

THE GOOD *TORAH* SENSE OF THE "ALPHA-ELEPH" HOW THE TORAH COUNTS THE TRIBES AND WHY

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ABSTRACT: The Torah's censuses of the tribal tallies in Exodus and Numbers, suggesting the flight that some three million Hebrews fled ancient Egypt in ca. 1450 BCE, is one of the major targets of scorn by deniers of Torah tradition. Meanwhile, ultra-Orthodox Torah scholars, if they are even aware of the problems with this, will either deny the science or appeal to magical thinking. Modern Orthodox thinkers might submit to the opposition, but claim that the Torah is "not a history book", tacitly agreeing that the Torah account has little historical value.

This piece was written to show the sceptic and educated religious believer alike that a solution known to and used by academia for sixty years is entirely consistent with belief in the solid logic of the Torah's wording. Plausible reasons are given as to *why* the Torah tallies human beings as it does.

The task of faithful Jews, Noahides, and Christians who attempt to defend the traditional understanding of the Torah's population tallies is insurmountable. It doesn't "merely" pit them against science. By that we mean the archaeology of ancient Egypt and Canaan, including written records of slave censuses taken by the Egyptians for their own governing purposes. Population studies are based on real archaeological sites (taking into account those we may not have found), and agricultural studies: how many people the arable land around a town or city could support, given the available food varieties and the technologies of the time. They are based on known figures, ratios and variables, by which population density is estimated for ancient societies around the world. Beyond that, their simplistic reading pits them against population data provided by verses in the Torah and elsewhere in TaNaKh.

Sadly, neither the Torah's attackers nor its defenders realize that admitting this admission of the apparent problem poses no threat to Torah faith; only to the traditional interpretation of those passages. Before accepting the gracious help of a friend and senior colleague, the author himself had an incomplete awareness of the scope of the difficulties, the data behind the population studies done, and the biblical verses that suggest the true solution. I will present the many points that brought me to accept the solution long arrived at by academia.¹ Besides satisfying the secular reader, they should satisfy the faithful no less.

THE DIFFICULTIES

First, we must examine the difficulties that make the simple understanding of the Torah's numbers historically impossible:

1. When the Israelites began their flight from Egypt and Pharaoh changed his mind, **the 600 chariots he sent to stop them would be woefully insufficient to stop an exodus of over three million people.** In fact, many of the Israelites closer to the farther end of the marching masses would not even know of the attack.

7 And he took **six hundred** chosen chariots, and all the chariots of Egypt, and captains over all of them.²
ז וַיִּקַּח, שֵׁשׁ-מֵאוֹת רֶכֶב בָּחוּר, וְכָל, רֶכֶב מִצְרָיִם ;
וְשָׁלְשָׁם, עַל-כָּלֹו .

The entire army of Egypt probably did not number more than 40,000 at its height in the *New Kingdom Period* (c. 1550-1069 B.C.E.),³ a time when the Egyptian population was likely to be larger than in the times of the Exodus. (See Appendix: Population Estimates for Ancient Egypt and Canaan) Does it make sense that a slave army would outnumber the entire armed forces of their motherland, the superpower of the day, by more than 10 to 1?

2. A migrating mass of over three million would have spread over a space far, far larger than the distance between three or more of those encampments, **removing any meaning of the Israelites moving from station to station.** Marching from stop to stop, they would form a line that crossed hundreds of miles across the Sinai Desert! Even a good fraction of that number would not even fit into the quite large wadi spaces that formed those encampments.

Today the locations of the Israelites' desert encampments along the route from Sukkoth to Mt. Sinai have been identified with a fair degree of certainty. Not only have several of the place names been preserved to this day, but key features of those stops, noted in the Torah, are apparent.^{4,5,6} The distance between them matches what we know about the limitations of how far even very robust people in ancient times could walk over that terrain, and the Israelites were heavily laden with herds, flocks, wagons and supplies.

