STRENGTH TO STRENGTH

ESSAYS IN APPRECIATION
OF SHAYE J. D. COHEN

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Providence, Rhode Island
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Interspecies and Cross-species Generation

Limits and Potentialities in Tannaitic Reproductive Science

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In his article “The Origins of the Matrilineal Principle in Rabbinic Law,” and later in his Beginnings of Judaism, Shaye Cohen, has suggested that ideas about interspecific reproduction and the classification of resultant offspring, particularly channeled through the biblical prohibition and rabbinic elaborations of kil’ayim, were intertwined with considerations about Jewish/non-Jewish offspring. More recently, Charlotte Fonrobert has posited that the “science of blood” in the tractate Niddah underpins rabbinic distinctions between Jewish (specifically, rabbinic, Samaritan), para-Jewish (Samaritan) and non-Jewish communities. Similarly, Gwynn Kessler has argued that rabbinic embryology underpinned a particular ethno-theology about the relationship between Israel and God. All three authors treat types of knowledge that we might describe as rabbinic repro-

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uctive science (whether animal husbandry, gynecology, or embryology) in terms of their ramified conceptions of Jewishness.⁴

In this article, I also explore some of the same sources as these scholars, reading them as rabbinic biological science and following Tannaitic ideas about the limits and possibilities of reproductive and species non-conformity. I read rabbinic sources in the tractates of Niddah, Kil’ayim, and Bekhorot, as expressions of a science of generation, or a biology, in which nonhuman zoology and human gynecology were entwined both conceptually and even materially in terms of reproductive outcomes. I argue that the rabbis, like other ancient thinkers, understood that creatures of a particular kind (or species), including the human-kind, might deliver a creature that appears to be of a different kind.⁵ I show that in the majority of cases the Tannaim believed these species nonconforming offspring not to be genuine hybrids, that is, they did not believe that they were the results of cross-species mating. I consider the ways that the rabbis conceptualized such unpredictable generative outcomes and, particularly, the potential gestational entanglements of the human and the nonhuman.

Theories of Reproduction

To begin with, let us note that the rabbis understood that some life forms came into being as a result of “reproduction and multiplication” (piryah ve-rivyah, or “sexual reproduction”), whereas others did not but instead emerged from various substances such as water or mud (“spontaneous


⁵ For some of the themes and texts discussed here, albeit with a focus on rabbinic knowledges in the light of critical science studies, feminist science studies, and ancient reproductive thought, see Rachel Neis, “The Reproduction of Species: Humans, Animals and Species Nonconformity in Early Rabbinic Science,” JSQ 24 (2017): 289–317. In that article, I make the case for reading traditions in Bekhorot and Niddah together given their linguistic and conceptual affinities, their deployment of the classificatory concept of kind (min), and their interest in likeness/dissemblance all in contexts of generation. I also consider rabbinic science in the context of imperial, gendered, and species-related dynamics of knowledge.
reproduction”). Among those that reproduce via piryah ve-rivyah, the rabbis further distinguished between modes of reproduction (e.g., intercourse, spawning, etc.) (see t. Bek 1:10–11). The question of kind (or species, or min) was also a significant one for the rabbis, who sought to elaborate priestly taxonomies, most especially (but not exclusively) in distinguishing among pure and impure species. Whether a creature was sexually or spontaneously produced impinged on determinations of kind. The rabbis, like Aristotle, thought that for the most part kind (or min) reproduced like kind. This idea is expressed in their “principle of generation.” The Tannaim also understood that material form and appearance was part of what was reproduced in cases of sexual reproduction, and that likeness was a key to sorting origins, parentage, and species designations of newly generated entities. Spontaneous reproduction disrupted this rule, given that one kind of entity (e.g., mud or water) gives rise to another kind (e.g., gnats or the “earth-mouse”; t. Yad. 2:4; m. Ḥul. 9:6).

There were two other phenomena that tested the limits of likeness as a key to assigning species. The first involved the results of cross-species mating (kil’ayim), for example, the offspring of a goat and a sheep (a “geep”; t. Bek. 1:13, m. Bek. 2:5) or that of a donkey and a horse (a mule; t. Kil. 5:3, 5:5 and m. Kil. 8:4). The second, perhaps even more confusing, was the case of species-nonconforming offspring that were spontaneously anomalous. In other words, a cow and a bull mated and the cow delivered a creature that is “like a donkey kind” (ke-min hamor; m. Bek. 1:2), or a camel (t. Bek. 1:9).

6. See, e.g., Sifra Shemini Parashat 5 (ed. Weiss, 49b), which distinguishes between she-ratsim that have bones and have sexual intercourse, that do not have bones and do not have sexual intercourse, and the permutations and combinations thereof and b. Shabbat 107b for lice that do not reproduce sexually.


9. I do not read m. Bek. 1:2 as referring to results of cross-species unions for two reasons. First, the Mishnah and Tosefta expressly forbid the results of kil’ayim as firstborn offerings. Second, they refer explicitly to such cases. Third, in t. Bek. 1:6 (MS Vienna) R. Yosa requires that the one bearing (היולד, masc.) and the one born (הנולד) are the same kind. In the case of species nonconformity, “if it has some of the signs resembling its father” it still qualifies for the firstborn offering (and implicitly in b. B. Qam. 78a).
Tosefta Kil’ayim 5:3 articulates the distinction between species-non-conforming deliveries that are results of cross-breeding and those that are not:

A horse which delivered a donkey kind (min), it is permitted with its mother [‘s kind]. But if its father was a donkey, it is forbidden with its mother[‘s kind].

