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RELIGION VS. SCIENCE: THE COPING OF MEDIEVAL AND
MODERN RABBIS (XIX-XXIST CENTURIES) WITH THE
QUESTION OF THE EXISTENCE OF THE TALMUDIC
“EVOLUTIONARY MOUSE”

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Abstract: The current paper focusses on the identifications and the approaches of the medieval and modern halakhic authorities to the existence of the Talmudic “evolutionary mouse” (a mouse that is half flesh and half earth). Rashi believed that this was a squirrel, and R. Israel Lipschuetz tried to prove by the contemporary zoological knowledge that this was the jerboa. R. Kapach demonstrates unusual opinion. Not only is he attentive to emerging news concerning nature in the modern world, but he also held his own observations of the “evolutionary mouse.” According to his findings, this was not an “evolutionary mouse” but rather mice covered in mud. He also argues that there is no proof of this phenomenon in modern zoological books, showing that this is a legend and not reality. The experiments of Louis Pasteur proved that the comprehension of spontaneous generation is unfounded. The new empirical discoveries that refuted the spontaneous development of creatures are one of the many cases of the dispute between science and religion. In the 20th-21st centuries, there are still halakhic authorities who hold the attitude of the ancient rabbis, such as R. Menachem Mendel Schneerson and R. Ovadia Yosef, the Sephardi Chief Rabbi of Israel from 1973 to 1983.

Key words: Judaism; evolutionary mouse; modern halakhic authorities; spontaneously generating; ancient zoological knowledge; omne vivum ex vivo; jerboa; R. Israel Lipschuetz; R. Menachem Mendel Schneerson; R. Yosef Kapach; R. Ovadia Yosef.

1. Introduction

The ancient non-Jewish and Jewish literature mention many creatures with exceptional characters. A miraculous mouse that is "half flesh and half earth" and is in a process of creation ("evolutionary mouse") was described in the writings of Greek and Roman sages, such as in the works of Diodorus Siculus (1 century BC) (Diodorus 1933, I: 10, 1-7), Ovid (43 BC–17/18 CE) (Ovid 1916, I: 423-438; Lieberman 1963, 183-184) and Pomponius Mela (died c. 45 CE) (Pomponius Mela 1880, I: 9.3.52). The phenomenon of "Evolutionary creatures", such as lice formed from sweat and dirt or worms that develop spontaneously in fruit grounded in a broader outlook mentioned by Aristotle (384-322 BC) concerning spontaneously generating creatures (Aristotle 1965, V, 1; Shemesh 2006, 509-519).

One of those who testified to the existence of half-mice was Pliny the Elder (23-79 CE) that mentions these mice when describing the flooding in areas near the Nile in Egypt. He relates that the mice can be seen when the water that floods the fields retreats to the river's normal channel. It is evident that these mice are alive, but one part of their body is incomplete and is made of earth (Pliny 1938–1962, IX, 84). It should be noted that the Greco-Roman scholars associate the half-mouse with the Nile's high and low tide, and medieval sources also limit its geographical range to Egypt (see below).

The first mention of "evolutionary mouse" in Jewish literature is in the first and second centuries CE. The Mishnah in Hulin 9:6 discusses this mouse concerning laws of *Tumah and taharah*, i.e., purity and impurity. According to the first opinion in the Mishnah, a person who touches the flesh of this mouse is rendered impure; however, one who touches the earth part of the mouse does not become impure as this part has not yet become a flesh. R. Yehuda, from the fourth Tannaim generation, disagrees and is of the opinion that since the mouse will eventually, at the end of the process, become a creature of the flesh, it is impure at this stage as well.

"A mouse that is half flesh and half earth" is also mentioned the Sifra, a midrash halakha on the book of Leviticus from the rabbinical period (Weiss 1862: Shmini, 5: 4-6). The Sifra distinguishes between two types of mice – A mouse that is capable of reproducing, and a mouse that is half flesh and half earth, created of the earth, that is incapable of reproducing. Two major debates in the Babylonian Talmud (5th century CE) discuss the mouse formed of earth. The discussion in Tractate Hulin 126b is an interpretation on the Mishna in Tractate Hulin 9:6 concerning matters of purity and impurity of the mouse. In Sanhedrin 91a, the mouse is mentioned as a part of an ideological discussion on the resurrection of the

dead. Rav Ammi, Israeli sage in the third generation of amoraim, illustrates the possibility of resurrection by the process of creating the half-mouse. He argues that this process shows how earth is transformed into a living creature. He brings in support the example of snails that are “born” of the earth after the rain.