(No modern research in this regard is as impressive as that of David Rohl: Following in the footsteps of 19th-century explorers Robinson and Smith, he personally led two Sinai expeditions in 2001 and 2004 to test the traditional Exodus route, equipped with GPS, satellite imagery, detailed maps of the terrain provided by the Egyptian government, and the detailed notes of earlier researchers.⁵)

3. Even a portion of such a population could not have fitted into the space around Mount Sinai (most likely the twin-peak mount of Gebel Musa/Gebel Safsafa, an identification with far more evidence than is widely recognized^{7,8}). They would not have fitted around the surrounding base of the mountain, much less been able to hear Moses speak. Moreover, the Torah records that Moses invited the nation to ascend the mount at the sound of the blast of the ram's horn (Ex. 19,13). None but a very small fraction of 600,000 men could have been able to do so at one time.

Certain things need to be seen to be understood. Below is an aerial photograph of **but a portion** of an estimated crowd of three million people, tightly packed together to attend the Catholic Mass led by the Pope on the iconic Copacabana beach of Rio de Janeiro in 2013. It was *one of the largest human gatherings in history*. In wider aerial images, it is clear that even the six clusters of movie screens and massive speaker units were insufficient for all to see and hear the leader of their faith. Such is the logistical reality of what is required to communicate with a tight crowd of so mainly young adults crowded together.

Note that the group is clustered tightly together for a prayer service, not to march or encamp. A fleeing Israelite nation of that size would include an equivalent number of animals, tents and supplies. To march, the group would need about four times the space compared to as the congregation at Copacabana beach. To encamp, you would need much more.



Reuters: Paulo Whitaker. About three million pack Copacabana beach for Pope's mass. Posted 28 Jul 2013.

4. What was the sound system of the nation of Israel in the desert? Two silver trumpets. In Numbers chapter 2, the Torah describes how the twelve tribes were organized into four tribal groupings for marching purposes. They were summoned to move forward, quarter by quarter by a series of blasts by no more than two trumpets. To know when they were next to move, each quarter of the nation needed to hear the earlier sets of blasts. Only someone who has been in a crowd of even half a million people knows how loud is the din of such a crowd even when trying to keep quiet, waiting for a signal. How could such a sound be heard with no amplification over the din of millions?

5. The Sinai Desert, called a "great and dreadful wilderness" (Deut. 1,19), could not have possibly supported the water needs of even a large fraction of three million. Although there is evidence the region was a bit wetter than it is at present,^{9,10,11} researchers confirm that the climate of the Sinai was not much less "dreadful" than it is today.¹² Not to mention that the people's movement was from desert oasis to desert oasis, not from stream to stream.^{4,5} While the army of Xerxes the Great is believed today to have numbered 100,000 to 150,000 men (not a million),^{13,14} Herodotus relates that it was so immense, that when they arrived at the Echeidorus River, his soldiers drank *until it ran dry* from their mass consumption.¹⁵

Note the true scale of the Exodus portrayed in Exodus 15,27:

כַּז וַיָּבֹאוּ אֵילִמָּה--וְשֵׁם שְׁתַּיִם עֵשְׂרָה 27 And they came to Elim, where were **twelve**
 עֵינֹת מַיִם, וְשִׁבְעִים תְּמָרִים; וַיַּחֲנוּ-שָׁם, **springs of water, and three score and ten palm-**
 עַל-הַמַּיִם. **trees;** and they encamped there by the waters.

Could over three million thirsty people with thirsty animals be watered by "twelve springs of water" or enjoy the fruit and shelter of only "seventy palm-trees"?

6. A diet of primarily (real-world) manna --per the Torah account-- could not have provided enough calories for even a fraction of the three million figure, even if supplanted by fish and occasional meat. Not only has biblical manna been confidently identified⁴ but, again, the arid conditions of the Sinai Desert have been found to be not far from those in the times of the Exodus.¹²

7. How could there have been more than three million slaves when Egypt's total population at the time was less than three million? (See Appendix on Population Estimates for Ancient Egypt and Canaan). Population studies cannot be ignored. Again, they are based on censuses taken by the ancients for their own municipal purposes, agricultural studies (how much food is required to sustain a given number of people, and could have been grown on the available, arable land, according to the technologies and ecological constraints of the time), residential and burial sites, and more. They are based on known figures, ratios and variables, by which population densities are estimated for ancient societies across the world.

8. Where are the buried remains of nearly a million people who would have perished from natural causes in the 40 years of desert wandering? There is a glaring lack of any such remains, leading many to relegate the entire story to myth. Unlike the remains of ancient cities, in a desert such as Sinai, there are no layers to dig up to arrive at the Middle Bronze Age when we believe the Israelites left Egypt. While the lack of remains of several thousand deceased individuals (an ancient nation the size we are suggesting in this paper) can be attributed to other factors, the demise of 600,000 fighting men -- not to mention the elderly who left Egypt -- cannot be explained away. Lack of evidence in such a case is truly evidence of lack.

