (the latter part of the mishna)....

Glossary of transliterated terms:

Ama, pl. amot – unit of length, about 48 cm

assur – forbidden. Opposite of mutar.

aveida – lost object

Baraita, pl. baraitot – a tannaic tradition that does not appear in the mishna.

Bavli – Babylonian Talmud. Short for Talmud Bavli.

Chayav – liable. Opposite of patur.

Devarim – Deuteronomy (last of the Five Books of Moses)

Din, pl. dinim – the law or normative rule in a specific situation.

hashavat aveida – (mitzvah of) returning a lost object.

Hefker- ownerless

Kav – measure of volume – about 1.4 liters.

Machloket, pl. machlokot – a (legal) disagreement.

Maskana – conclusion, the concluding inference in a line of Talmudic reasoning.

meimra – Amoraic statement in the gemara.

Mishna – Basic text of the Oral law. The Talmud is structured as a discussion of the Mishna.

Mishnayot – plural of Mishna

Mityaesh – despairs of recovering a lost object. Active form of yeush.

Mutar – permitted. Opposite of assur.

patur - not liable. Opposite of chayav.

Pesak halakha – Halakhic ruling

Reshut Harabim – public thoroughfare

Reshut Hayachid – private space.

Rishonim (pl. of Rishon) – Medieval sages, (c. 900-1500), many of whom wrote extensive commentaries on the Talmud. The most famous of these commentaries is that authored by Rashi which is printed on every page of the Talmud.

Seifa – latter part of the mishna (or other quoted precedent).

shelulito shel nahar, Zuto shel yam - items washed away by the flooding of a river or the (tides of) the sea.

Shemot – Exodus (second of the Five Books of Moses)

Shiur – lesson

Siman, pl. simanim – recognizable sign through which the owner can identify an object to the finder.

Yerushalmi – Palestinian Talmud. Short for Talmud Yerushalmi.

Yeush – despair (of ever recovering the lost object)

Zuto shel yam, shelulito shel nahar – items washed away be the (tides of) the sea or the flooding of a river.



Lost and Found

In this week's 'Daf Yomi,' how the Talmud transforms absolute Torah commandments into contingent human laws, prizing practicality over literalism.

Adam Kirsch writes:¹⁵

¹⁵ <https://www.tabletmag.com/sections/belief/articles/lost-and-found-2>

One of the chief functions of the Talmud is to make biblical law more practical. Often this means spelling out details that the Bible elides, as when the Talmud determines exactly what kinds of work are forbidden on Shabbat. But it can also mean moderating the demands that biblical law makes on Jews. God has the authority to simply tell Jews to do what is right; but the rabbis know that doing right is difficult, ambiguous, and often impractical, and so they often interpret the law in more lenient ways. In part, this difference reflects the nature of the society to which the laws are meant to apply. The God of the Torah is giving orders to a relatively small population of Jews living alone in a desert encampment, while the rabbis of the Talmud are dealing with a much more developed society, urban and mercantile, in which Jews are dispersed among a larger population of gentiles. Matters that would have been straightforward for Moses and Aaron are much less so from the perspective of the Roman and Persian empires.

Chapter Two of Tractate Bava Metzia offers a good example of how the Talmud transforms an absolute Torah commandment into a contingent human law. Deuteronomy 22 instructs Jews that it is their duty to return lost property to its original owner: "You shall not see your brother's ox or his sheep wandering and disregard them; you shall return them to your brother." If a Jew finds lost property and can't locate or doesn't know the rightful owner, the finder is obligated to keep it until the owner comes to claim it: "You shall bring it home to your house, and it shall be with you until your brother requires it, and you shall restore it to him." There are no limitations on this duty; it seems to apply to all kinds of property, and for an indefinite period of time.

But you don't have to think about this law for very long for its inadequacy to become apparent. What happens to a found item if the owner never comes to claim it? And how do you know if the person who does claim it really is the rightful owner? It is these kinds of questions the rabbis seek to answer, and they begin from the assumption that the right of an owner to reclaim lost property is not unlimited. Here we meet again a concept that has come up often in the Talmud: *ye'ush* or "despair." Once a person has despaired of regaining his lost property, it becomes ownerless, and anyone who finds it can claim it.

"Despair" makes a certain amount of sense as a legal criterion for ownership, but it also presents problems. As the Gemara asks in Bava Metzia 21b, is this despair a subjective, psychological condition, or is it an objective description of a person's relationship to his lost possession? Do you actually have to feel

despair to be in despair, in a legal sense? If so, what happens in a situation in which a person loses property—say, drops his wallet—but doesn't know that he has lost it? Presumably, that person could never be in despair, because he didn't know he had suffered a loss in the first place. That means that whoever finds the wallet could never become its rightful owner. But how can the original owner prove his knowledge, his intention, his state of mind?

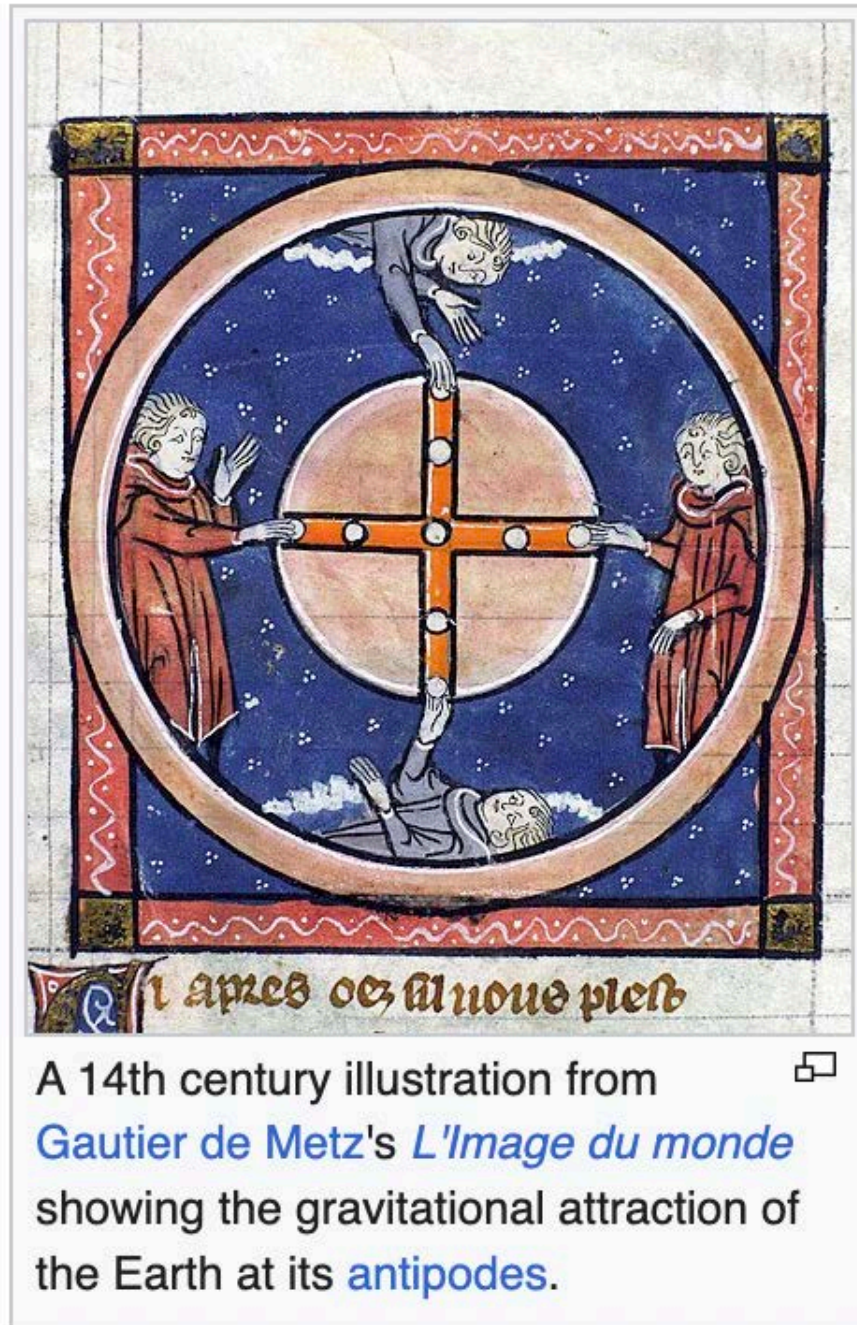
To avoid this murky terrain, the rabbis choose to define despair in more concrete terms. What matters is not whether a specific individual actually did despair of recovering his property, but whether the average rational person would despair in the same situation. On this basis, the rabbis distinguish between different categories of lost property. If a person finds "scattered produce, scattered coins ... baker's loaves, strings of fish, cuts of meat," and certain other designated items, we read in the Mishna on Bava Metzia 21a, then he becomes their owner automatically, and does not have to look for the original owner. What these items have in common is that they have no distinguishing marks by which the original owner could identify them. As a result, anyone who loses them would, or should, immediately despair of getting them back, thus rendering them ownerless.

This, at any rate, is the view of Rava: "When he discovers that it fell from him, he will despair, as he says: 'I have no distinguishing mark on the item.'" But Abaye, who is Rava's great antagonist in the way that Shammai was Hillel's, disagrees with this interpretation. For Rava, despair can be assumed on logical grounds; but for Abaye, it must be actually experienced in order to apply legally. The Gemara analyzes both sides of the argument at some length, taking up each of the examples listed in the Mishna. For instance, when a person loses "scattered coins," is it logical to assume that he is unaware of the loss, or should we assume that he notices it? If the former, then "despair" would apply unconsciously, as Rava holds; if the latter, then the despair would be based on an actual recognition of loss, as Abaye says. With coins, the Gemara concludes, a person does usually notice his loss, because "a person is prone to feel his money pouch constantly." In the end, the Gemara sides with Abaye—a rare conclusion, because in general Rava prevails over Abaye when they disagree.

Other circumstances can also lead presumptively to despair of recovering lost property, even if it does bear distinguishing marks of ownership. When an animal or object is swept away by a flood, or carried off by a bear or lion, or lost in a crowded public place, they are effectively lost for good, so that

whoever finds them becomes the new owner. This is the statement of Rabbi Shimon Ben Elazar; but the Gemara challenges it in one specific respect. If the item is lost in place “where the multitudes are found,” does it make a difference whether these multitudes are gentiles or Jews? After all, gentiles have no legal obligation to return a Jew’s lost property, so an item lost among gentiles should lead to despair of ever getting it back. But Jews are legally obligated to “proclaim” found property, to spread the word about it in order to inform the original owner. So if you lose an item in a synagogue, for example, you might reason that you should not despair, since a Jew will find it and proclaim it.

Eventually, after an extended argument, the rabbis conclude that Shimon Ben Elazar’s principle holds among a multitude of Jews as well as a multitude of gentiles: Anyone who loses an item in a public place, be it a synagogue or a marketplace, has lost it forever. Even if the original owner does somehow track down his property and tries to reclaim it, the finder does not have to give it back. Rava clearly wondered about the fairness of this rule, asking: “Isn’t the owner standing and screaming” that the item belongs to him? How can you refuse to turn over found property when the owner is standing right there in front of you? But Rav Nachman has a stern answer: “He becomes as one who screams about his house that collapsed or about his ship that sank into the sea.” That is, the property, once lost, is lost forever, just like a sunken ship; it is a case of *force majeure*, which there is no use arguing about. This feels quite opposed to the spirit of the original law in Deuteronomy, but the rabbis are comfortable with such differences; they know that any workable system of law will sometimes have to sacrifice justice to practicality.



