Parashah and Politics: How Torah Changed the World

Parashat Tetzaveh, Exodus, Chapters 27-30 | February 24, 2024

By Rabbi Meir Soloveichik

The Snail Makes the Man

In 2017, a group of scientists at Southern Cross University issued an extraordinary announcement: they had identified one of the ancient ingredients of the *k'toret*, the incense offered every day in the sanctum of the Temple. The spices would be poured upon the small golden altar built specifically for this purpose; then the smoke would rise like a pillar straight to the roof of the Temple and spread all around, its ethereal scent suffusing the sanctuary. As our own *parashah* concludes the discussion of the construction of the Tabernacle with this ritual, it appears that the incense, offered every morning and afternoon, was considered the spiritual high point of the daily service:

> You shall make an altar to burn incense upon; of acacia wood shall you make it. . . . And Aaron shall burn fragrant incense on it; every morning when he dresses the lamps he shall burn it. And when Aaron sets up the lamps in the evening, he shall burn it, a perpetual incense before the Lord throughout your generations. (Exodus 30:1–8)

There has always been an obsession with the incense; its ingredients were precisely calculated and perfectly balanced in order to produce the most sublime scent and most elevated experience. Yet over the centuries the precise identity of these ingredients has become controversial, and recent scientific research about one in particular is not only interesting in itself, but also allows us to understand how the incense in the Temple embodied the essence of the Jewish vision, a vision captured not only in the *k'toret*, but also in one word for wool that appears throughout our reading.

While we can easily identify some of the biblical and rabbinic words describing the *k'toret* components, one of the most mysterious is the second one, which appears in the description of the incense in next week's reading:

> Take for yourself *nataf,* and *sh'helet* . . . (Exodus 30:34)

Nataf is a form of resin used to produce myrrh. What is *sh'helet*? In ancient Greek texts, "*sh'helet*" is often rendered "onycha," which means fingernail. That is exactly what it is also called in rabbinic Hebrew, in one of the most popularly recited texts of the Talmud, where it is described as "*tsiporen*," Hebrew for "nail," matching the Greek translation. As the scientists wrote in a fascinating article in *Nature*, the most logical explanation for this

is that the ingredient is an extract from part of the shell of the murex snail known as operculum, because while many different possibilities have been put forward for the *sh'helet*, nevertheless

> none seem to fit the translation of onycha as well as the opercula of neogastropods, which is made of a strong protein similar to the keratin of fingernails.

Indeed, as these scientists further note, other texts indicate that these shellfish were utilized in ancient incense production.

At the same time, all extracts from these shells seem utterly unworthy of incense because they do not have a pleasant smell. But these scientists announced that they had figured out a procedure that would also have been known in ancient times, through which an extract from these shells was refined into a sweet-smelling substance. Kirsten Benkendorff, one of the scientists, wrote up their findings for a popular audience:

> [A] predatory sea snail could be the source of a mystery ingredient in a holy incense recipe detailed in the Old Testament. Murex whelks were just one of many suspected sources, but there was no evidence to support the claim. Until now.
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> In a paper published today, my colleagues and I report how we captured and analyzed the fragrant chemicals in the smoke of the whelk operculum—the trapdoor lid that protects the snail inside the shell. This provides evidence to help establish it as the most likely source of onycha, one of four major ingredients that make up holy incense.
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> Defined as fingernail or claw, onycha is a Greek translation from the original Hebrew word shecheleth, which derives from "a tear, distillation, or exudation."
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> Whelk opercula are a protein exudation, similar to fingernails, and have to be torn from the flesh before further processing. Ancient texts refer to "Unguisodoratus" (sweet hoof) as the shell or scale of snails from the Red Sea that emit a pleasant smell when burned. But shells—and opercula—do not smell nice when burned! So after detaching the opercula from the flesh of the snail, it has to be processed. Ancient and modern practices include rubbing with alkaline solution or soaking in vinegar followed by strong wine, before burning the dried ground powder.
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> In our experiments, we replicated these procedures using clean acetic acid and alcohol. This helped remove the "fishy" smell from the opercula before drying and grinding into a powder for chemical analysis.

Fascinatingly, this scientific breakthrough about biblical incense parallels another advancement in the past decades about a biblical dye used to create a famous form of wool, references to which are replete in our reading. The focus of our reading of *Tetzaveh* is the clothing of the *kohanim*, the priests who ministered in the Tabernacle, with particular emphasis on the high priest himself:

> And you shall make sacred garments for Aaron your brother, for honor and splendor. (Exodus 28:2)

The high priest is a man reminded that he ministers for all Israel; he bears on his heart a breastplate bejeweled with twelve stones, emblazoned with the names of the tribes of his people, and two stones on his shoulders bear these names as well. A *tsits*—a sort of crown—on his head bears the sacred name of God. But in truth, the dominant feature of this *kohen*'s clothing was not gold, or jewels, but the color of one material:

