

Human Reproductive Cloning-

Part II: Science, Jewish Law and Metaphysics

(EXPOUNDING on the KABBALISTIC ALLUSIONS OF NACHMANIDES)

Barbara Pfeffer Billauer JD MA¹

Abstract:

Under traditional Jewish Law (halacha), assessment of human reproductive cloning (HRC) has been formulated along four lines of inquiry,² which I discussed in Part I of this paper.³ Therein I also analyze five relevant doctrines of Talmudic Law, concluding that under with a risk-benefit analysis HRC fails to fulfill the obligation ‘to be fruitful and multiply’ and should be strictly prohibited. Here, I review of the topic from an exegetical Biblical and Kabbalistic perspective, beginning with exploring comments of the Ramban (Nachmanides) which suggest Kabbalistic insights very much in keeping with current biology.

In this Part II of the paper, I expand and annotate statements of the Ramban on the interrelationship of the reproductive faculties of an organism and its soul by examining the development of the spiritual states of plant, animal and human and noting the commensurate evolution with its reproductive facilities. Speculating that the reproductive mechanism of each species is indelibly related to its soul-state, I suggest that interfering with human sexual reproduction by HRC has the same effect the Ramban argues is the result of *Kilayim* (interbreeding), i.e., wrecking havoc with the Universe.

In Part III, I postulate a biologic explanation for warnings found in the Golemic Literature and suggest that these allude to the importance of maintaining human genetic diversity through sexual reproduction. The conclusions I reached after evaluating the propriety of HRC under a Kabbalistic/metaphysical index comports with those I reached using a traditional legal *halachic* inquiry in Part I. Thus, both systems arrive at the conclusion that HRC is in violation of the divine and natural order and constitute a distinct biological threat to the survival of the human species, a conclusions in accord with current scientific thinking.

¹ Barbara Pfeffer Billauer JD MA (Occ Health) is Research Professor of Scientific Statecraft at the Institute of World Politics in Washington DC and President of the Foundation of Law and Science Centers. She frequently writes on the intersection of law, science and public policy.

² i.e. 1. whether it is permitted under the rubric of the biblical injunction *V’Kivshuha* – thou shall shepherd the Earth, 2. whether it is prohibited under the rubric of *Kilayim* (interbreeding, interference with propagation of a species and preservation of reproductive process; 3. whether HRC is a mitzva, fulfilling the positive commandment of “*Pru U’Rvu*,” (i.e to be fruitful and multiply), and 4. considerations of whether the cloned organism is human, including ramifications of secular legal obligations and responsibilities.

³ Barbara Pfeffer Billauer, Human Reproductive Cloning: Science and Jewish Law, SSRN #[1665582](https://ssrn.com/abstract=1665582)

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I. Introduction:

As noted in a related paper⁴ actual precedent regarding the ethics or propriety of human reproductive cloning (HRC), either legal or under traditional Jewish Law (halacha), are wanting. Nevertheless, wisdom and insight can be apprehended from halachic authorities who have delved into the essence, mechanics and purpose of the divine imperative of reproduction.⁵

The Ramban (Nachmanides), a 12th century legalist, physician and Kabbalistic philosopher, expounds on biblical injunctions that forbid tampering with the reproductive processes. These, the Ramban claims, are an integral part of the Divine Creation and were programmed into the species during “the Genesis” of the Universe. While the Ramban’s opinions are legalistic, an occasional reference or remark surfaces hinting to a deeper metaphysical analysis, one based on Kabbalistic understanding. That the two lines of inquiry should result in an identical result is not surprising, since both sets of wisdom ostensibly originate from the same source. What is astounding is that the analysis of the Ramban closely tracks modern biological understanding.

In addition to expanding on Kabbalistic allusions raised by the Ramban, this paper adduces original insights that extend his reasoning, using current understanding of biology. Integrating these original Kabbalistically-derived insights with an analysis of evolving biological complexity, (i.e., the biblical description of creation of plant and animal kingdoms), I

⁴ Barbara Pfeffer Billauer, “Human Reproductive Cloning: Science and Jewish Law,” SSRN #[1665582](#)

⁵ While it might be thought that Talmudic discussions regarding the propriety of creating a golem might be relevant to creating a human clone, most halachic authorities have discounted these on the grounds that a golem is not a human, discounting even consideration of the method of inquiry. The flaws in this assessment have been discussed in the prior article. *ibid.*

demonstrate consistency in both result and reasoning of the Ramban's position⁶ with modern understanding.⁷

The Ramban's position

In explaining the absolute prohibition of interbreeding (under the doctrine of *Kilayim*⁸), the Ramban (Nachmanides)⁹ states:

“...God created the different species in the world for all the different kinds of souls, in plants and in those that have the animative soul, and he gave them the power of reproduction, that the species should exist for eternity.”¹⁰

In this single, relatively terse statement, the Ramban notes a critical relationship between the procreative facilities that enable the perpetuation of a species and its spiritual state.

In the remainder of this article, I will expound on this single sentence.

The above statement by the Ramban is supplemented by his commentary on Bereshit (Genesis) 1:11, where he wrote, “The foundations of the plants are in the upper realms, and from

⁶ as well as traditional Talmudic precepts as more fully set forth in the previous paper.

⁷ Current biological classification, according to the schema proposed by Cavalier-Smith presupposes four additional rudimentary “kingdoms,” preceding the developmental complexity of plants and animals. The current schema, which focuses on genetic rather than reproductive similarity is nevertheless in accord with the thesis proposed here.

⁸ Mishna - Mas. Kilayim Chapter 1,8:1, Zera'im, deals with the exact definition of the prohibitions (Lev. xix. 19; Deut. xxii. 9-11) which forbid the mingling of different kinds of seeds and vegetables, the pairing of different kinds of animals, the mixture of wool and flax in the same garment, etc. see also: <http://www.jewishencyclopedia.com>.

⁹ Rabbi Moses ben Nachman a 12th century Talmudist, Kabbalist and physician.

¹⁰ Rav Ezra Bick, “Introduction to the Thought of the Ramban,” Ramban #10, Redesigning Nature, The Israel Koshcitzky Virtual Beit Midrash,

there God commanded the blessing of eternal life. Hence, he who mixes *kilayim* (interbreeds species) negates and mixes (up) the act of creation.”¹¹

Rabbi Ezra Bick explains this enigmatic allusion as follows: According to the Ramban, “Creation of plants was done by God commanding the powers of heaven to give growth to the plants. Growth, like reproduction, requires a direct connection to the upper world. It is clear that the Ramban is understanding this [also] ... in a kabbalistic sense, of having spiritual emanations expressing themselves in the world of living things. Since in the kabbala of the Ramban the lines connecting the upper and lower world work in both directions, mixing the species in the lower world disturbs the foundations (יסודות) of the upper world. This is what the Ramban is hinting at in the expression "negates and mixes (up) the act of creation." ¹²

These concerns of the Ramban must be considered in light of his statements that the unique procreative abilities assigned to plant and animals – which are different – are designed to:

1. assure the continued existence of the species – to eternity, i.e. in perpetuity, and
2. are in some way related to the construct of the different soul levels assigned to each.