A donkey which delivered a horse kind (min), it is permitted with its mother[‘s kind]. But if its father was a horse, it is forbidden with its mother[‘s kind].

A ewe which delivered [a goat kind], it is permitted with its mother[‘s kind]. But if its father was a goat, it is forbidden with its mother[‘s kind].

A goat which delivered a sheep kind (min), it is permitted with its mother[‘s kind]. But if its father was a sheep (lit., a ewe), it is forbidden with its mother[‘s kind].

And there is no offering at the altar.

As we see, the Tosefta contemplates two scenarios in which a female horse (a mare) can (seemingly) deliver a donkey kind: through same-species mating and through cross-species mating. According to the Tosefta, the product of cross-breeding (the mule) is not a member of its mother’s kind (horse) and therefore may not be mated or yoked with members of the horse species. Here the Tosefta says nothing about the kil’ayim delivery’s species classification (whether it is distinct from both parents’ species, or whether it is its father’s kind), however it clarifies that its species classification is not matrilineal.

In the case of same-species mating, the species-variant delivery is simply classified according to its parentage. A creature born to two horses

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10. Lieberman comments in his edition, “a horse that delivered a donkey kind, but its father was also a horse, it is permitted to mate it with a horse” (t. Kil. 5:3, ed. Lieberman, 221).
11. MS Vienna omits (but given in MS Erfurt; Lieberman supplies).
12. MS Vienna (cf. MS Erfurt, which has pasul).
13. Lieberman refers to this latter entity as a nidmeh (one that appears) (Tosefta, 222). This term is attested only in post-Tannaitic sources. See Saul Lieberman, Tosefta Kifshuta, Seder Zeraim, vol. 2 (New York: Jewish Theological Seminary of America, 2001), 647, where Lieberman emends החמור מין שלדה סוס to החמור מין שלדה סוס.
14. Cf. t. Kil. 5:5, in which the sages declare that all mules (haperadot) are a single kind (min ehad) and that therefore mules that are the results of differently gendered unions of horse/donkey parents (i.e. female parent horse and male parent donkey versus female parent donkey and male parent horse) can mate with each other. Rabbi Judah there disagrees, viewing mules of differing parentage as prohibited to one another. However, in t. Kil. 1:8 he prohibits the mating of a female mule with a horse or donkey but allows it with a mule without specifying the parentage of either). Therefore it does not seem that matrilineality is the key decider for Rabbi Judah, at least in the Tosefta’s version of his views. In the Mishnah (m. Kil 8:4), Rabbi Judah does seem to espouse a version of the matrilineal principle for species designation (contradicting t. Kil 5:3). See Cohen, Beginnings of Jewishness, 299–302.
that looks like a donkey is still a horse, and it is thus not a transgression of the kil’ayim prohibition to have it mate or be harnessed with a horse. It cannot, however, be offered (or redeemed) at the temple, as its variation disqualifies it. This is echoed in the tractate Bekhorot, which expands the biblical disqualifying “blemishes” (mumim) to include various features of species nonconformity, including animals whose mouths resemble those of pigs, or whose eyes appear to be like those of humans, or whose tails look like those of a pig. It also includes, as mentioned already, cases of more radical species variation like those mentioned in t. Kil 5:3 (e.g., a cow delivering something “like a donkey kind,” m. Bek 1:2, or a camel, t. Bek. 1:9). While these creatures may be rejected for cultic purposes, like their human analogs (priests) who are excluded due to species nonconforming features, their species designations are not in question.

These sources make it abundantly clear that various degrees of spontaneously arising species nonconformity can occur, not just in animals but also in humans. We see multiple instances of this phenomenon in rabbinic and other ancient sources, including human women who expel creatures that are “like a kind of domesticated animal, or wild animal, or bird” (m. Nid. 3:2; t. Nid. 4:2) or a woman who was a habitual aborter of a “raven likeness” (demut orev; t. Nid. 4:6). In the case of these deliveries by a human, the decision about species designation centers on the degree of nonconformity. This is different from the animal deliveries. While Rabbi Meir includes beings that look completely like animals and birds as human offspring (valad), the sages require that such beings bear some minimal human resemblance (mi-tsurat ha-adam). The sages thereby effectively admit hybrid-appearing entities delivered by humans, as members of human-kind. Whereas the Mishnah leaves this formal minimal requirement unspecified, the Tosefta confines it to facial features (t. Nid. 4:7).

**The Limits and Logics of Species Nonconformity**

The Tannaim were not alone in living in a world of unpredictable and variable reproductive outcomes. Nor were they alone in seeking to understand, or at least classify, the species designations of nonconforming deliveries. Those such as Pliny and Soranus, for example, suggested that

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15. See, e.g., for the animal whose eye “is round like that of a human,” m. Bek. 6:8; t. Bek. 4:11; whose “mouth is like a pig’s,” m. Bek. 6:8; or for the “tail of a kid goat like that of a pig,” m. Bek. 6:9. Bekhorot also talks of interspecies features among human priests, not only extending those pertaining to animals to humans (m. Bek. 7:1), but also adding.