2. Purpose of the article and the research questions

The current study focusses on three major interpretations and commentaries from the Middle Ages and modern times concerning the identification, the nature and the development of the “Evolutionary Mouse”. The article shall include a discussion of Rashi’s commentary on the Talmud (11th century), Maimonides’ commentary on the Mishna (12th century), and R. Israel Lipschuetz’s commentary on the Mishna (19th century). The methodological consideration underlying the choice of these interpretations is twofold. One reason is the major role and significance of these sages in the literature consisting of commentaries on the Mishna and on Talmudic sources. The second is the fact that the sages mentioned offered meaningful zoological and cultural interpretations worthy of attention.

In the second part of the paper, in the discussion chapter, I shall examine the approaches of the modern halakhic authorities (20th-21st Centuries) to the Existence of the “Evolutionary Mouse”. I will focus on three dominant rabbis – R. Menachem Mendel Schneerson (1902-1994), R. Yosef Kapach (1917-2000), and R. Ovadia Yosef (1920-2013).

The questions explored in the discussion of this issue are:

1. Is the “Evolutionary Mouse” is the house mouse (*Mus musculus*) or another rodent? How did the Talmudic commentators identify this creature?
2. How did the commentators’ zoological knowledge and their environment affect their suggestions at identification?
3. How did the modern rabbis handle the new discoveries proving that such a creature does not in fact exist?

3. “A mouse that is half flesh and half earth” in medieval and modern literature

Aristotle’s approach concerning spontaneous generation remained common from the classical era to the Middle Ages and the modern era (See for example, Redi 1688 [1909], 38-43; Bondeson 1999, 193-249). In recent centuries some philosophers, for instance, the English philosopher, Francis Bacon (1561-1626), believed in the spontaneous generation theory in general and in the existence of the half-mouse in particular (On Bacon view see Bacon1831] 1914], XIV, 163; Hadot 2006, 121). Moreover, some

went so far as to claim that mice can be created at will. The Flemish physician, philosopher, mystic, and chemist Jan Baptista van Helmont (1580-1644), who believed in spontaneous generation, provided a recipe to grow mice *de novo*. He writes: "If a dirty shirt is stuffed into the mouth of a vessel containing wheat, within a few days, say 21, the ferment produced by the shirt, modified by the smell of the grain, transforms the wheat itself, encased its husk into mice" (Gallagher and Raman, 2010, 113-114).

Unlike the ancients, it is now clear to modern science that lice, worms, snails, and bees are not formed in a process of spontaneous generation. They develop from eggs or larvae laid in the fruit or food by flying insects. The campaign against this mistaken outlook was waged over a period of 200 years and was criticized by several notable researchers. William Harvey (1578-1657) stated in his book *Exercitationes de generatione animalium* (On Animal Generation, 1651): "omne vivum ex ovo", that is "all life comes from the egg" (On this statement see Needham 1934, 133-153; Dubos 1960, 159). To a similar conclusion has come the Italian physician and biologist Francesco Redi, in his book *Esperienze intorno alla generazione degl' Insetti*, which was published in 1688 (Redi 1688, 187).

One of those who opposed the spontaneous generation theory was Louis Pasteur (1822-1895). Following an experiment he conducted on the reproduction of microorganisms in a nutrient broth, he reached the conclusion summarized in the phrase *omne vivum ex vivo*, i.e., "all life [is] from life" (Dubos 1960, 187). Pasteur's conclusion finalized the revolution that occurred in the philosophy of the natural sciences from classical to modern times (Levine and Evers 1999).

3.1 The half-mouse in Rashi's commentary – a squirrel

R. Shlomo Yitzchaki (Rashi, 1040-1105) was born in the town of Troyes, the capital of Champagne in northern France (On Rashi see Grossman 1995, 121; Lifshitz 1956, 165-285; Schwarzfuchs 2001, 83-89). He is considered one of the greatest commentators on the Bible and on rabbinical literature, and in his extensive works he devoted a great deal of attention to realistic terms mentioned in ancient sources. In his commentary, Rashi explained concepts from many fields: the names of beasts and fowls, geographical topics, technical, industrial, and production terms (Grossman 1995, 121-250; Shapira 1962, 145-161; Shereshevsky 1982, 155-239). Rather than making do with explaining the biblical or Talmudic terms, he often notes their names in Old French, making it possible to comprehend their exact nature.