History of gravitational theory¹⁶

In physics, theories of gravitation postulate mechanisms of interaction governing the movements of bodies with mass. There have been numerous theories of gravitation since ancient times. The first extant sources discussing such theories are found in ancient Greek philosophy. This work was furthered through the Middle Ages by Indian, Islamic, and European scientists, before

¹⁶ https://en.wikipedia.org/wiki/History_of_gravitational_theory

gaining great strides during the Renaissance and Scientific Revolution—culminating in the formulation of Newton's law of gravity. This was superseded by Albert Einstein's theory of relativity in the early 20th century.

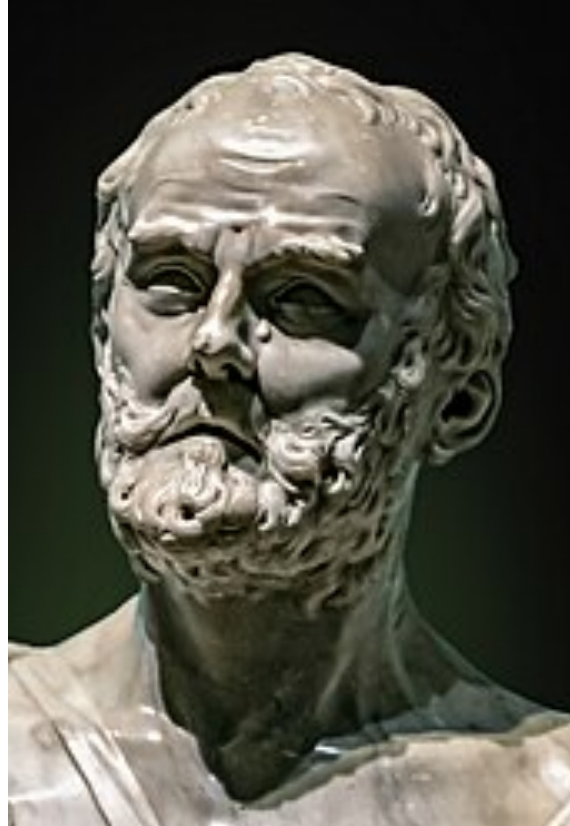
Greek philosopher Aristotle (fl. 4th century BCE) found that objects immersed in a medium tend to fall at speeds proportional to their weight. Vitruvius (fl. 1st century BCE) understood that objects fall based on their specific gravity.

In the 6th century CE, Byzantine Alexandrian scholar John Philoponus modified the Aristotelian concept of gravity with the theory of impetus. In the 7th century, Indian astronomer Brahmagupta spoke of gravity as an attractive force. In the 14th century, European philosophers Jean Buridan and Albert of Saxony—who were influenced by certain Islamic scholars^[a]—developed the theory of impetus and linked it to the acceleration and mass of objects. Albert also developed a law of proportion regarding the relationship between the speed of an object in free fall and the time elapsed.

Italians of the 16th century found that objects in free fall tend to accelerate equally. In 1632, Galileo Galilei put forth the basic principle of relativity. The existence of the gravitational constant was explored by various researchers from the mid-17th century, helping Isaac Newton formulate his law of universal gravitation. Newton's classical mechanics were superseded in the early 20th century, when Einstein developed the special and general theories of relativity. An elemental force carrier of gravity is hypothesized in quantum gravity approaches such as string theory, in a potentially unified theory of everything.

Classical antiquity

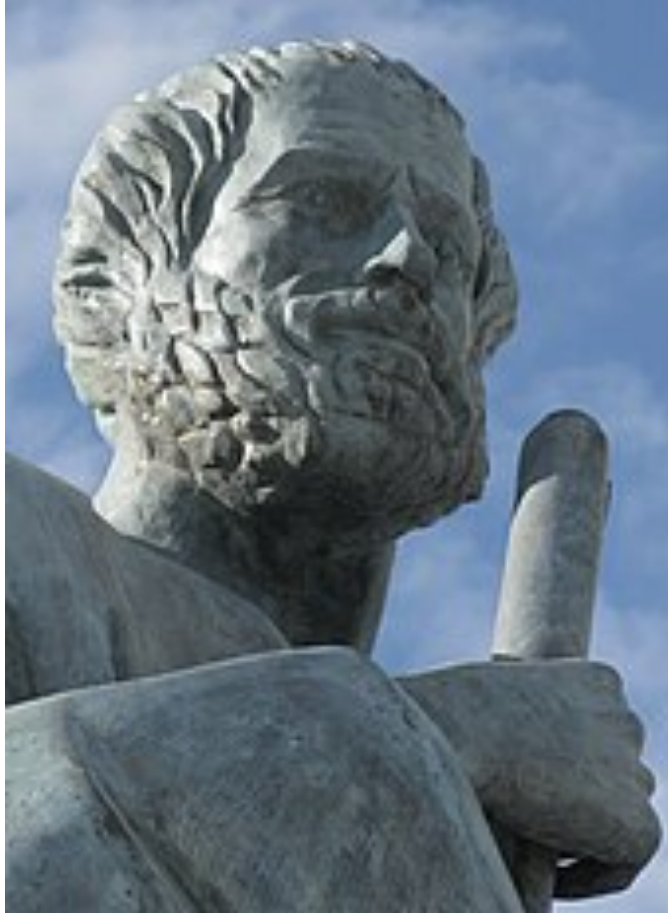
Heraclitus



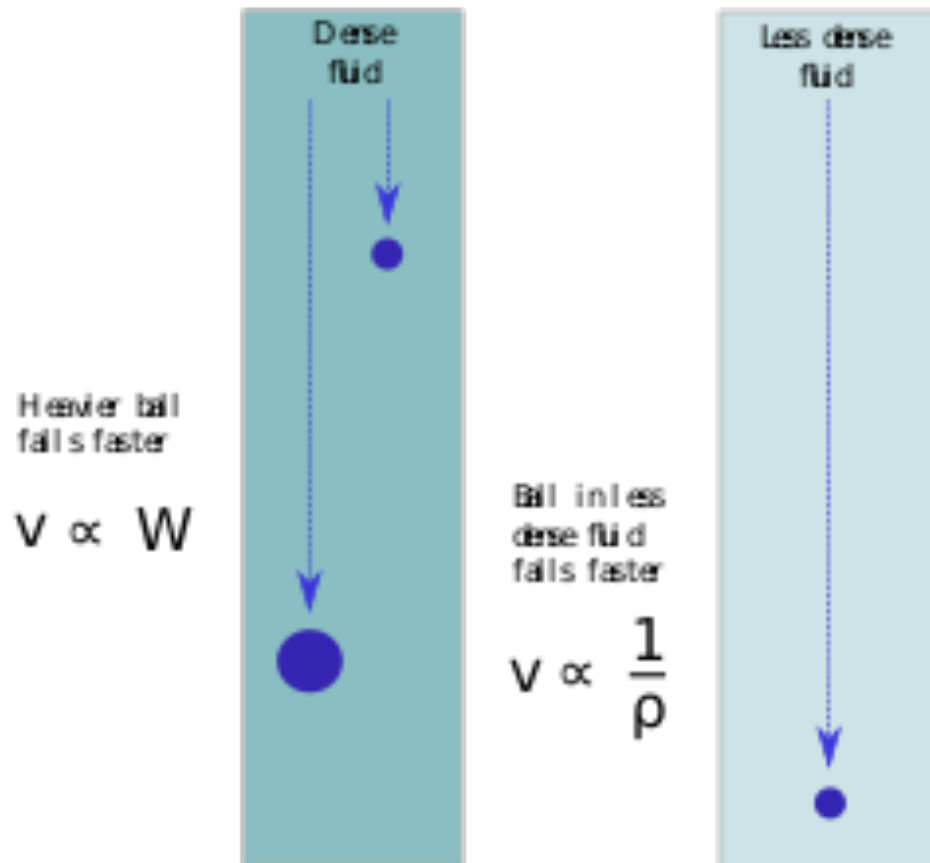
Heraclitus

The Ionian Greek philosopher Heraclitus (c. 535 – c. 475 BCE) used the word *logos* ('word') to describe a kind of law which keeps the cosmos in harmony, moving all objects, including the stars, winds, and waves.^[3]

Aristotle



Aristotle



Aristotle found that objects immersed in a medium tend to fall at speeds proportional to their weight and inversely proportional to the density of the medium.^{[4][5][6]}

In the 4th century BCE, Greek philosopher Aristotle taught that there is no effect or motion without a cause. The cause of the downward natural motion of heavy bodies, such as the element earth and water, was related to their nature (*gravity*), which caused them to move downward toward the center of the (geocentric) universe. For this reason Aristotle supported a spherical Earth, since "every portion of earth has weight until it reaches the centre, and the jostling of parts greater and smaller would bring about not a waved surface, but rather compression and convergence of part and part until the centre is reached".^[7] On the other hand, light bodies such as the element fire and air, were moved by their nature (*levity*) upward toward the celestial sphere of the Moon.^{[8][9]} In his *Physics*, Aristotle correctly asserted that objects immersed in a medium tend to fall at speeds proportional to their weight and inversely proportional to the density of the medium.^{[4][6]}

Strato of Lampsacus, Epicurus and Aristarchus of Samos

Greek philosopher Strato of Lampsacus (c. 335 – c. 269 BCE) rejected the Aristotelian belief of "natural places" in exchange for a mechanical view in which objects do not gain weight as they fall, instead arguing that the greater impact was due to an increase in speed.^{[10][11]}

Epicurus (c. 341–270 BCE) viewed weight as an inherent property of atoms which influences their movement.^[12] These atoms move downward in constant free fall within an infinite vacuum without resistance at equal speed, regardless of their mass. On the other hand, upward motion is due to atomic collisions.^[13] Epicureans deviated from older atomist theories like Democritus' by proposing the idea that atoms may randomly deviate from their expected course.^[14]

Greek astronomer Aristarchus of Samos (c. 310 – c. 230 BCE) theorized Earth's rotation around its own axis and the orbit of Earth around the Sun in a heliocentric cosmology.^[15] Seleucus of Seleucia (c. 190 – c. 150 BCE) supported his cosmology^[15] and also described gravitational effects of the Moon on the tidal range.^[16]

Archimedes

The 3rd-century-BCE Greek physicist Archimedes (c. 287 – c. 212 BCE) discovered the centre of mass of a triangle.^[17] He also postulated that if the centres of gravity of two equal weights was not the same, it would be located in the middle of the line that joins them.^[18] In *On Floating Bodies*, Archimedes claimed that for any object submerged in a fluid there is an equivalent upward buoyant force to the weight of the fluid displaced by the object's volume.^[19] The fluids described by Archimedes are not self-gravitating, since he assumes that "any fluid at rest is the surface of a sphere whose centre is the same as that of the Earth".^{[20][21]}

