

Daily Rashi Study Series

The Lower Deck for Waste

Why set aside space for waste?
Was food grown inside the ark?

Booklet (18)

ל' תשרי תשפ"ז

1. An Entire Deck for What Should Go Outside?

When people build a home, they provide living space, storage and a kitchen.

If they keep animals, they provide room for them too. But who sets aside an entire floor for something that is supposed to leave the house? In Noah's ark, where every space was needed to save lives, Rashi describes a whole deck for waste.

On the command to make the ark's lower, second and third levels, Rashi explains that there were three stories: people above, animals in the middle and waste below. A space assigned to a particular use is called a "compartment" in this discussion.¹

This raises a strong question. Even if the animals produced a great deal of waste, that would seem a reason to remove it, rather than keep it! Why not make an opening or channel through which it could pass into the water? The question does not assume that all the waste was kept for the entire year. It asks why a dedicated compartment was needed alongside the possibility of regular removal. If waste accumulated, how were odor and dirt managed over a long period? Why devote such valuable space to it?

One surprising answer might be that the waste was also a resource. Perhaps *zevel*, the Hebrew word used here, means fertilizer: Noah kept it to grow food inside the ark during the stay itself.

We will distinguish four questions: the need for a collection area (sections 2-3), its location (4-5), the possibility of removal (6-10) and further uses of the waste (12-16). We will also consider a lesson in proper conduct (11) and a spiritual reading (17). An explanation that answers one question does not necessarily answer them all.

1. Rashi, Genesis 6:16, on "lower, second and third." The division also appears in the Babylonian Talmud, Sanhedrin 108b.

Throughout, we distinguish what a source states, a commentator's explanation and a hypothesis. A hypothesis deserves discussion, but a good fit does not turn it into a received tradition.

2. A Brief Statement Does Not Tell the Whole Story

The Babylonian Talmud states: “The lower levels for waste, the middle ones for animals, the upper ones for people.” It identifies the compartments' purposes, but does not specify how much waste was retained, whether it was removed from time to time or whether it served as fertilizer.²

For example, a household garbage collection area does not mean that garbage stays there permanently. Conversely, the existence of a collection area does not prove that there was a removal system. Both possibilities need further examination. “The lower levels for waste” should therefore not be read as if it said that the whole year's waste remained there until the passengers left.

The straightforward explanation is that the animals produced much waste and needed an orderly place for handling it. That explains the need for management, but does not decide whether the space was permanent storage, a temporary collection area or both.

3. Abarbanel: Only Part of the Lower Deck

Abarbanel gives a detailed arrangement: people on the upper deck, animals and some food in the middle, and food alongside waste below.

He writes: “The bottom level too was partly for food and partly for waste.”³

2. Babylonian Talmud, Sanhedrin 108b: the division of the decks and Rav Chisda's teaching about the boiling hot Flood waters. The division does not specify how much waste was retained or how often it was removed.

3. Abarbanel on Genesis 6: the continuous discussion beginning at verse 14, in his explanation of verse 16. Part of the lower deck is for food and part for waste.

On his interpretation, the question “Why an entire deck just for waste?” becomes narrower: the lower deck was not devoted exclusively to it. This significantly corrects the picture we may have in mind. However, Rashi himself does not explicitly give this explanation, and it still does not explain why waste was not taken outside.

One could try to calculate how much waste accumulated over a year. Yet there are no agreed figures for the number of animals, the amount of their excretions or the compartment’s volume. Such a calculation may illustrate the need for space; it cannot decide how the waste was handled.⁴

4. Why Below? Easing Noah’s Work

Before asking whether waste left the ark, we should ask why its place was below.

Levush Ha-Orah explains the convenience of Rashi’s arrangement: it is easy to lower waste from the middle deck to the bottom one. If the collection area were above, the waste would have to be carried up instead of down. This reduces the repeated labor of Noah and his sons.⁵

This is a concrete explanation: the waste compartment’s location makes the work easier and separates the waste from the human living quarters. It concerns movement within the ark. The question of further removal to the outside still lies ahead.

5. Other Arrangements in Rabbinic Sources

Bereishit Rabbah presents two arrangements.

In one, waste is below, Noah, his sons and the ritually clean animals are in the middle, and the unclean animals are above. In the other, waste is above. This view is introduced as “some

4. Calculations of the amount and volume of waste in the ark are not used here as a basis for deciding the question; agreed data for such a calculation are lacking.

