



For
Bubby Marilyn and Zaidy Noah Wolff n'y amu'sh
and in memory of
Bubby Nettie and Zaidy Dovid Polen, z"l

Sun and Moon, Together

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Introduction

The following are two different approaches by which we can observe and appreciate the spiritual significance in the cosmic presentation of the sun and moon.

The first, an essay by Nehemia Polen, explores the astronomy involved in a total solar eclipse. This becomes a springboard for examining the moon in the Jewish imagination, in particular in the Rabbinic tradition. The exquisitely precise overlapping of sun and moon reveals the splendor of the corona, which appears to emerge from the body of the moon. This occurrence, refracted through the lens of Jewish tradition, opens our eyes to the inherent possibilities of balance and integration and hints to a world of mutually revelatory grace.

The second, by Adina Polen, is an illustrated retelling of a story from the Talmud, and is meant for adults and children to share. The Talmudic tale (Hullin 60b) is about a time at the very beginning of creation when the moon complained about having to share the special job of giving light to the world with the sun. Accompanying the story are discussion questions and activity suggestions that we hope will allow you to delve further into the resonances the story has in your own lives.

It is our hope that these approaches will deepen your appreciation for the total solar eclipse of August 21, 2017.

This booklet, created *b'chevruta* (collaboratively) by a father-daughter team, is an early-stage initial offering from Beyond Noah's Ark, a new venture whose aim is to provide a framework for Jewish creative professionals (artists, rabbis, educators, etc.) to collaboratively design interactive Judaica and ritual objects for families to use in the home. We would love to hear your feedback about how you used the booklet in your family or community. Please leave us your thoughts, comments, suggestions, and questions at www.beyondnoahsark.org. We also encourage you to explore the Beyond Noah's Ark site to see what else is in the works, get involved, and contribute.

Crown of Splendor: Spiritual Significance of Total Eclipse

Nehemia Polen

A total solar eclipse is one of the most spectacular astronomical events humans can witness. The sky darkens in midday as the moon moves across the sun and covers it precisely, revealing the sun's brilliant halo or corona. While the moon orbits the earth monthly, solar eclipses do not happen every month. This is because the plane of the moon's orbit around the earth is tilted at an angle to that of the earth's orbit around the sun, so the moon does not always block the sun even during new moon, as the sun, moon and earth form a straight line when viewed in two dimensional perspective.

Still, total solar eclipses occur several times a year, but they are not always visible in locations that are readily accessible. It is relatively rare for a total solar eclipse to be visible from within the continental United States. August 21, 2017 is the day to experience a total solar eclipse from the American heartland, through fourteen states, affording many convenient viewing places.

A total solar eclipse is not to be confused with a partial solar eclipse (when the moon's shadow covers only part of the sun), or an annular eclipse (when the apparent size of the moon is smaller than that of the sun, so the sun appears as a brilliant ring around a dark core; variations occur because the moon's path around the earth is elliptical, not circular.) Neither a partial nor an annular eclipse produces the same effect as a total solar eclipse. This is because the sun's rays are so intense that even when only partially visible, the sun continues to bathe the earth in light and the sky does not darken dramatically. As astronomer Edmund Halley wrote back in 1715, totality requires the 'Occultation and Emersion of the luminous Edge of the Sun, whose least part makes Day.'¹

Nature writer Annie Dillard has captured the feel of this event in her essay, "Total Eclipse." She writes, 'From all the hills came screams. A piece of sky beside the crescent sun was detaching. . . . It was an abrupt black body out of nowhere; . . . The sky snapped over the sun like a lens cover. The hatch in the brain slammed. . . . The eyes dried, the arteries drained, the lungs hushed. There was no world.'² Witnessing the wall of dark shadow hurtling toward Dillard and her fellow observers at over one thousand miles an hour induced terror and dread; knowledge of the astronomy simply does not prepare one for the actual experience.

CORONA

Besides the darkening of the daytime sky and the emergence of bright stars, one memorable visual feature of a total eclipse is the appearance of the sun's corona, a brilliant halo of luminous gasses flowing from the sun but, to the eye of the observer, appears to be streaming from the moon. Johannes Kepler, one of the founders of modern astronomy, apparently understood the moon to be 'surrounded by some sort of aery essence, which reflects rays from all parts.'³

Seeing the corona is the result of a remarkable coincidence involving the elliptical paths of heavenly bodies and the relative sizes of our sun and moon. If the apparent size of the moon as seen from earth were smaller than that of the sun, we would observe a transit—a dot moving across the sun's face, interesting but far less impressive. If on the other hand the moon's apparent size were larger than that of the sun, the sun would be blocked (an occultation) but we would not get to see the beautiful corona. The glorious visual splendor of a total solar eclipse is due to the fact that the apparent sizes of sun and moon are nearly identical. That is, the diameter of the sun is about four hundred times larger than the diameter of the moon, but the moon is about four hundred times closer to the earth than the earth is to the sun. The value of these two ratios (relative distance/ relative size) is almost precisely one. The angle of visual arc subtended by the moon is

almost exactly the same as the angle of visual arc subtended by the sun (just over ½ degree of arc). There is no astronomical law compelling this to be so; it is not mandated by celestial mechanics but seems to be a happy confluence of sizes, positions and orbits. From a scientific point of view, it is a matter of sheer chance that humans are treated to this splendor.

TWO GREAT LIGHTS

Here is where ancient talmudic traditions may offer religious perspective. A passage in Hullin 60b interprets Genesis 1.16, 'AND GOD MADE THE TWO GREAT LIGHTS' to mean that originally the moon and sun were created as equal luminaries, but the moon objected: 'Is it possible for two sovereigns to wear one crown?' God responded, 'Go then and make yourself smaller.' The Talmud understands this to be the import of the latter part of the same verse, 'THE GREAT LIGHT TO RULE BY DAY, AND THE SMALL LIGHT TO RULE BY NIGHT.' The two parts of the verse are taken to describe two distinct stages: first the sun and moon were equal, but then the moon became smaller. The moon complained about this turn of events: 'Because I pointed out something proper, should I then make myself smaller?' In the rest of the narrative, God attempts to console the moon for having made her the 'lesser light.' For example: while the sun is never seen at night, the moon will be visible by day. But the moon brushes aside this and all other proffered consolations. Finally God said, 'Bring an atonement for Me for having made the moon smaller.' The Talmud finds this expressed in Numbers 28.15 – a verse concluding the passage detailing the New Moon offerings— 'AND A HE-GOAT FOR A SIN-OFFERING ON BEHALF OF THE LORD.' (All other festivals require a sin-offering, but in no other case does the phrase 'ON BEHALF OF THE LORD' occur. See Numbers 28.16-29.39)

The philosopher Emmanuel Levinas drew upon this aggadic narrative in his essay, 'Judaism and Kenosis.' Levinas frames the theme of this passage as kenosis, a term he understands as 'the humility of a God who is willing to come down to the level of the servile conditions of the human'⁴ The moon insists that greatness

cannot be shared and that a hierarchical order of being, while necessary, is nevertheless unjust. She refuses consolation for her diminished state.

What has motivated this talmudic aggadah? It is clearly a parable, a mythic story that grapples with profound existential questions related to the creation of individuated beings yearning for autonomy yet embedded in relationships of dependency. All humans feel the claim to sovereignty and ultimate worth, yet are inevitably subordinated to others and enmeshed in structures of dependency and evaluative hierarchies. Our egos tell us that we should be in full control of our own destinies, yet all experience teaches that we must humbly accept contingency, subordination, limitation. The moon's quandary in the aggadah is a metaphor for the created condition in general and human destiny in particular. And, as Yehuda Liebes and others have pointed out, the kabbalists have taken the narrative to symbolize the situation of the people Israel among the nations, as well as the inequalities of gender relations.⁵

WISDOM OF THE MYTH

As noted before, the Hullin passage is launched by the seeming contradiction between the two parts of Genesis 1.16, which first asserts that 'GOD MADE THE TWO GREAT LIGHTS', and then immediately refers to the sun as the 'GREAT LIGHT' and the moon as the 'SMALL LIGHT', suggesting that sun and moon were created of equal size, though now the moon is clearly diminished. It is easy to dismiss the biblical exegesis as pretext, an example of Rabbinic hyper-literalism, which, while introducing a charming parable, is not to be read for sound interpretive insight.

What has been overlooked, however, is the fact that, as explained at the start of this essay, the sun and moon are indeed of equal size: they subtend the same angle of visual arc in the sky, a remarkable coincidence that was known in antiquity, already mentioned in the Astronomical Book of Enoch, chapter 72, which asserts that the sun's light is 'sevenfold brighter than that

of the moon; but as regards size they are both equal.' (Enoch is a pseudepigraphical work comprised of five distinct sections; this part is dated to about the third century B.C.E.—many centuries before the talmudic passage under discussion.)

Groups such as the Qumran community that cherished the books of Enoch and Jubilees used a solar calendar and polemicised against the lunar calendar; by contrast, the Pharisees and the Rabbis saw lunar cycles as the central determinants of sacred time. (They were also attentive to solar cycles and sought to coordinate the two rhythms.)

The story of the moon's dialogue with God is a remarkable example of rabbinic creativity and talmudic literary flair, to be sure. But—and this has not been sufficiently recognized—the story is anchored not merely in a reading of a verse in Genesis, but in two astronomical facts that were known in antiquity and that are as true now as they were then: (a) the moon does not generate its own light, but receives it reflected from the sun, causing the monthly succession of phases (hence the 'diminishment of the moon'), and (b) the observable sizes of sun and moon are identical. This is what makes the assertion of the equality of the 'two great lights' provocative and intriguing.