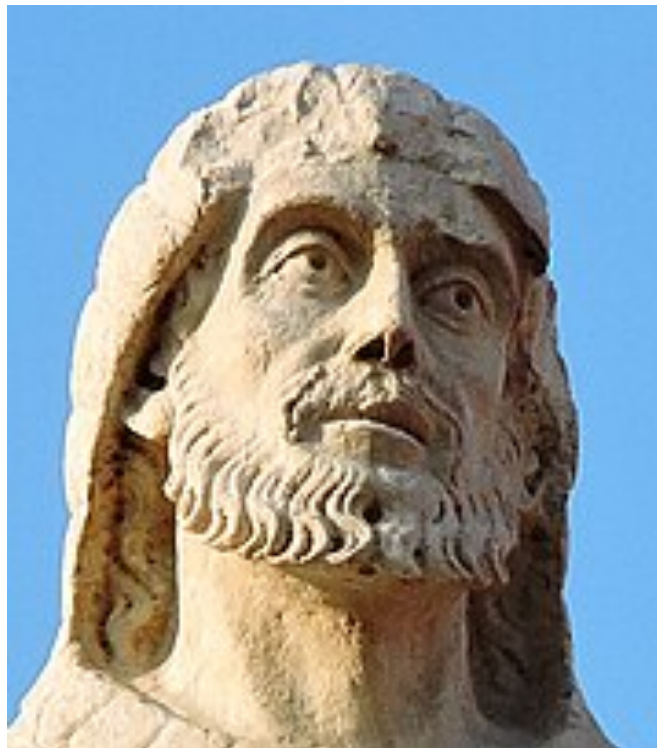
Hipparchus of Nicaea, Lucretius, and Vitruvius

Greek astronomer Hipparchus of Nicaea (c.190 – c. 120 BCE) also rejected Aristotelian physics and followed Strato in adopting some form of theory of impetus to explain motion.^{[22][23]} The poem *De rerum natura* by Lucretius (c. 99 – c. 55 BCE) asserts that more massive bodies fall faster in a medium because the latter resists less, but in a vacuum fall with

equal speed.^[24] Roman engineer and architect Vitruvius (c. 85 – c. 15 BCE) contends in his *De architectura* that gravity is not dependent on a substance's weight but rather on its 'nature' (cf. specific gravity):

If the quicksilver is poured into a vessel, and a stone weighing one hundred pounds is laid upon it, the stone swims on the surface, and cannot depress the liquid, nor break through, nor separate it. If we remove the hundred pound weight, and put on a scruple of gold, it will not swim, but will sink to the bottom of its own accord. Hence, it is undeniable that the gravity of a substance depends not on the amount of its weight, but on its nature.^{[25][26]}

Plutarch, Pliny the Elder, and Claudius Ptolemy



Pliny the Elder

Greek philosopher Plutarch (c. 46 – 120 CE) attested the existence of Roman astronomers who rejected Aristotelian physics, "even contemplating theories of inertia and universal gravitation",^{[27][28]} and suggested that gravitational attraction was not unique to the Earth.^[29] The gravitational effects of the Moon on the tides were noticed by Pliny the Elder (23–79 CE) in his *Naturalis Historia*^[30] and Claudius Ptolemy (100 – c. 170 CE) in his *Tetrabiblos*.^[31]

Byzantine era

John Philoponus

In the 6th century CE, the Byzantine Alexandrian scholar John Philoponus proposed the theory of impetus, which modifies Aristotle's theory that "continuation of motion depends on continued action of a force" by incorporating a causative force which diminishes over time. In his commentary on Aristotle's *Physics* that "if one lets fall simultaneously from the same height two bodies differing greatly in weight, one will find that the ratio of the times of their motion does not correspond to the ratios of their weights, but the difference in time is a very small one".^[32]

Indian subcontinent

Brahmagupta



Ujjain, Ram Ghat, home to Brahmagupta and Bhaskaracharya

The Indian mathematician/astronomer Brahmagupta (c. 598 – c. 668 CE) first described gravity as an attractive force, using the term "gurutvākarṣaṇam (गुरुत्वाकर्षणम्)" to describe it:^{[33][34][35][36]}

The earth on all its sides is the same; all people on the earth stand upright, and all heavy things fall down to the earth by a law of nature, for it is the nature of the earth to attract and to keep things, as it is the nature of water to flow ... If a thing wants to go deeper down than the earth, let it try. The earth is the only *low* thing, and seeds always return to it, in whatever direction you may throw them away, and never rise upwards from the earth.^{[37][38][b]}

Bhāskarāchārya

Another famous Indian mathematician and astronomer, Bhāskarā II (Bhāskarāchārya, "Bhāskara, the teacher", c. 1114 – c. 1185), describes gravity as an inherent attractive property of Earth in the section *Golādhyāyah* (On Spherics) of his treatise *Siddhānta Shiromani*:

The property of attraction is inherent in the Earth. By this property the Earth attracts any unsupported heavy thing towards it: The thing appears to be falling but it is in a state of being drawn to Earth. ... It is manifest from this that ... people situated at distances of a fourth part of the circumference [of earth] from us or in the opposite hemisphere, cannot by any means fall downwards [in space].^{[39][40]}

Islamic world

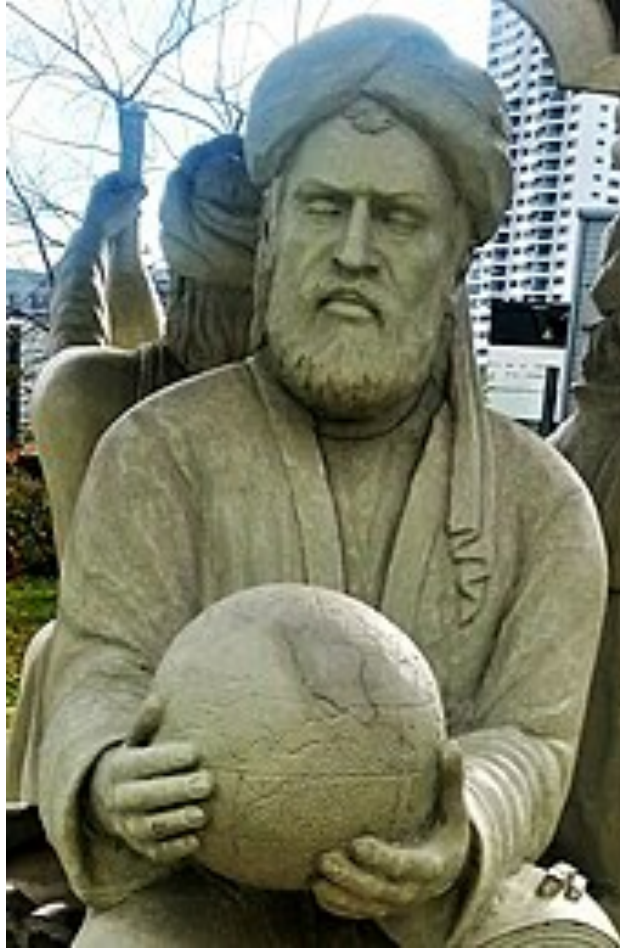
Ibn Sina



Ibn Sina

In the 11th century CE, Persian polymath Ibn Sina (Avicenna) agreed with Philoponus' theory that "the moved object acquires an inclination from the mover" as an explanation for projectile motion.^[41] Ibn Sina then published his own theory of impetus in *The Book of Healing* (c. 1020). Unlike Philoponus, who believed that it was a temporary virtue that would decline even in a vacuum, Ibn Sina viewed it as a persistent, requiring external forces such as air resistance to dissipate it.^{[42][43][1]} Ibn Sina made distinction between 'force' and 'inclination' (*mayl*), and argued that an object gained *mayl* when the object is in opposition to its natural motion. He concluded that continuation of motion is attributed to the inclination that is transferred to the object, and that object will be in motion until the *mayl* is spent.^[44] The Iraqi polymath Ibn al-Haytham describes gravity as a force in which heavier body moves towards the centre of the earth. He also describes the force of gravity will only move towards the direction of the centre of the earth not in different directions.^[45]

Al-Biruni



Al-Biruni

Another 11th-century Persian polymath, Al-Biruni, proposed that heavenly bodies have mass, weight, and gravity, just like the Earth. He criticized both Aristotle and Ibn Sina for holding the view that only the Earth has these properties.^[46] The 12th-century scholar Al-Khazini suggested that the gravity an object contains varies depending on its distance from the centre of the universe (referring to the centre of the Earth). Al-Biruni and Al-Khazini studied the theory of the centre of gravity, and generalized and applied it to three-dimensional bodies. Fine experimental methods were also developed for determining the specific gravity or specific weight of objects, based the theory of balances and weighing.^[47]

Abu'l-Barakāt al-Baghdādī

In the 12th century, Abu'l-Barakāt al-Baghdādī adopted and modified Ibn Sina's theory on projectile motion. In his *Kitab al-Mu'tabar*, Abu'l-Barakat

stated that the mover imparts a violent inclination (*mayl qasri*) on the moved and that this diminishes as the moving object distances itself from the mover.^[2] According to Shlomo Pines, al-Baghdādī's theory of motion was "the oldest negation of Aristotle's fundamental dynamic law [namely, that a constant force produces a uniform motion], [and is thus an] anticipation in a vague fashion of the fundamental law of classical mechanics [namely, that a force applied continuously produces acceleration]."^[48]

14th century



A 14th century illustration from Gautier de Metz's *L'Image du monde* showing the gravitational attraction of the Earth at its antipodes

Jean Buridan, the Oxford Calculators, Albert of Saxony

In the 14th century, both the French philosopher Jean Buridan and the Oxford Calculators (the Merton School) of the Merton College of Oxford rejected the Aristotelian concept of gravity.^{[49][c]} They attributed the motion of objects to an impetus (akin to momentum), which varies according to velocity and mass;^[49] Buridan was influenced in this by Ibn Sina's *Book of Healing*.^[1] Buridan and the philosopher Albert of Saxony (c. 1320–1390) adopted Abu'l-Barakat's theory that the acceleration of a falling body is a result of its increasing impetus.^[2] Influenced by Buridan, Albert developed a law of proportion regarding the relationship between the speed of an object in free fall and the time elapsed.^[50] He also theorized that mountains and valleys are caused by erosion^[d]—displacing the Earth's centre of gravity.^{[51][e]}

Uniform and difform motion.

The roots of Domingo de Soto's expression *uniform difform* motion [uniformly accelerated motion] lies in the Oxford Calculators terms "uniform" motion and "difform" motion.^[53] "Uniform" motion was used differently than it would be now. "Uniform" motion might have referred both to constant speed and to motion in which all parts of a body are moving at equal speed. Apparently, the Calculators did not illustrate the different types of motion with real-world examples.^[53] John of Holland at the University of Prague, illustrated uniform motion with what would later be called uniform velocity, but also with a falling stone (all parts moving at the same speed), and with a sphere in uniform rotation. He did, however, make distinctions between different kinds of "uniform" motion. Difform motion was exemplified by walking at increasing speed.^[53]

Mean speed theorem



Nicole Oresme

Also in the 14th century, the Merton School developed the mean speed theorem; a uniformly accelerated body starting from rest travels the same distance as a body with uniform speed whose speed is half the final velocity of the accelerated body. The mean speed theorem was proved by Nicole Oresme (c. 1323–1382) and would be influential in later gravitational equations.^[49] Written as a modern equation:

However, since small time intervals could not be measured, the relationship between time and distance was not so evident as the equation suggests. More generally, equations, which were not widely used until after Galileo's time, imply a clarity that was not there.