5. Levush Ha-Orah, Genesis 6:16, in his discussion of Gur Aryeh. He explains the convenience of lowering waste and the use of the window and precious stone at different times.

reverse the arrangement”: the positions of waste and unclean animals are exchanged. Pirkei de-Rabbi Eliezer describes yet another arrangement.⁶

Source or view	Lower deck	Middle deck	Upper deck
Babylonian Talmud and Rashi	Waste	Animals	People
Bereishit Rabbah: one view	Waste	Noah, his sons and clean animals	Unclean animals
Bereishit Rabbah: reversed arrangement	Unclean animals	Noah, his sons and clean animals	Waste
Pirkei de-Rabbi Eliezer 23	Domestic and wild animals	Birds	People, creeping creatures and reptiles

Gur Aryeh favors the version placing people in the middle: that deck is better protected from moisture below and the rush of water above. Levush Ha-Orah challenges this arrangement because of odor, moisture and the labor of carrying waste, and defends Rashi’s division.^{7,5}

One might suggest that placing waste above was intended to reduce odor rising into the living quarters. This is a proposed explanation of the location, not a reason explicitly stated in the Midrash. These considerations do not yield one agreed plan: ease of work, odor, moisture and protection may point toward different preferences.

6. An Explicit Reference to Removal Outside

So far we have considered the compartment’s location.

5. Levush Ha-Orah, Genesis 6:16, in his discussion of Gur Aryeh. He explains the convenience of lowering waste and the use of the window and precious stone at different times.

6. Bereishit Rabbah 31:11: the deck arrangements and the discussion of katraktin. Several opinions are presented; they should not all be identified with the Babylonian Talmud’s arrangement.

7. Gur Aryeh, Genesis 6:16, on “the upper ones for people.” He favors the version placing people in the middle and explains its protection from the water.

Now to the central question: did the waste stay in the ark, or was the compartment a stop on its way out? Torah Temimah offers a brief explanation addressing the difficulty. It notes an advantage of placing waste below: “so that the waste could descend outside.”⁸

The lower compartment may therefore have been part of a removal route. Assigning it to waste does not require the waste to remain there permanently. This is an explicit source for outward removal, rather than only a suggestion by a modern reader.

Torah Temimah does not specify how much was removed, through which opening or how frequently.

7. A Water Channel to Flush the Waste

Radal, Rabbi David Luria, interprets the openings mentioned in Pirkei de-Rabbi Eliezer as a system admitting a water channel to give the animals water and flush their waste.

He describes briefly opening it and closing it immediately, so that no more water than needed would enter the ark.⁹

According to the Sages, the Flood waters were boiling hot, raising the question of how they could be used. Radal proposes cooling the water. Within his explanation, its heat does not prevent using water to handle the waste.²

The distinction matters: Radal is interpreting a tradition that distributes animals among the decks differently from Rashi. His flushing system should not be combined with Rashi’s deck arrangement and presented as though the combined plan came from a single source.

2. Babylonian Talmud, Sanhedrin 108b: the division of the decks and Rav Chisda’s teaching about the boiling hot Flood waters. The division does not specify how much waste was retained or how often it was removed.

8. Torah Temimah, Genesis 6:16, note 24: the advantage of allowing the waste to descend outside.

9. Radal’s commentary on Pirkei de-Rabbi Eliezer 23, notes 7 and 9: flushing through a water channel and waste descending from each deck. His explanation addresses the arrangement in Pirkei de-Rabbi Eliezer.

8. Katraktin: a Scraper or a Passage?

Katraktin is a rare word appearing in the Midrash's description of waste handling.

Commentators differ over its meaning. Matnot Kehunah understands it as a tool used to scrape the waste to the sides. On this reading, it concerns arranging waste inside the compartment; the wording alone does not describe taking it out into the water.¹⁰

Radal understands the device as a passage through which waste flows downward. The readings differ: one emphasizes scraping, the other passage and flow. Katraktin should not automatically be translated as a window for disposal outside.⁹

The important shared point is that the sources discuss how waste was handled, rather than merely declaring that a storage area existed. The details depend on the interpretation adopted.

9. Perhaps Opening the Ark Was Unsafe

One could suggest that danger from the water sometimes required keeping waste inside. During a storm, opening a low aperture could endanger the ark's occupants. Perhaps the collection area was particularly needed in the initial period, and removal became possible later.