And in the passage's astonishing ending—God's request that a sin-offering be brought on His behalf—we have a theological role-reversal that places the moon and her signified referents (variously understood as the Jewish people, women, humanity, all created beings) at the center, with the responsibility to redeem God, so to speak. This conclusion would certainly have scandalized the sages' ancient opponents, prone as they were to dualistic thinking without shades of grey, valorizing perfection, condemning flaws as evidence of sin and impurity. But it is a cornerstone of how Rabbinic Judaism sees the world—subtly nuanced, dappled and dovetailed, heaven and earth interinfused, with humans joining God as co-partners in the project of making meaning in the cosmos.

SANCTIFICATION-OF-THE-NEW-MOON BENEDICTION

There is another source for understanding the talmudic view of the moon's role in the heavens, that advances what might be called a rabbinic theology of lunar ascendancy. I refer to a passage in Sanhedrin 42a that gives the benediction called Sanctification-of-the-New-Moon, in Hebrew Kiddush Levanah. We are taught that 'When one pronounces the benediction over the new moon in its proper time, it is as if he/she welcomes the presence of the Shekhinah.' The benediction, attributed to Rabbi Judah, a second generation Amora (who also composed the benediction for blossoming fruit trees; Berakhot 43b), is in active liturgical use; it is recited outdoors, upon sighting the waxing moon, usually in a congregational setting after the conclusion of the Sabbath on Saturday night. While most occasional blessings are quite short, this benediction is notable for its length, complex construction, and deployment of biblical motifs. It draws upon biblical passages that are poetically resonant and theologically suggestive. As we shall see, the offstage influence of Psalm 103 and the latter chapters of Isaiah are particularly evident.

The benediction can be divided into two sections. The first part emphasizes the fixed, rule-governed nature of all heavenly bodies, and ascribes to them agency and personality:

'[God] gave [the heavenly hosts] a set law and time, so that they should not alter their task. They are glad and rejoice to perform the will of their Creator. They operate in Truth, and their actions are Truth.'

Then the second part makes a rhetorical pivot, focusing on the moon specifically. I take the leading vav in the Hebrew phrase 'Ve-lalevanah amar...' to be a discourse marker, employed here in the sense of 'but,' indicating a new departure, contrasting the second section with the first. While all heavenly bodies are commissioned to act with unchanging regularity, the moon is singled out by God and granted the gift of 'tithadesh' --'she shall renew herself' -- presumably referring to the new moon's

reappearance after seeming to vanish from the nighttime sky. This second part of the benediction reads:

But addressing the moon, [God] said that she shall renew herself [Heb. tithadesh], a crown ['ateret', literally 'encirclement'] of splendor for those carried from the womb, who will in the future be renewed like her and proclaim the splendor of their Creator in the name of [God's] glorious sovereignty. Blessed are you, LORD, who renews the months.

The word that describes the moon's unique distinction—'tithadesh' --occurs but once in the Hebrew Bible, at Ps. 103.5. In an unusual construction, the psalmist directly addresses his/her self ['nafshi'], calling upon that self to bless God for bestowing forgiveness, healing, redemption, encirclement in a protective ring of love and compassion, bodily vigor, and finally for 'RENEWING [tithadesh] YOUR YOUTH LIKE THE EAGLE'S.' Furthermore, according to some ancient and modern interpreters, the word 'edyekh' in the first part of verse 5 is cognate to 'edneikh,' related to 'ednah' in Genesis 18.12, the passage describing old matriarch Sarah's rejuvenation, her return to youthful attractiveness and ability to bear a child. The verse as a whole would then be understood, [GOD] WHO SATISFIES WITH GOODNESS YOUR RETURN TO FERTILITY; WHO RENEWS YOUR YOUTH LIKE THE EAGLE. (For the eagle as the biblical symbol of sustained vigor, see Isaiah 40.31.) With this in mind, the benediction's tithadesh conveys something more powerful than 'renewal'; 'rejuvenate' or 'regenerate' capture the force of the term more aptly.

Continuing our close reading, this rejuvenation is called a 'crown [lit. 'encirclement'] of splendor' ('ateret tiferet). The phrase's first word, 'ateret, once again brings us back to Psalm 103, this time to verse 4, which reads ... WHO ENCIRCLES YOU [ha-me'atreikhi] WITH LOVE AND COMPASSION. And the phrase as a whole is found in Isaiah 62.3, a prophecy addressed to

Jerusalem: YOU SHALL BE A CROWN OF SPLENDOR ('ateret tiferet) IN THE HAND OF THE LORD; AND A ROYAL DIADEM IN THE PALM OF YOUR GOD.

The benediction's next words 'for those carried from the womb,' are drawn from Isaiah 46.3, another verse promising national rebirth: LISTEN TO ME, O HOUSE OF JACOB, AND ALL THE REMNANT OF THE HOUSE OF ISRAEL, THAT ARE CARRIED [BY ME] FROM THE WOMB; THAT ARE BORNE FROM THE UTERUS ...[I HAVE MADE (YOU), AND I WILL BEAR; I WILL CARRY, AND I WILL DELIVER]. In this prophecy, God carries Israel out of exile like a pregnant mother carries her baby. Here as elsewhere in the latter chapters of Isaiah, God is referred to in maternal terms; see Isa. 66.13. God holds us in the womb and promises a rebirth, more glorious than ever before.

Taken together, the two parts of the benediction yield a profound theological statement. In the first part, the heavenly bodies are praised for their fixity and predictability; no distinction is made between any of the 'hosts of heaven.' But then in the second part, the moon is singled out for her reappearance after seemingly vanishing, enabling her to serve as a visual metaphor for personal, national and cosmic rebirth. The first section's emphasis on the reliability of the heavenly bodies is hardly surprising; this theme already appears in the Bible (see Ecclesiastes 1.4 for example) and is a staple of Second Temple and Greco-Roman literature. But the turn to the unique destiny of the moon as seen through rabbinic eyes is striking. What is this 'renewal' or rejuvenation? On one level, it surely refers to the moon's return to visibility; indeed, the Sanhedrin passage makes explicit reference to the waxing phases of the moon. The talmudic passage ascribes theological import to this event, associating it with greeting the 'face of the Shekhinah.' At a later period, the medieval Kabbalah will develop and enhance this idea, but it is important to note that the high theological significance of the waxing moon is already articulated in the Talmud. The moon's cyclic return to visibility becomes a metaphor for individual, national and cosmic renewal. Even more than this, saluting

the moon in a ritual practice of benediction is called a direct encounter with the manifest presence of God, the Shekhinah. This comes close to a divinization of the moon—a suggestion that made many subsequent rabbinic authorities uneasy, though it captivated the kabbalists.

This Sanhedrin passage, then, can be read as resuming the dialogue between the moon and God from Hullin 60b. God acknowledges the justice of the moon's grievance, linking Godly destiny with that of the moon. But God still remains God, and the linkage means that diminishment is not permanent. The reappearance of the crescent moon reminds us that God, while implicated in the created condition, still has the power to restore youthful vigor, the power of self-rejuvenation. The benediction holds promise of individual, national and cosmic renewal, a return to Edenic balance, effectively reversing the moon's diminishment. As Isaiah 30.26 puts it, 'THE LIGHT OF THE MOON SHALL BE AS THE LIGHT OF THE SUN, / AND THE LIGHT OF THE SUN SHALL BE SEVENFOLD, AS THE LIGHT OF THE SEVEN DAYS...' – an Isaian prophecy of eschatological restoration and return to primordial equality.⁶

The richness of talmudic thinking about the moon requires that we focus on both sources: the Hullin aggadah and the Sanhedrin benediction with its two sections. The dialogue between the moon and God suggests divinity willing to place Itself at risk. The moon interrogates God about injustice and eventually subverts God's presumed perfection and isolation; hierarchies are eclipsed by dialogic engagement. The lunar virtues—change, vulnerability, imperfection, survival with dignity in the face of marginalization-- are valorized. By admitting the justice of the moon's claims, God embraces these very virtues. And by asking that a sin-offering be brought on God's own behalf, the passage suggests that humanity intercedes for God as much as God intercedes for humanity. God's entanglement in finitude invokes an ethic of nurture and caring—caring even for God.

At the same time, the narrative of divine identification with the moon and her destiny suggests the assurance of renewal and rebirth, of restoration of original equity and reascendance to self-generated luminosity. This trajectory is already implicit in the latter chapters of Isaiah, replete as they are with prophecies of interpersonal, national, and cosmic restoration and rejuvenation.