Rashi was undoubtedly a knowledgeable and exacting commentator. When he encountered terms that were unknown to him he noted this. Sometimes he suggested interpretations by other sages, which he had heard in their name or in person. Analysis of his interpretations on natural subjects shows that Rashi acquired his knowledge on these

subjects from three main sources: a. the Jewish sources themselves (Felix 1980, 260-264); b. traditions conveyed to him by his teachers or through rumors (See

Rashi's commentary on Babylonian Talmud, Berakhot 39a, entry 'dormaskin'; Sukkah 39b, entry 've-ha-Karpas shel Neharot'); c. his personal experience, for instance, on topics concerning vines and wine due to his association with vineyards and wineries.

In his commentary on Hulin 126b, Rashi explains that a "mouse that is half flesh and half earth" is generated independently (spontaneous generation) from the earth. He says that the development of living creatures from inanimate material is a more extensive phenomenon and that it is evident in the formation of worms from garbage or rotten matter. In his interpretation of the Talmudic section he writes: "There is a type of mouse – which does not reproduce but which is itself made from dirt, as trash which teems with worms, and if the mouse has not yet been created – only its right or left half – one who touches the flesh is impure, the dirt side is pure". Rashi's words indicate that the mouse's flesh forms on one side of its body, the right or the left, and not in the front or back as suggested by others.

Many of the commentators and researchers agree that the mouse mentioned in the ancient Jewish sources is the house mouse, but the term "mouse" may also include other rodents, such as rats and voles (see for example, Lindau 1789, 29b). In his commentaries on the Bible and Talmud, aside from two cases, Rashi did not further explain the word mice. His silence on this matter gives the impression that he identified the word "mouse" (*akhbar*), as did the large majority of the commentators, with mice or mice-shaped rodents. However, in two of his interpretations to the Talmud he made an exception.

In his commentary on Sanhedrin 91a Rashi explains that the mouse formed from the earth rather than by mating and whelping is the squirrel. He writes: "Mouse – that called *escurel*, and some of this species are not born by reproduction". Rashi suggested that the term "mouse" be identified with the squirrel in another Talmud discussion as well. Tractate Avoda Zara 68b discusses whether a mouse, which is an impure animal (Leviticus 11:29), who falls into a cask of beer prohibits the entire cask or not. The discussion includes the claim that the field mouse (apparently *Mus macedonicus*), which lives in the wild, should be distinguished from the town mouse, i.e., one that lives in habited areas and in houses (*Mus domesticus*) (On the differences between *Mus macedonicus* and *Mus domesticus* see: ÇOLAK and others 2006, 309-317).

According to the Talmud, the wild mouse is a delicacy "served on royal tables", meaning that the redactor was familiar with a culture in which mice were eaten (See for example Isaiah 66: 17; Braier 2004, 155-156). Hence, since the mouse enhances the drink – it forbids it, as the prohibition is significant. In contrast, the house mouse is a repulsive

animal that detracts from the taste of the beer and thus does not prohibit it. The distinction between the two types of mouse was not explained in the Talmud. This may be a cultural matter and not only a matter of taste. Mice caused harm to food and utensils, and their image in rabbinical sources is extremely negative, and due to the damage they cause, mice are called "evil" or creatures "that do bad" in Talmudic literature (See *Jerusalem Talmud*, Baba Metziah 3:4, 9b; *Babylonian Talmud*, Horayot 13a; Shemesh 2005, 47–73; Werness 2006, 285).

In his commentary on the section in Tractate Avoda Zara, Rashi distinguishes between the two types of mice as follows: "a town [mouse] – a mouse of habited areas [=house mouse] is repulsive. A field [mouse] – *escurel* in foreign language [is not repulsive]". As noted by Moshe Catane, in Old French *escurel* means squirrel (Catane 2006, 130, 142). Namely, in contrast to the house mouse that is repulsive and its taste detracts from the liquor, squirrel meat is delectable, and therefore the liquor is forbidden.

Rashi's identification in these two sources raises several questions:

- A. Why did he suggest that the mouse be identified with the squirrel in these contexts? Can a connection be found between the squirrel and the mouse?
- B. Is it possible to speculate what species of squirrel he meant?
- C. What possible source is there for the identification tradition suggested by Rashi?