16. Examples of disqualifications of priests include species (or gender) nonconforming features, e.g., those with eyes “as big as a calf, or as small as a goose” (m. Bek. 7:4; t. Bek. 5:3); soles “as wide as a goose” (m. Bek. 7:6), breasts that hang “like a woman’s” or an overbite “like a pig’s” (m. Bek. 7:5).
variation or “misshapenness,” including species nonconformity, was the result of sense impressions during conception. As Ra’anan Boustan has shown, these ideas also had a specifically Near Eastern context, exemplified and inspired by Jacob’s exercise in “visual eugenics” (Gen 20:31-42). Sensory data or even affect could interrupt the usual processes of generation as mimesis, introducing different vectors of resemblance instead. In Soranus’s example, women viewing monkeys during conception delivered infants of monkey-like appearance (Soranus, Gyn. 1.39). Theories such as these would wait to surface in post-Tannaitic materials.

Aristotle, whose theory of generation continued to be influential in late antiquity, understood that resemblance was tied to male seed which acted upon female matter (blood), imparting form to it. Thus, all things being equal, offspring should resemble the male parent. Deviations from this ideal occurred and ranged from female progeny, which Aristotle characterized as the first step toward monstrosity, to the animal (the genus under which the human is subsumed). However, according to Aristotle, even the radically unlike, including species nonconforming, were still properly to be understood as offspring. Aristotle’s explanation for deviation was the failure of the (male) seed to master the (female) material. It is clear that Aristotle, like the rabbis, knew of degrees of variation in reproductive outcomes. Rhetorically, and conceptually, part of his explanatory insistence on the failure of male seed to conquer female material was in service of negating other explanations. That is, Aristotle was insistent that, aside from a few known exceptions (e.g., mules), hybrid or radically

17. See Soranus, Gynecology 1.39 and 1.47. Owsei Temkin renders both kakamorphos and amorphos as “misshapen” (Soranus, Gynecology, ed. and trans. Owsei Temkin, Publications of the Institute of the History of Medicine, the Johns Hopkins University 2.3 [Baltimore: Johns Hopkins University Press, 1994], 37–38 and 48). Soranus just mentions women; Pliny refers to either parent’s sensory impressions (Nat. 7.52). For additional versions of this idea in late antiquity, see Rachel Neis, Sense of Sight in Rabbinic Culture: Jewish Ways of Seeing in Late Antiquity, Greek Culture in the Roman World (Cambridge: Cambridge University Press, 2013), 36, 39, 131–37, 159–66.


20. For a reading of Aristotle’s account that attends to the potentials of female matter’s aleatory character, in which it is dynamic and unpredictable rather than waiting passively and inertly for male seed to act upon it, see Emanuela Bianchi, The Feminine Symptom: Aleatory Matter in the Aristotelian Cosmos (New York: Fordham University Press, 2014)
species-nonconforming offspring could not come about through inter-breeding.

Tannaitic sources do not flesh out a full theory of seed’s role in generation aside from a few mentions of the origins of humans in “a (putrid) drop” and a tantalizing source in the Mekhilta. The latter praises the uniquely divine ability to “give a person a son from a drop of water, which resembles (domeh) the figure of his father (le-tsurat aviv).” We may note echoes of the Aristotelian fixation on the male contribution to form (tsurah, eidos), resemblance (tselamim, eikonin, domeh), and artistry (tsayar). Yet in this Tannaitic source, the agential force of male seed is taken over by the deity, and a female role/material is completely absent. Other than this, the Sifra tantalizingly declares, almost in passing, that God, female parent, and male parent are “three partners in” the offspring. We must await

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21. These are m. Avot 3:1 (tipah serukhah, “a putrid drop”); Midrash Tannaim on Deut 32:2 (tipah shelzenut, “a drop of promiscuity”); and Mekhilta de Rabbi Ishmael, Beshallah, 8 (tipah shel mayim, “a drop of water”). The more common “emission of seed” (shikhvat zerah, Lev 15:16) in Tannaitic sources is not explicitly related to reproduction (e.g., m. Nid. 4:1; t. Nid. 2:8–9; t. Zavim 2:4, 6); some sources describe it as discharged by a woman (e.g., m. Miqv. 8:4). See further Mekhilta de Rabbi Ishmael, Beshallah, 8; cf. Mekhilta de Rabbi Shimon bar Yohai 19 and 20.

22. See Mekhilta de Rabbi Ishmael, Beshallah, 8: “And it says, ‘there is no rock (tsur) like our god’ (1 Sam 2:2). (Punning:) there is no artist (tsayar) like our god. It is characteristic of a human to go to an image maker (oseh tselamim) and say to him: make me the figure of (my) father. And wouldn’t he (the artist) say to him: bring your father here and let him stand before me, or bring me his eikonin (Hebrew for Greek eikōn) and I will make his figure? But the holy one blessed be he isn’t like this. He gives a person a son from a drop of water (seminal fluid), and it resembles (domeh) the figure of his father (le-tsurat aviv).”


24. Sifra Qadoshim 1:4–7 (ed. Weiss, 86d). The Sifra declares that there is an analogy between the capital sins of cursing God and cursing a person’s mother and father, explaining, “the three of them are partners in him (shutufin bu).” See Reuven Kiperwasser “‘Three Partners in a Person,’” lectio difficilior 2 (2009), http://www.lectio.unibe.ch/09_2/kiperwasser.html; Kessler, Conceiving Israel; and Judith Reesa Baskin, Midrashic Women: Formations of the Feminine in Rabbinic Literature, Brandeis Series on Jewish Women (Hanover, NH: University Press of New England for Brandeis University Press, 2002), 19–22. It is significant that this statement would seem to be unique to human-kind. In later sources, this idea of partnership seems to extend to animal kinds (arguably, real consideration for divine contributions to human formation only occurs in human generation).
post-Tannaitic sources for discussions of generation that resemble the seed-based theories of Aristotle, or for that matter Galen.