DIALOGUING WITH ROBERT FROST

This rabbinic theology provides a proleptic response to a poem by Robert Frost, 'Two Leading Lights,' first published in 1944. The moon—explicitly identified by Frost as feminine—is unflatteringly compared to the sun, the powerful light that could at any moment turn darkness into day, but refrains from doing so, due to the sun's 'greatness.' On the other hand the moon, not knowing her place, often shines by day as well as night; yet there are many clear nights when she chooses not to appear, taken by the poem as a sign of fickleness or petulance. As Diedre Fagan has noted, 'Two Leading Lights' appears to be antifeminist, since "[t]he moon's light comes not from the moon itself but from reflection of the sun, making the feminine moon dependent on the masculine sun and thereby secondary to it." Yet with all that, Fagan reminds us that in the title "the lights are set . . . as equals."⁷

The parallels between the Frost poem and the talmudic aggadah are so strong that one wonders whether Frost had direct or indirect knowledge of the Hullin passage. Be that as it may, the trajectories ultimately diverge. While the poem's penultimate line refers to the moon as '[a]n irresponsible divinity,' the final voice in the talmudic myth is that of God, taking responsibility for having diminished the moon. In God's dialogue with the moon, it is the moon that prevails; her cause is validated as just. The New-Moon sin-offering is an act of divine self-humbling, an entrance into vulnerability. The consolation of the moon, and by extension all created beings, is that God joins them in imperfection. Humanity in its diminished, flawed state plays a key role in the sacred process of constructing a meaningful universe. And this point is underscored when we add the voice

of the Sanctification-of-the-Moon Benediction--a voice that, as noted above, can be heard to this day in synagogue courtyards throughout the world on clear evenings when the moon waxes.

We are now ready to return to the topic of the solar eclipse of August 21, 2017, and especially the observation of the solar corona. Golub and Pasachoff in their authoritative work on the corona cited above, note with some puzzlement that while reports of total solar eclipses go back at least to the fourteenth century before the common era, “[i]t is not at all clear that the solar corona was ever reported in ancient times,” though they record some vague and inconclusive descriptions in Babylonian and Greco-Roman sources. It was only in the mid-nineteenth century, partly due to the introduction of photography and other technological advances, that the corona became a major object of scientific study. Another scholar, Donald E. Billings of the University of the Colorado Department of Astrophysics, also points to a dramatic increase in awareness of the corona at the time of the eclipse of 1842. He quotes the amateur astronomer Bailey, published in 1846: “The dark body of the moon was suddenly surrounded with a corona or kind of bright glory similar in shape and relative magnitude to that which painters draw round the head of the saints and called by the French an aureole ...” Another description quoted by Billings is that of Young, this one from 1896: “A total eclipse of the sun is unquestionably one of the most impressive of all natural phenomena, and the corona, which then surrounds the sun, is its most impressive feature. On such an occasion the moon appears of almost inky darkness. From behind it stream out on all sides radiant filaments, beams, and sheets of pearly light, ... forming an irregular stellate halo, with the black globe of the moon at its apparent center.”⁸

These accurate word-portraits by dedicated observers provide precise descriptions that are in some respects more vivid than what can be captured in photographs. They confirm that the corona seems to be a feature of the moon, appearing to emerge from the dark lunar disc. One wonders how the word

‘corona’ came to be applied to this visual phenomenon at all. It is striking that when observers such as Bailey began giving robust descriptions of the luminous ring surrounding the moon during eclipses,⁹ they settled on words that precisely mirror the ancient talmudic benediction from Sanhedrin: ‘ateret tiferet’ = ‘corona of glory/splendor’! Let us recall that this moon blessing far exceeds in length, verbal intensity and register most rabbinic occasional benedictions. Without suggesting influence of any kind, it seems plausible that there may be a convergence here. If perceptive and literarily astute Victorian-era astronomers reached for these words for their descriptive power, is it not possible that talmudic rabbis did much the same? My suggestion here is that the phrase ‘ateret tiferet’/ ‘corona of glory/splendor’ may be an early rabbinic effort to verbally capture the corona espied during an eclipse. This is speculative to be sure, but it would help explain the benediction’s weighty cadences and allusive suggestiveness. For the rabbis, the corona’s pearly light—about the same intensity as normal lunar luminosity--signaled the moon’s rejuvenation, her return to self-generated radiance, and thus served as an apt prefiguration for the return of all existence to a state of completion.

To be clear, while the rabbis engaged in theological symbolism, they also knew that the paths of the heavenly bodies had natural causes, that they were governed by orderly rules—an early precursor to our current scientific understanding of astronomical events. Many moderns have the misimpression that ancient views on these matters were hopelessly naïve, but in fact the Babylonians (in whose culture the rabbis flourished), and Greeks and Romans had well developed astronomical traditions with surprising accurate explanatory and predictive power. To be sure, they were hobbled by mistaken assumptions such as that heavenly bodies must follow perfectly circular paths, and they did not have telescopes or other modern instruments, but this did not prevent them from getting many things right. Indeed, the passage in Sanhedrin rejects a suggestion to utter a blessing praising God’s ‘kind benevolence’ for the new moon, since the moon’s reappearance is the natural course of events. As Rashi explains,

the patterns of creation recur every month, so the moon's waning should not be seen as an ominous sign, nor should its waxing be taken as a sign of special favor.

For all that, the moon in particular was an object of fascination for the rabbis of the Talmud, seen as an emblem of humanity's relationship to the divine order—fractious, contentious, but ultimately redemptive. The moon's phases and disappearances were anthropomorphized—taken as evidence of erratic, disruptive, unstable behavior. Yet in the end the moon became the sign of redemptive hope, since God's very Self is braided in her destiny. Hers is the corona of glory—revealed with special splendor when humans are privileged to behold a total eclipse of the sun.

THE ENDURING MYSTERY OF THE CORONA

One might be forgiven for assuming that in our day, scientific advances have taken all the mystery out of eclipses. Such however is not the case. Jay M. Pasachoff (mentioned above), in a recent issue of *Scientific American*, writes that the corona holds 'one of the most nagging puzzles in astrophysics.' The temperature at the sun's surface is 5,500 degrees Celsius, and one would expect that, as one moves away from the surface, the temperature would gradually cool down. But in fact 'the tenuous gas just above the visible surface climbs back up to over 10,000 degrees C and abruptly leaps to millions of degrees.'¹⁰ So the corona is a separate region, a distinct zone of extraordinarily intense energies, not merely a gradual attenuation of solar gasses. While it is about as bright as the full moon, its heat is comparable to the sun's core. Scientists believe that the 'bizarrely high temperature of the corona' is due to the solar magnetic field, but the precise process is still unclear, and is a major focus of research for the August 21, 2017 eclipse. (For details see the *Scientific American* article.)

SCIENCE, RELIGION, AND SPLENDOR

All this suggests to me a way to navigate the relationship

between science and religion in our day, nurtured by the inspiration of a total eclipse. There are two pitfalls to be avoided here. The first is to discount science altogether and read an eclipse as a heavenly sign, foretelling future events, either positive or negative. One might think that this warning is unnecessary, but humans in all cultures have been prone to take eclipses as visual portents, and the temptation is not absent even now. One talmudic passage does this, assigning different valences to solar and lunar eclipses. But (happily from my perspective), the passage concludes that heavenly portents may be disregarded when in right relationship with God, on the basis of Jeremiah 10.2, 'DO NOT BE DISMAYED AT THE SIGNS OF HEAVEN.' [Sukkah 29a]. The other pitfall in the science/religion nexus is to seize upon intriguing scientific schemata—such as the amazing paradoxes of quantum mechanics, or the Big Bang theory--and assert that they confirm the doctrinal teachings of one's religion. We are on firmer ground when we avoid claiming too much for either science or religion, recognizing that both domains are propelled by wonder and awe, tentative and provisional demonstrations of the human urge for beyond-the-horizon vision, expressions of buoyant, blessed curiosity about the unknown and unknowable.

Perhaps we can apply the talmudic myth of the moon's diminishment to the relationship between science and religion. It is hard to deny that in recent centuries religion has been in retreat, a diminished thing. Even the recent surge of militant fundamentalism is a reaction to the ascendancy of modernity and the triumph of science. Like the moon in the talmudic aggadah, religion feels aggrieved, marginalized, neglected. And yet the urge to sing of wonder in a sacred key persists unabated. Religion has much to repent for: endless scandal, conflict and bloodshed. Yet through it all, it has never completely suppressed its most noble voices and most lofty aspirations. Religion needs a sin-offering, yet that sin-offering is not just directed to divinity but emergent from divinity.

This essay began by exploring the remarkable set of circumstances that align to reveal the splendor of a total solar eclipse. Coincidence, chance? Perhaps, but I prefer the word ‘co-occurrence,’ emphasizing that these circumstances occur—not just happen, but happen in a way that humans take notice and find wondrous, brimming with transformative, regenerative resonance. The very fact that humans still notice and respond to splendor may itself be the greatest miracle, the most revelatory sign of transcendence, the loudest ‘rumor of angels.’ Science and religious myth can both open our eyes and our hearts to surprise, to non-conventional thinking, to deeper appreciation of the cosmos and our place in it—and to our responsibility for the ongoing health and flourishing of our planet, where we all are situated, where we can view this astonishing alignment of two great lights, revealing that which is normally concealed and concealing that which is typically manifest, beckoning us to reverence, humility, elation and gratitude.

WHAT HAS THE MOON LEARNED? WHAT CAN WE ALL LEARN?