Leonardo da Vinci



Leonardo da Vinci

Leonardo da Vinci (1452–1519) made drawings recording the acceleration of falling objects.^[54] He wrote that the "mother and origin of gravity" is energy. He describes two pairs of physical powers which stem from a metaphysical origin and have an effect on everything: abundance of force and motion, and gravity and resistance. He associates gravity with the 'cold' classical elements, water and earth, and calls its energy infinite.^{[55][f]} In Codex Arundel, Leonardo recorded that if a water-pouring vase moves transversally (sideways), simulating the trajectory of a vertically falling object, it produces a right triangle with equal leg length, composed of falling material that forms the hypotenuse and the vase trajectory forming one of the legs.^[57] On the hypotenuse, Leonardo noted the equivalence of the two orthogonal motions, one effected by gravity and the other proposed by the experimenter.^[57]

Nicolaus Copernicus, Petrus Apianus



Nicolaus Copernicus

By 1514, Nicolaus Copernicus had written an outline of his heliocentric model, in which he stated that Earth's centre is the centre of both its rotation and the orbit of the Moon.^{[58][9]} In 1533, German humanist Petrus Apianus described the exertion of gravity:^[h]

Since it is apparent that in the descent [along the arc] there is more impediment acquired, it is clear that gravity is diminished on this account. But because this comes about by reason of the position of heavy bodies, let it be called a positional gravity [i.e. *gravitas secundum situm*]^[61]

Francesco Beato and Luca Ghini



Luca Ghini

By 1544, according to Benedetto Varchi, the experiments of at least two Italians, Francesco Beato, a Dominican philosopher at Pisa, and Luca Ghini, a physician and botanist from Bologna, had dispelled the Aristotelian claim that objects fall at speeds proportional to their weight.^[62]

Domingo de Soto



Domingo de Soto

In 1551, Domingo de Soto theorized that objects in free fall accelerate uniformly in his book *Physicorum Aristotelis quaestiones*.^[63] This idea was subsequently explored in more detail by Galileo Galilei, who derived his kinematics from the 14th-century Merton College and Jean Buridan,^[49] and possibly De Soto as well.^[63]

Simon Stevin



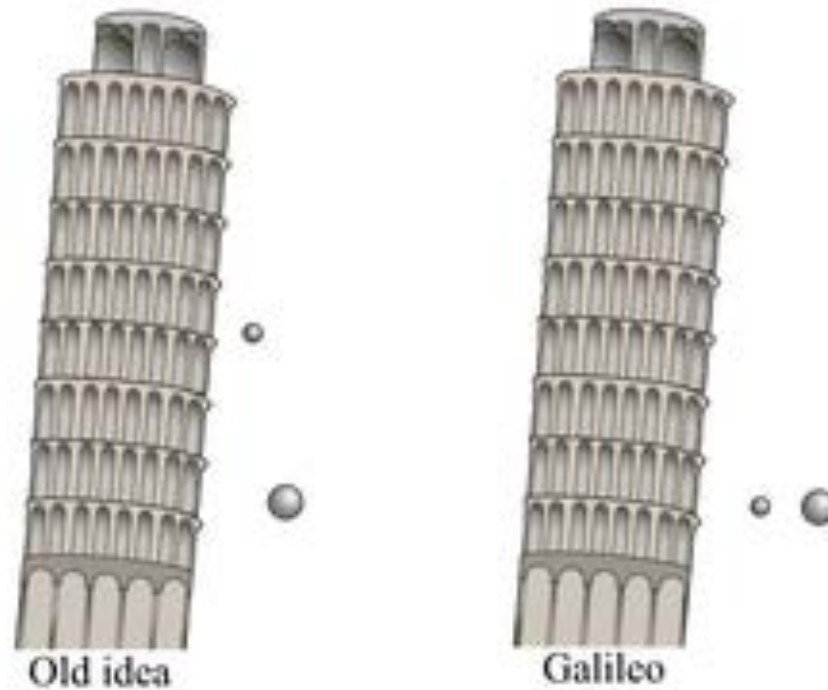
Simon Stevin

In 1585, Flemish polymath Simon Stevin performed a demonstration for Jan Cornets de Groot, a local politician in the Dutch city of Delft.^[64] Stevin dropped two lead balls from the Nieuwe Kerk in that city. From the sound of the impacts, Stevin deduced that the balls had fallen at the same speed. The result was published in 1586.^{[65][66]}

Let us take (as ... Jan Cornets de Groot ... and I have done) two balls of lead, the one ten times larger and heavier than the other and drop them together from a height of 30 feet on to a board or something on which they give a perceptible sound. Then it will be found that the lighter will not be ten times longer on its way than the heavier, but that they fall together on to the board so simultaneously that their two sounds seem to be one and the same. ... Therefore Aristotle ... is wrong.

Galileo Galilei

This section is an excerpt from Galileo's Leaning Tower of Pisa experiment.



Comparison of the antiquated view and the outcome of the experiment (size of the spheres represent their masses, not their volumes)

Between 1589 and 1592,^[67] the Italian scientist Galileo Galilei (then professor of mathematics at the University of Pisa) is said to have dropped "unequal weights of the same material" from the Leaning Tower of Pisa to demonstrate that their time of descent was independent of their mass, according to a biography by Galileo's pupil Vincenzo Viviani, composed in 1654 and published in 1717.^{[68][69]:19–21[70][71]} The basic premise had already been demonstrated by Italian experimenters a few decades earlier.

According to the story, Galileo discovered through this experiment that the objects fell with the same acceleration, proving his prediction true, while at the same time disproving Aristotle's theory of gravity (which states that objects fall at speed proportional to their mass). Most historians consider it to have been a thought experiment rather than a physical test.^[72]

Galileo successfully applied mathematics to the acceleration of falling objects,^[73] correctly hypothesizing in a 1604 letter to Paolo Sarpi that the distance of a falling object is proportional to the square of the time elapsed.^{[74][i]}

I have arrived at a proposition, ... namely, that spaces traversed in natural motion are in the squared proportion of the times.

—*Galileo Galilei, Letter to Paolo Sarpi*

Written with modern symbols: $s \propto t^2$.

The **result** was published in *Two New Sciences* in 1638. In the same book, Galileo suggested that the slight variance of speed of falling objects of different mass was due to air resistance, and that objects would fall completely uniformly in a vacuum.^[75] The relation of the distance of objects in free fall to the square of the time taken was confirmed by Italian Jesuits Grimaldi and Riccioli between 1640 and 1650. They also made a calculation of the gravity of Earth by recording the oscillations of a pendulum.^[76]

Johannes Kepler



Johannes Kepler

In his *Astronomia nova* (1609), Johannes Kepler proposed an attractive force of limited radius between any "kindred" bodies:

Gravity is a mutual corporeal disposition among kindred bodies to unite or join together; thus the earth attracts a stone much more than the stone seeks the earth. (The magnetic faculty is another example of this sort).... If two stones were set near one another in some place in the world outside the sphere of influence of a third kindred body, these stones, like two magnetic bodies, would come together in an intermediate place, each approaching the other by a space proportional to the bulk [*moles*] of the other....^[77]

Evangelista Torricelli

A disciple of Galileo, Evangelista Torricelli reiterated Aristotle's model involving a gravitational centre, adding his view that a system can only be in equilibrium when the common centre itself is unable to fall.^[60]

The relation of the distance of objects in free fall to the square of the time taken was confirmed by Francesco Maria Grimaldi and Giovanni Battista Riccioli between 1640 and 1650. They also made a calculation of the gravity of Earth constant by recording the oscillations of a pendulum.^[78]

Mechanical explanations

In 1644, René Descartes proposed that no empty space can exist and that a continuum of matter causes every motion to be curvilinear. Thus, centrifugal force thrusts relatively light matter away from the central vortices of celestial bodies, lowering density locally and thereby creating centripetal pressure.^{[79][80]} Using aspects of this theory, between 1669 and 1690, Christiaan Huygens designed a mathematical vortex model. In one of his proofs, he shows that the distance elapsed by an object dropped from a spinning wheel will increase proportionally to the square of the wheel's rotation time.^[81] In 1671, Robert Hooke speculated that gravitation is the result of bodies emitting waves in the aether.^{[82][j]} Nicolas Fatio de Duillier (1690) and Georges-Louis Le Sage (1748) proposed a corpuscular model using some sort of screening or shadowing mechanism. In 1784, Le Sage posited that gravity could be a result of the collision of atoms, and in the early 19th century, he expanded Daniel Bernoulli's theory of corpuscular pressure to the universe as a whole.^[83] A similar model was later created by Hendrik Lorentz (1853–1928), who used electromagnetic radiation instead of corpuscles.

English mathematician Isaac Newton used Descartes' argument that curvilinear motion constrains inertia,^[84] and in 1675, argued that aether streams attract all bodies to one another.^[k] Newton (1717) and Leonhard Euler (1760) proposed a model in which the aether loses density near mass, leading to a net force acting on bodies.^[citation needed] Further mechanical explanations of gravitation (including Le Sage's theory) were created between 1650 and 1900 to explain Newton's theory, but mechanistic models eventually fell out of favor because most of them lead to an unacceptable amount of drag (air resistance), which was not observed. Others violate the energy conservation law and are incompatible with modern thermodynamics.^[85]

'Weight' before Newton

Before Newton, 'weight' had the double meaning 'amount' and 'heaviness'.^[86] What we now know as mass was until the time of Newton called "weight." ... A goldsmith believed that an ounce of gold was a quantity of gold. ... But the ancients believed that a beam balance also measured "heaviness" which they recognized through their muscular senses. ... Mass and its associated

downward force were believed to be the same thing. Kepler formed a [distinct] concept of mass ("amount of matter" (*copia materiae*)) but called it "weight" as did everyone at that time.

—K. M. Browne, *The pre-Newtonian meaning of the word "weight."*

Mass as distinct from weight



Portrait of Isaac Newton (1642–1727) by Godfrey Kneller (1689)

In 1686, Newton gave the concept of mass its name. In the first paragraph of *Principia*, Newton defined quantity of matter as "density and bulk conjunctly", and mass as quantity of matter.^[87]

The quantity of matter is the measure of the same, arising from its density and bulk conjunctly. ... It is this quantity that I mean hereafter everywhere under the name of body or mass. And the same is known by the weight of each body; for it is proportional to the weight.

—Isaac Newton, *Mathematical principles of natural philosophy*, Definition I.

Newton's law of universal gravitation

In 1679, Robert Hooke wrote to Isaac Newton of his hypothesis concerning orbital motion, which partly depends on an inverse-square force.^{[88][1]} In 1684, both Hooke and Newton told Edmond Halley that they had proven the inverse-square law of planetary motion, in January and August, respectively.^[90] While Hooke refused to produce his proofs, Newton was prompted to compose *De motu corporum in gyrum* ('On the motion of bodies in an orbit'), in which he mathematically derives Kepler's laws of planetary motion.^[90] In 1687, with Halley's support (and to Hooke's dismay), Newton published *Philosophiæ Naturalis Principia Mathematica* (*Mathematical Principles of Natural Philosophy*), which hypothesizes the inverse-square law of universal gravitation.^[90] In his own words:

I deduced that the forces which keep the planets in their orbs must be reciprocally as the squares of their distances from the centres about which they revolve; and thereby compared the force requisite to keep the moon in her orb with the force of gravity at the surface of the earth; and found them to answer pretty nearly.