According to Rabbi Bick, the Kabbala of the Ramban does not require a separate construct from the plain meaning of the words of the Torah: “In the Ramban's terms, all life, even vegetative life, is a window on divinity, a pipeline between the inert world and the divine power of creation, generation, and reproduction. Negating [this power] ... is an affront to God's

¹¹ See also “Miracles and the Natural Order in Nachmanides,” David Berger

¹² Rav Ezra Bick, “Introduction to the Thought of the Ramban,” Ramban #10, Redesigning Nature, The Israel Koshcitzky Virtual Beit Midrash.

creation. The kabbalistic addition says that negating this power has a negative effect on the spiritual roots within the divinity that imbue the growth of the different species.”

The remainder of this paper will discuss and expound on the Ramban’s recognition of the integration of the physical and spiritual world via the mechanism of reproduction.¹³ Expanding on the Ramban’s allusions to the consonance, coherence and concilience between the spiritual and reproductive complexity of species, my objective is to discern whether we might glean understanding there regarding human reproductive cloning: i.e., would HRC be in furtherance of the Divine Order, or would it negate the “Act of Creation” requiring its absolute ban, similar to *Kilayim* (interbreeding)?

A. The Three Soul Levels of Living Entities

The concept of plant or animal souls should not be mistaken for that which we call a human soul. In Judaic reasoning the soul, an extra-physical construct of an organism falls into three categories:¹⁴ the *nefesh*, the *ruach* and the *neshama*.¹⁵ The *nefesh* can be described as the innate spirit of an organism, possessed certainly by members of the animal kingdom and according to the Ramban by plant species, as well, at least on a primitive level. This *nefesh* manifests in the essential nature of an organism – the conduct that makes a cat behave like a cat

¹³ Reference is made to the Sephirotic tree, where the Ninth level, Yesod or foundation is signified by the male phallus, whose consonance with the significance of the number nine in the gestational process of the human embryo must also be noted. That the prime covenant between the Jewish male and his God, the Covenant of the Word, commonly called circumcision, is effectuated via the phallus must also be recalled. This event, which occurs on the Eight day after birth, signifies the transcendental connection between the physical nature of man and his connection to the spiritual world of the Divine.

¹⁴ Adin Steinsaltz talks of five levels of the human soul, two of which manifest themselves in the supernal world, and relate to attachment to the Divine. See Adin Steinsaltz, *The Thirteen-Petalled Rose*.

¹⁵ Barbara Pfeffer Billauer “On Judaism and Genes: A Response to Paul Root Wolpe.” *Kennedy Institute of Ethics Journal* vol 9, (1999).

as opposed to a dog, or a poodle act like a poodle and not a schnauzer. It defines how the living being innately behaves under various circumstances. In other words, the lowest soul state, the *nefesh*, can be considered a living entity's most basic nature or primitive responses to its environment.

Even with the plant kingdom, there are levels of complexity and degrees of behavior (defined as response to the environment). The concept of a plant-soul (or animal soul), as arcane as it might seem, can thus be described as the unique ways in which different plants and animals respond to their environment and to changes therein. In the larger (secular) sense, the '*nefesh*' could be defined as how an organism responds to stimuli. Animals attain a more sophisticated spirituality, the *Nefesh Chaya*: which refers to the animal's essential spirit and its vital force; that which when instilled in the corpus gives it life and when removed, is tantamount to death.

By comparison, the living human is said to have three soul-elements, the first two having analogues in the lower creations: The human *nefesh* might be referred to as the rat-brain or the 'instinctive' person, and the *ruach*, (lit. wind or breath of life) -- somewhat analgous to *nefesh chaya* - establishes the inner drive or motivation of a person, conferring rudimentary creative elements such as appreciation or talent for art or music. These are inherited genetically and refined or modified through environmental influence and life experiences (such as birth order)¹⁶. In addition to the heritable qualities of a person's personality comes a divine attachment, that

¹⁶, Frank J. Sulloway and Richard L. Zweigenhaft Risk Taking , Sibling Behavior and Birth Order Personality and Social Psychology Review May 24, 2010

which is called the *neshamah-soul*.¹⁷ Along with the conventional associations attributed to this divine element, i.e. the capacity to cleave to God, to seek closeness through religion or an enhanced spiritual state through meditation, one might consider that a person's genetically endowed talents may be further inspired or enhanced by divine intervention. Thus, the 'something' that transfers a Salieri into a Mozart, or I.M. Pei into a Bezalel¹⁸ can be attributed to divine inspiration. Even in the less genetically gifted among us, the divine aspect of one's spiritual essence often manifests in a refined artistic appreciation, such as moving one to tears at the sight of a beautiful sunset or hearing a sublime piece of music. It is that 'something' that enables the passionate love of Romeo for Juliet, or inspires a Shakespeare to write about it in a way that moves the reader, that might be called 'of divine origin.' It is that 'something' that feeds the potential for guilt, remorse, and repentance. It is this particular quality, the divine soul-spirit, that elevates the human --- not any superior intellectual abilities or more refined dexterity (which could well be engineered into a robotic android).¹⁹

In the companion article, I speculate regarding the ramifications and risks of creating a creature without this Divine Connection, i.e. a soul-less creature, a possible result of HRC, should it be against the Divine Order. In this piece, I attempt to establish the reasoning why this would be the likely consequence of HRC.

¹⁷ A permutation of the letters in the word 'Neshamah' (per Kabbalistic methodology) produces the word Mishna, giving rise to the custom of learning Mishna on person's Yahrzeit (memorial day), in whose merits the learning is dedicated, thereby enabling the soul to transcend to a higher level.

¹⁸ The architect and designer of the Tabernacle.

¹⁹ In the prior (and related) article, I cite the Mishnaic interpretation (reiterated by the Ramban) of human reproduction being a partnership of a male a female and the Divine, with each of the three contributors responsible for a unique aspect of the born entity.

Should it be agreed that HRC, in fact, is in violation of the Divine Order, it is suggested that it one may conclude that the imbuing the cloned human with a Divine Soul (*neshamah*) would be contrary to the Divine Will. The human clone then will be created as a soul-less²⁰ entity; an android with intelligence, one possessed with mechanical dexterity and the ability to learn, human personality, drive and motivation but without an internal moral compass to appreciate the difference between right and wrong. Such android-constructs may make for excellent bureaucrats and superlative soldiers, precisely because the moral compass is wanting, but their creation also holds the potential for whole-scale devastation.

To be sure, there are occasional instances of naturally-borne humans without this moral compass: Hitler, Haman and Hanibal Lecter come to mind. Nevertheless, the possibility of creating a class of soul-less humans, such that their compliance with the norms of morality and the rule of law are wholly dependent on their training and that of their trainers means their creation could wreak havoc with the destiny of the Universe and continued survival of humankind. I suggest that to facilitate or increase this possibility through HRC is, therefore, a foolhardy endeavor.