Let us return one more time to the talmudic passage at Hullin 60b. For Levinas, the point of the myth is “the conjunction of elevation and descent, the greatness of humility or the humility of greatness.” This reading assumes that initially the moon, not wishing to share her sovereignty, needed to be taught a lesson in humility. But perhaps the moon’s opening gambit, ‘Is it possible for two sovereigns to wear one crown,’ was not an expression of desire for dominance; perhaps it was motivated not by ego but by quite rational puzzlement : how can two entities share the very same designation —THE TWO GREAT LIGHTS? The Hebrew of the Genesis verse is quite emphatic here: shnei ha-me’orot ha-gedolim—the definite article is repeated, prefixing both the noun and the adjective. The import might be captured in English by translating somewhat clumsily as GOD MADE THE GREAT LIGHTS—THE TWO OF THEM . If we pause at that point (as the talmudic story asks us to do), the diction suggests that both lights were identical. Then the moon rightly asks, If our constitutive description is identical, what makes us distinct? More broadly,

In a world created by the one God, how does difference arise? The issue is not control and power, but individuation, the process whereby entities—especially humans—become unique personalities. One can imagine a world of entities that are distinct but not different. Physicists tell us that members of each class of elementary particles, such as electrons, are not merely similar to each other, but are precisely identical in all respects, indistinguishable from one another; the same goes for protons, neutrons, and so on. It is only in the macro-world, especially the world of human experience, that items can belong to the same category and yet take on a distinct profile. Indeed, another celebrated passage from Sanhedrin (Mishnah 4.5) sees God’s greatness in the ability to create endless exemplars of the category ‘human being,’ each of whom is clearly human, yet with no two alike, immediately identifiable as an individual person. This is in contrast to earthly kings, who oversee minting operations that yield coins of the same denomination that are indistinguishable one from the other.

What the moon learns—what we all learn—goes beyond the value of humility as a necessary moral virtue. The talmudic aggadah wants us to see that our very personhood—the characteristic shape of each soul—depends as much on perceived flaws as much as on perceived endowments. It is the presumed deficits, concavities and unfilled gibbous contours of the self that allow personhood to emerge. We are immediately identifiable, at least to our dear ones, not only by face, but by vocal timbre, by gait—even from behind. And the most elegant gait will always have some awkwardness, some halting. It is the limp as much as the poise that makes us who we are.

This stance resists views such as Eugene O’Neill’s compellingly dark realism in his *A Moon for the Misbegotten*. Lunar wisdom proclaims that all creatures are well-begotten, born to distinction, to infinite worth, to irreplaceable value, to uniqueness, to the promise of renewal.

And then there are sublime moments—planned or adventitious, who can say?—when two great lights come together with exquisite precision, aligning so that identities are not erased but conjoin in the fullness of mutuality, as each opens to the other, revealing the other’s grace and generosity. Such coronas of splendid encirclement are as fleeting as they are rare—totality never lasts for more than a few minutes—yet their memory is indelible; those who experience totality report having been touched to the core of their being. What better model than total eclipse for the relationship between religion and science, between different religions, between different human beings, between finite and infinite, between humanity and the rest of creation?

[Important caution: even when the sun is partially blocked, never gaze at the sun directly without approved protective glasses.]

(Endnotes)

1 Quoted by F. Richard Stephenson, “Historical Eclipses,” *Scientific American*, October 1982.

2 Annie Dillard, *Teaching a Stone to Talk* (HarperPerennial, 1992).

3 Leon Golub and Jay M. Pasachoff, *The Solar Corona* (Cambridge University Press, 2010).

4 Emmanuel Levinas, ‘Judaism and Kenosis,’ *In the Time of the Nations*, trans. Michael B. Smith (London: Athlone Press, 1994)

5 Yehuda Liebes, “De Natura Dei: On the Development of Jewish Myth,” in *Studies in Jewish Myth and Messianism*, trans. Batya Stein (SUNY Press, 1992), pp. 47-49; Tzahi Weiss, *Cutting the Shoots: The Worship of the Shekhinah in the World of the Early Kabbalistic Literature* (Jerusalem: Hebrew University Magnes Press, 2015), esp. ch. 4, “The Diminishment of the Moon and the Status of the Shekhinah” [in Hebrew]. The above sources

discuss Hullin 60b specifically. The broader topic of gender symbolism in Kabbalah now has a vast literature; its original meaning and contemporary significance are sharply disputed by scholars. For a balanced introduction, see Hava Tirosh-Samuelson, “Gender in Jewish Mysticism,” in *Jewish Mysticism and Kabbalah: New Insights and Scholarship*, edited by Frederick E. Greenspahn (NYU Press, 2011), pp. 191-230.

6 The suggestion that this benediction has more in mind than just the monthly reappearance of the lunar crescent is supported by a variant text found in *Masekhet Soferim*. Chapter 19, where the words ‘be-or yakar’ (‘splendorous light’) are inserted before ‘ateret tiferet’; *Soferim*’s phrase reads, ‘But addressing the moon, [God] said that she shall renew herself, by a splendorous light and a crown of glory...’ See Michael Higger, *Masekhet Soferim* (New York, De-bei Rabbanan, 1937), pp. 337-340.

7 Diedre J. Fagan, *Critical Companion to Robert Frost: A Literary Reference to His Life and Work*, pp. 338-9; see *Complete Poems of Robert Frost* (1964), p. 550.

8 Donald E. Billings, *A Guide to the Solar Corona* (New York and London: Academic Press, 1966), pp. 3-4.

9 The *Oxford English Dictionary* s.v. ‘corona,’ defines the term in its astronomical sense as the ‘halo of radiating white light seen around the moon in a total eclipse of the sun; now known to belong to the sun,’ and lists the first occurrence as 1849, apparently unaware of Bailey’s work three years earlier.

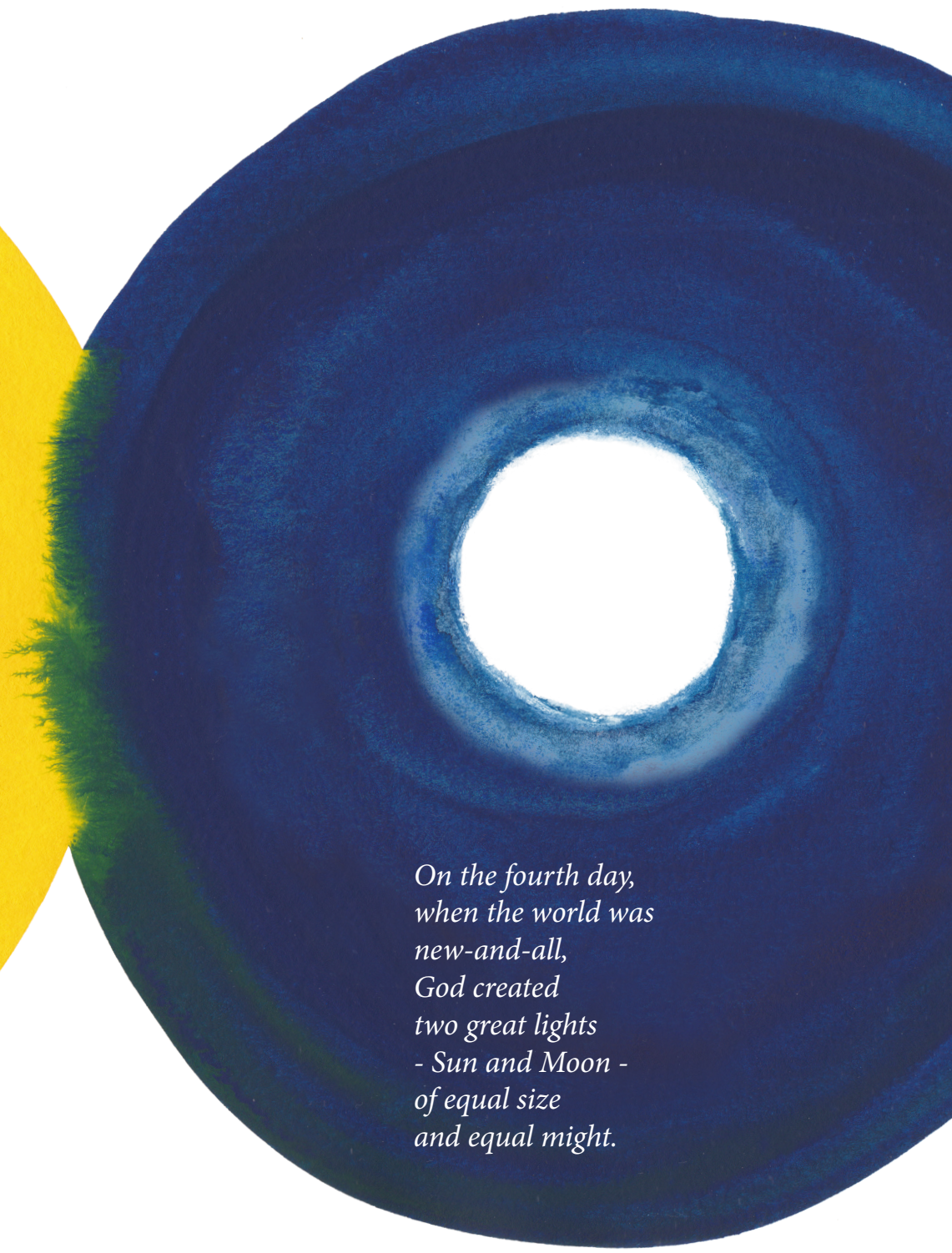
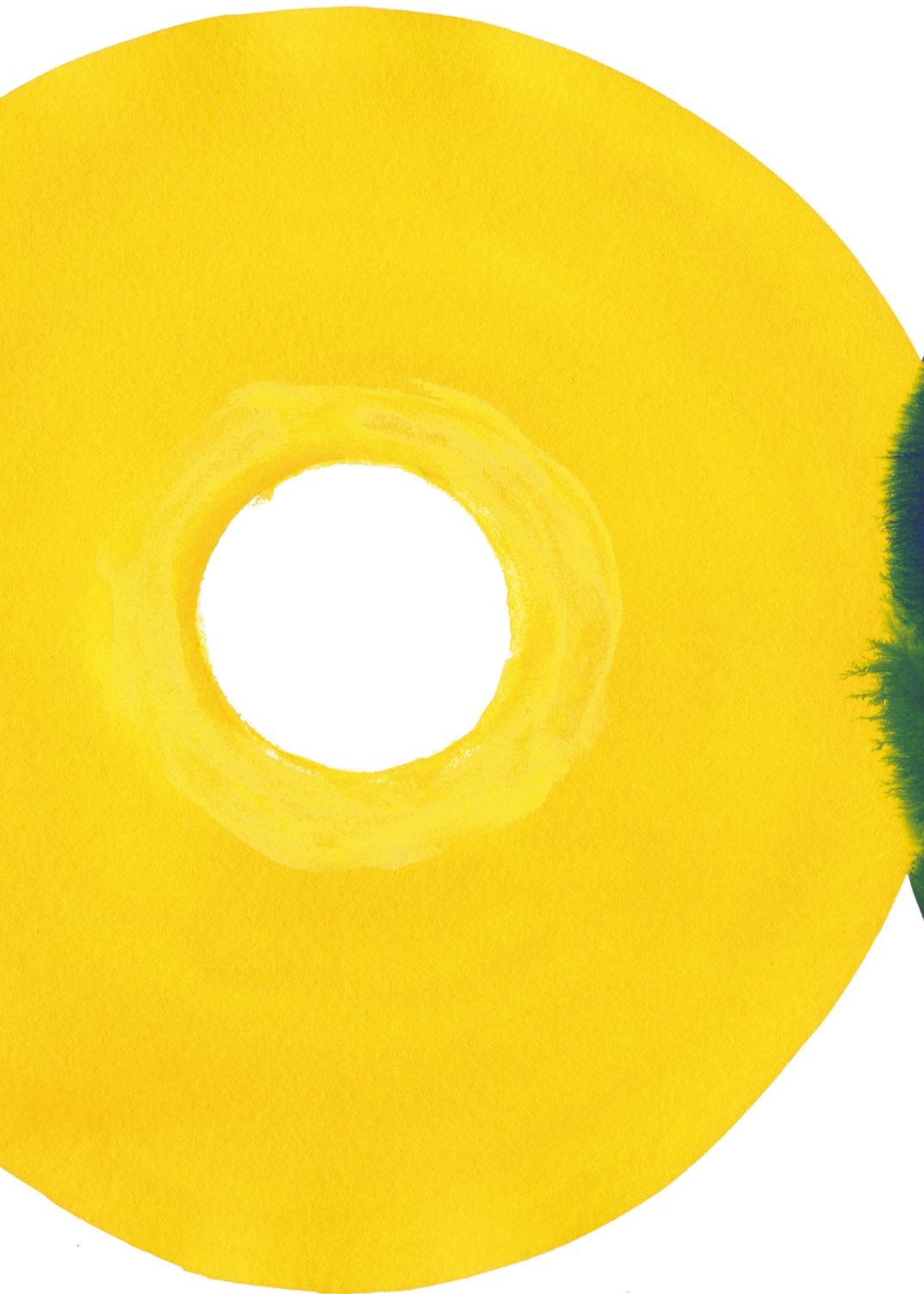
10 Jay M. Pasachoff, “1,000 Years of Solar Eclipses,” *Scientific American* 317:2 (August 2017), pp. 54-61. The article’s biographical note states that Pasachoff is an astronomer at Williams College, and chairs the Working Group on Solar Eclipses of the International Astronomical Union.