Newton's original formula was:

$$\text{Force of gravity} \propto \frac{\text{mass of object 1} \times \text{mass of object 2}}{\text{distance from centers}^2}$$

where the symbol \propto means "is proportional to". To make this into an equal-sided formula or equation, there needed to be a multiplying factor or constant that would give the correct force of gravity no matter the value of the masses or distance between them – the gravitational constant. Newton would need an accurate measure of this constant to prove his inverse-square law. Reasonably accurate measurements were not available in until the Cavendish experiment by Henry Cavendish in 1797.^[91]

In Newton's theory^[92] (rewritten using more modern mathematics) the density of mass generates a scalar field, the gravitational potential in joules per kilogram, by

$$\frac{\partial^2 \varphi}{\partial x^j \partial x^j} = 4\pi G\rho.$$

Using the [Nabla operator](#) ∇ for the [gradient](#) and [divergence](#) (partial derivatives), t

$$\nabla^2 \varphi = 4\pi G\rho.$$

This scalar field governs the motion of a [free-falling](#) particle by:

$$\frac{d^2 x^j}{dt^2} = -\frac{\partial \varphi}{\partial x^j}.$$

At distance r from an isolated mass M , the scalar field is

$$\varphi = -\frac{GM}{r}.$$

The *Principia* sold out quickly, inspiring Newton to publish a second edition in 1713.^{[93][94]} However the theory of gravity itself was not accepted quickly.

The theory of gravity faced two barriers. First scientists like Gottfried Wilhelm Leibniz complained that it relied on action at a distance, that the mechanism of gravity was "invisible, intangible, and not mechanical".^{[95]:339[96]:144} The French philosopher Voltaire countered these concerns, ultimately writing his own book to explain aspects of it to French readers in 1738, which helped to popularize Newton's theory.^[97]

Second, detailed comparisons with astronomical data were not initially favorable. Among the most conspicuous issue was the so-called *great inequality of Jupiter and Saturn*. Comparisons of ancient astronomical observations to those of the early 1700s implied that the orbit of Saturn was increasing in diameter while that of Jupiter was decreasing. Ultimately this meant Saturn would exit the Solar System and Jupiter would collide with other planets or the Sun. The problem was tackled first by Leonhard Euler in 1748, then Joseph-Louis Lagrange in 1763, by Pierre-Simon Laplace in 1773. Each effort improved the mathematical treatment until the issue was resolved by Laplace in 1784 approximately 100 years after Newton's first publication on gravity. Laplace showed that the changes were periodic but with immensely long periods beyond any existing measurements.^{[98]:144}

Successes such the solution to the great inequality of Jupiter and Saturn mystery accumulated. In 1755, Prussian philosopher Immanuel Kant published a cosmological manuscript based on Newtonian principles, in which he develops an early version of the nebular hypothesis.^[99] Edmond Halley proposed that similar looking objects appearing every 76 years was in fact a single comet. The appearance of the comet in 1759, now named after him, within a month of predictions based on Newton's gravity greatly improved scientific opinion of the theory.^[100] Newton's theory enjoyed its greatest success when it was used to predict the existence of Neptune based on

motions of Uranus that could not be accounted by the actions of the other planets. Calculations by John Couch Adams and Urbain Le Verrier both predicted the general position of the planet. In 1846, Le Verrier sent his position to Johann Gottfried Galle, asking him to verify it. The same night, Galle spotted Neptune near the position Le Verrier had predicted.^[101]

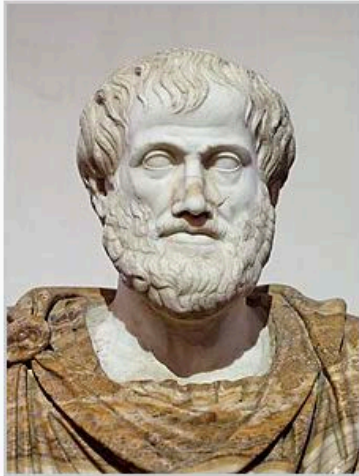
Not every comparison was successful. By the end of the 19th century, Le Verrier showed that the orbit of Mercury could not be accounted for entirely under Newtonian gravity, and all searches for another perturbing body (such as a planet orbiting the Sun even closer than Mercury) were fruitless.^[102] Even so, Newton's theory is thought to be exceptionally accurate in the limit of weak gravitational fields and low speeds.

At the end of the 19th century, many tried to combine Newton's force law with the established laws of electrodynamics (like those of Wilhelm Eduard Weber, Carl Friedrich Gauss, and Bernhard Riemann) in order to explain the anomalous perihelion precession of Mercury. In 1890, Maurice Lévy succeeded in doing so by combining the laws of Weber and Riemann, whereby the speed of gravity is equal to the speed of light. In another attempt, Paul Gerber (1898) succeeded in deriving the correct formula for the perihelion shift (which was identical to the formula later used by Albert Einstein). These hypotheses were rejected because of the outdated laws they were based on, being superseded by those of James Clerk Maxwell.^[85]

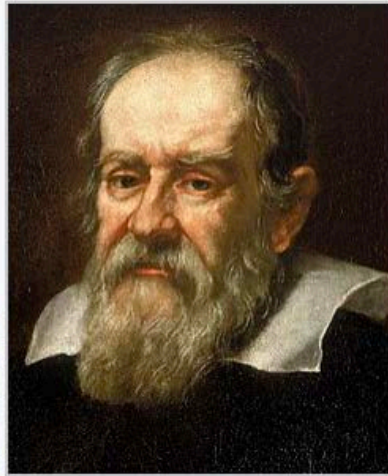
References

- a. [^] Ibn Sina and Abu'l-Barakat, respectively.^{[1][2]}
- b. [^] The source of this quote is *Al-Biruni's India* (c. 1030).^[37]
- c. [^] This was interpreted as deriving the weight of objects from the [pressure of the air](#) below them.^[49]
- d. [^] [Leonardo da Vinci](#) tested this theory by observing [trace fossils](#),^[51] which he used to argue against the [myth of a universal flood](#).^[52]
- e. [^] Furthermore, he hypothesized that the planet is in equilibrium when its centre of gravity coincides with that of its mass.^[51]
- f. [^] Leonardo did not publish his manuscripts and they had no direct influence on subsequent science.^[56]
- g. [^] He accounted for these movements by explaining, "Rotation is natural to a sphere, and by that very act is its shape expressed."^[59]
- h. [^] Physicist [Pierre Duhem](#) erroneously attributes this to [Jordanus Nemorarius](#), whom he calls the "precursor of Leonardo". Leonardo alludes to Jordanus in his notebooks, but not to any of his theories.^[60]
- i. [^] The distance traversed in successive equal intervals of time is calculated with a triangular model whose width (representing maximum velocity) increases by two for every equal section of height (representing time elapsed). This is in part anticipated by the [Merton rule](#).^[74]
- j. [^] [James Challis](#) repeated this assumption in 1869.
- k. [^] [Bernhard Riemann](#) made a similar argument in 1853.
- l. [^] Newton was almost certainly influenced by this correspondence to do his subsequent work on gravitation,^[88] although he denied that Hooke had told him of the inverse-square force.^[89]
- m. [^] In [string theory](#), dimensions exceeding four allow for the existence of [parallel realities](#)—which along with the [anthropic principle](#), help to explain the statistical near-impossibility of our [fine-tuned universe](#).

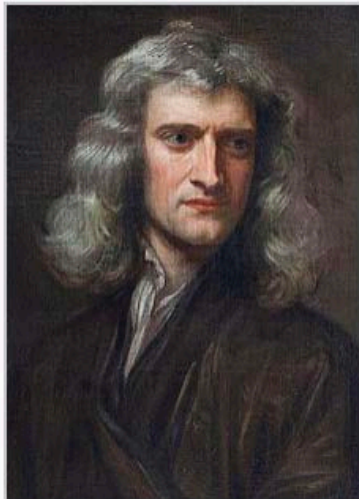
Pioneers of gravitational theory



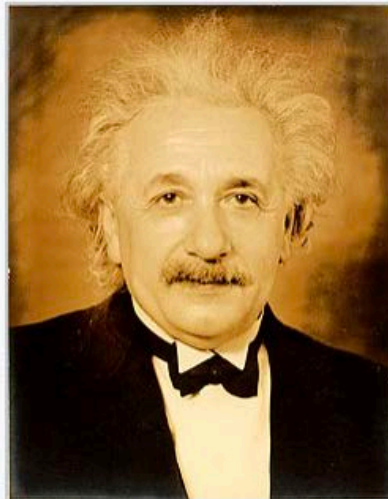
Aristotle



Galileo Galilei



Isaac Newton



Albert Einstein

Timeline: The Scientific History of Gravity

Alex Ivankov writes:¹⁷

The scientific history of gravity marks the perpetual quest to understand the beginning and structure of the universe. From the Newtonian equation in 1687

¹⁷ <https://www.profolus.com/topics/timeline-the-scientific-history-of-gravity/>

and the expansion of its definitions to the discovery of gravitational waves in 2016, the understanding of gravity has considerably evolved throughout the years.

FROM ARISTOTLE TO NEWTON: EARLY SCIENTIFIC HISTORY OF GRAVITY

Around 330 BCE: The Aristotelian Four Elements

Greek philosopher and scientist Aristotle argued that the four elements—air, earth, fire, and water—have a natural position or place in which they travel. He further argued that objects heavier than others or those containing more earth would fall toward the ground faster, and their speed would increase as they near their natural place.

1589: Leaning Tower of Pisa Experiment by Galileo

A biography by Vincenzo Viviani claimed that his mentor, Italian scientist Galileo Galilei, performed an experiment that involved dropping two spheres of different masses from the Leaning Tower of Pisa to demonstrate that the time of the descent of the two objects is independent of their mass.

This experiment supposedly contradicted the argument of Aristotle that heavy objects fall faster than lighter ones. However, it is essential to take note that it remains unclear whether Galileo, in fact, performed the experiment.

1687: Newtonian Apple and the Theory of Gravitation

In his *Philosophiæ Naturalis Principia Mathematica*, Isaac Newton provided one of the most significant contributions to the theory of gravity. He argued that the orbit of the moon depended on the same type of force that causes an apple to fall on Earth.

Furthermore, this argument also proposed the inverse-square law of universal gravitation. This law claims that the magnitude of the force decreases in inverse proportion to the square of the distance from the center of the Earth.

The Newtonian theory of universal gravitation gave astronomers a tool for predicting the motion of planets. This theory further received success when it successfully predicted the existence of Neptune through a series of calculations done in the 1840s. Accordingly, the motion of Uranus could not be accounted for by the actions of other planets.

1859: Mercury and the Search for the Planet Vulcan

There was a problem with calculating the precise orbit of Mercury using the Newtonian theory of universal gravitation. By the end of the 19th century, researchers discovered that the orbit of Mercury showed slight perturbations. This discrepancy did not match what the theory predicted.

To explain the discrepancy with the orbit of Mercury, French mathematician who specialized in celestial mechanics Urbain Le Verrier proposed that there was another planet orbiting closer to the sun. He called this Vulcan. Verrier argued that the gravity from Vulcan was influencing the orbit of Mercury. However, repeated observations revealed no signs of this planet.

RELATIVITY THEORY: BREAKTHROUGHS IN THE HISTORY OF GRAVITY

1905: Special Relativity Theory of Einstein

Albert Einstein introduced the theory of special relativity that modified the Newtonian theory of universal gravitation. He initially wanted to describe gravity in a way that was independent of the motions of observers and the coordinates chosen to label events.

The special relativity theory argues that the laws of physics are the same for all non-accelerating observers. Furthermore, it also argues that the speed of light within a vacuum is the same regardless of the speed at which an observer travel. This theory also proposed that space and time are linked within a single continuum called space-time.

With the introduction of this theory, Einstein began incorporating gravity in the picture to describe it exclusively within the geometrical concept of the space-time continuum. His attempts marked the beginning of another major turning point in the history of gravity.