II. The Co-Evolution of Development of Reproduction²¹ and Spiritual Complexity

A. Introduction

A didactic review of Genesis along with an understanding of evolutionary biology indicates that the spiritual development of an organism tracks the evolution of its physical

²⁰ Or in a non-theological sense, one who may be declared legally “insane,” as being morally/rationally incapable of discerning between right and wrong.

²¹ In evaluating the propriety of HRC, we must remember we are talking about an azygous process, as opposed to one developed by a fertilized embryo, whether naturally, or through in vivo or in vitro fertilization.

development as manifested by its reproductive complexity. I speculate that this co-evolving complexity in spirit and reproductive faculties is a manifestation of the divine plan, one assuring species survival and continued advancement and progressive world enlightenment. I further suggest that this is precisely the concept to which the Ramban was referring in the opening statement of this paper. If this proposition is accepted, it adduces additional evidence that procreation of human beings by cloning is in contravention of the Divine Order.²²

The import of this premise cannot be seen in a biologically abstract evaluation. For just as the mechanism of reproduction determines classification of flora and fauna in biological terms,²³ (at least according to the Linnean system, discussed below), so does the mechanics of reproduction correlate with a level of spiritual complexity, corroborating the Ramban's assertion stated at the outset.

B. Reproduction in Genesis as an Index of Structural and Spiritual Complexity

1. The Simplest Means of Reproduction: Asexual and Cloning

The theory of commensurate development of reproductive and spiritual complexity²⁴ is demonstrated in Genesis, beginning on the third day when the plant kingdom was brought into existence:

“And God said, let the Earth replicate and germinate, let grass-seed seed itself, and the fruit of the tree reproduce from within, replicating itself each according to its kind.”

²² See Barbara Pfeffer Billauer, “Human Reproductive Cloning: Science and Jewish Law” SSRN [1665582](https://ssrn.com/abstract=1665582)

²³ The system of Linneaus in biological ordering of Kingdom, Phyla, Class, Order, Genus , Species.

²⁴ – and hence personal responsibility needed before assignment of personhood status, can be conveyed in a system governed by the rule of law as we know it,

In creating the plant Kingdom, the Creator also constructed a blueprint for asexual reproduction, the hallmarks of which are exact replication and ‘fertilization from within.’ In other words, the signature mechanism for botanical reproduction entailed creating the design of the replicative process we now call “cloning.” This rudimentary reproductive and behavioral (spiritual) nature carries a built-in survival mechanism unique to *lower* ordered species.²⁵

This most primitive manner of asexual reproduction, akin to cloning, is effectuated in differing formats, each according to its species. Bacteria, for example, grow till they reach a certain size, split in half, and regrow to perform the function again, leading to a geometric increase in the number of progeny. Citrus trees and other angiosperms use their seeds to reproduce asexually in a process called *apomixis*, producing eggs with twice the normal number of chromosomes which then go on to develop without ever being fertilized,²⁶ a procedure very reminiscent of cloning, yet one which does not work in animals. This feature, however, carries behavioral responses unique to the species which proves for survival,²⁷ precisely the point of the Ramban.²⁸

²⁵ Thus, the Ramban’s injunction against tampering with the unique reproductive nature of each species as interfering with creation itself can be seen biologically as a disturbance of the mechanisms allowing the organism to withstand extrinsic stressors.

²⁶ This type of reproduction is unavailable in animals, (meaning laboratory experiments have shown that embryos constructed in this manner die in utero). See Nicholas Wade, Genes of the Parents Compete in the Fetus, *New York Times*, September 14, 2010, D5, D6.

²⁷ Plants that procreate asexually (e.g. bacteria, fungi, viruses) have the most minimal environmental requirements, such that wide fluctuations in environmental conditions are irrelevant to their survival. Some do not require sunlight nor participate in photosynthesis, (which comports with the ordering creation according to Genesis, as the essential element of photosynthesis – the sun – was not brought into being until the following day.) Further, sub-species of specific primitive plant organisms are environmentally tolerant – and in fact thrive in extreme conditions, e.g. heat, cold, radioactivity, such that the genetic survival mechanisms and diversity are already in place enabling these species to survive without the need for sexual reproduction to achieve this result – that is assuming each is perpetuated according to its own kind.

Even within the botanical world plants evolved to reproduce in a quasi-‘sexual,’ albeit androgynous, fashion; again with the capacity to remain true to its own kind, (“*L’minahu*”).²⁹ This evolutionary advance enlarged the capacity of plants to respond to environmental stressors³⁰, (the increasing the variability of inherent plant natures) while abetting survivorability of the species a capacity that also defines and describes the plant’s natures corresponds to its proto-nefesh. Nevertheless, even with evolutionary advances,³¹ the essential features of the reproductive process remained constant– the genetic material (both masculine and feminine) remained contained within the same structure, and the progeny are the result of genetic material from one parent,³² the hall-mark of cloning. These hereditary adaptive techniques,³³ or

²⁸ These primitive plants, including bacteria, that reproduce asexually, have built- in systems that allow for their survival as a species: asexual reproduction generally allows for a far greater number of offspring than entities which produce sexually²⁸, the sheer numbers provides a defense against whole-scale extinction caused by ravages of extrinsic forces. Additionally, some members of the plant Kingdom have the capacity to go into a dormant state with a protective shield (bacterial spores), enabling them to remain in a state of “suspended animation,” for decades, even centuries, until adverse environmental conditions change, fostering normal vegetative activities.

²⁹This concept of “*L’minahu*” Each according to its own kind - is a biblical pre-requisite for reproduction for every living creature – with the exception of the Human being.

³⁰ The differing mechanics for asexual conjugation of the genetic material – each according to its own species -- confers a unique means of withstanding environmental disturbances, allowing survival of each species via different response mechanisms. Commensurate with advancement in reproductive facilities, botanical organisms achieved the capacity to adapt to their environment which they were genetically able to endow (pass on) to their progeny through evolved reproductive features. Thus, programmed within the plants’ genetic coding were measures enabling the plant to behave differently in response to specific external stressors. By enabling hereditary transmission of these more sophisticated responses, the plant was able to foster its ability to survive.

³¹ The idea elucidated in Genesis, creating animals and plants so as to reproduce according to its own kind, only has meaning if humans have the capacity to differentiate these different “kinds” of organisms from each other. The first scientific method of so doing, i.e. identifying what constitutes a “kind” of plant or animal was developed and ordered by Linneaus.

³² The next phase of botanical evolution required creation of animals -- which enabled plants to cross-pollinate. Prior to this stage, however, it was the hardiness of the plant (coupled with its ability to get into a dormant phase in the event of inhospitable environmental conditions) augmented by the sheer numbers of progeny, the hallmark of asexual reproduction, that allowed for primitive plant survival.

environmental adaptive techniques³⁴ that constitute the plant's 'nature,' create the plant's behavioral responses, distinguishing it from a rock -- which merely degrades over time and adverse conditions. Additionally, they constitute individual plant "natures," that differentiate one plant species from another. It is, however, the reproductive mechanics of the organism that program for these environmental responses, and it is the complexity of the reproductive faculty that allows for a broader and more diverse range of behaviors. From an evolutionary perspective, then, the number and variability of potential responses confers the hardiness or robustness of a species, yet this feature is determined by the complexity of the reproductive system.