Or Ha-Chaim asks how Noah knew that opening the window would not lead to drowning. This gives the concern some grounding, but he does not explain that it was the reason for the waste compartment. The connection remains a suggestion.¹¹

Forum participants have also proposed two considerations of convenience: avoiding carrying every load of waste up to a high

9. Radal's commentary on Pirkei de-Rabbi Eliezer 23, notes 7 and 9: flushing through a water channel and waste descending from each deck. His explanation addresses the arrangement in Pirkei de-Rabbi Eliezer.

10. Matnot Kehunah on Bereishit Rabbah 31:11, on katraktin: a tool for scraping waste to the sides. It does not explicitly say that the waste was thrown outside.

11. Or Ha-Chaim, Genesis 8:6: how Noah knew that opening the window would not lead to drowning. Connecting this to waste collection is a suggestion made here, not Or Ha-Chaim's own explanation.

window, and not depending on immediate disposal every time. No classical source found describes initial storage followed by later removal. It remains a proposed possibility, without knowledge of the actual work routine.¹²

10. A Precious Stone Does Not Exclude a Window

Some reasoned that if the tzohar, the ark's source of light, was a luminous stone, there was no window through which waste could be removed.

Yet the Torah itself says that Noah opened a window. Levush Ha-Orah explains that both a window and a precious stone had a role: during rain and wind the window was closed and the stone used; when possible, light and air came through the window.⁵

The statement that Noah opened the window after forty days does not prove that it had never previously been opened. Malbim explains that from then on it remained open, whereas previously it was opened and closed.¹³

The sweeping argument "There was no window, or it stayed closed all year, so everything was kept" therefore fails. A more limited possibility remains: there were times when opening it was difficult or dangerous. Nor does "Hashem shut him in" by itself give a detailed account of every opening and its possible use throughout the year.

11. Proper Conduct Even in a Ruined World

The explanations so far concern waste handling.

There is also a moral reading that finds a lesson in the ark's orderliness: even when Noah was almost alone in the world, he

5. Levush Ha-Orah, Genesis 6:16, in his discussion of Gur Aryeh. He explains the convenience of lowering waste and the use of the window and precious stone at different times.

12. Suggestions by participants in the Kotel Ha-Mizrach discussion "Why did they not throw the waste out of the ark?" and the Otzar Ha-Torah discussion "Why did they not throw the waste out through the tzohar?" These are suggestions for discussion, not rabbinic source texts.

13. Malbim, Genesis 8:6: previously the window was opened and closed; from this point it remained open.

did not throw waste wherever he pleased. Providing a designated place for it teaches responsibility and cleanliness.

An article by Rabbi Ben Tzion Nordman cites this approach in the name of Rabbi Eliezer Pal and his book *Cheshav Ha-Efod*. It is a lesson in proper conduct, not an explanation that manure was retained to fertilize fields after the Flood.¹⁴

It has also been suggested that throwing waste into the Flood waters, through which that generation was punished, would be inappropriate; and that the ark represents separation from the world being destroyed. These are moral and conceptual approaches. The reported attribution to the Zohar was not verified, so the explanation should not be presented as a verified Zohar passage.¹⁵

12. Could Zevel Mean Fertilizer?

The linguistic question certainly has a place: animal droppings serve as fertilizer, and rabbinic Hebrew uses *zevel* in agricultural contexts.

Yet this does not tell us why the droppings were collected in the ark. Material suitable for fertilizer may also be collected simply because it is waste that must be removed from living quarters.

The proposal that food was grown in the ark is interesting because it gives waste a positive role during the stay. Fertilizing the ground after leaving is a different suggestion, discussed separately in section 16. On the hypothesis, the ark's lower part could belong to a system in which animal waste helped produce the animals' food. But a source connecting those two functions is needed to say that this happened; the word's possible meaning is insufficient.

14. Rabbi Ben Tzion Nordman, "Noah's Ark: a Lesson in Proper Conduct through the Garbage Chute," cites a moral lesson in the name of Rabbi Eliezer Pal and his book *Cheshav Ha-Efod*. The article, not the book itself, was examined; it does not attribute to him the claim that manure was saved for fields.