1907: Einstein and the Gravitational Redshift

While developing another relativity theory that incorporates gravity in the equation, Einstein also proposed the wavelength of light coming from atoms trapped in a strong gravitational field stretches or lengthens as it tries to escape the force of gravity. This lengthening of light wavelength results in the display of the electromagnetic spectrum. The longer wavelength shifts the photon to the red end of the spectrum.

The described lengthening of light wavelength paved the way for the understanding of so-called gravitational redshift. This concept is a process by electromagnetic radiation originating from a source that is in a gravitational field is reduced in frequency when observed in a region of a weaker gravitational field.

1915: General Relativity Theory of Einstein

In his attempt to describe gravitation exclusively within the geometrical concept of the space-time continuum, Einstein came up with the general relativity theory. This theory argues that gravity affects all forms of matter and energy, all of which move in spacetime. Massive objects cause a distortion in spacetime, and such is felt as gravity.

Einstein successfully generalized the special relativity theory and the Newtonian theory of universal gravitation. The theory of general relativity provides a unified description of gravity as a geometric property of space and time. A curvature in spacetime occurs because it is directly related to the energy and momentum of whatever mass or radiation is present.

The theory also predicted the existence of black holes and gravitational waves. Einstein struggled to understand these concepts further, however. Nonetheless, general relativity theory opened a window of opportunities that

ushered in a new era for understanding the universe. The scientific history of gravity took a considerable leap because of this theory.

FROM GRAVITATIONAL LENSING TO WAVES: MODERN SCIENTIFIC HISTORY OF GRAVITY

1918: Predicting Frame Dragging

Austrian physicists Josef Lense and Hans Thirring used the general relativity theory as a framework for predicting the Lense-Thirring effect or frame dragging. They theorized that the rotation of a massive object in space would drag spacetime around it.

The National Aeronautics and Space Administration launched a project called Gravity Probe B to measure the spacetime curvature near the Earth. Using a probe that gyroscopes that rotated slightly over time due to the underlying spacetime, researchers found that frame dragging is stronger around a rotating object, which “drags” spacetime around with it. The amount of rotation of the gyroscopes was consistent with the general relativity theory.

1919: Observing Gravitational Lensing

Observers witnessed during a total solar eclipse in May 1919 that stars near the sun seemed slightly out of position. This seemed to indicate that the light was bending due to the mass of the sun. Nonetheless, this was the first observation of gravitational lensing—the bending of light around a massive object allowing observers to view objects behind it.

Swiss astronomer Fritz Zwicky further predicted in 1937 that galaxy clusters could act as gravitational lenses. In other words, the light coming from objects can bend around the entire galaxy. This would allow observers to view objects behind this massive galaxy cluster.

In 1979, astronomers Dennis Walsh, Bob Carswell, and Ray Weymann observed two identical quasars or quasi-stellar objects. Further observation revealed that these objects were actually one quasar that appeared as two separate objects. This is the first observation of galactic gravitational lensing.

1952: Measuring and Confirming Gravitational Redshift

American astronomer Walter Sydney Adams observed and analyzed the light emitted from the surface of massive stars. His examination resulted in the detection of lengthening of light wavelength, particularly the detection of red light. This was similar to the prediction made by Einstein.

Robert Pound and Glen Rebka performed an experiment in 1959 that involved confirming the existence of gravitational redshift. Doing so required measuring the redshift in spectral lines using Iron-57 gamma source over a vertical height of 22.5 meters—or at the top and bottom of the Jefferson Laboratory tower at Harvard University. The experiment precisely measured the minute change in energies as photons journeyed between the top and the bottom.

1960: Observing the Existence of Black Holes

The general relativity theory gained further momentum beginning the 1960s due to the discovery of galaxies maintained by an enormous pull of black holes in the center. Gravity is responsible for this pull.

All massive galaxies are now found to have massive black holes. Smaller black holes also exist roaming between the stars.

1966: First Proof of Gravitational Time Delays

Using general relativity as a framework, American astrophysicist Irwin Shapiro predicted that the gravity of the sun would slow down radio waves as they travel and bounce around the solar system.

Series of experiments were performed between 1966 and 1977s that involved firing radar beams on the surface of Venus and measuring the time taken for it to return to Earth. The bouncing created delays that were consistent with the general relativity theory of Einstein.

Gravitational time delay or dilation is now understood as an actual difference of elapsed time between two events as measured by observers situated at varying distances from a gravitating mass.

1969: Search for Gravitational Waves Began

Joseph Weber claimed that his experiment led to the detection of gravitational waves. However, others were not able to replicate his results, thereby concluding that the claim was invalid.

Joseph Taylor and Russell Hulse discovered the binary pulsar in 1974. Further measurements of the orbital decay of the pulsars revealed that the two lost energies. This loss in energy matched the amounts predicted by the general relativity theory. Nonetheless, this discovery marked indirect evidence for gravitational waves.

Joseph Weber made another claim in 1987 that he discovered gravitational waves. His so-called torsion bar experiments involved using large aluminum bars engineered to vibrate when a large gravitational wave passed through them.

1979 to 2005: Funding and Conceiving the LIGO

The United States National Science Foundation provided support and funding for the construction of the Laser Interferometer Gravitational-Wave Observatory or LIGO—a large-scale physics experiment and observatory to detect gravitational waves—starting in 1979.

It is important to note that Einstein came up with a theory in 1917 that described stimulated emission. In his paper about the quantum theory of radiation, he theorized the process of spontaneous emission in which an excited atom returns to a lower energy state by releasing energy. This process paved the way for the development of light amplification by stimulated emission of radiation or LASER.

American engineer and physicist Theodore Harold Maiman invented the first laser in 1960. His invention led to the development of many other types of and uses for lasers.

The concept behind LIGO centers on the use of massive laser interferometers located thousands of kilometers apart to exploit the physical properties of light and of space itself to detect and understand the origins of gravitational waves.

Nonetheless, the construction of LIGO began in 1994 in Hanford, Washington and Livingston, Louisiana. In August 2002, it started searching for evidence of gravitational waves. The search, however, ended in 2005 after five attempts. Researchers gathered that the sensors needed upgrading to improve sensitivity.

2009 to 2016: Improved LIGO and the Discovery of Gravitational Waves

The so-called Enhanced LIGO started the new hunt for gravitational waves in 2009. However, by 2010, the search yielded no results. A new major upgrade began, and the resulting product was the Advanced LIGO.

The Advanced LIGO was completed in 2014 after installation and rounds of testing. A new search began in 2015. This iteration to the LIGO has four times the sensitivity of the original version.

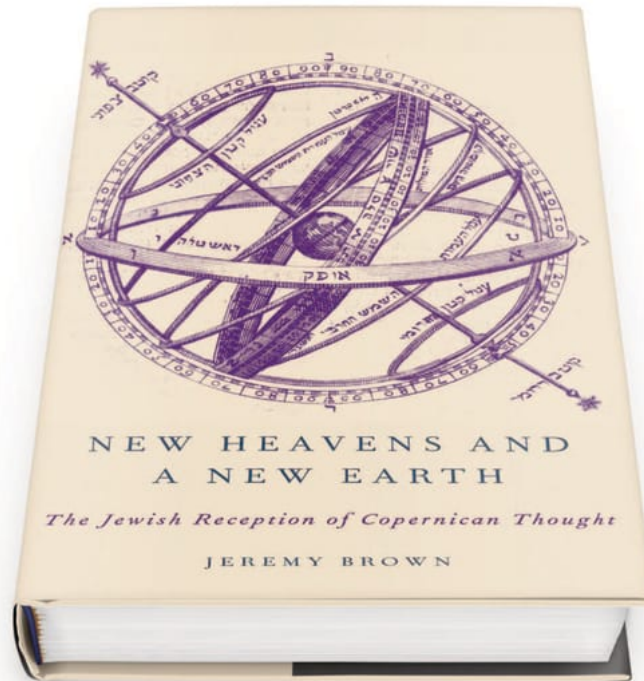
In September 2015, the Advanced LIGO detected a signal that appeared to come from the collision of two black holes. A thorough analysis of the data revealed that gravitational waves were finally detected. The announcement was made in February 2016 and it marked another turning point in the scientific history of gravity.



New Science, Same Torah

RABBI GIL STUDENT writes:¹⁸

¹⁸ <https://jewishaction.com/science-technology/new-science-torah/>



New Heavens and a New Earth: The Jewish Reception of Copernican Thought

By Jeremy Brown

Oxford University Press

Torah, Chazal, and Science

By Moshe Meiselman

Gil Student writes:¹⁹

You might have thought,¹ based on the plethora of Orthodox scientists and doctors, that the conflict between Judaism and science had been resolved decades ago and is no longer a source of controversy. I thought so, but I learned how wrong I was. Over the past decade, the controversy arose again from opposite corners. On one side, the 2004 ban placed on books addressing these issues, books that would otherwise have been interesting but hardly

¹⁹ <https://jewishaction.com/science-technology/new-science-torah/>

newsworthy, showed that the *Chareidi* community was engaged in an intense struggle over these issues.² On the other, the brief takeover in subsequent years of general culture by militant atheists, now thankfully muted, placed all orthodox religions in the crosshairs of societal disparagement. It almost seems as if the centuries-old negotiation between reason and revelation will continue indefinitely.

Heavenly Revolution

Jeremy Brown's *New Heavens and a New Earth: The Jewish Reception of Copernican Thought* documents one aspect of this ongoing discussion. In a groundbreaking 1543 book *De Revolutionibus Orbium Coelestium (On the Revolutions of the Heavenly Spheres)*, Nicolaus Copernicus proposed that the planets revolve around the sun (heliocentrism), rather than the dominant theory of Ptolemy, that the sun and other planets revolve around the Earth (geocentrism). Copernicus' radical theory neatly explained various anomalies observed in the sky, but it lacked definitive proof and was subject to a number of questions that could not yet be answered. Copernicus' theory was hotly debated in Christian Europe, both for scientific reasons and, particularly significant for our purposes, religious reasons: it seemed to contradict explicit verses such as "[A]nd the Earth stands forever" (Ecclesiastes 1:4) and "Sun, stand still over Gibeon" (Joshua 10:12) and for Jews, numerous Talmudic passages. Later advocates, such as Johannes Kepler and Galileo Galilei, spread the theory widely, but no one conclusively proved it for centuries. In 1838, Friedrich Bessel resolved the big outstanding questions on Copernicus' theory, and in 1853, Leon Foucault demonstrated the Earth's motion with a simple pendulum experiment, now commonplace in museums. Yet for some rabbis, the matter was not settled by demonstration.

