Research in cloning technology is progressing so rapidly that many scientists believe that it is now possible to clone a human being. Nonetheless, most countries in the world have banned the cloning of human beings because it raises moral dilemmas which, as of yet, are unresolved. From a halakhic perspective as well, there are a variety of issues that should be explored. One issue that has been debated is whether Halakhah considers a cloned being to be a human or a golem (an artificial person or humanoid). Halakhic discussions concerning the permissibility of killing or having sexual relations with a golem may initially appear obscure and strange, yet they provide some of the few halakhic precedents for defining a human being and may shed light on characterizing the status of human clones. The first part of this article will explore several halakhic issues related to a golem. The second part will introduce and define two different types of human clones and will analyze whether or not each of these clones can be classified as a golem or instead should be classified as a human being.

Background

The Definition of a Human Being: There are relatively few halakhic sources that define a human being. One highly referenced source is a responsum of Hakham Zevi (#93), which defines a human as someone formed within a woman. Hakham Zevi bases his principle on Sanhedrin 57b, which quotes Genesis 9:6: "He who sheds the blood of man ba-
adam (in man) shall his blood be shed, for in the image of God made He man.” The gemara derives from this verse that a person is liable for killing a fetus in utero, and Ḥakham Zevi derives from the gemara’s understanding of this verse that only a human formed within another human (ha-noẓar tokh adam) is human—that is, only killing a being formed within the womb of its mother is counted as murder. It may also be significant that several texts in the Tanakh, Talmud and Midrash refer to a human as a yelud ishah, one who is born from a woman.

However, being formed within a woman may not be the only defining characteristic of a human being. Other characteristics that have been suggested as, according to Halakhah, either sufficient or necessary criteria for human beings, include the capacity to speak, human facial features, and “human” knowledge.

The Nature of a Golem: The only case of an artificial humanoid in the Talmud is found in Sanhedrin 65b. There the Talmud relates:

Rava states that if the righteous wanted they could create a world. Rava created a person (gavra) and sent it before R. Zeira. R. Zeira spoke to it, but it did not answer. R. Zeira said: “You are a creation of one of my colleagues—return to your dust.” Rav Ḥanina and Rav Oshiya would sit together every erev shabbat and delve into Sefer Yeẓirah. A three-year old calf was created by them and they ate it.

Because the gemara states that R. Ḥanina and R. Oshiya used Sefer Yeẓirah to create the calf, Rashi writes that the “gavra” of the episode also was created using Sefer Yeẓirah. Furthermore, Rashi may be the first commentator to claim that the gavra was created via Sefer Yeẓirah by recombining the letters of God’s name and that it did not have the power of speech. In Sanhedrin 67b (s.v. askei) Rashi further states that creation via Hilkhot Yeẓirah does not violate the prohibition of magic, but, rather, is an act of God accomplished by evoking His Holy Name. Thus, one might interpret Rashi’s statement to mean that creation via Hilkhot Yeẓirah is a form of prayer. This view is echoed by Rabbi Judah Loewe of Prague (Maharal), who states that meditations on the Divine Names contained in Sefer Yeẓirah are like any other kind of prayer.

The adoption of the term golem to describe a gavra created via Sefer Yeẓirah did not occur in rabbinic literature until around the 12th century. No other source in the Tanakh, Talmud or Midrash uses the term golem to refer to an artificial humanoid. Instead biblical and rabbinic sources use the term golem to represent an incomplete human body still in the process of being created, or to describe the state of Adam, the
first human being, before God infused him with a soul. In Avot 5:7, the term *golem* is used to describe a real, not artificial, person whose personality traits are antithetical to those of a wise man (*hakham*). According to Rambam’s commentary to that mishnah, a "golem did not yet attain completeness and did not reach the level of a wise man."16 In Sanhedrin 22b, Rav states that a woman is considered a *golem (ishah golem hi)* until she binds herself in a "covenant" with a man who causes her (through sexual relations) to become complete. Rashi interprets the term *golem* here as an incomplete entity. Sefat Emet and Maharsha offer a symbolic interpretation of this gemara, explaining that “womanhood” in this context symbolizes Keneset Yisrael while the “covenant” symbolizes the Torah.17 Rav, therefore, is teaching that Keneset Yisrael was an incomplete entity (i.e., *golem*) until “she” accepted the Torah.