Two Great Lights

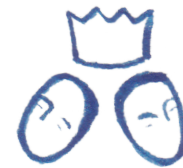
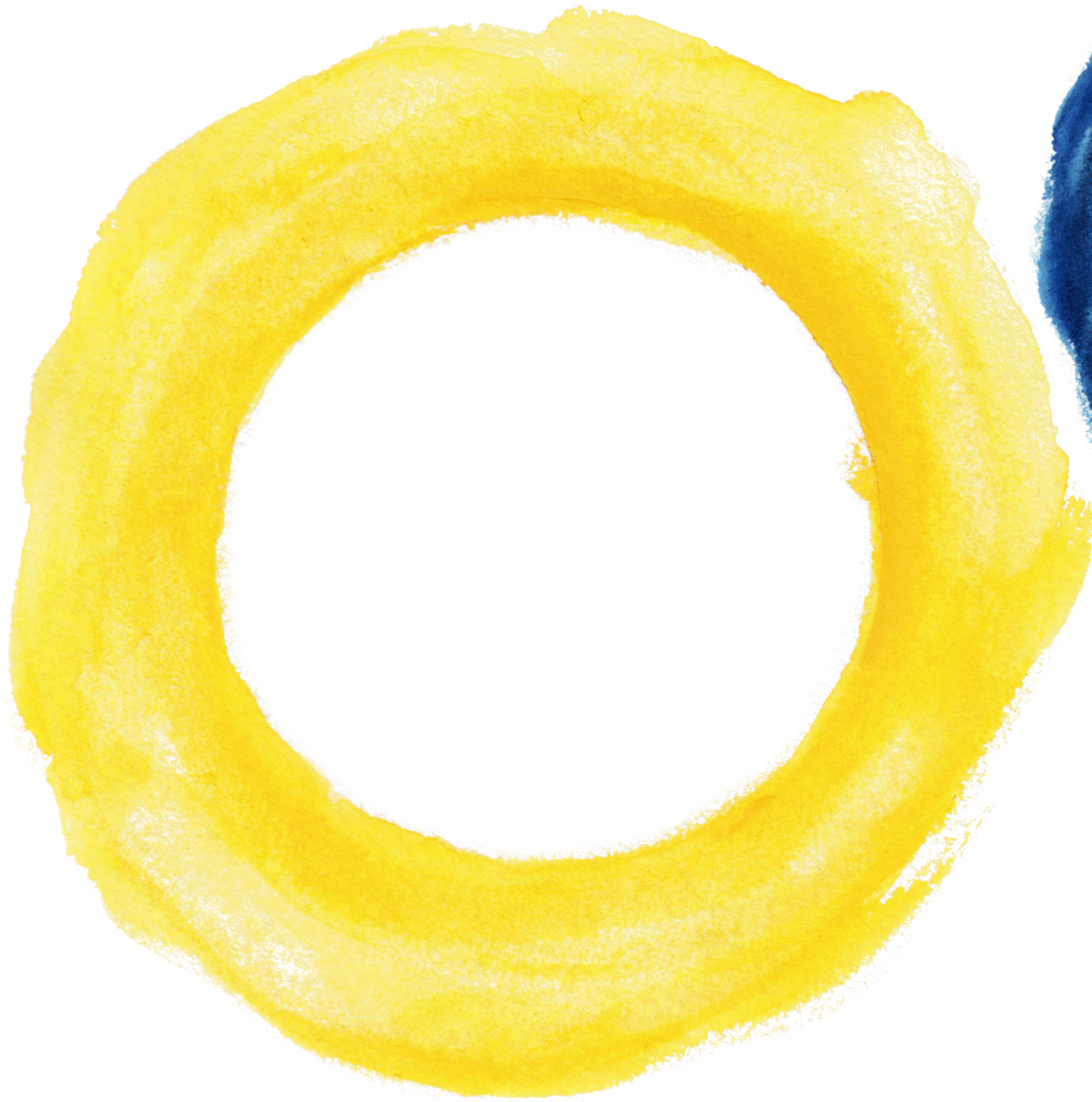
Written and Illustrated
by Adina Polen