The importance of reproductive complexity in defining and identifying the status of an organism has long been recognized. In the 18th century Carolus Linnaeus³⁵ created an objective method to categorize living things³⁶ using individual differences in botanical reproduction^{37, 38} as the criteria for categorization.³⁹

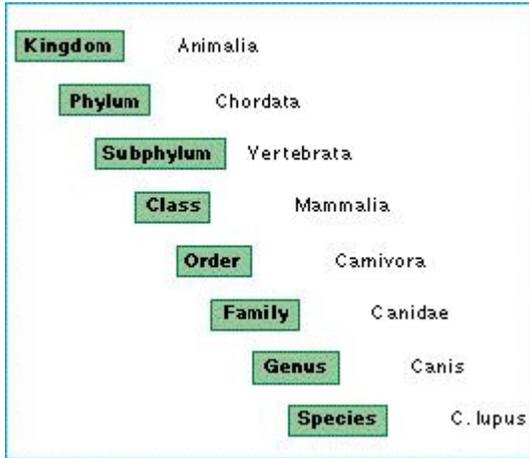
³³ For example, *photo-tropisms* describe how a plant will respond to light, by bending toward it (positive) or away from it (negative), a behavior which could not have existed until the fourth day, when the sun was created.

³⁴ Not only does the botanical process of preservation include regular quotidian, nocturnal and diurnal responses, e.g. stoma that close and open in response to daily changes in temperature, climate, sunlight and humidity, or preservative spores produced when environmental conditions are inhospitable, but plants are capable of actual specific responses to stimuli, akin to "behavior," called tropisms

³⁵ *The Genera Plantarorum* of Carolus Linnaeus

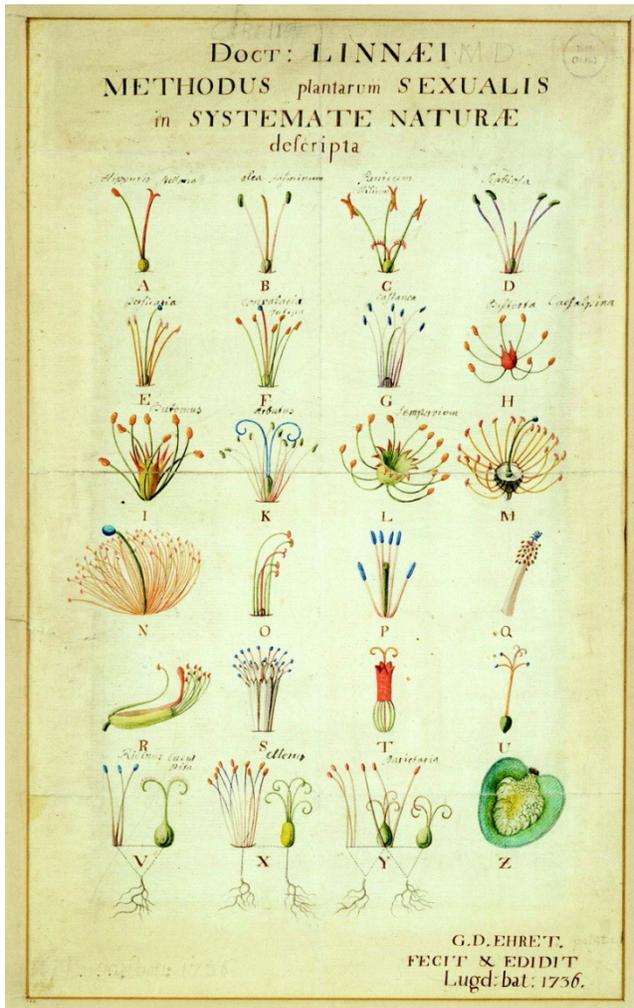
³⁶ The Linnean system has since been extensively modified, and although still current systems still consider reproductive complexity in its categorization more of a focus is placed on genetic similarity, a feature which nevertheless comports with the theories set forth in this paper, as it is the genetics which influence the species survivorability as well as its range of behavior and 'persona.' (*i.e nefesh; proto-nefesh or nefesh chaya*).

³⁷ e.g, stamen, (male organs) and pistils, (female organs)



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Ordering of Biological Organisms



Linnaeus' Classification Chart

Based on a formalized examination of the number and complexity of the reproductive plant's organs Linneaus categorized living things into a hierarchy of categories. Interestingly, the Linnean Classification system tracks the order of creation as recounted in Genesis.

The species' survival, then, does not depend on a static, never-changing environment, but rather the capacity to reproduce which allows the plant to metamorphasize – albeit within the (structural) limits of its own kind. This capacity to survive ever-changing environmental conditions by both adapting their responsive mechanisms and transmitting the evolved responses to a “new and improved” product line of offspring (its reproductive faculty), also constitutes part of the organism's essential nature.

Linneaus' reasoning for his classification procedure is incredibly concilient with the view of the Ramban. Thus, Linneaus created his system, enabling “an independent observer to classify” an unknown flower by comparing it to others in a like category,⁴⁰ contrasting it to others of its particular “kind.” (i.e. *L'minehu*).] “based on ***the most fundamental process that made a plant what it is – the stages of generation that replicate the characteristics of the parents in the offspring.***”⁴¹ [emphasis supplied].

Whether what makes the organism ‘what it is’ is the reproductive system or its nature as determined by behavior does not need to be determined. Suffice it to say that two are inter-related: the reproductive process is directly related to the organism's basic “nature,” as well as enabling it to survive as a species. While the repertoire of variations in a plant's behavior may

³⁹ Assessing advances in complexity, or evolutionary progress is also easier and less subjective when one is evaluating the structure of an organism and its physical complexity, rather than assessing the superiority of responses, the benefits of which may vary over time and different conditions.

⁴¹ I. Bernard Cohen, “ Science and the Founding Fathers,” W.W. Norton & Co.Ltd. 1995 p. 46.

be “unconscious,” the conduct of the plant in response to external conditions can be said to approximate the minimal level of what Nachmanides refers to as a plant soul, or proto-“Nefesh.” The Ramban’s joint admonition against tampering with reproduction and allusions to the proto-Nefesh of a plant come into clearer focus.

2. The Advent of Sexual Reproduction and the Creation of the Animal Soul

True sexual reproduction, enabled by the creation of unique and separate male and female sexual reproductive material, coincided with the origination of “the Nefesh Chaya⁴²,” the living/animal spirit. This occurrence heralded creation of the animal kingdom and the procreative process inherent to it occurred in the Fifth epoch of creation. At that point sexual reproductive of animals originated, coinciding with creation of fish, fowl, flying objects and aquatic fauna. (In the language of Linneaus, with the creation of fish, a new *phylum*⁴³ was born, and with the creation of birds, the *phylum* differentiated itself into a new *class*.)