As we have seen above, however, even if seed is not their primary conceptual material, the Tannaim do meditate on generation and the limits and possibilities for species nonconformity therein. In the remainder of this paper, I argue that the Tannaim, like Aristotle, understood genuine occurrences of cross-breeding (kil’ayim) to be plausible, albeit only in limited instances and that they made similar moves regarding species nonconformity and modes of reproduction. They differed, however, from Aristotelian thought in failing to offer an explanation for spontaneously occurring species nonconformity. I will examine sources in the tractates of Bekhorot and Kil’ayim that consider the limits of generation.

**The Limits of Cross-Species Generation**

As we have established, the Tannaim contemplated successful cross-species breeding in certain circumstances. These included between donkeys and horses and between sheep and goats, in both combinations of male and female parents. The two tractates in which we find rabbinic discussion of these possibilities, alongside spontaneously anomalous deliveries, are Bekhorot and Kil’ayim. Both tractates have concerns about speciation. In Bekhorot, a blemishless male firstborn animal must be offered to the temple. Thus, a delivery must be established as offspring proper, although, as we will see, it is ultimately dietary laws that establish species designation (given that a member of its parents’ kind may be excluded if it has a disqualifying blemish).25 Kil’ayim, on the other hand, worries about speciation because in order to not transgress the prohibition against mixing kinds, one has to be able to distinguish between them. Kil’ayim thus sorts the conundrum of likeness and difference at the heart of generation whether through cross-species mating or whether spontaneously occurring, while also grappling with the likenesses that occur across different and demarcated kinds (e.g., dogs and wolves; m. Kil. 1:6).

For the purposes of this paper I will treat t. Bek. 1:9–11, one of the most complete passages in which the Tannaim think through the limits and possibilities of cross-species generation (kil’ayim) and spontaneously arising variation.

9. Rabbi Simon says: what does [Scripture] come to teach you by having camel (Lev 11:4) camel (Deut 14:7) twice? To include the camel that is born of a cow as if it were born from (kenolad min) a camel. And if its head and majority resemble its mother’s, it is permitted for eating.

And the sages say: that which emerges from *hayotse min* the impure is impure, and that which emerges from the pure is pure, for an impure animal is not born from the pure; neither is a pure animal born from the impure. And not a large one from a small one, nor a small one from a large one, and not a human (*adam*) from any of them, nor any of them from a human (*adam*).

(10) A pure small domesticated animal gives birth at five months; a large pure domesticated animal at nine months, an impure large domesticated animal at twelve months; a dog at 50 days; a cat at 52 days; a pig at 60 days; a fox and creeping creatures at six months; the wolf, lion, bear, panther, leopard, elephant, baboon and monkey at three years; the snake at seven years.

(11) Dolphins give birth (*molidin*) and grow (*megadlin*) [offspring] like the human (*adam*); impure fish spawn; pure fish lay eggs.

The test for designating the species of the camel born of a cow is not its eligibility for donation to the temple but rather its (im)purity and eligibility for human ingestion. For Rabbi Simon, this camel, even though delivered by a cow, is considered a camel and is thus forbidden for consumption. Whether Rabbi Simon believes the camel offspring to be the result of cross-breeding or spontaneous variation is unclear. However, Rabbi Simon (or a later interpolator) concedes that in a case in which the creature resembles both camel and cow, if its head and the majority of its body bear bovine features, the offspring is edible. We infer that in such a scenario, the hybrid creature is classed as a cow.

The majority refutes Rabbi Simon’s view in a thoroughgoing fashion with its principle of generation. The principle is that a creature is always

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26. Literally "bears from" (*מן יולדת*). See n. 13 regarding Lieberman’s emendation to *מין* for the phrasing "*מן יילדה*" in t. Kil 5:3. It is quite possible that such an emendation is warranted here, especially if we compare it to the first citation of the principle in t. Bek. 1:6 and m. Bekh 1:2.


28. Note that the final line here is to be found only in the version here and in t. Kil. 8:5. Here is the entire parallel at m. Bek. 1:2: “When a cow gives birth to something like a donkey kind or a donkey gives birth to something like a horse kind, it is exempt from the firstborn obligation, as it is written (Ex 34:20) “firstborn donkey” and (Ex 13:13) “firstborn donkey” — twice, [to teach that] the birthing one must be a donkey, and the born one must be a donkey. But what about eating? If a pure kind gives birth to something like an impure kind, it is permissible to eat [the offspring]; if an impure species gives birth to [a creature which] looks like a pure species, it is forbidden to eat [the offspring], for that which comes from an impure species is impure and that which comes from a pure species is pure.