based on Talmud Hullin 60b

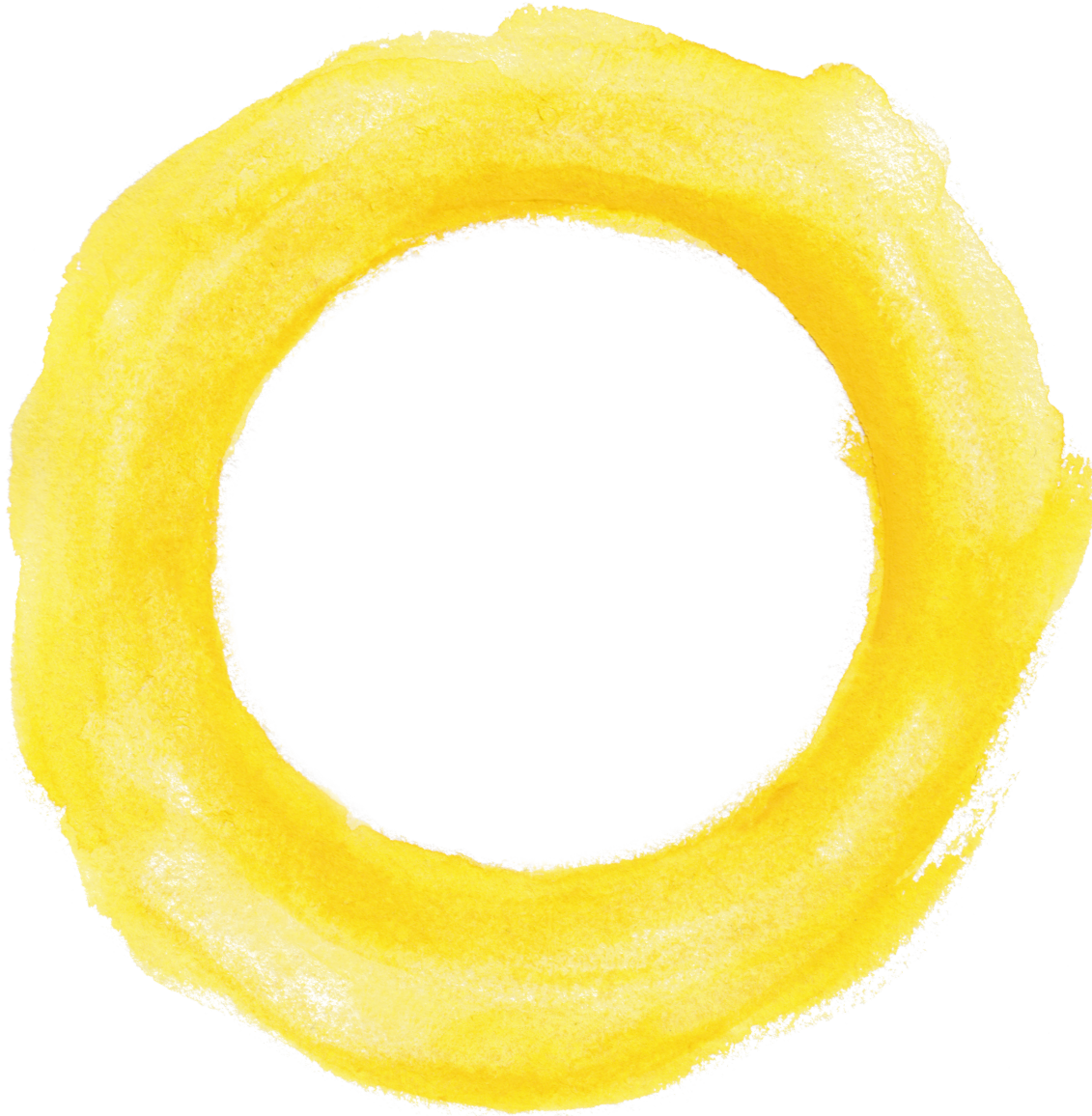
Art direction by Ezra Mayse



*On the fourth day,
when the world was
new-and-all,
God created
two great lights
- Sun and Moon -
of equal size
and equal might.*

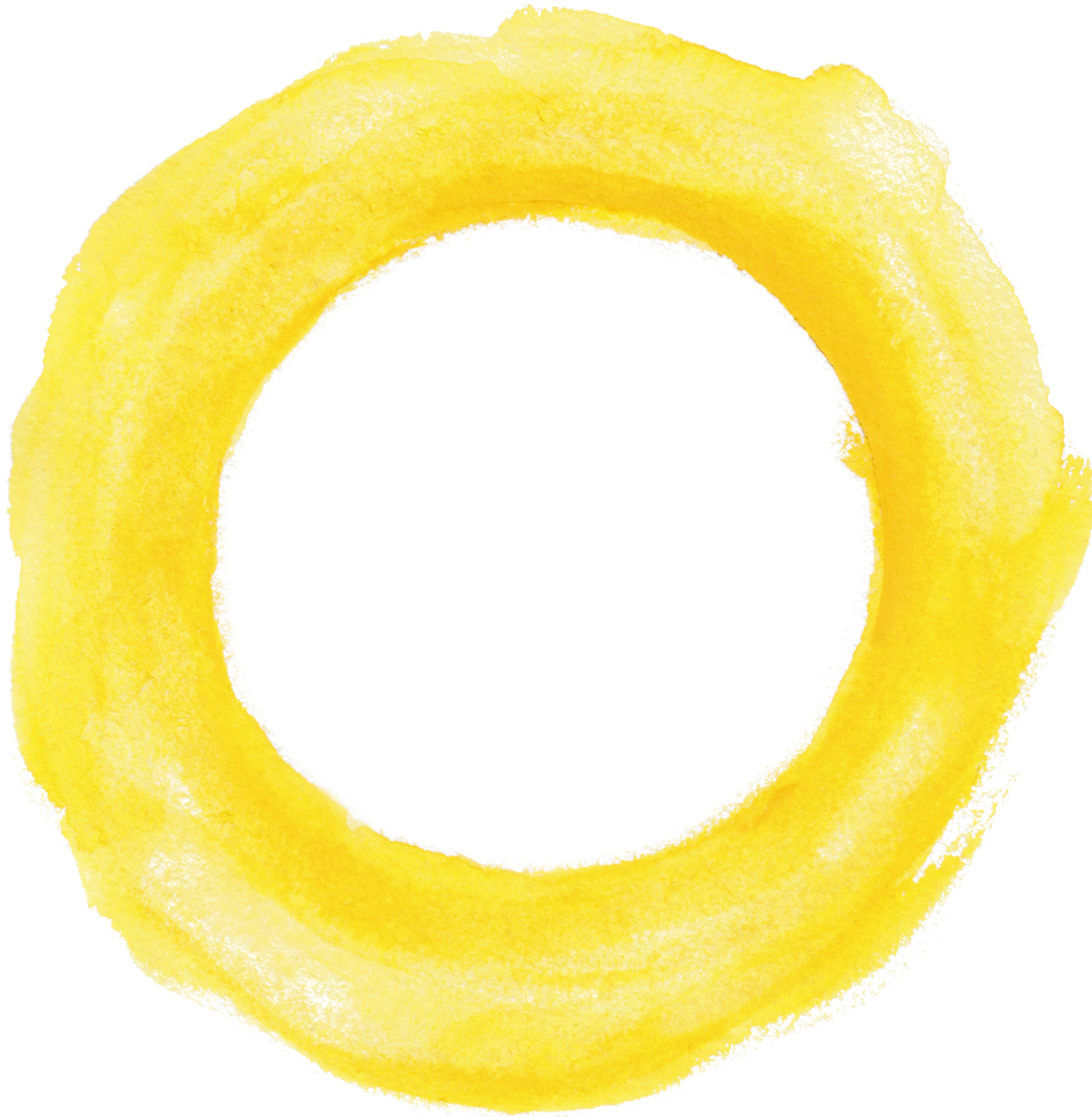


*Moon complained:
can two rulers share a
single crown?
Sun cramps my style,
Sun's always there.
Make it stop,
it's just not fair!*

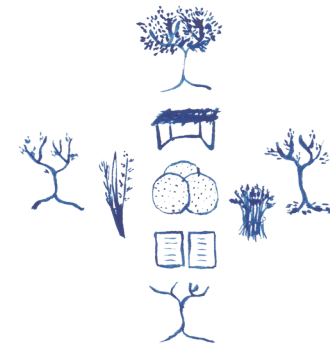
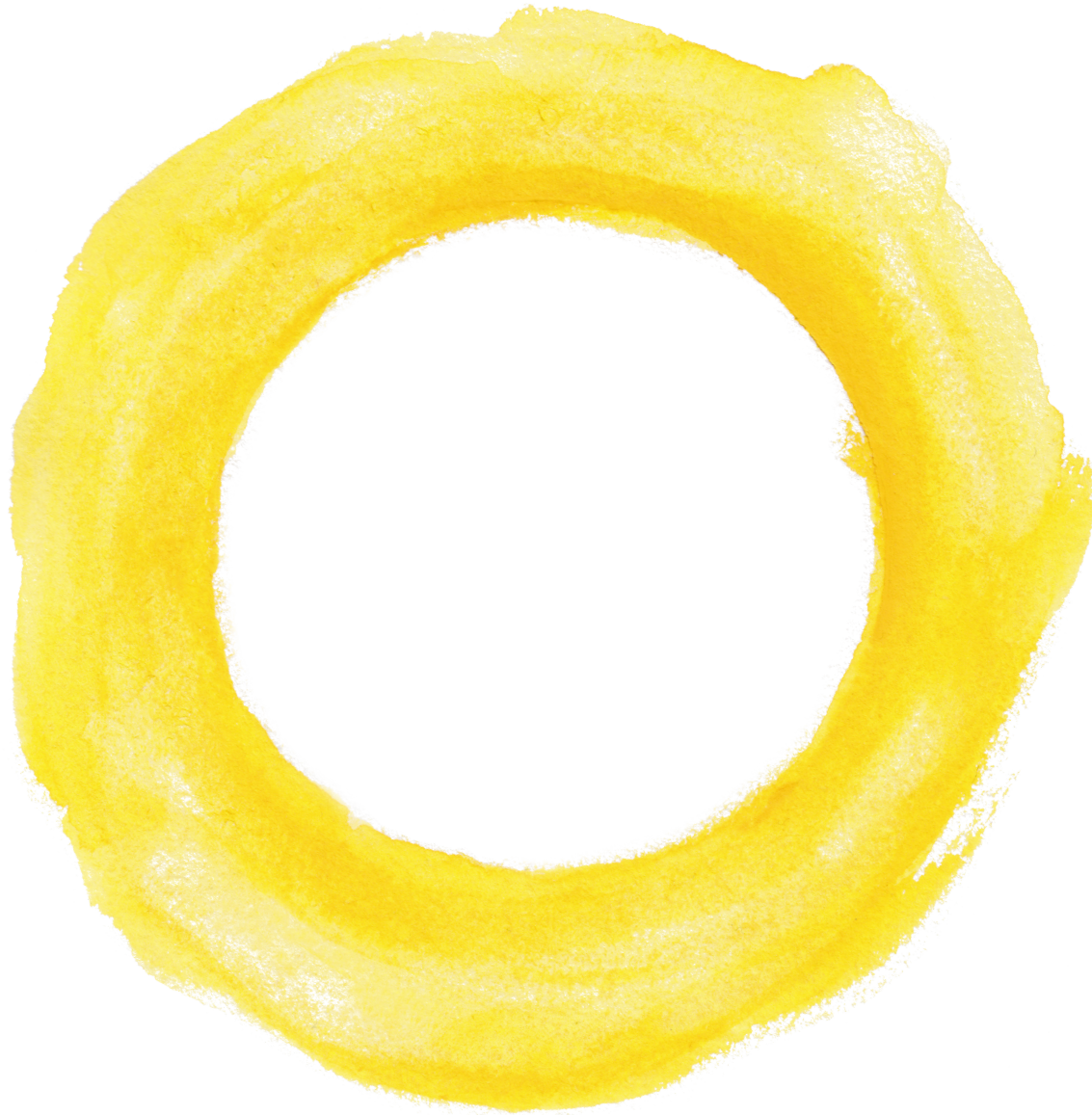