From a biological point of view, the sexual reproductive process assigned to first fish and then fowl enabled the hardiest of the species to survive until reproductive age, such that the weakest of the species, those least able to adapt to environmental conditions, die out before they have spawned young with these environmentally obsolete characteristics. This process is known as “survival of the fittest,” and breeds the most robust organisms. The process occurs within the

⁴² Chaya can be defined alternatively as beast or as ‘living’, thus nefesh chaya can mean the spirit of the undomesticated animal/beast or the ‘living spirit’ of the various animals that are enumerated.

⁴³ According to prevailing evolutionary biology, the evolution of the fish broke off the developmental tree, such that the continuing spectrum of structural and physiological advance we see in other members of the animal Kingdom, culminating in humans, truncates with fish. For example, the immunological processes of many lower animals is a precursor to that which we find in humans. Not so fish, whose immunological system branched off in a different evolutionary direction. (personal communication, Dr. Noel Rose, Professor of Immunology, Johns Hopkins University).

assigned anatomical/structural framework of each species, (i.e. “*l'minehu*” each according to its own kind), enabling each species to survive over eons of generations, albeit via differing mechanisms. On an evolutionary level, given a particular epoch or environment, each organism has the built-in capacity for adaptability; those inferior or inept at adapting to change die out before they reproduce themselves, fostering the survival of the hardiest members of the species.

While animals and plants both reproduce each according to its own kind, the “mating” of male and female animals of sexual reproduction, allowing merger of different packets of genetic material, coincided with the development of more advanced soul-states, the animal spirit or *nefesh*. Thus, on the fifth day, God said:

“And the waters shall spawn *living nefesh*...”⁴⁴

ויאמר ה' ישרצו המים שרץ נפש חיה ועוף יעופף על הארץ על פני רקיע השמים:

The emergence of the living/animal spirit, then, coincided with the advent of sexual reproduction – i.e. where reproductive material was divided into two genders, the coming together of which results in progeny resembling, but differing from, the parent.

C. Operative Actions as a Measure of Complexity

1. The Quantitative Significance of Operative Terms

By ten sayings did God create the Universe,⁴⁵ i.e. in the Beginning there was the Word. Thus, it could be said that the building blocks of the universe are constituted by the operative terms used.⁴⁶

⁴⁴ בראשית 1:20 Hebrew Bible

The bringing into being of all stages of creation begins with the operative term: “*Vayomer*”= And God called forth or And God said. Such was the case with the creation of the botanical world along with asexual reproduction on the Third Day.

A more complex form of reproduction occurred on the Fifth Day, commensurate with the creation of fish, fowl, flying creatures and aquatic fauna. Their existence was effectuated by three operative terms: “*Vayomer*,” = and (God) said, “*Vayiboray*,” = and (God) created, and “*Vayvarech*,” = and (God) blessed. This blessing seemingly relates to advanced means of reproduction, to enable sexual reproduction, i.e. the merger of genetic material from separate males and females in an environment conducive to fertilization, incubation and birth (i.e. mating and mothering).⁴⁷

Perhaps the number of terms used at each stage of the evolutionary process may be an allegorical representation of the level of complexity or intricacy of the creative process involved. Surely, the increasing number of terms correlates with the increasing complexity of the reproductive systems at each major stage of the evolutionary process: asexual, sexual and human reproduction. However, the meaning of the terms or the type of phraseology also signals the

⁴⁵ The blessing is the same P’ru U’rvu (Be fruitful and multiply injunction) later used for man; the only difference in the “be fruitful and multiply” injunction use for aquatic creatures is that they are to populate the marine environment, (“*U milu et ha mayim*,”) while humans are to populate the land.

⁴⁶ In that the world was brought about by “the Word,” i.e. effectuated by the language or call in to being by the Creator, the use, syntax, and complexity of language should be examined for a fuller understanding of the Genesis process.

⁴⁷ The fertilization of fish, which is specified by virtually the same language as humans can be said to furnish the basis for a “Heter” or permission for use of fertilization outside the human corpus, i.e. in vitro fertilization, akin to the process used by aquatic animals, where fertilization takes place outside the animal corpus.

intensifying nature of the process, portending an increased level of complexity of the spirit/soul level attached to each evolving phase.

2. The Spiritual Significance of Operative Terms: The Blessing Pru U'Rvu

The integration of a blessing in the course of the creative process adds more than merely another cardinal valuation of complexity. Rather it introduces the qualitative concept of holiness or spirituality into the system, creating an ordinal superiority. Thus, the creative process of the Fifth day did not stop with a new type of organism, the zoological kingdom, but rather created the concept of individual spirits, unique and appropriate for each species of animals.

As stated previously, a significantly higher state of both spirituality, (or for the sake of the secularists, behavior, or response to stimuli) and complexity in reproductive process occurs on the Fifth 'Day'. At that point, "the Lord brought forth from the waters swarms of water-creatures and creatures flying above the Earth, ... each [living spirit] after its kind." This description of species-specific-ness is used when describing both the organism and its spiritual state or *nefesh*.⁴⁸ This unique spirit-state assigned to each species is accompanied by the blessing of P'ru U'Rvu (Be fruitful and multiply). Thus, it can be said that the blessing is an indication that at this point a new aspect was introduced into the creative process, one requiring Divine intervention in the form of a blessing, or a modification of the natural evolutionary order.

⁴⁸ וַיְבָרֵךְ אֱלֹהִים אֶת־הַתַּיִמִּים הַגְּדֹלִים וְאֶת־כָּל־נֶפֶשׁ הַחַיָּה הַרְמֹמֶשֶׁת
אֲשֶׁר שָׂרְצָה הַיָּם לְמִינֵיהֶם וְאֶת־כָּל־עוֹף־כַּנְפֵּי לְמִינֵיהֶם

"And God created the great sea-creatures and all living spirits that creep, spawned of the waters, [each spirit] according to its kind, and every flying creature and fowl according to its kind."

In addition to the spiritual implications, however, comes the linguistic exercise of understanding the impact of the words, themselves, used in the blessing and an understanding of their evolutionary impact.

“And the Lord *blessed* them saying, Be fruitful and multiply “

The aspect of fruitfulness is reminiscent of botanical reproduction, although a new imperative (to multiply) is assigned to the newly formed animals. The meaning of “multiply” can hardly be translated as a quantitative differential. The geometric results of replicative (mitotic)-division parlayed by the simple plant far eclipses those of even the most prolific of animals. Hence, the word ‘multiply’ must relate to a qualitative variety (and superiority) in progeny rather than a quantitative differential. Thus, the novel advance alluded to by the blessing must refer to the multiplicity of different expressions of progeny produced by sexual reproductive methods achieved by genetic intermixing.

Since each member of the animal kingdom is required to reproduce in keeping with its own kind, the question arises regarding what is the multiplicity of expression expected if the animals’ physical manifestation is strictly limited, (*l’minehu*, each according to its own kind.) The answer would have to be differences in expression of persona, or “animal spirit”.