30. While this supplement to Simon’s exclusion of species-nonconforming offspring may seem surprising, note how it coincides with the majority view about similarly hybridized-appearing offspring in the case of the human parturient in m. and t. Niddah.
classed as the same kind as the one from which it emerges, even if all appearances are to the contrary. This makes the camel born of a cow, a cow. The sages do not contemplate that this delivery is the result of interspecies mating; the rule is not a matrilineal principle of speciation per se.\(^{31}\) This is apparent in several respects: first, as noted, there is a distinct category for creatures that are considered genuine cross-species offspring: \textit{kil’ayim}.\(^{32}\) The Tannaim name and discuss these separately, as the offspring of more similar kinds (such donkeys and horses, or sheep and goats).\(^{33}\) Second, this version of the rule of generation not only reiterates the shorter version in t. Bek. 1:6 (and m. Bek. 1:2), which simply states, “that which emerges from the impure is impure and that which emerges from the pure is pure,” but it also adds language of negation. Like the earlier version, it states that kind generates like kind (a version of Aristotle’s \textit{anthrōpos anthrōpon gennai}), but it adds that the opposite cannot occur.\(^{34}\) Third, it extends the negation beyond im/pure species to larger and smaller cattle, and even to the human.

Fourth, and finally, immediately after the rule of generation (t. Bek. 1:9), the Tosefta follows with a list of the widely divergent gestational times and modes of a variety of animal kinds, pure, impure, large, small, domesticated, land, and sea (t. Bek. 1:10–11). This conspicuous display of knowledge rhetorically confirms and elaborates the reproductive logics underlying the generation rule. It does so by elucidating the gestational differences and reproductive modes of an assortment of animal kinds that serve as constraints on successful cross-breeding. In other words, taking together this severally joined statement (t. Bek. 1:9–11) clarifies the impossibility of genuine cross-species entities: the Tosefta makes the claim not only that a genuine camel cannot emerge from a cow (i.e., an impure kind

\(^{31}\) Whether there is a matrilineal principle in the case of genuine cross-breeding is a different matter. As we have seen t. Kil 5:3 clarifies that for spontaneously anomalous deliveries, the offspring counts as its parents’ kind. This goes to the dispute in t. Kil. 5:5, in which the sages rule that all mules (regardless of which gendered combination of horse/donkey parentage) are one \textit{min}, versus Rabbi Judah, who sees distinct species depending on parentage and considers these forbidden to one another (a kind of sub-\textit{gil’ayim} specification prohibition). However, this contradicts Rabbi Judah’s earlier ruling in 1:8, in which a female mule can be brought to mate with either kinds of male mules. Cohen acknowledges this ambiguity (\textit{Beginnings of Jewishness}, 300–301). It is possible that Rabbi Simon’s view may indicate that he does think that this is the result of a cow–camel mating.

\(^{32}\) In any event, as Cohen has argued, the majority view of the sages in the Tosefta does not seem to establish a matrilineal principle of species designation for the offspring of cross-breeding (\textit{Beginnings of Jewishness}, 300–301).

\(^{33}\) T. Kil 5:3; on the use of \textit{gil’ayim} offspring as firstborn donations, see m. Bek. 1:4–5 and t. Bek. 1:13.

coming out of a pure kind), but also that genuine larger kinds (e.g., cows) cannot be born from smaller kinds (e.g., sheep) and vice versa. The phenomenon of kinds delivering offspring that look like different kinds is not in itself negated; the generation principle simply confirms (contra Rabbi Simon?) that such offspring are not genuinely derived from cross-species breeding.

It is noteworthy that the sequence of reasoning in this passage, from cross-species resemblances to reproductive modes and gestational periods echoes Aristotle’s musings in Generation of Animals (769b23–26). As discussed above, Aristotle explains “the causes of monstrasties” as a failure of the male seed to master the female material. In the human case, he states, this can lead to offspring in which the most “general” remains, in other words, the animal. There, after discussing species nonconformity in human and animal cases (including hybrid entities), Aristotle emphasizes that “in no case are they what they are alleged to be, but resemblances only” (Gen. an. 769b18–19). He goes on to declare that interbreeding cannot occur, due to “widely different” gestation periods, listing those of humans, sheep, dogs, and oxen. The presence in rabbinic texts not only of ideas but also of sequences of ideas deployed in Aristotle’s writing is certainly curious and may tell us something about the bodies of knowledge circulating in early Roman Palestine.

Pressing further on the echoes between Aristotelian and Tannaic ideas, we have the role of form in the designation of species and more particular kinds of resemblance (tsurat ha-adam, m. Nid. 3:2; tsurat aviv, Mekhila deRabbi Ishmael, Beshallah, 8), although as noted the role of matter is unstated in Tannaic sources. The Tannaim distinguish between a creature’s species designation and the idealized able, male (animal or human) bodies destined for the temple. The disqualifying mum might be viewed as similar to Aristotle’s departures from the ideal, or even to his notion of monstrosity (terata). In both Aristote-
liam and Tannaitic cases, while variation (deviation or mūm) is marked against an ideal form, it nonetheless fails to impinge on species designation. Finally, the key concept of kind, or min, which of course does not precisely map onto a post-Linnean biological taxonomy, seems to be deployed in a sense similar to the Aristotelian genus/eidos.39

Species Nonconformity and the Human Kind

Putting aside Aristotelian echoes in Tannaitic sources, let us return to the extended principle of generation in t. Bek. 1:9, specifically to its insertion of the human into the general mix of species-nonconforming deliveries. In the context of Bekhorot, the principle declares that species nonconformity can appear across multiple registers of classification: from the distinctly pure/impure kinds, across cattle and larger animal kinds, and even across humans and all of the above (“any of them”). The principle reminds us, however, these are not genuine outcomes of cross-species reproduction.40