From a taxonomic perspective, mice, rates, and voles, as well as the *Sciuridae* family, belong to the *Rodentia* order. The different species that belong to this order have similarities and common features, of which they most conspicuous is that they consume their food by gnawing. It is not impossible that due to these similarities Rashi perceived the squirrel as a species that is related to the mouse and therefore suggested in these two cases that the Talmudic mouse be identified specifically with the squirrel. Various species of squirrel lived in Rashi's area of residence in northern France, so his interpretation of the two sources was affected by the animals familiar to him. In fact, in Eretz Israel there is only one type of squirrel, the Caucasian squirrel, or Persian squirrel (*Sciurus anomalus*), which lives in the region of Mt. Hermon in the north, and this does not appear to be the species mentioned by the ancient sources (Mendelssohn and Yom-Tov 206, VII, 1990, 96).

Rashi seems to have identified the field mouse as having the good flavor of the squirrel, as in medieval European cuisine it was customary to hunt squirrels for food (On squirrels as food in medieval times see Adamson 2001, 166). In contrast, in daily life it was not customary among European society to eat mice as they were considered repulsive food. Regarding the view that the squirrel was formed from the earth, this appears to refer specifically to a species of squirrel that lives on the

ground and not to the tree squirrel. Rashi may have been referring to the European ground squirrel (*Spermophilus citellus*), which is within the tribe *Marmotini* of the *Sciuridae* family.

This species lives in burrows in the ground and is common from central to eastern Europe (Thorington & Hoffmann 2005, II, 754–818). It is to be assumed that the view whereby the squirrel is formed from the earth derives from a similar reason to that mentioned above. The ground squirrel spends many hours every day in burrows and comes out every once in a while. Sometimes, particularly in rainy seasons, its fur might become muddy, leading to the misconception that it is formed from dirt. Regarding the source of the view that the squirrel is formed from the earth, no European tradition, for instance in the bestiary literature, has been found to support this. It may have been a personal suggestion based on personal observations or perhaps Rashi heard this in the study halls of Mainz and Worms in Germany, where he studied and acquired an extensive Torah education.

In the medieval European zoological literature, it was the mouse that was perceived as a creature formed of the earth. The theologian and archbishop of Seville, Isidore of Seville (c. 560–636 CE) devoted a chapter of his *Etymologies* to small animals, rodents, and small carnivores (*De minutis animantibus*= Small animals). He writes on the mouse: „The mouse (mus) is a tiny animal. Its name is Greek, but any form declined from it becomes Latin. Some people say that they are called mice because they are born from the moisture of the earth, for mus is “earth,” whence also the word ‘soil’ (humus)” (Isidore of Seville 2006, XII, iii 1, 254).

Isidore of Seville indicates that some found a connection between the name of the mouse and its origin from the earth. Namely, the name “mouse” comes from the word “humus”, which means earth. Isidor repeats this view in the chapter on improving earth by using fertilizer (*De cultura agrorum*=The cultivation of fields). He writes: "Dung is also called droppings (fimus), which is dropped on fields. And it is called fimus [because “a mouse is made” (fiat mus)] (Isidore of Seville 2006, XVII, ii 3, 337). As Barney and others claim some manuscripts use a similar term "fiat imus, that is “it is made the lowest thing.” (ibid, note 2).

3.2 Maimonides’ interpretation – a questionable phenomenon supported by many testimonies

Rabbi Moses ben Maimon (Maimonides) was a halakhic authority, philosopher, and preeminent physician. He was born in Cordova, Spain in 1138. When the Almohads (الموحدون) from North Africa invaded the Iberian Peninsula in 1148 his family was forced to leave Cordova and travel through southern Spain and arrived in Fez, Morocco in 1160. In 1161 when he was still in Fez, he began to work on his *Commentary on the Mishnah*,

which was finished in 1168 (Langermann 2007, 726-727). Maimonides arrived in Egypt in 1166 and eventually settled in Fustat, a section of Cairo, where he lived until his passing in 1204. Between 1170 and 1180 he compiled his great halakhic book *Mishneh Torah*. In Egypt, Maimonides was appointed as a personal physician to the Ayubi ruler Saladin, the sultan of Egypt and Syria, and his son al-Fadil (Rosner 1969, 221-235; Goitein 2005, 134-35, 192).

The belief in spontaneous generation was common among scientists throughout the Muslim world, where Maimonides lived and operated. Ibn Sina (c. 980–1037) and Ibn Rushd (Averroes, 1126–1198) suggested explanations that contrasted with the theory of spontaneous generation, and on the differences between them writes Dag Nikolaus Hasse: "While Avicenna holds that spontaneous generation depends upon ever more refined mixtures of elementary qualities which trigger the emanation of forms from the active intellect, the giver of forms, Averroes explains it with the influence of certain celestial constellations which actualize potential forms in water or earth" (Hasse 2018. See at length Hasse 2007, 150-175).