> And you shall make the robe of the ephod all of blue. It shall have in it an opening for the head, with a woven binding around the opening, like the opening in a coat, that it may not be torn. . . . And it shall be upon Aaron when he ministers . . . (Exodus 28:31–35)

It was on this robe—known as a *m'il*, made entirely of *tekhelet*, wool dyed blue—that the other clothes of the high priest were placed, and it was threads of blue that held them together. Thus the breastplate was bound to a vest known as an *ephod*:

> And they shall bind the breastplate by its rings to the rings of the ephod with a lace of blue. (Exodus 28:28)

The same can be said for the crown, or *tsits*:

> And you shall make a plate of pure gold. . . . And you shall fasten it on the turban by a lace of blue; it shall be on the front of the turban. (Exodus 28:36–37)

The overall effect was created by a wool of brilliant blue, known as *tekhelet*; and as Rabbi Yaakov Medan has noted, citing the Talmud, this aesthetic element is meant to remind one of heaven itself, and of the effect of sapphire stone that was seen in the elders' vision of God at Sinai:

> Why is *tekhelet* set apart from all other varieties of dye? Because blue resembles the sea, and the sea resembles the heaven, and the heaven resembles the Throne of Glory, as it is written, "And they saw the God of Israel, and there was beneath His feet as it were a paved work of *sapir* stone, and as it were the very heaven for clearness." (BT Sotah 17a)

There is no high priesthood without the *tekhelet*, the wool which is dyed to produce a heavenly effect. But how is this effect produced?

Over a century ago, Rabbi Isaac Herzog, the future first chief rabbi of Israel, wrote his doctorate on the *hilazon*, the talmudic name for the sea creature from which the blue dye was reportedly procured. As with the *sh'helet*, all evidence pointed to a lowly snail known as the *murex trunculus*; but as Rabbi Herzog noted, the snail could be used to produce purple dye—known as *argaman*—but not blue. Rabbi Herzog died with the mystery unresolved, and it was only decades later that the answer was found: the secretion of the snail needed to be exposed to the sun, and only then could it be made into blue dye. Thus Baruch Sterman tells us:

> The . . . most substantial problem that Herzog had with *trunculus* was that the dye obtained from that snail produced a blue-violet color, and not the sky-blue hue traditionally associated with *tekhelet*. This issue was really the core of the difficulty in identifying the *hilazon* with the *trunculus*. . . .
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> In the early 1980s while researching ancient dyeing techniques, Otto Elsner of the Shenkar College of Fibers in Israel serendipitously discovered the secret of producing a pure blue color from the *trunculus* snail, thus solving Herzog's . . . most compelling difficulty. Elsner noticed that wool dyed on cloudy days tended towards purple, while on sunny days the color was pure blue. Together with Ehud Spanier of Haifa University, he investigated the photochemical properties of the *trunculus* dye and found that when the dye is in a reduced state (a prerequisite for dyeing wool), exposure to ultra-violet light will transform the blue-purple colorant to unadulterated blue.

We must ponder the poetry inherent in the science: the sublime aesthetic effect of the high priest only occurs when the sunlight shines on earth, transforming a smelly substance from one of the lowliest creatures in existence into a source of brilliant blue, so that suddenly the effect of the very heavens is bestowed in our material realm.

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Similarly, in her article on the incense, Kirsten Benkendorff notes that the snail, which is not only a pungent but also a non-kosher creature, is the source of both heavenly wool and a sacred smell within the Temple:

> The main argument against the identification of sea-snail opercula as the onycha of antiquity is that creatures such these were described as "unclean" animals in the Bible. . . . But one particular group of sea snails, the Muricidae or murex, were highly regarded as a source of Tyrian purple (shellfish purple) and tekhelet (biblical blue). In biblical times, these shellfish were the only known source of an insoluble purple dye. The incorporation of purple- and blue-dyed yarn is prescribed for use in the Tabernacle and garments worn by high priests (Exodus 26 and 28).

In other words, one of the essential elements of the incense, one without which the incense is invalidated, is extruded by a non-kosher creature, something that in its original form smells fishy and foul. And yet when refined, when properly prepared, and assimilated into the larger arrangement of ingredients, this substance suddenly produces the most sublime scent, for the most mystical rite in the entire Temple. Just as the murex snail is used to produce the *tekhelet* on the clothes of the *kohanim*, evoking the azure image of the sky, so too can the snail provide an incense ingredient that bestows the scent of heaven itself.

What are we to make of this—that something purportedly putrid, and technically *treyf*, is transformed into

something so sublime, one of the essential sources of the most incredible experience in the Temple? What is the symbolism of this sacred substance that stems from a pungent shellfish?