15. The attribution to Zohar, Noach, folio 67, was relayed in a report about the leaflet *Ya'ir Derakhi*. It was not checked in the original and is therefore not presented here as a statement of the Zohar.

13. Stored Food and Planting Material

Noah was commanded to gather food in advance.

Rashi explains that the covenant was needed so that the fruit would not decay or grow moldy. Abarbanel describes space for a year's food supply. The tradition thus explicitly addresses the food question without requiring crops to be grown inside the ark.^{16,3}

Noah also brought planting material aboard. The Midrash on the vineyard he planted after leaving explains where his vine cuttings and plants came from. This supports preserving plant material for the world after the Flood; it does not support using manure to grow crops inside the ark.¹⁷

Stored food explains how the ark's occupants survived, but does not rule out all additional growing. We can also ask whether there was suitable light for plants: the sources about the window and luminous stone do not describe growing conditions. No explicit source for growing plants inside the ark was found among the rabbinic texts and classical commentaries included in the inquiry. A modern proposal of that kind follows.

14. A Modern Precedent for Growing Food

An article by Joe Silver proposes an ark that produced its own food: plants on the upper deck, animals in the middle and waste below.

The author suggests that gases rising from the waste contributed to the soil on the growing deck.¹⁸

3. Abarbanel on Genesis 6: the continuous discussion beginning at verse 14, in his explanation of verse 16. Part of the lower deck is for food and part for waste.

16. Rashi, Genesis 6:18, on "I will establish": preserving fruit from decay and mold. Compare Bereishit Rabbah 31:12.

17. Bereishit Rabbah 31:14 mentions planting material; 36:3 connects it with the vineyard planted after leaving the ark. See also Rashi, Genesis 9:20.

18. Joe Silver, A Look Inside the Ark, TorahTable, published October 15, 2023. He proposes growing food and a link between gases from waste and the soil, without a classical source for that link. This is a modern proposal, not traditional evidence or scientific validation of the mechanism.

This is close to the proposal of fertilization during the stay, but is not the same as transferring droppings into planting beds. The author adds many assumptions, including a transparent roof and rapid crop maturation. These belong to his reconstruction, not to details stated by Rashi.

The idea has therefore already appeared in modern writing. It is a modern author's reconstruction based on assumptions not supplied by the sources. It is not a tradition of the Sages and does not itself scientifically validate the mechanism.

15. Producing Live Food and Recycling Waste

The Talmud relates that Noah discovered what the zakita ate when it consumed a worm that came out of a pomegranate. He subsequently prepared material that developed worms for it. Here food was produced within the ark, rather than merely distributed from stored supplies.¹⁹

But the source is specific and limited: live food from material that developed worms, not plants fertilized with manure. Forum participants have also proposed using waste as food for certain species, or as material from which food developed. Without evidence concerning the animals and the preparation method, these remain hypotheses.¹²

Interpreting every mention of zavel as food rather than waste is difficult to reconcile with commentators discussing scraping and flushing. Even if some waste could be useful, that does not turn the entire waste compartment into a food store.

16. Fertilizer After Departure and Ballast

One might speculate that retained material was used to fertilize the ground after leaving the ark.

¹². Suggestions by participants in the Kotel Ha-Mizrach discussion "Why did they not throw the waste out of the ark?" and the Otzar Ha-Torah discussion "Why did they not throw the waste out through the tzohar?" These are suggestions for discussion, not rabbinic source texts.

¹⁹. Babylonian Talmud, Sanhedrin 108b, the account of the zakita: preparing material that developed worms for it to eat. Commentators discuss the identification of the chizra mentioned in the Talmud.

This differs from growing food inside it. Even if it was used after the Flood, we still would not know whether it was collected for that purpose or how much remained.²⁰

Another suggestion is that waste below served as weight helping to stabilize the ark. This proposes a possible role for heavy material in a low compartment. No source for it was found in the commentaries examined, and no calculation was presented showing that the waste was needed for this purpose. A general principle of vessel stability should not be turned into an account of Noah's ark.

17. The Plain Meaning and the Spiritual Reading

Alongside the practical questions, commentators found spiritual significance in the ark's structure.