Thus, mystical Judaic thought assigns to even the lowest animal primitive soul states - referred to as the *living* animal *nefesh*.⁴⁹ Not only do these creatures have an inherent nature over which they can be trained to control, much like our hypothetical human clone, but animal

⁴⁹ which could be biologically translated as the “rat-brain,” when it dominates human activity

“personas” exist which are unique to each species of animal. These factors differentiate the Animal Kingdom from the Plant Kingdom.⁵⁰

3. The Qualitative Significance of the Operative Terms

In addition to the significance of the number of terms or the form of utterance, (the blessing) the choice of words used must be considered. We see the importance of this on the Sixth day in the morning, when land animals were created. The process of creating the *class* of land animals, (or further subdividing the animal kingdom) who also reproduce sexually, is hardly a major advance of “evolutionary technology.” Perhaps the major advance, from a reproductive biology point of view on Day Six, is the internal incubation of young. This reproductive advance corresponds to the differing complexity of the natures the various species, e.g. comparing the persona of a bird with a dog versus a tulip and a turkey.

An analogy could be made that the method used to construct land animals was a ‘recycling’ and ‘refining’ of the creative process used to bring about marine and aviary animals. This concept is reflected in the language of the Genesis text. Thus, as opposed to the Fifth Day when three operative terms are forth the fish and fowl, on the Sixth Day –only two operative terms are used. In one sense, the use of two terms reflects a slightly more complex creative process than used in the botanical world (where only one operative term was used).

⁵⁰ Plant tropisms are involuntary Thus, one cannot ‘train’ a hydrangea to grow in more sunlight than that for which it is genetically programmed, and soil acidity will have a prescribed and expected result that cannot be changed by conscious will or decision by the organism. By comparison, while the persona of the cat differs from the dog, each of these animals can be trained, within the confines of the species’ ability, to modify its behavior or improve its nature.

In another sense – there is a difference. Thus, for lower animals, the second term is “*Vayiborah*,” = and (God) created. In essence this was an entirely new creation – the Animal kingdom. Yet in creating land animals, a different second term is used: ‘*Vayaas*’ “(And He fabricated), a word⁵¹ suggesting retooling of an already existing technology.

In summary, the newly created animal kingdom⁵² brings with it the activity of true sexual reproduction, requiring separate genetic material from male and female genders. Along with this construct comes the elevation of the soul status of the animal, the living/animal spirit, the *nefesh chaya* manifested in a more complex and identifiable personality, behavior and individualistic response to the environment.

D. In the Image of God: Creating the Human as Distinct from the Animal

1. The Six Operative Terms Creating Humans

The final innovation in the continuing spectrum of design and creation of the Universe came on the afternoon of the Sixth Day in creating *Homo sapiens*. The more complex nature of its creation is manifested by the use of *four* operative terms for its emanation: “*Vayomer*” (And

⁵¹ The same formulation of words is found on the fourth day, when God first told (*Vayomer*) stars to come into existence, and then later from them fashioned (*Vayaas*) the sun and the moon.

⁵² Level	Name	Description
Kingdom	Animalia	Animals
Phylum	Chordata	Animals with backbones
Class	Aves	Animals called Birds
Order	Passeriformes	Birds that perch
Family	Turdidae	All Thrushes
Genus	Turdus	Similar Thrushes
Species	Turdus migratorius	American Robin

God said), “**Vayebaray**” (And God created); ‘**Vyivrach**’ (And God blessed); and “**Vayetzer**” (And God fashioned). While the first three operative words are identical to the linguistic procedure used in creating fish and fowl, the addition of “**Vayetzer**” (and He fashioned) is unique to the creation of Adam. (As will be discussed later, the implementation of the human female into the Genesis process involved the use of two additional operative terms).⁵³

The *process* of creating the Adam-prototype⁵⁴, then, differs from the animal, and in several respects; the first being the number operative levels of Divine speech to bring the human into existence.⁵⁵

2. The Source/Material/Inspiration for Human Creation: In the Divine Image

A second differential between human and animal is that the precursor state of plant and animal is Earth or Water, (‘**Vatozeh**’ = and (the Earth) brought forth ...; ‘**Vyishritzu**’: Let the waters spawn)⁵⁶ while the incipient source for human creation was the Divine image. That the finite human mind cannot comprehend the essential meaning of the term “in the Divine image,”

⁵³ That the number of operative terms involved in creating humanity reaches six should not surprise the Kabbalistically inclined.

⁵⁴ It must be noted that other humanoids were in existence prior to Adam and his family being ejected from the Garden of Eden, those entities of whom Kain was fearful would hear of his murdering his brother and seek revenge. That the Adam prototype was a different line on the evolutionary tree, one with the capacity to forge a relationship with God, or imagine the existence of a non-corporeal intelligence as did Abraham, earns the humanoid creature that emanates on the Sixth day a new category and the sobriquet, what I call *Homo sapiens Spiritualis* (sup-species)

⁵⁵ Lest one reach the erroneous conclusion that perhaps cloning might be entertained for males, using Spermatozoa, i.e. only the sperm is sacrosanct, we must be mindful of the separate genetic entities that G-d designed to inhabit and steward his universe. The state of androgyny was surely a precursor state advanced in the human species by separating the animus of man from the anima of woman, which initially resided in the same mortal receptacle. Therefore, preservation of these two states of human-ness -- male and female -- must be a divine intent, obligatory on us to preserve. To wit, “and male and female he created them.”

⁵⁶ All creatures are to be spawn of the Earth or the waters, albeit some in a more advanced and complex manner than others, effectuated by the levels and intricacy of language used to create them. “And the Lord said, **let the Earth bring forth the spirit of animals**, each according to its own kind.” And the Lord fabricated the ... all the animals, each according to its own kind.

is acknowledged. Nevertheless, in addition specifying the different source of emanation of the human, i.e. God's image, ⁵⁷ the text gives us clues as to what differentiates the human from the animal, and what constitutes creation in the Divine image.

Immediately following the phrase “in the Divine Image,” we find the expository words, “and male and female he created them.” These words must signal some essence of God that manifested in the humanoid. We can presume the Divine model included prototypes for masculinity and femininity, i.e. the existence of *both* masculine and feminine forces found in the Divine Image were implanted into the Adam prototype.⁵⁸

3. The Difference in the Masculine and Feminine between Human and Animal

The creation of gender, however, is not a novel invention, since one must assume that the animal procreative process involved male and female animals – a fact amply demonstrated when Noah marches pairs of each of the animal species onto his Ark – a male and female of each breed. That said, there must be something inherently different about the “male” and “female” found in the Divine Image that are imbued in the Adam prototype. This concept is further signaled in the first admonition to this new species, one involving stewardship or dominion over the newly created universe, the injunction of *V’Kivshuha*, i.e. and you shall exercise dominion (alt. stewardship or control) over the Earth.”