Several other commentaries incorporate the idea that a *golem* represents an incomplete human being. Ibn Ezra defines a *golem* as a body without a heart, and Rambam states that a *golem* is the clay material from which man is formed.18 Mahzor Vitri refers to a *golem* as a human without *binah* or *haskel*.19 Several biblical and talmudic sources associate the term *golem* with objects rather than living beings. II Kings 2:8 uses *golem* to describe an action of Elijah: “And Elijah took his mantle *va-yiglom*.”20 Rashi (ad loc.) translates *va-yiglom* as “not actual rolling but gathering together.” Hullin 25a and Kelim 12:6 state that *golemei keli* (functionally unfinished objects) made of wood or metal are tame. Similarly, in Sanhedrin 95a, where the gemara describes the destruction of the Temple, *golemo* means, according to Rashi (s.v. *golemo*) “a piece of it” (the invading army was told “let each of you bring me a piece of the city’s walls”) (Sanhedrin 95a).

Even though Rashi never refers to the *gavra* described in Sanhedrin 65b as a *golem*, many post-Talmudic *rabbanim* and promulgators of Jewish folklore follow the interpretation that the *gavra* in Sanhedrin 65b represents an artificial humanoid. These writers use the term *golem* to denote a being created via a mystical or supernatural method such as the one outlined in Sefer Yezirah. Certain concepts relating to the definition of human beings can be derived from rabbinic discussions of why R. Zeira was permitted to kill this creation.21 For example, R. Zeira may have been permitted to destroy the *golem* because it was not human, since it could not speak,22 suggesting that the capacity to speak may be a valid criterion for defining a human being. In addition, the creation of artificial life may only be allowed when it is associated with a *mitzvah*. 
Anaf Yosef claims that using Sefer Yeẓirah to create an artificial humanoid without any intended purpose may not be halakhically permitted. Therefore, once the gavra was created it had to be destroyed. In contrast, using Sefer Yeẓirah for a mizvah may be permitted, as evidenced by the fact that Rabbis Ḥanina and Oshaya used their artificially created calf for a Shabbat meal.23

Beginning with the 17th century, rabbinic authorities elaborated on the halakhic issues related to a golem.24 For example, R. Yaakov Emden (the son of Ḥakham Zevi) states that a golem created through mysticism cannot be counted in a minyan because it has no intelligence, implying that an intelligent golem might be considered halakhically human.25 One can infer from his comments that human intelligence may be one of several defining characteristics of a human being.26 Rabbi Isaiah Horwitz (Shelah) discusses an extreme example—whether it is permissible to have sexual relations with a golem. He proposes that Joseph’s brothers created a female golem by means of Sefer Yeẓirah and were having sexual relations with her. Since Joseph did not know that this female was a golem and thought she was born through normal human reproduction, he misinterpreted his brother’s actions as illegal fornication and therefore complained to his father about their activities.27 Thus, it appears from Rabbi Horwitz and others that there is no prohibition of having sexual relations with a golem.28

Ẓafenat Paneah offers a unique approach to the halakhic status of a golem.29 He states that a golem is not in the category of reality (“she-einah be-geder mez’i’ut”), and the commandments do not apply to it. It is classified neither as man nor as animal, nor is it legally part of any existing category of forms. This is the reason why R. Zeira could destroy the golem. The view of Ẓafenat Paneah is consistent with that of Shelah that one may have sex with a golem, as well as with the view of Malbim that a calf created via Sefer Yeẓirah does not require ritual slaughter in order to be used for food.30

Sidrei Taharot suggests that if truly righteous people, those free from all sins, wished, they could create any being, and it would be as if God Himself would have created that being.31 Thus, a truly righteous person could create a complete human being (possessing speech and intelligence), and this created man would have the legal status of a human being with respect to impurity and could be counted in a minyan. According to Sidrei Taharot, Sanhedrin 65b brings an example of Rava as an individual who had not yet reached the state of perfection of being free from sin, and therefore could only create an incomplete
human, which is an animal in human form. In contrast, a golem endowed with the capacity to speak would be considered human and could be created only by a truly righteous person. This view could also be inferred from Maharsha to Sanhedrin 65b.

Implications for Cloning

What are the implications of our discussion of golem with respect to the halakhic status of human clones? Two types of human clones are presented here for analysis. Both types can be created using the technology which was used to create the cloned sheep Dolly. Clone I is formed by fusing an enucleated human recipient egg (an egg which has had its nucleus including its genetic material removed) with a donor cell obtained from either a man or woman. The fused cell is then stimulated by electrical pulses to divide and begin embryogenesis before being implanted into the uterus of a surrogate woman. The resulting offspring will have about 99% of its genetic makeup derived from the donor cell, with a little bit of genetic material derived from the mitochondrial DNA of the recipient egg.32

The second type of clone, Clone II, differs from clone I in that the human fetus is allowed to develop in the uterus of a cow rather than in a woman. Based on current and future technology, clone II is created by fusing a human donor cell with a genetically engineered, enucleated cow egg. This “hybrid” fertilized egg is stimulated to divide and is then transferred into the uterus of a surrogate cow that would serve as surrogate incubator for human fetal development. Cows would be the appropriate animal to act as surrogates for human development because the gestational period of a cow is nine months and its uterus is large enough to accommodate full term development of a human baby. The resulting offspring would have the full genetic complement of a human being and would probably look and act like any newborn baby.