The Persian physician, geographer, and astronomer Al-Qazwini (1203–1283) claimed that the spontaneous generation of small-sized creatures contributes to the ecosystem. He writes: "And thus Allah created the rodents from rotting matter so that they would purify the air. Bad air brings epidemics and causes the death of animals and plants. [...] Allah created them [the flies and worms] in His wisdom from rotting matter so that they would absorb this matter and destroy it. In this way, the air would remain clean and free of disease" (al-Qazwini 1957, II, 168-169).

Fundamentally, Maimonides accepted the spontaneous generation theory. For instance, in his discussion on killing insects on the Sabbath he distinguished between creatures formed by mating between a male and a female and those formed from the earth or from rot. In his halakhic compilation "*Mishneh Torah*," he writes: "A person who kills insects and worms that are conceived through male-female relations or fleas that come into being from the dust is liable as if he killed an animal or a beast. In contrast, a person is not liable for killing insects and worms that come into being from dung, rotten fruit, or the like - e.g., the worms found in meat or those found in legumes" (Maimonides, *Mishne Torah* 2002, Hilkhut Sabbath 11:2).

Maimonides takes a strict stance and ruled that insects created from dirt must not be killed although they are not reproduced by a male and a female. In contrast, insects formed from animal droppings or rotten fruit – he who kills them is exempt from punishment, but this is forbidden to begin with. The distinction he suggests raises two questions:

1. What is the difference between the formation of a living creature from the earth or from rot, as both are spontaneous creations and not the product of mating?

2. From where did Maimonides derive this distinction? In the current setting, we shall not endeavor to answer these questions, rather we shall focus on the half-mouse.

In his commentary on the Mishnah, Bava Metzia 3:7, Maimonides identified the mouse by the Arabic name of *al-Jardhan* (الجرذان), i.e., a rat (*Rattus* sp.). But he did not normally bring a specific identification, probably because he saw the term as a collective noun for various species of rodents that are similar to the house mouse (in Arabic: فأر), which are included in the suborder *Myomorpha* (mouse-like rodents). Maimonides discussed the phenomenon of a vermin/mouse formed from dirt in two of his compilations. In "Mishne Torah" he did not explicitly mention a mouse rather vermin, i.e., he adhered to the wording that appears in the versions of the Mishna, "vermin that is half flesh and half earth" (*Mishne Torah*, *hilkhot shear avot ha-tumah* 4:11). In contrast, in his commentary on the Mishna, in Hulin 9:6, he noted that this is a mouse (Maimonides 1970, Hulin, 87B).

In contrast to Rashi, who accepted the words of the Talmud and ascribed the phenomenon to the squirrel, Maimonides noted that this is a questionable state that is hard to explain, although he stressed that there is much evidence of it in his time as well. He writes: "and the existence of the mouse only from the earth such that it is partly flesh and partly earth and mud and it is a well-known matter, endless people have told me that they saw this, although the existence of such an animal is puzzling and cannot be explained" (Maimonides 1970, Hulin 9:6).

Maimonides reported that many people told him that they had seen such a mouse but did not describe the mouse or its behavior or note its name in the local dialect. It may be assumed that the source of the testimonies to which Maimonides was exposed was in Egypt itself (compare to the words of Pliny the Elder, above), as he was there as part of his activity as the court physician of the Ayubi ruler al-Fadil, son of Sultan Saladin.

3.3 R. Israel Lipschuetz: A mouse that is half flesh and half earth – the jerboa

The issue of the existence of the half-mouse continued to bother Jewish religious leaders in modern times as well, perhaps even more than in ancient times when the spontaneous generation approach was dominant. Scientific development, particularly the growing scientific voices objecting to spontaneous generation and the existence of mythological-imaginary creatures, demanded that the rabbis bring evidence supporting the validity and realistic foundations of rabbinical rulings. The issue of how later rabbis (as well as the Church) resolved new discoveries that contradicted ancient premises based on ancient science or on an unfounded world of beliefs, was the cause of many discussions

among interpreters of the ancient sources and halakhic adjudicators.

This issue requires a wider discussion. In the current setting, I shall note the controversy that arose between the rabbis and proponents of the Enlightenment movement, for instance, in Italy and Germany in the 18th and 19th centuries, concerning lice's reproduction. Notably, the discussion on the relevance of ancient knowledge for halakhic practice was explicitly related to killing lice on the Sabbath and less to half-mice. While delousing and killing lice on the Sabbath had (and still has) practical implications, the discussion of the laws of purity and impurity in the context of mice has lost all practical meaning, as (the large majority) of these laws have not been practiced in the Jewish world since the destruction of the Second Temple.