*Suit yourself,
was God's reply:
Reduce your glory,
lessen your light.
You bear the burden,
you picked the fight.*

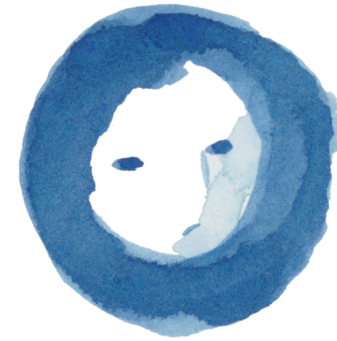
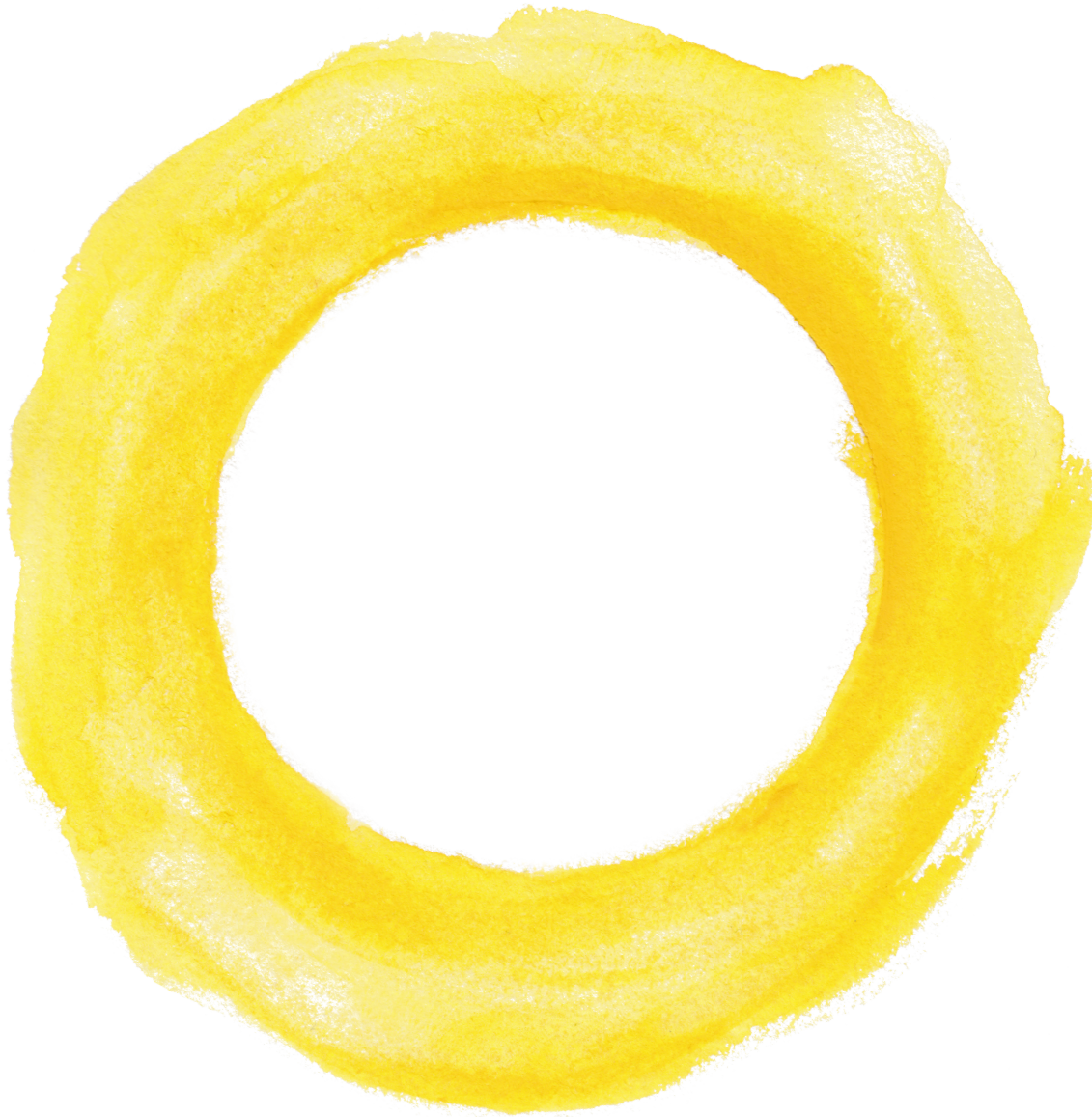
*Moon's wail echoed
throughout the sky:
My point was sound,
my logic just, and yet I
failed some cosmic test?!*



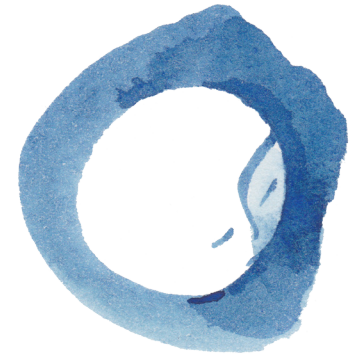
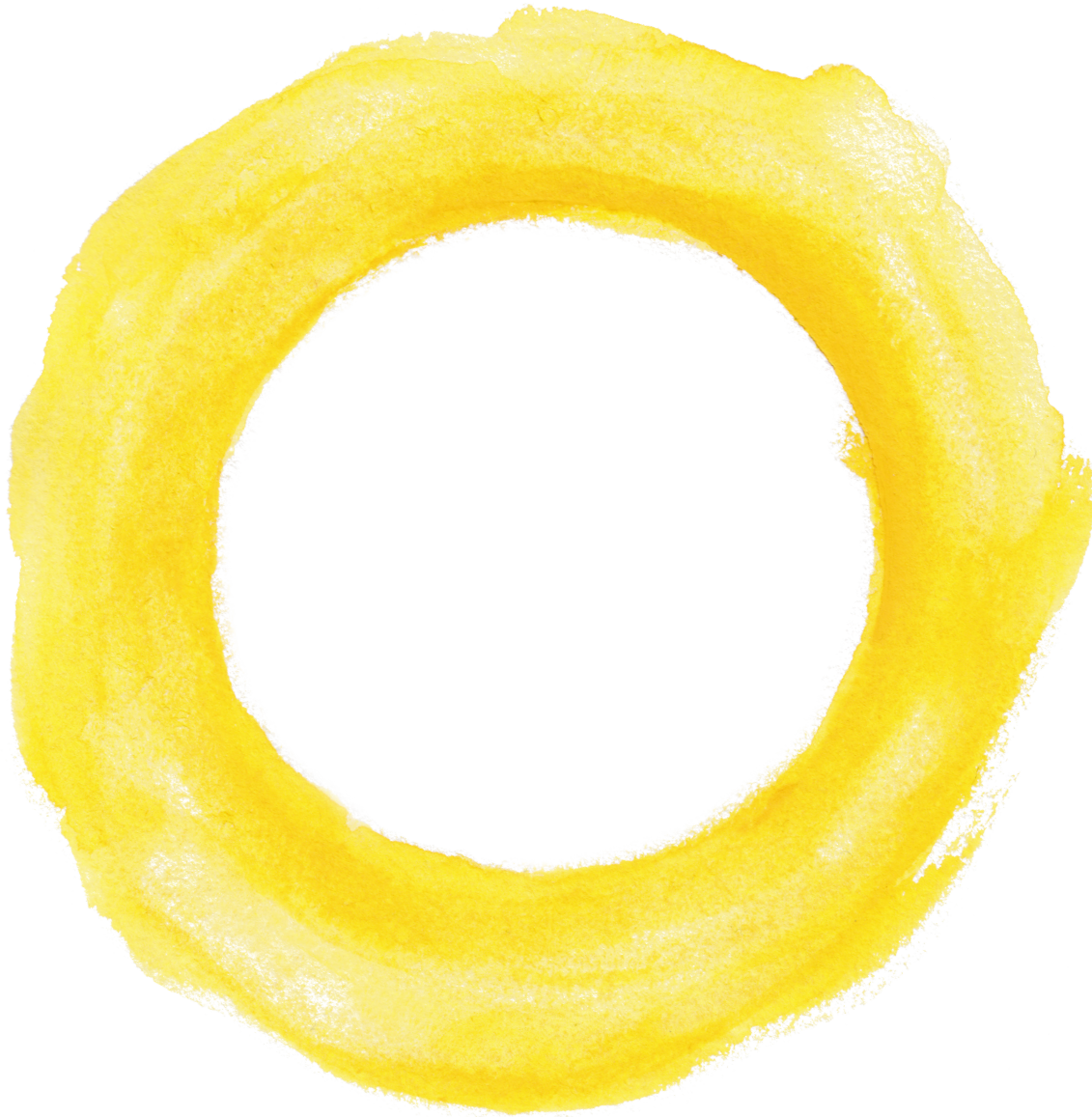
*Be calm, God softly spoke,
please don't despair,
for your rule includes both
day and night.
Moon sighed:
Of what use is a lamp in
bright daylight?*