Before analyzing whether either of these two types of clones should be considered as a human or a golem, it is crucial to formulate possible halakhic distinctions between a human being and a golem. Although there are several approaches for defining the halakhic ramifications of a golem,35 one might propose a halakhic definition of a golem as a being created via mystical methods or via prayer. In contrast, a human being would be defined as a being either formed within a woman or created using biological processes and possessing other human characteristics such as speech, knowledge, or human facial features. If one accepts this general distinction, then the halakhic status of cloned humans is clear.
Clone I (using human cells and a human surrogate gestational mother) should not be classified as a \textit{golem} because it was created using biological processes and is born from a woman.

The unique halakhic issue involving Clone II is the fact that it was formed within a cow and not within a woman. There is no explicit precedent in the Talmud of a human born from a surrogate animal.\textsuperscript{34} Nevertheless, such a being should not be classified as a \textit{golem}, for it was created using biological processes and not via a mystical process. If one supports the theory that anything born from an animal is not human, then such a clone born in a surrogate cow may be classified as an animal but not as a \textit{golem}. However, it may be possible to propose that clone II should still be classified as human because it satisfies other sufficient conditions for being human, such as speech, human intelligence, and a human face.\textsuperscript{35} The expression of these other characteristics of human beings may halakhically override the fact that it was not formed within a woman or born from a woman. This theory, in fact, is supported by those authorities\textsuperscript{36} who suggest that if Rava would have created an intelligent or speaking \textit{golem}, then it would have been considered murder to destroy it even though it was not formed within a woman. One could then postulate that a human clone delivered from a surrogate animal should be classified as a human being because it is able to speak and exhibits normal human intelligence.

However, one might challenge this approach to analyzing clones I and II and claim that creation via \textit{Sefer Yeziarah} serves as one example of a reproductive process that is not normally found in nature. Thus, a human clone might be considered a \textit{golem} simply because it was created by an \textit{artificial} reproductive process that does not involve sexual intercourse. The problem with this latter position is that a being created via other artificial reproductive processes such as \textit{in vitro} fertilization or artificial insemination would also then have to be classified as a \textit{golem}.\textsuperscript{37} I know of no leading halakhic authority who classifies a child born via artificial insemination or via \textit{in vitro} fertilization as a \textit{golem}.\textsuperscript{38}

Is there a need to broaden the halakhic definition of humans? For example, what would be the halakhic status of a monkey that was genetically altered to express human characteristics such as speech or “human” intelligence?\textsuperscript{39} These types of questions will surely arise in the near future and will require halakhic resolution.

There are many halakhic implications of a clone being defined as a human being, including issues of murder, obligations to keep \textit{mitzvot}, marriage, divorce, burial, being counted toward a \textit{minyan}, and inheri-
tance. If one maintains, for whatever reason, that the discussion of a golem does not afford a valid and decisive precedent for establishing the status of clones, then, until a clear halakhic solution is formulated by the appropriate rabbinical authorities, one might consider a default classification of these theoretical clones as sefekot (beings of doubtful status) in Halakhah. When a doubt exists regarding the application of a Torah law (such as ervah or human life), a restrictive, stringent position is applied (Beizah 39b). The restrictive position in our two cases of human clones would view them each as having the legal status of a safek—is it human, a golem, or possibly an animal. A stringent position might be to treat a clone born either from a woman or from a surrogate animal as halakhically human, resulting in a prohibition to kill such clones.

Notes
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2. In addition to the sources cited in note 1, see Enzyklopediyah Talmudit, vol. 1 (Jerusalem, 1982), s. v. Adam, 165.

3. In contrast, other commentaries translates the term ba-adam in this verse as signifying that a murderer may be punished through the testimony of another man (Rashi) or through the court system (Targum).

4. Job 14:1, 15:14, 25:4; Yoma 75b; Niddah 13a; Avot de-Rabbi Natan, 2:1; Va-Yikra Rabbah (Vilna) 35:2; Be-Midbar Rabbah (Vilna) 4:1; Midrash Tanhuma (Warsaw) Mishpatim 19, Pekudei 3, Be-Midbar 19, and Ha’azinu 1.