Since the God-imagined human has consciousness and intelligence, it is not surprising that Man would be nominated “King of the forest.” But one feature is surprising – the responsibility

⁵⁷ The mechanics of Golemic creation by the Kabbalists was similar to the process used by the Divine in creating animals – that is the source material was derived from the Earth.

⁵⁸ It must be recalled at this point that the initial creation of Adam was as a hermaphroditic being, with male and female elements united in one structural being.

of *V'kivshuah*, dominion (or stewardship) of the Earth, entrusted to Humans (and the very same word under whose rubric proponents of HRC claim an exemption for allowing HRC), is spelled 'wrong.' This erroneous spelling indicates the word is meant to tell us far more than if the word was taken at face value.

Rashi⁵⁹ tells us that the misspelled word signifies that the (human) male aspects are to be given dominion over the female aspects. There are numerous apocryphal tales as to why, but suffice it to say, this is not the case throughout the animal/aquatic world. Certainly it can be observed that male and female gender differences in humans differs from those in animals, whether or not relating to dominion.

This third differential, the gender differences that exist in humans and animals, cannot be strictly explained by differences in anatomy between males and females. Thus, males and females in all animals are structurally different, yet the behavior of males and females of the human species differs greatly from those in the rest of the animal kingdom. This phenomenon might be explained by the different procedure used to construct the human female; one that arguably relates to her spiritual/soul state.

In the creation of the human female, then, two of God's names are invoked, and a fifth (or even a sixth) operative term is used, i.e. the creation of the human woman was a two-step process:

And the Lord God took (*Vayikach*) a rib from Adam and the Lord God constructed (lit. built it into a) (*Vayiven*) woman:

ויבן ה' El-o-keem תא הצלע אשר לקח מן האדם לאשה

⁵⁹ The great French commentator (and Kabbalist of the 11th Century.

Certainly, these essential spiritual differences exist between human male and female, and these may reflect the additional terms implemented to create the female of the human species and the two-step construction process. In delineating the co-linear and interrelated evolution of reproductive facilities and soul states of the creation, the admonitions of the Ramban now become clearer. The relevance to the propriety of HRC may be a bit more obscure.

4. The Relevance of the Human Creation Process to HRC

I suggest the male/female distinctions between humans and animals (be it interpersonal gender relationships or intrapersonal sexuality), bears on the propriety of HRC in several ways. We can certainly conclude that an organism created in the clone-fashion, (e.g. binary fission like bacteria or replicated like fruit), bears little resemblance (and pays little tribute) to the essential and differing masculine and feminine natures, essences which exist in God, and in whose manner he created us.

E. Human Genetic Diversity and the Divine Order

1. The Infinite Expression of Humans as Relating to the Propriety of HRC

A fourth and seminal differential between human and animals – one that again tracks the linguistic motif of the ‘Creation Chronicle’; is the use or absence of the limiting term: *L’minahu*, (in its own kind).

Thus, while both plants and animals are programmed to be like their parent progeny, the term *L’minahu*, (in its own kind), is conspicuously absent in the human creative process. This would signify that a hallmark of the human species is the infinite variety in expression of their offspring. Thus while animals and plants are required to germinate in a manner limiting

expression of the species, each representing the precise kind it came from, the limiting word “Lminayhu” is absent in describing human creation.

This omission is hardly an oversight. As stated in the Mishnah and expounded on in the Gemara, a critical element in God’s production of human beings, (one that differs essentially from items produced by a human hand) is the infinity of phenotypic human manifestations based on limited and finite of genotypes. Thus, “Our Rabbis taught: “[that the creation of the first man alone] was to show forth the greatness of the Supreme King of kings, the Holy One, blessed be He. For if a man mints many coins from one mould, they are all alike, *but the Holy One, blessed be He, fashioned all men in the mould of the first man, and not one resembles the other.*”⁶⁰ [emphasis supplied].

The similarity of end- products of human manufacture resembles the similarity in progeny of the animal world: the production process leaves little room for individuality. It is the infinity in the God-programmed expression of individual humans that makes human creation by God different from God’s production of animals and from humans’ production of designs of their own choosing. This infinity of expression, the hallmark of human creation, is precisely the aspect of HRC that contravenes the divine design of humans.

In furtherance of this matrix of infinite expression programmed into the human reproductive mechanism, the first commandment assigned to the divinely inspired⁶¹ human male was to reproduce and procreate, a process effectuated by requiring the cooperation of the female.

⁶⁰“For it is written, It is changed as clay under the seal and they stand as a garment. R. Meir used to say: In three things man differs from his fellow: In voice, appearance and mind [i.e., thoughts]. In voice and appearance', to prevent unchastity; 'In mind', because of thieves and robbers.” Sanhedrin 35 a and b.

⁶¹ Divine inspiration being my literal reference to the breath of God ‘inspired’ (and was inspired by) Adam, generating a new strain of humans which I call *Homo sapiens Spiritualis*.

Therefore the commandment of Pru U'rvu, which first was entrusted to fish, involved exchanging and merging genetic male material (XY chromosomes) with the genetic female material (XX chromosomes). This process is called fertilization by biologists, (and referred to as “fructification” by the Ramban.) In this act, we are said to invite the presence of the Divine into the procreative process. And in the act of merging genetic material of male and female and creating progeny that are entirely different from, but similar to, the parent⁶² -- we mimic the Divine. HRC would vitiate both aspects of the reproductive process as divinely engineered.

Should HRC be allowed, the Mishnaic notation of the supremacy of God manifested by the infinite expressions of humans would be eviscerated, an action tantamount to denigration of the Divine Name. This infinity of variation, as a distinct Divine attribute (arguably chargeable on humans to imitate) would contravene the Mishnaic proposition,⁶³ and diminish one feature of the supremacy of the Godhead. Yet it is not the disrespect for the Divine that HRC invites that provokes the most compelling argument against it, but rather that in replicating a human in his own image, the human seeks to become Godlike. That too, may not, per se, be sufficient reason to contravene the act. Rather, it is in this misconceived attempt to imitate the Divine, we are frustrating and weakening the program established by God that was designed to allow humans to exist, as a species, in theoretical perpetuity. By trying to act like God, then, we would only fail,

⁶² This feature differentiates clones from identical twins. In that each generation is programmed to improve the prior one, and therefore guarantee perpetuation of the species, identical twins both differ from the parent, while clones do not.

⁶³ Mishnah, 5, Sanhedrin.

and in the process harm humanity by attenuating genetic diversity, the hallmark of God's human creation.⁶⁴

2. Evidence that a Genetic Blueprint is Coded into Genesis

The importance of maximum expression of genetic variation might be intimated by the comparing the constructs of human genetic homogeneity (as symbolized by Adam and Eve) and the generation symbolizing maximum heterogeneity (those symbolically represented by the generation of the Tower of Babel – they who sought to become Godlike). This maximum variation of expression, symbolized by these generations is reflected both in physical manifestation and spiritually. The symbolism of evolving spiritual expression can be seen by comparing Adam and Eve in their pure unspined state, to that of the generation of the Tower of Babel, considered so vile as to require their utter destruction.