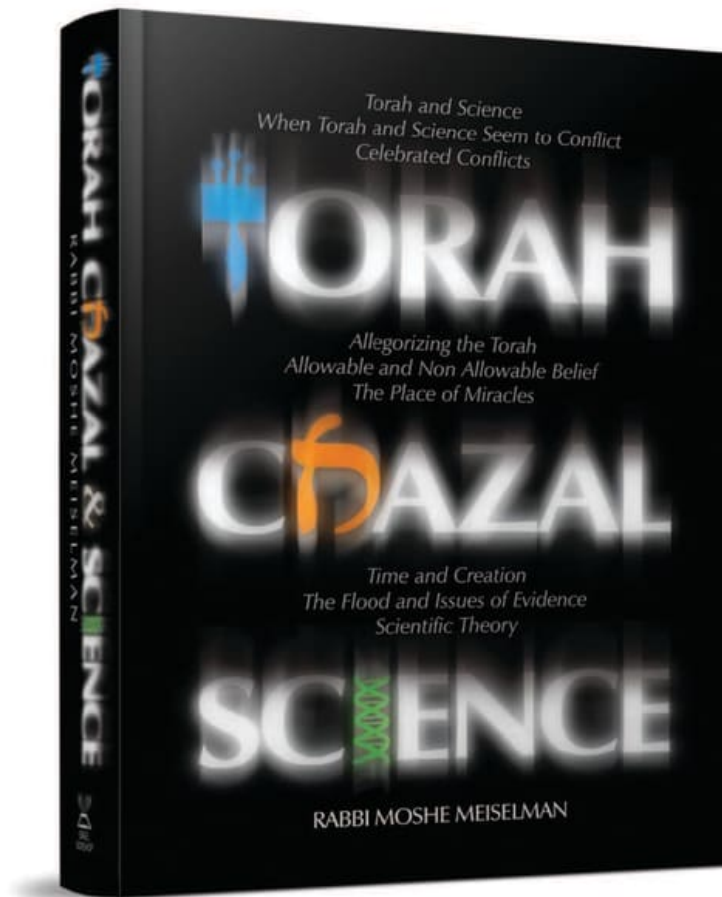
In a sweeping review of Jewish literature, Brown presents the surprising argument that Jewish responses to the Copernican Revolution were not linear. Brown's survey is careful and sober, comprehensive while allowing historical figures to speak independently, without being pigeonholed. Contrary to common wisdom, Jewish sages and scholars did not immediately accept Copernicus' view, nor, as one might expect, slowly adopt it as evidence for it increased. History is not that simple. Rather, due to varying personalities and cultures, both adoption and rejection came quickly, continuing in tandem for centuries.

Tradition and the Solar System

Maharal, writing only a few decades after Copernicus' publication, was the first Torah sage to even allude to this new approach to astronomy. He argued that Jewish tradition—something that science cannot overturn—affirms the old Ptolemaic approach; revelation trumps reason.³ However, you would be wrong to think that the Maharal argued without sophistication. He formulated an early version of what Brown calls fallibilism, the argument that scientific theories are unstable, subject to overturn by later scholars. To the Maharal, it would be irresponsible to reject a reliable tradition due to a scientific theory that is fundamentally unfixed.

The Maharal lived in Prague where one of the leading astronomers, Tycho Brahe, practiced. Tycho, as he was called, rejected Copernicus' Revolution, and formulated his own theory to account for the data. The Maharal's student, Rabbi David Gans, even spent extensive time in Tycho's observatory. When Rabbi Gans also rejected Copernicus, he was following one of the leading scientists of the day, whom he knew personally.⁴ On the other hand, a few decades later, Rabbi Yosef Delmedigo (known as the Yashar from Candia) embraced Copernicus' radical views. He also studied under a famous astronomer, but of a different bent. In university, Rabbi Delmedigo's professor was none other than Galileo.⁵ And yet, Rabbi Tuviah Cohen, another disciple of Galileo, was virulently anti-Copernican.⁶

Throughout the years, we encounter rabbis on both sides of the Copernican question. Even after the convincing demonstrations in the mid-1800s, rabbis such as Rav Tzadok HaKohen of Lublin still adopted the Maharal's idea of fallibilism, skeptically rejecting Copernicus' heliocentric model.⁷ Yet, as Brown demonstrates, the consensus has clearly sided with Copernicus. Despite some holdouts, the late Lubavitcher Rebbe, Rabbi Menachem Mendel Schneerson, most prominent among them, even *Chareidi* scholars adopted the heliocentric model.⁸ Whether it is the force of evidence or long-standing persistence, the Copernican model has prevailed and revelation has been reinterpreted. Today, few would contend that the Bible and Talmud prevent Jews from believing that the Earth revolves around the sun. Rather, we interpret those seemingly problematic passages differently or, aside from those in the Bible, reject their scientific assumptions.



Science and Scholars

The debate over science and tradition continues to this day. Rabbi Moshe Meiselman's recent book, *Torah, Chazal, and Science*, presents a comprehensive approach from the school of fallibilism. Like the Maharal, he argues that science changes; theories that were once considered proven are later displaced. If so, how can we base religious views on questionable science?

Additionally, Rabbi Meiselman argues that any time the Talmudic Sages made an unqualified statement about nature, they were relaying a prophetic tradition. Certainly a Divinely revealed fact cannot be disputed by a human theory, subject to challenge and inevitable replacement. With this established, Rabbi Meiselman addresses a plethora of contemporary hot topics.

Torah, Chazal, and Science is a veritable encyclopedia of Torah-science debate, addressing a wide variety of primary sources, many of which the author quotes verbatim in footnotes. Rabbi Meiselman addresses issues such as evolution, the age of the universe and the Sages' knowledge of science. He eloquently presents a conservative approach, denouncing as unacceptable a revisionist reading or a rejection of traditional texts. It includes comprehensive and informed arguments for rejecting science when it conflicts with religion.

Rabbi Meiselman bases his approach on the responsa of the thirteenth-century Rabbi Shlomo ben Aderet (Rashba) and the fourteenth-century Rabbi Yitzchak ben Sheshet Prefet (Rivash). As already mentioned, there are also distinct parallels between the Maharal's negative response to Copernicus and Rabbi Meiselman's reaction to evolution, an ancient universe and more. Both adopt the approach of fallibilism and argue that the Sages silently based their views on a revealed tradition. Effectively, Rabbi Meiselman takes the Maharal's approach and applies it broadly and methodically.

Historical Debate

If Rabbi Meiselman had only done that, he would already have accomplished a great deal and contributed significantly to the literature. However, he goes further, boldly arguing that no authority has ever disagreed with this approach. This leads him to make an assortment of difficult interpretations and questionable statements. For example, he argues at great length about the illegitimacy of a letter attributed to Rabbi Avraham ben HaRambam, known as "The Essay on the Sages' *Derashot*," in which he famously asserted that the Sages occasionally relied on their contemporary science which was sometimes incorrect.⁹ This approach is very different from Rabbi Meiselman's, that unqualified statements of fact by the Sages are based on revelation. Rabbi Meiselman responds by carefully cataloguing the manuscript evidence for this letter, which was first published in 1836, ultimately yielding little evidence of inauthenticity, and deducing positions from the letter which he claims contradict statements by Rambam. I found the entire exercise unconvincing.¹⁰

As a further challenge, Rabbi Meiselman points out that only one halachist, Rabbi Yitzchak Herzog, has quoted this letter as part of a halachic ruling.¹¹

This may be true, but the standard is surprising. Because this is largely a theoretical issue, shouldn't the question be whether halachic authorities have quoted it in a nonhalachic context? The answer to that question is yes.¹²

Rabbi Meir Leibush Weiser (the Malbim) was one of the great Torah scholars of the nineteenth century.¹³ On a few occasions in his groundbreaking and widely accepted Torah commentary, he reinterprets verses contrary to accepted tradition due to advances in scientific knowledge. For example, on Bereishit 1:6, Malbim rejects earlier explanations of the term "*rakia*" based on the scientific understanding of his time. Instead, he suggests the word means "atmosphere," connecting it to the theory of ether that was current in his time.¹⁴ Earlier, on Bereishit 1:2, he rejects the ancient notion that fire is above all other elements and explains that fire is omitted from that verse because the sun had not yet been created. Rabbi Menachem Kasher castigates the Malbim for rejecting the Sages' view based on scientific opinions.¹⁵

The Malbim serves an important precedent for those who would revise established understandings of the Torah based on contemporary science. Rabbi Meiselman dismisses such attempts, albeit without mentioning the Malbim, with the statement: "The explosion of scientific knowledge in the nineteenth century presented continual problems for the Torah scholars of the day In the face of these challenges, some may have felt compelled to concede the imperfectness of Chazal's factual knowledge."¹⁶ I find the Malbim's stature and precedent more compelling than the dismissal. If this view is so theologically problematic, no amount of pressure could have forced such a sage to adopt it.

Rambam is often quoted as a "religious rationalist," someone who accepted the best science of his time rather than defer to Jewish tradition. As proof, many note Rambam's omission of many Talmudic rulings that some would attribute to superstition or faulty science.¹⁷ These include laws referencing demons and amulets, which no rationalist can accept at face value. Rabbi Meiselman responds, in part, by discussing Rambam's contradictory statements about amulets, in which sometimes Rambam implies they are effective and other times not. Rabbi Meiselman follows the Rashba's approach but struggles with the Radbaz's interpretation. Radbaz, the great sixteenth-century Egyptian halachic authority and commentator, contends that Rambam did not believe that amulets work, and explains the various passages in Rambam's texts accordingly. Rabbi Meiselman dismisses Radbaz's approach because "the rejection of his interpretation by virtually all other commentators

casts serious doubts upon it.”¹⁸ Yet, a review of the literature reveals that Radbaz’s view is indeed cited throughout the ages.¹⁹

Rabbi Nissim Gerondi (the Ran) analyzes Talmudic passages in which questioning the Sages is denounced.²⁰ Rabbi Meiselman sees in the Ran’s position support for his approach, declaring: “In his view questioning the Chachamim even in non-halachic areas is a form of *kefirah* [heresy]. It is the obligation of every Jew to accept everything Chazal have told us, regardless of the subject.”²¹ However, the Ran qualifies his discussion, specifying that only someone who questions a tradition, something revealed and transmitted throughout the ages, or doubts a Scriptural derivation has demonstrated a limited faith. This position is much narrower than that which Rabbi Meiselman advocates. Everyone involved in this discussion agrees that a revealed tradition is necessarily true. The question remains whether all unqualified Talmudic statements of fact are based on tradition, as Rabbi Meiselman claims, or whether sometimes the Sages accepted their contemporary science as fact.

There is much more to discuss in this rich volume but space restrictions force me to raise only a few examples. The next and last is quite important communally.

Contemporary Debate

Rabbi Meiselman is so strident in his view that he implies that his esteemed uncle, Rabbi Joseph B. Soloveitchik (“the Rav”), would label anyone who disagrees a heretic. In a landmark lecture,²² the Rav asserted that anyone who questions the morality or personality of the Sages has denied the Oral Torah by rejecting its transmitters. Rabbi Meiselman suggests that this also applies to anyone who questions the Sages’ factual claims, including their scientific understandings. Rabbi Meiselman states about the Rav, “In his view, whoever denies the absolute accuracy of a statement of Chazal, whether of halachic, historical or other import, is a *makchish maggideha* [one who denies the authority of the Sages] and is considered a heretic.”²³ With some effort, this could be interpreted to include Rabbi Avraham ben HaRambam’s view. However, if I understand the book properly, the context for Rabbi Meiselman raising the issue implies his belief that the Rav would consider a heretic anyone who accepts the view that the Sages sometimes relied on their flawed contemporary science for unqualified factual pronouncements.