5. Hacham Zvi does not specifically equate gestational development or being formed within the womb of a person with being born from a woman. It is beyond the scope of this article to discuss the potential halakhic ramifications of the distinction between "being formed" and “being born” from a woman. Therefore, the term “being born” will be used in this article to mean being formed and born.
7. See Rashi, ad loc., for several interpretations of this term.
8. An alternate translation is “it was created for them” (based on Rashi, Sanhedrin 67b, s.v. askei).
9. Rabbi Eleazar of Worms described the formula, which includes obtaining virgin soil from a mountainous place where no man has ever dug before, and invoking an incantation, comprising the alphabets of the 221 gates, over every organ formed. In addition, either the name of God or the word emet was incised upon the forehead of this golem. The destruction of this creature was done by erasing the name of God or by erasing the initial letter of emet leaving the term met (dead). See Joshua Trachtenberg, Jewish Magic and Superstition (New York, 1939), 84-86.
10. Commenting on Bereshit 2:7, Rashi includes both speech and intelligence as defining the uniqueness of humans over animals.
11. Presumably Hilkhot Yezirah is the same source as Sefer Yezirah, since it refers to the same story about Rav Šanina and Rav Oshaya creating an artificial calf.
14. Rabbi Menachem Kasher, in Torah Shelemah (Jerusalem, 5752) states in Bereshit ch. 2, no. 153, that the phrase de-Rava bara gavra is found in no other place in H. azal.
15. See Ps. 139:16, Sanhedrin 38b, Yerushalmi Niddah 3:3, Bereshit Rabbah 24:2, Va-yikra Rabbah 29:1, and many other aggadot and midrashim. It is interesting that the Aramaic translation of golemi is gashmi (body) which also may relate to the Greek word agalmata which means statue. See Idel, Golem, 299, n. 13.
17. Sefat Emet, Likkutim, Pinhas, quoted in Berurei Hasidut la-Shas, (Jerusalem, 5752), 508; Maharsha and Ein Ya’akov to Sanhedrin 67b.
18. Commentary to Avot 5:7. In addition, in several places in Hil. Yesodei Torah (2:3, 4:7 and 4:8) Rambam uses the term golam to refer to substance.
19. Ma’asor Vitri to Avot 5:7.
22. Rashi, ad loc.
23. See Anaf Yosef, in Ein Ya’akov to Sanhedrin 65b.
24. A sampling of responsa that discuss the halakhot of golem include: Responsa Divrei Meshullam #10; Gevurot Shemonim #52; Ikkarei ha-Dat, Orah Ha’yeyim, 3:15; Birkei Yosef, Orah Ha’yeyim, 55:4; Gilyon ha-Shas, Sanhedrin 19b; Pithei Teshuvah, Yoreh De’ah 62:2; Ruah ha-Hayyim, Yoreh Deah 1:18. See also Bleich; Idel, 213-31.
25. See R. Yaakov Emden, Responsa She’elot Yavez, 2: #82.
26. A discussion concerning the halakhic status of humans born mentally challenged or without the power of speech is beyond the scope of this article. However, most posekim follow the view of the Mishnah Berurah, Be’ur Halakhah, Orah Ha’yeyim 329, s.v. eleh, that these individuals have full human status. See Avraham Steinberg, Engikolopedyah Hilkhatit Refu’it (Jerusalem, 1991), 2:531, for a comprehensive review of the halakhic status of a deaf mute.
27. Sefer Tol Akhhot Ḥayyim, parashat Va-yeshev vol. 3 (Jerusalem, 1968).
28. Ben Yehodaya in the fourth section of Sanhedrin says that Adam could have created another woman through Sefer Yeẓirah if Eve would have been killed immediately for eating the fruit from the tree of knowledge. He claims that Adam did not create such a female because she would not possess the power of speech, and therefore would not be fit to conceive. Nonetheless, there appears to be no prohibition to have relations with such a golem.
30. In his commentary to Genesis 18:18, Malbim states that Abraham created a calf via Sefer Yeẓirah and was therefore allowed to serve it together with dairy products.
34. The Talmud never discusses the possibility of a human giving birth to an animal or vice versa. Tosefta Behorot 1:9 states that sex with animals is completely unfruitful. “No animal can become pregnant from a human being and no human being can become pregnant from an animal.” A similar theme is quoted in Sanhedrin 58a, where Rashi explains that no offspring can result from sex with an animal.
35. See note 1.
36. Maharsha, R. Yaakov Emden, and R. Leiner (Sidrei Taharot), all cited earlier.
37. It is beyond the scope of this article to analyze the various rabbinical views of artificial insemination. There may be a precedent for some cases (Ḥagigah 14b), but for others there are no explicit precedents in the Talmud.
39. Recent scientific evidence from sequencing the human genome suggests that humans contain only between 50-100 unique genes that are not found in other animals including monkeys.