The only other extended version of the generation principle (with cattle/large animal, and human/animal extensions) is found in t. Kil. 5:8.41 A reading of this version of the generational principle in its redactional context allows us to see how the principle is deployed to deal with concerns about the place of the human in a world of unstable reproductive outcomes. We observe, first, that the principle in t. Kil. 5:8 parallels m. Kil. 8:5–6, which, after a brief discussion of various types of mules, states:

then, any departure from this, including female progeny, is a move toward monstrosity (Gen. an. 767b8–10). While the Tannaim make no such claims explicit, one could argue that they are already folded into the requirements for the priest to be a male whose body is heavily regulated into an able-bodied one. On the gendering of disability established by Aristotle, see Rosemarie Garland Thomson, Extraordinary Bodies: Figuring Disability in American Culture and Literature (New York: Columbia University Press, 2017), 19–20, 27–28.

39. See Pierre Pellegrin, “Aristotle,” trans. Anthony Preuss, in Aristotle on Nature and Living Things: Philosophical and Historical Studies Presented to David M. Balme on His Seventieth Birthday, ed. Allan Gotthelf (Bristol: Bristol Classical Press, 1985), 95, in which genos and eidos, “far from being prefigurations of our notions of genus and species, do not have a biological sense: to understand their biological use, we must not lose sight of the rules which regulate their logical functioning.” Modern taxonomists carefully use graduated terms such as order, family, and genus, going all the way down to species, which are further inflected with modern notions of evolution and heredity. When I use the term species instead of kind in discussing rabbinic texts, I mean it in the flexible sense of min.

40. This coheres with Rabbi Meir’s view in m. Nid. 3:2 (par t. Nid. 4:5), which extends the designation of valad to entities that are “like a kind of domesticated animal, wild animal, and bird.” As noted, the sages’ view there is a bit more qualified.

41. Lieberman observes that the particle “ש” appended to the introductory אין in the Kil’ayim version (which makes no sense) is probably due to scribal transmissational mistake (erroneously copying from a similar text, in this case t. Bek. 1:9).
Adne ha-sadeh are wild animals.
Rabbi Yose says: they convey impurity like a human (ke-adam).42

The Mishnah then continues with discussions about other apparently anomalous kinds, including the hedgehog, the marten, the wild ox, the dog, the pig, the wild donkey, the elephant, and the monkey.43 These are sorted into wild kinds (min hayah) and domesticated kinds (min behemah), with debates about all but the last four. The Mishnah closes this short excursus with “and the human is permitted to pull, plow and lead with all of them” (m. Kil. 8:6).

These mishnayot that t. Kil. 5:8’s generation principle parallels thus raise questions about the place of the human in the world of species distinctions and potential overlaps. The adne ha-sadeh, it appears, are human-like wild creatures. Saul Lieberman likens them to the Sifra’s sirenus (or Siren), a human-like creature of the sea.44 While the majority of sages view the adne ha-sadeh as wild animals, the voice of Rabbi Yose maintains that they possess that most singular and potent of human qualities, the possibility of contaminating with corpse impurity via overhang.45 The majority distinguish the human from this human-like creature. Their position is reminiscent of a logic cited several times in

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42. M. Kil 8:5. It continues, “The hedgehog and the marten are wild animals. The marten: Rabbi Yose says, Beit Shammai say, an olive’s worth conveys impurity when carried, and a lentil’s worth if touched.” Menahem Mor translates huldat hasena’im as “stone marten” (Ha-Hai bi-yeme ha-Mikra, ha-Mishnah veha-Talmud [Tel Aviv: Grafor-Daftal Books, 1997], 73); cf. Avraham Even-Shoshan, Milon Even-Shoshan: mehudash u-me’udkan li-shenot ha-alpayim be-shishah kerakhim be-hishtatfut hever anshe mada’ (Tel Aviv: ha-Milon he-Hadash, 2003), 558. The hedgehog and the marten are paired perhaps because they may appear to be reptiles (sheratsim) rather than hayot/behemot and thus not subject kilayim. While the majority opinion considers the two animals to be hayot, Rabbi Yose attaches a sheratsim-type of impurity to the marten. See Sifra, Shemini, parashah 4, pereq 6, ed. Isaac Weiss (Vienna, 1862; repr., New York, 1947), 51d, for a discussion of the purity of creatures including the avne ha-sadeh, the weasel, the hedgehog, and the monkey. Note MSS Venice and Vatican 31 have avne hasadeh, but Vatican 66 and other manuscripts have adne hasadeh.

43. M. Kil. 8:6, “The wild ox is a domesticated animal, Rabbi Yose says, a wild animal. The dog is a wild animal, Rabbi Meir says, a domesticated animal. The pig is a domesticated animal, the wild donkey is a wild animal, the elephant and the monkey are wild animals. And the human is permitted to pull, plow and lead with all of them.” These animals are all impure kinds except for the “wild ox” (which the sages consider a domesticated animal, against R. Yose, who considers it a wild animal).

44. Lieberman, Tosefta Kifshuta, Seder Zera’tim, 652–53; Sifra Shemini, 3:7 (ed. Weiss, 49d). For an evocative analysis of the siren as human-like sea creatures in rabbinic and Greco-Roman literature as well as the siren depicted in the Bet Shean mosaic, see Galit Hasan-Rokem, “Leviticus Rabbah 16, 1—‘Odysseus and the Sirens’ in the Beit Leontis Mosaic from Beit She’an,” in Talmuda de-Eretz Israel: Archaeology and the Rabbis in Late Antique Palestine, ed. Steven Fine and Aaron Koller, SJ 73 (Berlin: de Gruyter, 2014), 159–89.