The cloud of the ethereal incense, as we mentioned last week, is intended to embody the human spirit; and if a lowly bit of earthly existence is transformed into something sublime, it is meant, perhaps, to remind us that the seemingly lowly aspects of human existence are not to be overridden or exorcised, but channeled, directed, and transformed. The goal of Judaism is not to reject this world but to sanctify it; not to deny the pleasures of this world, but to channel and transform them; not to ignore our urges as sinful and animalistic, but rather to direct them toward the service of God.

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One example of this, as Rabbi Jonathan Sacks has written, can be found in Judaism's positive approach to the human desire to accumulate wealth:

> [P]hilosophical advocates of the market—Bernard Mandeville, David Hume, and Adam Smith—were struck by a phenomenon that many considered to be scandalous and amoral. This was their discovery that the market produced benefits to all through a series of actions and transactions that were essentially self-interested in their motivation. As Adam Smith bluntly put it: "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest." Within the system of free trade, as Smith put it most famously, the individual "intends only his own gain, and he is, in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention." This fact—that markets and their associated institutions tend to work on the basis not of altruism but of somewhat earthier motives—has always led to a high-minded disdain for everything suggested by the word "commercial."
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> Not so within Judaism. Long before Mandeville and Smith, Judaism had accepted the proposition that the greatest advances are often brought about through quite unspiritual drives.

Rabbi Sacks further deduces this from a rabbinic statement: "Were it not for the evil inclination, no one would build a house, marry a wife, have children, or engage in business."

This does not mean, of course, that selfishness is to be celebrated, but rather that every urge within us is created by God, and has a positive and productive outlet. The Torah, Rabbi Joseph B. Soloveitchik reflected, "does not reject any human feelings as unworthy and destructive." No natural emotion or urge is inherently sinful; each has its proper application.

Thus in the incense, which is offered on the altar and rises directly to God, seemingly unpleasant substances are sublimely sanctified—representing human potential in all its complexity.

A similar message can be derived from the *tekhelet* of the high priest. In his most famous philosophical metaphor, Plato described a man emerging from a lifetime in a cave to behold the sun to explain the philosopher's quest to escape our own existence, full of shadow and falsehood, for the ethereal world of brilliant ideas. We can contrast this allegory to the creation of the priestly blue, in which the sun radiates down on our existence, transforming something seemingly unworthy into the very symbol of sanctity, so that a bit of the blueness of heaven is created here on earth. The world is not to be escaped, but to be sanctified instead.

The science behind the *tekhelet* reminds one of a short story by the Yiddish writer I.L. Peretz, who tells of a hasidic leader, or *rebbe*, who during the penitential season did not show up for prayers. The *rebbe*'s followers speculated that their leader had ascended to heaven to plead for mercy on behalf of his flock. There lived in that town a lone Litvak—a Jew of Lithuanian origin and therefore of a less mystical bent than his hasidic brethren, but instead devoted first and foremost to the minutiae of Jewish law. "You know how those Lithuanian Jews are," writes Peretz, "they care little about devotional books, but they cram themselves full of the Talmud and similar codes." The Litvak scoffed at the community's suggestion that the *rebbe* had ascended to heaven, and so he stalked him, following him to the outskirts of town. There the rabbi came upon a shack in which lived a poor woman. The spying Litvak watched as the rabbi fed the woman and took care of her. From that point on, writes Peretz, the once cynical Litvak became a follower of the *rebbe*; and whenever the hasidic shtetl-dwellers would suggest that their *rebbe* could be found in heaven, the Litvak would invariably respond "if not higher."

Note well Peretz's literary maneuvers—he does not make the Litvak into a standard follower of the rabbi, who believes that his leader escapes the world or transcends it, or that he prefers heaven to earth. Rather the Litvak has realized that through the *rebbe*'s sacred actions the poor woman's hovel has become holy here on earth. He realizes that no act exists in a vacuum, but rather has the power to sanctify, to endow physical earth with the glory of God. Plato, in C.S. Lewis's phrase, saw our existences as taking place in the "shadowlands"; Judaism, to borrow another phrase from Lewis, seeks to endow this earth with "patches of Godlight in the woods of our experience."

Thus the creation of priestly garments gives us a symbol of Judaism itself. It is often said that clothing makes the man; here, the snail, from the depths of the sea and the earth, helps make the holiest man on earth. Only then does the high priest of the Temple represent us before God, so that the science and symbolism of his glorious garments remind us not to reject our humanity or earthly existence, but to create a sanctity which, in a certain sense, can be higher than heaven itself.

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Additional Resources

Kirsten Benkendorff on the Shellfish Used to Produce the Holy Incense "Modern Science Tackles a Biblical Secret—the Mystery Ingredient in Holy Incense," *The Conversation*, December 12, 2017. Click here to read.

Baruch Sterman on the Rediscovery of Tekhelet, "The Meaning of Tekhelet," *B'or Ha'Torah*, 1999. Click here to read.

Rabbi Jonathan Sacks on the Free Market, "Markets and Morals," Originally Delivered as the Hayek Lecture at the Institute of Economic Affairs, June 2, 1998. Click here to read.