A symbolic reading sees an idea expressed in the story's details; it is not intended to describe the actual removal system. Kli Yakar sees the three decks as alluding to the three worlds. The ark reflects an order of existence preserved within the Flood. Its structure thus opens an inquiry into its spiritual meaning as well.²¹

Readings concerning the world of Asiyah, the separation of spiritual waste and the extraction of sparks have also been reported. These ideas must be distinguished from our practical question. A symbolic reading can teach what the decks express in a person's spiritual service without saying whether waste was retained or flushed away. The additional attributions were not verified here and are therefore not presented as quotations from particular authors.

²⁰. Fertilizing the ground after leaving the ark is discussed here as an agricultural hypothesis. No explicit description of this use of the ark's waste was found in the sources included in the inquiry.

²¹. Kli Yakar, Genesis 6:16: the ark and the three worlds.

18. A Map of Explanations and Hypotheses

The table distinguishes an interpretation found in a source from a hypothesis proposed for consideration.

An explicit interpretation is not necessarily accepted by all sources. A hypothesis that has not been proved is not thereby disproved, but proposing it does not itself establish its practical feasibility.

Explanation	What does it seek to explain?	Its standing
Separating waste from living quarters	The need for an orderly collection area	A practical reading of the arrangement; does not prove that everything was retained
Only part of the lower deck for waste	Why an entire deck would be devoted solely to waste	Explicit in Abarbanel; not explicit in Rashi
Easy downward transfer	The convenience of the lower compartment	Explicit in Levush Ha-Orah
Odor, moisture and protection	Why different arrangements exist	Considerations in the commentators' discussion; no single agreed arrangement
Descent outside	A collection area as part of a removal route	Explicit in Torah Temimah; the extent of removal is not stated
Flushing with a water channel	Handling and removing waste from the decks	Radal's interpretation of the Pirkei de-Rabbi Eliezer tradition
Danger in opening; temporary storage	Why immediate removal might not always occur	A proposal with indirect grounding, not an explicit account
No window; always closed	A reason to retain all waste	The sweeping argument does not withstand the interpretations of the window
Proper conduct and separation	The lesson of an orderly place for waste	A moral reading, not a demonstrated removal plan

Explanation	What does it seek to explain?	Its standing
Fertilizer for crops inside the ark	Using waste to produce food during the stay	Hypothesis: a modern precedent exists; no classical source linking waste to growing crops inside was found
Recycling as animal food	A useful role for some waste	A hypothesis; the zakita account does not prove use of waste
Fertilizer after the Flood; ballast	An additional role for collected material	Not established in the sources examined
The three worlds; spiritual refinement proposals	The meaning of the ark and its decks	Symbolism in a source: the three worlds in Kli Yakar. Other attributions remain unverified; this does not decide the removal question

19. What Can We Conclude?

A waste compartment is attested, and there is an explanation of the convenience of placing it below. Some interpretations also include outward removal or flushing. We cannot establish that all waste was retained throughout the year, or how much was kept.

Using manure to grow food inside the ark is not an explanation found in Rashi or the Sages. It is a hypothesis worth considering, with a modern precedent. The sources about stored food explain how the ark's occupants survived without that hypothesis, but do not establish that no such cultivation occurred.

Alongside stored food, the zakita account also describes preparing live food inside the ark. This is a limited finding: it does not teach crop cultivation or the use of manure, but shows that feeding was not entirely a matter of distributing food prepared in advance.¹⁹

¹⁹ Babylonian Talmud, Sanhedrin 108b, the account of the zakita: preparing material that developed worms for it to eat. Commentators discuss the identification of the chizra mentioned in the Talmud.

Sources by Topic

Topic	Reference
Division of the decks	Sanhedrin 108b; Rashi, Genesis 6:16
Arrangements and waste handling	Bereishit Rabbah 31:11; Matnot Kehunah there
Food and planting material	Bereishit Rabbah 31:12, 14; 36:3; Rashi, Genesis 6:18
A shared deck; a year's food	Abarbanel on Genesis 6, explaining verse 16
Ease of work and human protection	Levush Ha-Orah and Gur Aryeh, Genesis 6:16
Removal outside	Torah Temimah, Genesis 6:16, note 24
Flushing with a water channel	Radal on Pirkei de-Rabbi Eliezer 23, notes 7 and 9
Opening the window	Malbim and Or Ha-Chaim, Genesis 8:6
Proper conduct	Rabbi Nordman's article citing Rabbi Pal; a secondary account
Growing crops inside	A modern proposal: Joe Silver, TorahTable
The three decks' meaning	Kli Yakar, Genesis 6:16