45. On this variety of “tent” impurity and on human corpse impurities, see Mira
Kil’ayim, “even though they resemble one another, they are kil’ayim with one another,” made in order to differentiate between like-appearing kinds (e.g., a dog and a wolf) (see m. Kil. 1:5–6; t. Kil. 1:7–8).46 If the majority opinion attempts to dispel the specter of human doubles raised by the adne hasadeh in m. Kil. 8:5, then the closing statement in m. Kil. 8:6 about the human capacity to pull, plow, and lead with all animals, puts it to rest. The human, it assures us, is not subject to the same vicissitudes of classificatory and reproductive blurriness implied in the whole prohibition of kil’ayim. It does not count as an animal. Escaping its applications, it in fact sponsors the classificatory project of kil’ayim.

Putting Tosefta Kil’ayim’s version of the generation principle (t. Kil 5:9) next to these two mishnayot both confirms and upsets the position of the human vis-à-vis all other kinds. This is so especially when we juxtapose it with the second halakhah (t. Kil 5:10)—a principle about territorial doubles—that parallels m. Kil. 8:5–6:

For an impure animal does not give birth to a pure kind, and a pure one to an impure one, neither a large one to a small kind, nor a small one to a large kind, and no human kind from any of them, nor to any of them a human kind. (t. Kil. 5:9)

Everything that is in the settlement there is in the wilderness, whereas many entities that are in the wilderness do not exist in the settlement. Everything that is on dry land there is in the sea, whereas many entities that are in the sea are not on dry land. But there is no marten of the sea. (t. Kil. 5:10)

Lieberman reads t. Kil. 5:10 as related to m. Kil. 8:5’s discussion of the adne hasadeh. This helps us understand the Tosefta as making sense not only of the idea that there is a human-like creature in the wild (the adne hasadah) and the sea (the sirenu), but also of a quandary motivating many a discussion in Kil’ayim: likeness and difference not only in vertical or genealogical contexts (i.e., a cow giving birth to a donkey-like kind) but also across different kinds (e.g., the wolf and the dog; m. Bek. 1:5). It provides an explanation and scheme for why seemingly similar-looking kinds are nonetheless distinctive: these are parallel but genealogically unrelated forms.47 This is the theory that across three realms: in settled human habi-

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46. Note how corpse material’s resemblance to human form determines the potency of its impurity (ibid., 109–10).
47. Lieberman observes that t. Kil. 5:10 comments on m. Kil. 8:5. This analysis adds that both t. Kil 5:9 and t. Kil 5:10 comment on both m. Kil. 8:5 and m. Kil 8:6.
tation, wilderness, and the sea, there are creaturely doubles. And, the rabbinic theory adds, as we draw further from human settlements, there are not only doubles of creatures that we live with, but there is also a surplus of additional creatures. Pliny refers to a more limited version of this theory—one in which every creature has its double in the sea—and explains that the cause is that the fertile sea receives seeds from above and recombines them into a variety of creaturely forms (Nat. 9.1.1).

Tosefta Kil’ayim 5:9 is an important complement to 5:10’s principle of territorial doubling in that it clarifies the constraints and possibilities of cross-breeding, while also acknowledging that radical variation and species nonconformity in “vertical” reproductive contexts can occur. As significant for this redactional context is that t. Kil. 5:9 is the second instance of an extended principle that includes “no human kind from any of them, nor to any of them a human kind.” In other words, it is a version in which the human is folded into the radical variability of reproductive outcomes. Thus, even as this version of the principle of generation excludes the possibility of successful human–animal cross-breeding, it also acknowledges that such outcomes seem to occur (e.g., that humans might produce what look like animal forms). So, too, while humans like others have doubles across different realms (per t. Kil. 5:10), the genealogical principle and the principle of doubles, coupled with the special role of the human as a non-animal kind for the purposes of kil’ayim, ensures that such doubles are not really human (though this is somewhat disputed per Rabbi Yose). As in m. Kil. 8:5–6, t. Kil 5:9-10 simultaneously unsettles and affirms human distinctiveness.

**Tannaitic Prehumanisms**

In this article, I present sources from Kil’ayim, Niddah, and Bekhorot as forms of rabbinic knowledge-making about generation. Specifically, I showcase how the rabbis thought the human and the animal to be analogous (conceptually and linguistically) in being subject to unpredictable outcomes even in same-species reproductive scenarios. More than this, I show how the Tannaim went beyond analogical human–animal reproductive thinking by enfolding humans and animals within each other’s potential reproductive outcomes. Niddah, Bekhorot, and Kil’ayim all, in different contexts, know that even humans are subject to such spontaneous species variation (both radical and partial) in same-species generative processes. At the same time, species integrity is preserved in the knowledge that, across wide species variations, mating will not result in cross-species offspring (the principle of generation). Thus, when species nonconformity does occur it is classified, despite bodily appearances to the contrary, according to its parentage.
Human distinctiveness is thereby somewhat equivocal. In the case of the human, its unique and even superior role is both implicit and explicit in that it (via the rabbis) is the classifying creature that knows to distinguish animal kinds and to materialize this knowledge by potentially slaughtering, consuming, and breeding them. The human accordingly sponsors the project of classification entailed by the rabbinic program of *kil’ayim*, while itself not being subject to it in quite the same ways as other creatures (at least in contexts of labor; m. Kil. 8:6). At the same time, the very project that maps kinds and their distinctions and similarities also uncovers the specter of the human double, the *adne hasadeh* (and in the Sifra, of the *sirenus*). The *adne hasadeh*, alongside the phenomenon of species-nonconforming offspring delivered by humans, unsettles the human. Something like this occurs, as I have argued elsewhere, in t. Nid. 4:5 which blurs distinctions between human and animal features. The Tosefta there goes so far as to challenge the vaunted human image (one that just happens to be divine), with its suggestion that aspects of human form, *tsurat ha-adam*, (notably, the eyes) resemble those of animals. We might conclude that Tannaitic biological thought vacillates between ideas of human–animal distinctiveness and commonality.