This topic occupied the Italian rabbi and physician Isaac Lampronti (Ferrara and Padua, 1679-1756). In his halakhic encyclopedia "Pahad Isaac" he argued that since according to the scientific innovations of his time lice are not formed from rot but by the mating of male and female, it is assumedly necessary to rule against the Sages of the Mishna and the Talmud and the halakhic book "Shulhan Aruch" of R. Yoseph Karo (Spain and Eretz Israel 1488-1575), and to prohibit the killing of lice on the Sabbath (Karo 1973, Orakh Haim, 316:9). R. Lampronti sent a question on the matter to his rabbi, R. Yehuda Brill, but the latter did not agree with the former's approach. According to R. Brill, the halakha as ruled in the *Shulhan Aruch* must not be questioned or changed even if science proves otherwise and therefore the sages' decision that it is permissible to kill lice on the Sabbath should be upheld (Lampronti 1874, X, 21b).

One of the later sages who offered "proof" that mice who are half flesh and half earth do exist is R. Israel Lipschuetz (1782-1860) (On his biography and books, see Meir 2005; Weinstock 2008). In his commentary on the Mishna in Tractate Hulin, he cites a nature book published in his time, which appears to claim that such a mouse does indeed exist in Egypt. He writes: "I have heard heretics ridiculing this creature which is mentioned here [=in Mishnah Hullin] and in Sanhedrin [page 91a]. They deny it [=its existence] and argue it is not in reality. So, I have found it important to mention here what was written in an Ashkenazi [=German] book published by a wise and famous person of the nations named Link. In his book, which is called "*Die Urwelt*" (Part I p. 327) he writes that such a creature is found in Egypt in the district of Thebais. This mouse is called in Egyptian language *Dipus Yaculus*, and in Ashkenazi [=German] *springmouse*. Its front, head, chest, and hands are well-formed, but its backside is still bits of earth. However, after a few days, the mouse becomes made entirely of flesh. And I said "O LORD, how manifold are thy works!" (Psalms 104:24)

R. Lipschuetz, who seems to have had access to general sources and not only rabbinical literature, appears to present evidence that the mouse exists from the compilation of the German naturalist and botanist Johann Heinrich Friedrich Link (1767-1851) "*Die Urwelt und das Altertum*,

erläutert durch die Naturkunde" (= "Prehistoric times and antiquity explained by natural history". Berlin 1820-1822).

R. Lipschuetz notes that according to Link this is a type of mouse that exists in Egypt, with the local name *Dipus Jaculus* and called *springmoise* in the language of Ashkenaz. According to these names, this is the Lesser Egyptian Jerboa, with the scientific name of *Jaculus jaculus*. However, it is clear that this is not its Egyptian name, as claimed by R. Lipschuetz (the popular name notes Egypt as its geographical range). The name of the *Dipodidae* family means two legs and it derives from the rodent's long hind legs. The name *shpringmoise* in Yiddish means "jumping mouse" and expresses the jerboa's ability to jump using its hind legs (on the *shpringmoise* (Jerboa) in Jewish European Sources in the 19th century see Abramovich 1862, I, 310-311). R. Lipschuetz relates that the jerboa's forequarters, i.e., head, chest, and hands, are perfectly formed while its hindquarters are still embedded in the earth, and only after several days does it complete its formation and become flesh.

Sid Leiman has already noted that R. Lipschuetz took Link's words out of context and added to them a different meaning. Link stated this in a note he wrote on Diodorus of Sicily's description of the mouse that is half flesh and half earth (Diodorus 1933, I, 10, 1-7). Link writes: "The Springmaus (*Dipus Jaculus*), which dwells in Upper Egypt and is characterized by very short forelegs, doubtless could lead one to conclude that it is a not yet fully developed creature." (translation from German). Leiman showed, justifiably so, that Link did not say that the jerboa is the mouse that is half flesh and half earth of which Diodorus was speaking, rather raised the possibility that it was the source of inspiration for the ancient belief, due to its seemingly undeveloped forequarters (Leiman 1997, 449-458.).

R. Lipschuetz, in contrast, mistakenly understood that Link identified the jerboa as the half-mouse and therefore claimed his words as proof that this creature still exists in Egypt. Moreover, while Link claimed that it is the jerboa's forequarters that are underdeveloped, R. Lipschuetz associated the earthy undeveloped part with the hindquarters. The quote before us clearly indicates that Link did not mention any connection between the jerboa's body structure and earth rather than its short front legs might give the mistaken impression that it has not yet fully developed. Hence, R. Lipschuetz added his own words to those of Link and interpreted the jerboa's "underdevelopment" by saying that it has parts that are still earthy, as understood by the ancients.