The symbolism of the commensurate manifestation of maximum physical expression is borne out biologically: Recent advances in the field of immunology have established that reverse engineering of mice producing genetically pure creatures⁶⁵ can be obtained by inbreeding for twenty generations. While the reverse of this exercise is in its nascent stages, immunological experts believe that maximum genetic diversity would occur with out-breeding for twenty generations.⁶⁶ It should therefore come as no surprise that the number of intervening generations between Adam and the generation of the Tower of Babel – is twenty.

⁶⁴ How cloning would also harm the Universe, and the ecosystem, threatening biodiversity was dealt with in detail in the companion article.

⁶⁵ A process necessary to evaluate the effects of environmental insults or drugs without interference from extraneous genetic influences

⁶⁶ Personal communication, Professor Alan Stark, Johns Hopkins University School of Public Health

3. The Programmed Predicate for Preservation of Humans – Biologically Speaking.

The infinity of humanoid creations resulting from heterogenetic reproduction is nothing short of miraculous; billions of different humans resulting from 23 pairs of chromosomes and a thousand or so genes. The ‘*magic*’ of the infinite creative process, therefore, is not merely dependent on the direct interchange of a finite quantum of genetic material, but upon the effect of said genes in mediating and modulating the endocrine, metabolic and extranucleic cells which they not only create but regulate; the regulation of the modifiers further impacting the expression (phenotype) of the genetic imprint (genotype). Each step of the merging and translocation of genetic material, then, influences not merely the genetic component of the offspring, but the various phenotypical array (visual presentation) of their manifestation. Superimposed on this construct is the bequest of an individual soul granted by God from his treasury of souls, ordained for implantation in a particular corpus even before the embryonic genetic material that is to form it merges.

Since each step in the transformative and differentiating process of the human genetic message, which is in the original format is fashioned (*vayatzar*) from a combination of the male and female genetic signature would be eviscerated by the process of HRC, it is difficult to believe that God would ‘waste’ one of His treasured and purified souls by implanting it into a genetically obsolescent, physically unevolved, vintage-model corpus: the product of HRC.

Much of Talmudic lore venerates the human corpus precisely because it houses the holy *Neshamah*/soul. Therefore, it defies logic and contravenes Talmudic wisdom to believe that

God would house the most complex of essences, the Divine Human *Neshamah/soul* in a vessel formed by the most simplistic construction method, the human clone.⁶⁷

It has been contended that a human population of only 50,000 contains the sum total of genetic information necessary to preserve the species. This argument, made by proponents of cloning, presumes that we can both identify this core population and assure that they will survive all environmental threats, pandemics, plagues, random acts of violence, tsunamis, earthquake, revolution and the like. It also presumes that current environmental conditions will not change.

The argument is flawed in failing to understand that sexual reproduction contains within it the potential for the species to survive *future* conditions, of which we cannot even imagine, let alone plan for.⁶⁸ Thus, the survival of the species does not depend on the state of the gene pool as it exists at the present time, but rather on the infinite number of genetic combinations that result from sexual reproduction, of which some might be presently useless (or even harmful), might be precisely the genetic formula which would enable a neo-nate that would die under present conditions to survive should the environment change drastically in the future.⁶⁹

⁶⁷ According to the Torah, Human activity which is in violation of the natural order (i.e. that which is observed in nature) is considered an abomination. Leviticus. 18: 22: Rashi, Maharsha, Nedarim 51a

⁶⁸ The human is equipped with precursor immune cells that can address more than a billion environmental threats, to which we have only been subject to a fraction. The homo sapien then is “genetically engineered” to withstand threats that as yet do not exist. Only by maximizing genetic transfer can full expression of the genetic panoply with which we are formed emerge, at the right time when they are necessary.

⁶⁹ Indeed, the genetic wherewithal for capacity to adapt to future conditions may be found in ancient editions of the species. Thus, “scientists working in the famed hills outside Mexico City found that *ancient varieties* have particular drought- and heat-resisting traits, including longer roots that suck up water and a capacity to store more nutrients in their stalks,” that are being harnessed as bringing “salvation” to farmers hit by global warming. Mica Rosenberg, “With extreme weather on rise, search is on for hardier crops.” The Washington Post, September 20, 2010, p. A 4.

4. The Spiritual Repercussions of Biologic Diversity – Historically Speaking.

That the influx of new genes is necessary for preservation, not just of Human genetic prowess and survival, but for its spiritual advancement, can be seen by the fortuitous integration of persons of non-Jewish descent as forebears of critical personalities in the history of the Jewish people. The integration of Ruth the Moabite into the Davidic lineage and the marriage of Joshua to Rachab (the Canaanite Prostitute) providing for the enhancement of the prophetic school as exemplified by their descendents Hulda and Jeremiah, are but two examples.

III. Conclusion

It is suggested that critical differences in Kingdom-dependent essences are related to the differences in mode of reproduction. Perhaps it is the mixing of genetic material from male and female parents in the animal world (sexual reproduction) that allows for a greater range of behavior than asexual reproduction, and this behavior is related to --- or causes -- the essential nature or lower soul/spirit states of the animal organism.

Yet an even higher level of both reproductive and spiritual advance comes when God breathes or conveys the Ruach or Divine wind into the humanoid constructs of Adam and Eve. Here we have yet another blessing, and another form of spiritual advance. The essentially different (opposing) natures of human male and female are brought into existence, and with it the unique forms of human courtship, the essence of human “love” and the injunction, not only to reproduce, (*Pru*) and multiply their genetic expression (*Rivu*) but to *fill* the Earth with their multiplicity of genetic expression (*Milhu*) and to steward it (*Vkivshua*).⁷⁰

⁷⁰ It must be recalled that the first three are essentially required of aquatic animals as well as humans, only the fourth – vkivshuha- is unique to humans).

That the humanoid was also created with an additional operative term *Vayatzar* – ⁷¹ must be examined in the light of the human sexual reproductive facility and in light of the accompanying commandment, which envision control or decision-making judgment in shepherding the Earth; this additional injunction, *Vkivshuah*, (to shepherd the Earth) being unique to humans.

It would seem to this author that along with the Divine wisdom and understanding imbued in the Human which allows for stewardship of the Earth, comes the responsibility for *expanding* genetic expression – rather than its limitation, the consequence of cloning. Thus, while we might be tempted to genetically engineer certain human traits out of existence, those we perceive (in our limited human fashion) as undesirable, this is to be avoided. Instead we must strive for maximum expression of the human gene pool, understanding that preservation of the status quo – which in our human hubris we might consider to be the most sublime state --- is counter to the Divine Will. In essence, it would appear that the message of survival of the fittest, which is the adaptive mechanism to certain change, and is a consequence of biological diversity, is programmed into the Genesis, and attempts to limit genetic expression (of humans) is contrary to the Divine order.

⁷¹ Paradoxically, this is referenced in one of the seven blessings conferred at the nuptial ceremony immediately prior to the first time the couple performs the first sanctified act of coupling