Shaye Cohen’s work on *Kil’ayim* and the gendered genealogy of Jewishness takes seriously what he describes as the ideological origins of the rabbinic innovation that was the matrilineal principle. Building on the attention to *Kil’ayim* as ways for thinking not just about animals but also about humans, I have pointed to how cases of species nonconformity that are not the results of cross-species mating illuminate the entwined (even if nongenealogical) reproductive biologies of humans and animals. I thus propose a reading of *Kil’ayim* as biology (and of course as [feminist] science studies and history of science show us, biology is not free of ideology) and as in need of being read with parallels in Bekhorot and Niddah. My focus has been less on the intersections between animal species and ethnoracial biological ideas, and more on the implications and limitations of what it meant to be human in antiquity.

The writings of Charlotte Elisheva Fonrobert on the tractate Niddah and of Gwynn Kessler on Leviticus Rabbah draw out rabbinic theories of gynecology (or the “science of blood”) and embryology, respectively.

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These authors also attend to how these accounts of human reproduction make for the production of gendered divisions of bio-material labor, upon which markers of Jewishness then hinge. More recently, Max Strassfeld has signaled an approach to the androginus in the tractate Bikkurim that sets the androginus next to the koi as hybrid creatures, deploying transgender theory and critical race theory to show how Tosefta might “shed light on parallel questions of intelligibility and the boundaries of the human.”

In reading Niddah together with Kil’ayim and Bekhorot, I build upon these scholars’ insights to make the case for a broader rabbinic biological science in these tractates, in which humans and animals are not only parallel or analogous but also intersecting and implicated in one another. I sketch a Tannaitic biology that recognized causes beyond parental species identity (e.g., spontaneous species nonconformity and spontaneous reproduction) and that saw resemblances and parallels beyond genealogical relations. There are gendered and political implications to such conceptions.

Scholars have taught us to recognize the ways in which Greek and Roman natural history was indebted to gendered, imperial, and political knowledge-making projects. Tannaitic sources were part of a broader ancient conversation about the generation of living kinds, but these texts claiming to know the reproductive potentials of women and animals were written by male, provincial sub-elite authors under specific socioeconomic and political pressures. Students of imperialism and colonialism, as well as feminist science studies scholars, have sought to get us beyond analytic dualisms such as subordination/resistance or acting/acted upon. Instead,
these scholars encourage us to consider the variety of subjects (whether colonizing people and colonized peoples, or men and women, or scientists and the objects of their study, or even humans and nonhumans) as both constituting and constituted.\textsuperscript{55}

Such frameworks are useful for the analysis of rabbinic knowledge making, and for getting beyond well-worn analytical grids of influence vs. resistance (rabbis vs. Romans) and authority vs. marginality (Romans vs. rabbis, or rabbis vs. nonrabbinic Jews/women/etc.). Instead, they allow us to track the staggered, relational, mutual, and overlapping dynamics through which Romans, rabbis, women, animals, and other material (or immaterial) entities were constituted and constituting. Without succumbing to either the pole of retrospective scientism (i.e., trying to understand rabbinic zoology in contemporary post-Linnaean taxonomical terms) or that of materialist determinism, such analytic frames can allow us to approach the material lives of ancient humans, animals, and other entities by treating them not solely as passive objects of male/human projects. They enable us to inquire into how the ancient rabbis and others were entangled with and shaped by the “objects” of their knowledge.


vice versa as instances in which one kind swallowed another. In these instances, explanation is used to disambiguate seemingly unlike entities. In those under treatment in this essay, however, no explanation is given. The cause for non-like generative or bodily material is left open. Perhaps most challenging is how humans were also implicated in these queerings of the expected order of things. While the material impingements of species-nonconforming deliveries or territorial doubles are not necessarily to be romanticized, such events as registered in rabbinic writings also point to the limits of human (male, rabbinic) claims to knowledge about generation, women, and animals. These claims to knowledge are stymied by the material under scrutiny. These potentials of human–animal entanglement or doubling also put a break on the seamless application of self-congratulatory conceptions of the human as tselem elohim. The late ancient generative unpredictability and the proliferation of species across territorial realms have the joint effect of upsetting straightforward human-centric accounts of heterosexual, same-species modes of reproduction. While the quest for knowledge of the world by the rabbis was exceedingly capacious, the sources we have examined here register not only how the material (or fetus) “kicks back” but also how “[s]pecies, like the body, are internally oxymoronic, full of their own others, full of messmates, of companions.”