The question is, what are the historical and philosophical underpinnings of R. Lipschuetz's attempt to prove the existence of the half-mouse? R. Lipschuetz begins by speaking about his motivation for bringing proof of the existence of the half-mouse from a non-Jewish book of nature. He objects to the voices of "heretic" Jews who not only reject the teachings of the rabbis but do so mockingly due to their irrelevance to

reality. He says that the reality of the half-mouse is proof of the story of the Creation in the book of Genesis (chapters 1-2) and proof against those who claim that the world was not created but rather existed from time immemorial. He writes: "And this is an example of the act of Creation when everything was created from the earth as it was said "Let the earth bring forth living creatures according to their kinds" (Genesis 1:24). And those who believe in an eternal world who deny the Torah say that it was always so, the living begets the living".

R. Lipschuetz's words concerned the question of whether the world was created or is eternal. This question occupied Jewish and non-Jewish philosophers ever since the classical and medieval eras. Three main opinions on the issue of the world's creation or eternity are brought by Maimonides in his philosophical compilation "Moreh Nevokhim" (The Guide for the Perplexed): a. The traditional Jewish approach, stated in the Torah, whereby God created the world, and with it – time; b. Plato's approach whereby God, who is eternal, shaped the heavens and earth from eternal matter that existed from time immemorial, as He cannot create anything *ex nihilo*; c. Aristotle's approach, whereby the world has always existed in its current form, i.e., God always existed and so did the world (Maimonides 1977, II:13, 189-193).

The two Greek philosophical approaches contrast with the traditional Jewish belief, and Maimonides discussed the matter at length and extensively. Here we shall focus on the words of R. Lipschuetz. According to the latter, the formation of the mouse from the earth proves two things: a. That the world and the creatures were created and did not exist from time immemorial; b. The creatures were formed from the earth as related in the scriptures, rather than existing previously and reproducing by mating. As he sees it, the mouse was indeed formed from the earth, and mice continue to be formed in this way, but at a later stage, they began to reproduce by mating.

The heretics that R. Lipschuetz was confronting are probably Jews who belonged to the Enlightenment movement (On the Jewish Enlightenment in Europe in the recent centuries see Feiner 2004; Feiner 2010). R. Israel Lipschuetz lived during the era of the Enlightenment, when conventions customary in Jewish tradition began to be questioned. The "critical" arrows aimed at the ancient sources targeted not only biblical literature but rather also interpretive rabbinical sources that reflect a belief in the existence of this mouse. R. Lipschuetz did not mention names of "heretics" or of the most notable among them, but the Enlightenment movement had its proponents in Germany, for instance, Baruch Lindau (Germany 1759-1849), who rejected the concept of spontaneous generation and wrote: "And there is no insect or animal that is formed from rags or from rotten food or other repulsive things as believed by the masses, as then a new creation would have to have been created and this contradicts the laws of nature and is a well-known lie" (Lindau 1789, 59b).

Lindau's view, which questioned the authority of ancient halakha, was criticized by the sages of his generation, most notably R. Pinchas Eliahu Horowitz of Vilna (Lithuania 1765-1821) who personally objected to his opinion (see Horovitz 1818, part 1, Chapter 8, 107a).

4. Discussion and conclusions

The issue of the existence and identification of the evolutionary mouse occupied the sages in the post-Talmudic era. The discussion surrounding this mouse took part in the context of interpreting the ancient sources. However, the sages referred not only to halakhic aspects rather also to the issue of the mouse's nature and how exactly it was formed. Rashi, who lived in northern France, suggested that the mouse in the rabbinical sources is a squirrel, undoubtedly an unusual and unique identification. Many of the commentators understood this to be the house mouse or some other rodent that resembles a mouse (a rat, a vole). It appears that Rashi did not see the suggestion of identifying the squirrel as a "mouse" as unfounded, as the two are similar in many ways, particularly the fact that they both belong to the rodent order. Rashi's suggestion seems to have been influenced by the zoological and cultural world of his region, where squirrels live and are even eaten (see the discussion above on eating mice, which Rashi also suggested identifying as squirrels).