This is a bold claim, particularly since Rabbi Meiselman did not hear the Rav actually say it. Indeed, Rav Ovadia Yosef engaged this very question and concluded that such a person is not a heretic.²⁴ Similarly, regarding Copernicus, two students of Rabbi Moshe Sofer (the Chatam Sofer) published books on the subject, one ardently against Copernicus and the other in favor. Yet the Chatam Sofer's son and successor, Rabbi Avraham Shmuel Binyamin Sofer (the Ketav Sofer), gave approbations for both books. Apparently, he did not consider such an approach religiously problematic.²⁵

I found this assertion about the Rav so surprising that I consulted close students of the Rav to see if they agreed with this judgment. Rabbi Dr. Aaron Rakeffet-Rothkoff, *rosh yeshivah* and professor of rabbinic literature at Yeshiva University's Caroline and Joseph S. Gruss Institute in Jerusalem, found Rabbi Meiselman's suggestion implausible. He said: "I never spoke with the Rav about Torah and science, but based on all I know of his worldview I find it highly unlikely that he would consider someone *makchish maggideha* for believing that some factual statements by Chazal relied on their contemporary science."²⁶

While Rabbi Meiselman follows the Maharal, others side with those who were more accepting of Copernicus' view. Rabbi Yehudah Levi, rector of the Jerusalem College of Technology (Machon Lev) and longtime writer on issues of Torah and science, serves as a prime example of this approach.²⁷ In his book *Torah and Science: Their Interplay in the World Scheme*, Rabbi Levi quotes Rabbi Avraham ben HaRambam as well as other scholars whom he believes adopted the view that the Sages sometimes relied on contemporary science. He writes, "When making scientific statements, the Sages are usually speaking as scientists rather than transmitters of the Oral Torah."²⁸

In theory, the distance is fairly small between Rabbi Levi and Rabbi Meiselman. Both agree that revelation is more powerful testimony of truth than scientific proof. Both agree that the Sages were absolutely correct when they utilized revealed traditions. Additionally, both agree that the Sages sometimes relied on the limited science of their time. The disagreement lies in classifying the Sages' unqualified statements. Rabbi Meiselman argues that they are traditions while Rabbi Levi believes they need not be. In application, though, the most hotly contested issues lie precisely in this disputed area. The age of the universe, the evolution of man and animals and the scientific statements in the Talmud all fall into this category. To Rabbi Meiselman, any

conciliatory movement is religiously disastrous, while to Rabbi Levi, there is room for discussion.²⁹

Both Rabbi Levi and Rabbi Meiselman present eloquently argued positions, supported by precedent. In Brown's book, we see that this passionate debate has continued for centuries. Yet he leaves room for hope, a potential for reconciliation. Just as a consensus eventually emerged over Copernicus' view, perhaps we may one day see agreement on other issues of Torah and science.

Notes

1. I thank Efraim Vaynman for his research assistance with this article.
2. I describe the ban and my role in opposing it in "The Slifkin Torah-Science Controversy: An Admittedly Biased Insider's Perspective," the *Jewish Press*, August 16, 2006.
3. Maharal, *Netivot Olam* (Warsaw, 1873), *Netiv HaTorah*, ch. 14; Jeremy Brown, *New Heaven, and a New Earth: The Jewish Reception of Copernican Thought* (Oxford, 2013), 47-49.
4. Rabbi David Gans, *Nechmad VeNa'im* (Jessnitz, Germany, 1743), ch. 305, 82b; Brown, 60.
5. Rabbi Yosef Delmedigo, *Sefer Elim* (Amsterdam, 1639); Brown, 69-73.
6. Rabbi Tuviah Cohen, *Ma'aseh Tuviah* (Venice, 1708); Brown, 89-96.
7. *Zeh Sefer Zichronot* (Warsaw, 1929), *Meshiv HaTa'anach*, 130; Brown, 211-212.
8. Rabbi Menachem Mendel Schneerson has a unique, sophisticated view. Among the *Chareidi* supporters of Copernicus are Rabbi Yonah Merzbach, "'VeHa'aretz LeOlam Omedet KiPeshuto Shel Mikra O Rak LiPnim" in *Ohr Yisrael* (New York, 2010) 15:3 (59), 10-16; Rabbi Moshe Sternbuch, *Emunah VeTorah* (Bnei Brak, 1979) on *Yesodei HaTorah* 3:4, 8. See also Brown, 256-259; 266-269.
9. Published in the introductory section of *Ein Ya'akov* (Vilna, 1877 and subsequent editions) and in Rabbi Reuven Margaliot ed., *Milchamot Hashem* (Jerusalem, 1959).
10. In his doctoral dissertation "A Comprehensive Analysis of Rabenu Abraham Maimuni's Biblical Commentary" (Brandeis University, 2012), the late Rabbi Ezra Labaton shows how the letter fits well into the entire corpus of Rabbi Avraham's writings. The dissertation is available online at RabbiLabaton.com. See pages 127-138, 247, 254, 267, 270, 286. Note, in particular, page 236, note 641, where he points out that Rabbi Avraham sometimes disagreed with his illustrious father. See page 1, note 1 for a lengthy bibliography of scholarship on Rabbi Avraham. It is significant that no scholar prior to Rabbi Meiselman has questioned the authenticity of this letter. On parallels within Rabbi Avraham's writings, see also Rabbi Mordechai Menachem Hoenig in *Ohr Yisrael* (24), 248-249.
11. Rabbi Moshe Meiselman, *Torah, Chazal, and Science* (New Jersey, 2013), 101.
12. Rabbi Shaul Yisraeli, *Perakim BeMachshevet Yisrael*, 5th edition (Jerusalem, 1996), 299ff; Rabbi Nachum Rabinovitch, *Yad Peshutah, Madda* (Jerusalem, 1990); *Hilchot Dei'ot*, ch. 4, introduction; Rabbi Yaakov Ariel, *Halachah BeYameinu: Morashtah, Limudah Hora'atah VeYisumah* (Jerusalem, 2010), 115; Rabbi Shlomo Aviner, *Piskei Shlomo* (Beit El, 2013), vol. 2, 272-273; Id., *Chayei Olam* (Beit El, 2004), 166; Id., *Chinuch BeAhavah* (Beit El, 2004), 397; Rabbi Chaim David Halevy, *Aseh Lecha Rav* (Tel Aviv, 1975), vol. 5, no. 49; Rabbi Yitzchak Barda, *Yitzchak Yeranen* (Bnei Brak, 1981) 5:33; Rabbi Chaim

Yosef David Weiss, *VaYa'an David* (Jerusalem, 1992), vol. 4; *Yoreh De'ah* 82:8; Rabbi Moshe Levi, *Menuchot Ahavah*, 3rd edition (Bnei Brak, 1992), vol. 3, addenda to part 3, 18:6; Rabbi Eliezer Ben-Porat, *No'am Eliezer* (Bnei Brak, 2002), 177 n. 9. Rabbi Shlomo Zalman Auerbach is quoted in Rabbi Yosef Yitzchak Lerner's *Shemirat HaGuf VeHaNefesh*, vol. 1 (Jerusalem, 1992), 94 as saying that Rabbi Avraham Ben HaRambam's view is a "yesh omrim," a minority view, which he certainly would not say about a view he considered heretical. Similarly, Rav Ovadia Yosef in *Yabia Omer* (vol. 10, *Yoreh De'ah*, no. 24) disagreed with Rabbi Avraham Ben HaRambam but accepted the authenticity of the view. Note also that Rabbi Moshe Levi writes that Rav Ovadia Yosef brought Rabbi Avraham's essay to his attention. Rabbi Yosef Zechariah Stern, in his *Tahaluchot HaAggadot* (Warsaw, 1902), ch. 3, summarizes portions of Rabbi Avraham Ben HaRambam's controversial essay, although in chapter 6 he seems to implicitly disagree regarding science. While not known as a halachist, Rabbi Yehudah Levi quotes the letter of Rabbi Avraham approvingly in *Torah and Science: Their Interplay in the World Scheme*, 2nd edition (Jerusalem, 2006), 223-224 and *The Science in Torah: The Scientific Knowledge of the Talmudic Sages* (Jerusalem, 2004), 93-94. Similarly, Rabbi Moshe Zuriel quotes the letter in his *Otzrot Gedolei Yisrael* (Jerusalem, 2000), vol. 1, 98 and *Leket Perushei Aggadah* (Bnei Brak, 2010), vol. 1, 11; see also his *Otzrot Abarbanel* (Bnei Brak, 2012), 295-296.

13. See Rabbi Nathan Kamenetsky, *The Making of a Godol*, improved edition (Jerusalem, 2005), 1115, in the name of Rabbi Chaim Soloveitchik.

14. However, he attempts to read this view into rabbinic texts, thereby rejecting only Medieval commentary for scientific reasons.

15. Malbim, *HaTorah VeHaMitzvah*, Gen. 1:2, 6; Rabbi Menachem Kasher, *Torah Sheleimah*, vol. 1 (Jerusalem, 1926), n. 331. For more on the Malbim's attitude toward science, see Rabbi David Berger, "Malbim's Secular Knowledge and His Relationship to the Spirit of the Haskalah," in *Cultures in Collision and Conversation* (Brighton, MA, 2011); Noah H. Rosenbloom, *HaMalbim: Parshanut, Philosophiah, Mada Umistorin BeKitvei HaRav Meir Leibush Malbim* (Jerusalem, 1988), ch. 4.

16. Meiselman, 359-360. Although elsewhere (p. 270) he praises the Malbim.

17. See Marc Shapiro, *Studies in Maimonides, and His Interpreters* (Scranton, 2008), 95ff.

18. Meiselman, 85.

19. See Rabbi Chaim Yosef David Azulai, *Birkei Yosef, Orach Chaim* 301:6; Rabbi Shlomo Zalman Braun, *She'arim Metzuyanim BaHalachah* 92:5 in *Kuntres Acharon*; and Rabbi Yosef Kafach, *Mishneh Torah, Hilchot Shabbat*, ch. 19 n. 33. See also *Bi'ur HaGra, Yoreh De'ah* 179:13; and Rabbi Chaim Elazar Shapira, *Nimukei Orach Chaim* 301:3.

20. *Derashot HaRan* (Jerusalem, 1977), ch. 5 alternate version, 89.

21. Meiselman, 635.

22. Based on ideas previously published in the journal *HaPardes* 17 (5704): 10.

23. Meiselman, 655. See also 657-658.

24. *Yabia Omer*, *ibid.*

25. Rabbi Meiselman (p. 172) states that the issue of heliocentrism is different from the issues he addresses but provides no conceptual explanation. He merely states that great rabbis were on both sides of the debate. Interestingly, he cites Rabbi Yaakov Emden as being pro-Copernicus based on one passage in his writings. However, Brown (158-161) argues based on a comprehensive review of Rabbi Emden's writings that he was generally anti-Copernicus, although midlife he equivocated somewhat. Be that as it may, there were certainly other great rabbis who were pro-Copernicus.

26. Correspondence dated May 28-29, 2014.

27. Surprisingly, Rabbi Meiselman heaps praise on Rabbi Levi, apparently unaware that they disagree fundamentally on these issues. Rabbi Meiselman (165-166) writes about Rabbi Levi: "It was his profound belief in the Torah's wisdom and Chazal's insight that prompted him to conceive of directions for further experimentation. . . ."

28. Yehudah Levi, *Torah and Science: Their Interplay in the World Scheme*, 2nd edition (Jerusalem, 2006), 222. Rabbi Levi follows the approach of Rabbi Samson Raphael Hirsch, who explicitly accepts that the Sages sometimes relied on mistaken science. See *Collected Writings of Rabbi Samson Raphael Hirsch*, vol. 9 (New York, 2012), 201-218.

29. I do not mean to imply that Rabbi Levi agrees with every theory that has been suggested to reconcile Judaism with science. In *Facing Current Challenges* (Jerusalem, 1998), chapter 45, he rejects evolution but explicitly states that this is for scientific and not religious reasons. See his various books for his own views on the different topics.²⁰

²⁰ This article was featured in the Winter 2014 issue of Jewish Action.