*Once again God sought
to appease disappointed
Moon: The Jewish people
will set the new
months and holidays
by sight of you.
Moon countered:
But the calendar is set
by Sun's season's too!*



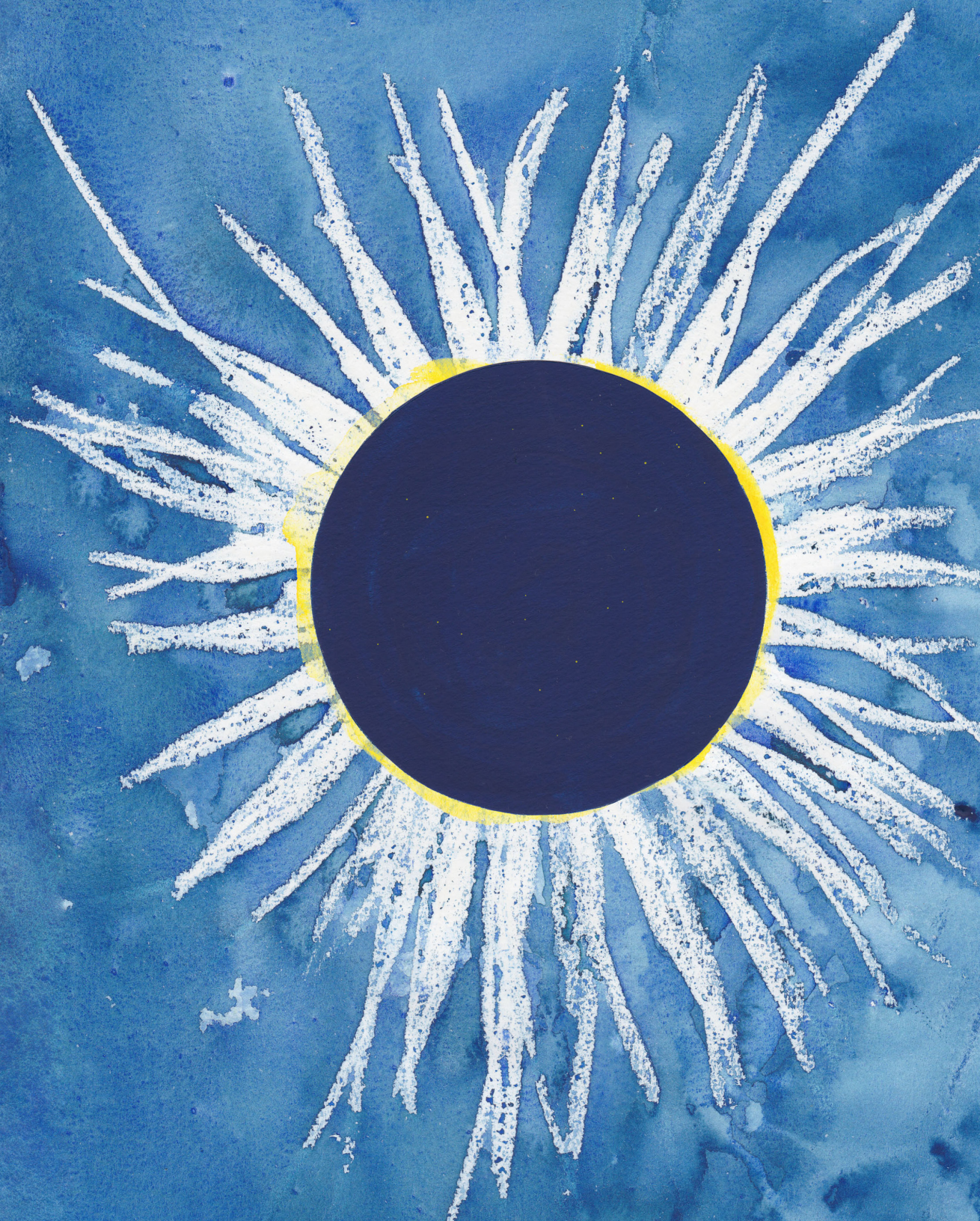
*Hold tight, let's not fight.
God made one last try to
comfort Moon.
Your smallness will be the
virtue by which righteous
people are praised --
King David the small,
Samuel the small,
Jacob the small --
By your quality
they'll all be named.*



*But sweet dejected Moon,
you feel disrespected Moon,
I see you're not
giving up so soon.*

*Yes, God reflected,
perhaps your complaint
was brash, but I see now
that my actions were
indeed too rash -- for this
an atonement offering
should be brought monthly
on my behalf.*

*Radiant Moon, know that
you yourself have the
power to redeem this story.
Rise! Shine forth! Reclaim
your crown of glory.*



Activities and questions for further exploration

Moon and Sun: The Play

Try to tell the story of the sun and moon in your own words. Perhaps you could tell it in a play, where one person takes the role of the moon, and another the role of God (Woah!). (How about someone in the role of the sun -- what would that add?)

Do you remember all of the ways that God tries to comfort the moon? Feel free to use those, or suggest your own -- how would you try to comfort the moon?

Questions for Wondering

Looking from God's perspective, was there some other way that God could have resolved the moon's concern, and responded to the situation? Was this a necessary or reasonable consequence? What might have been your solution? Can you think of a time when you responded to a situation one way, but looking back, wish you had done something different?

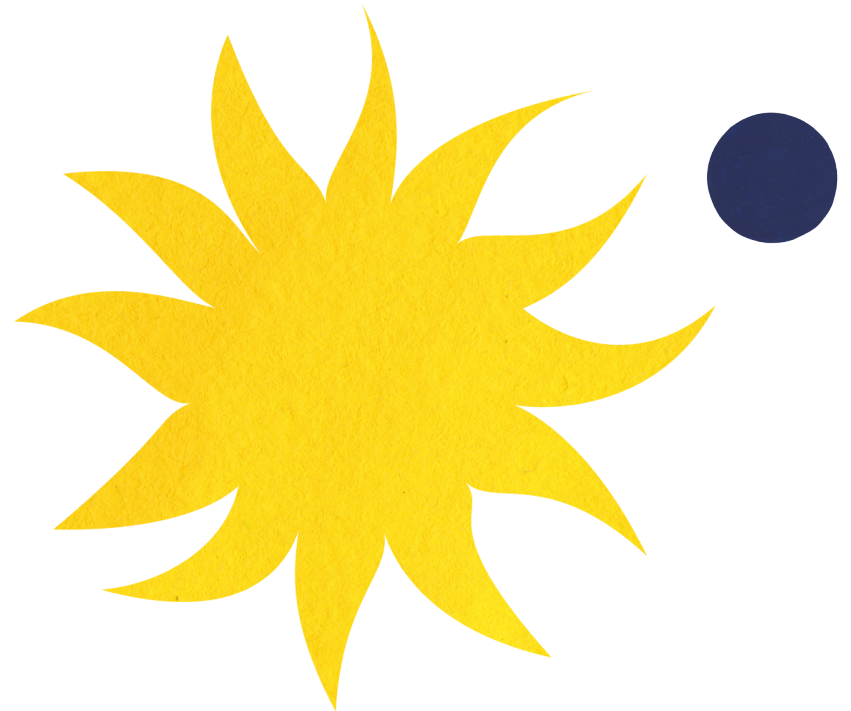
What's your sense: When the moon eventually reclaims its crown of glory, will its light be the same or different as it was on the fourth day of creation?

Stories can teach us about ourselves and about the world. What might this story want for us to learn?

Eclipse at Home

As we heard we heard in the story, the sun and moon are very different sizes -- the sun is enormous compared to the moon. But from our perspective here on earth, something amazing happens, something that we can notice during a total solar eclipse, like the one that can be observed in parts of the United States this summer. From here on earth, the sun and moon look like they're the same size! When they completely overlap, as they do during a total eclipse, the moon blocks out all of the sun except for the corona -- the very outer rays of the sun -- which then seems like it's coming out of the moon.

You can get a sense of what's happening during a total eclipse by doing a simple activity at home. Cut out these images of the sun and moon (it doesn't have to be exact!). Tape the sun to a wall. Hold the moon out in front of you, so that it is right in front of the sun. You are now the earth! Start walking backwards. How far do you have to go before the moon exactly covers the sun, except for the corona? You've just created your own solar eclipse!



Acknowledgements

Many friends and relatives gave thoughtful (and speedy!) comments and suggestions on drafts of this booklet.

Thank you to Ariel Mayse, Jevin Eagle, Jamie Cutler, Arthur Green, Rachel Bickel, Esti Mallard and Sara Henna Dahan for sharing your wisdom to improve this work.

Ezra Mayse served as the Art Director for the project, giving concise, illuminated advice that helped moved the work forward in concrete ways. Together with brothers Nahum and Daniel, he has provided so much of the inspiration for the Beyond Noah's Ark venture as a whole.

Thank you also to Lauri Wolff, who inspires us every day, and shows us how much can be accomplished with unlimited energy and enthusiasm. We are so grateful to Ann Mayse who provided grandchildren playtime assistance at a critical juncture in this project, which allowed the work to be completed.

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Beyond Noah's Ark
www.beyondnoahsark.org