Fundamentally, Maimonides accepted the spontaneous generation approach. The existence of a half-mouse seemed to him puzzling, but he seems to have been convinced that it existed in light of the many testimonies he heard. Notably, in some cases, Maimonides, as a rationalist, disregarded or objected to views expressed by previous sages, for instance, regarding the existence of the power of demons, but in this case, as stated he noted that there is evidence (Ravitzky 2010, 93-130.). As we suggested earlier, Maimonides lived in Egypt for a lengthy period (from 1166 until his death in Fustat in 1204) and may have heard about the mouse while living there. If our premise is correct, then the tradition concerning the existence of this mouse was preserved throughout the Middle Ages.

Another discussion on the identification of the half-mouse appears in 19th century Germany in R. Israel Lipschuetz's commentary on the Mishna. R. Lipschuetz devoted attention to the identification of the half-mouse not only as part of his commentary on the Mishna but rather as part of the controversy with enlightened Jews who rejected the spontaneous generation approach. He suggested that the half-mouse is a "mouse species" that comes from Egypt. Based on a German language compilation, the author claimed that the half-mouse should be identified with the jerboa that has two large legs. The tradition that perceives it as a mouse in a process of development appears to be related to its body structure. Notably, the jerboa was known to the classical world. Aristotle writes on the jerboa: "Mice in Egypt are covered with bristles like the

hedgehog. There is also a different breed of mice that walk on their two hind-legs; their front legs are small and their hind-legs long" (Aristotle 1965, VI, 37). Pliny identified it "as a two-legged mouse" that lives in Egypt, but noted no relationship to the half-mouse, which he said is common in Egypt as well (Pliny the Elder writes: "The mice in Egypt walk on two feet, as do the Alpine mice" (*Natural History*, Book 8, 82).

As stated above, following his fermentation experiments, Louis Pasteur proved that the comprehension of spontaneous generation is unfounded. The new empirical discoveries that refuted the spontaneous development of creatures are one of many cases of the contradiction between science and religion. In the 20th-21st centuries, there are still halakhic authorities who hold the attitude of the ancient rabbis. R. Menachem Mendel Schneerson ("The Lubavitcher Rebbe", 1902-1994) claimed that, in general, the Torah should be seen as a source of absolute Divine truth versus science that is based on conjectures (Schneerson 1959, XVII, 493; Ginsburg and Baranover 2000, 275). R. Ovadia Yosef (1920-2013), the Sephardi Chief Rabbi of Israel from 1973 to 1983, too claimed that the teachings of the sages should be adhered to despite new scientific discoveries (Yosef 2012, V, 128; Gutel 1995, 184).

Other rabbis maintain that the Talmudic sages originated their rulings or decisions according to the knowledge of their period. However, once it has been proven differently, contemporary Jewish law must be ruled based on the conclusions of modern lore. In his commentary on Maimonides' "Mishneh Tora", R. Yosef Kapach (Yemen and Israel 1917-2000) writes that in light of the new discoveries, one should take the strict approach and refrain from killing lice on the Sabbath (Kafech 2004, 231). He also refers to the belief concerning the existence of the half-mouse and explains why the ancients thought that it was made of earth. He writes: "And regarding the mouse that is formed from earth [...] Rabbenu [Maimonides] there is very reserved concerning its existence and it seems from his words that he thinks that this is legendary [=an imaginary creature], although he ruled so in practice [...] and as Rabbenu wrote, in our time as well there is an endless number of people who have seen it, both Jews and non-Jews, and they say that these are observed by the dozens in the fields after the rains. And for this purpose, I spent many days in an attempt to find this creature. There were indeed mice in the field that have this appearance, and when I caught quite a few of them, it became clear that their hindquarters are muddy, but in truth, they are mice as all mice. And we remain with Rabbenu's words that it is legendary. And in all the zoology books that I read in my youth, in Hebrew and Arabic, I found no trace of this reality" (Kafech 2004, 231-232).

R. Kapach's outspoken opinion is undoubtedly unusual in the rabbinical world. Not only is he attentive to emerging news concerning nature in the modern world, but he also held his own observations of mice. He says that he spent many days in the field in order to solve the

mystery, and according to his findings, this is not a half-mouse rather, as we suggested above, mice covered in mud. He says that he also found no proof of this phenomenon in modern zoological books, showing that this is a legend and not reality.

R. Kapach is of the opinion that it is evident from Maimonides's words that he himself did not believe that the mouse exists. He indeed did not reject the phenomenon out of hand and even mentioned the law with regard to this mouse in his halakhic compilation, but that was due to the testimonies he heard or in reference to the words of the Mishna.

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