9. Why would a nation of three million be turned away from the closer, Philistine route, lest they fear war? An Israelite army that was 6 times the size of the army of Ramesses the Great would have been larger than the *entire population* of all of Canaan. Even if the estimates are incorrect, it would have been *an order of magnitude* larger than any Canaanite army (see next point).

Over the next few centuries, the final part of Middle Bronze Age II and Late Bronze I eras (the Judges era according to David Rohl's New Chronology), the entire population of greater Canaan (including Lebanon) would grow. In a broad PhD thesis on the total population of the country at this later time, based on 713 archaeological sites and factoring in an additional 108 that "may have existed", Titus Michael Kennedy arrives at a much higher figure than others, such as Israel Finkelstein of Tel Aviv University:

The total peak population of Canaan in Late Bronze I was... approximately 588,000 people, with approximately 552,000 forming the settled population and approximately 36,000 forming the nomadic population of the region. For Late Bronze II, the total peak population of Canaan was approximately 597,000.¹⁶

In other words, only after a significant growth of the Hebrew population, together with the large number of Canaanites and other groups, would the entire population reach close to 600,000 people *in total*. The hill country of Canaan at this later time may only have had a total population of about 65,000.¹⁷ Let's say all the studies that came to such results are absurdly wrong and the population was 150% that many (a claim that would require extensive evidence). It would still show the model of three million invading Israelites to be totally irrational.

(It should be noted that, while data is incomplete for demographic studies on many ancient populations, particularly in countries where research is difficult, such is not the case in Israel. Due to its high concentration of first-class Western academia, the national importance of archaeology to the modern state, and the historical significance of its terrain to humanity at large, Israel is likely to be the most heavily excavated country on Earth. While new finds are still made on occasion, numbers of massive, undiscovered population centers cannot have been hidden so long. Meanwhile, researchers estimate and take into consideration the number of sites they may not have found.)

Think how absurd it would be for the generation of Israelites raised in the desert (not a generation of meek ex-slaves, but free men trained from their youth for the planned conquest of Canaan) to have been so petrified of invading the hill country of Canaan from the south. Does that make sense for a people with the largest army the world would see until the Persian force that invaded Greece?

10. In Deut. 7,1, the Torah mentions explicitly how *each* the seven Canaanite nations, naming them off, were "greater and mightier" than Israel.

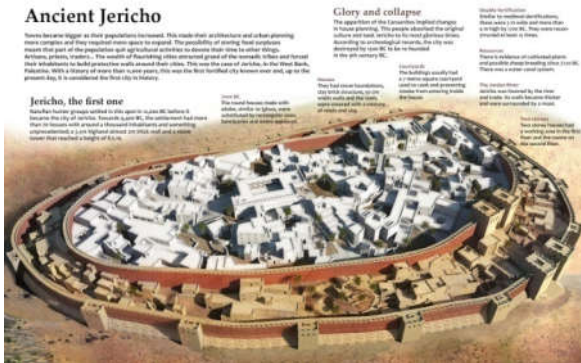
א כי יביאך, יהוה אלהיך, אל-
הארץ... ונשל גוים-רבים מפניך
החתי והגרזשי והאמרי והכנעני
והפריזי, והחוי והיבוסים-- שבעה גוים,
רבים ועצומים ממך.

1 When *YHWH* thy God shall bring thee into the land...
and shall cast out many nations before thee, the Hittite,
and the Girgashite, and the Amorite, and the Canaanite,
and the Perizzite, and the Hivite, and the Jebusite, **seven
nations greater and mightier than thou;**

Again in Deut. 7,17, we learn that those nations were "more populous" than Israel.

Earlier, in 4,38, we see the same: Moses prepares the nation for how they will soon drive out peoples "greater and mightier than you" from the Land. We find the same in Deut. 9,1: "nations greater and mightier than thyself". This is why we saw our victories as true miracles, and they should still be seen as such to this day. But for those verses to be true *and* fit into anything remotely close to what archaeology has reconstructed, the numbers need to be greatly reduced.

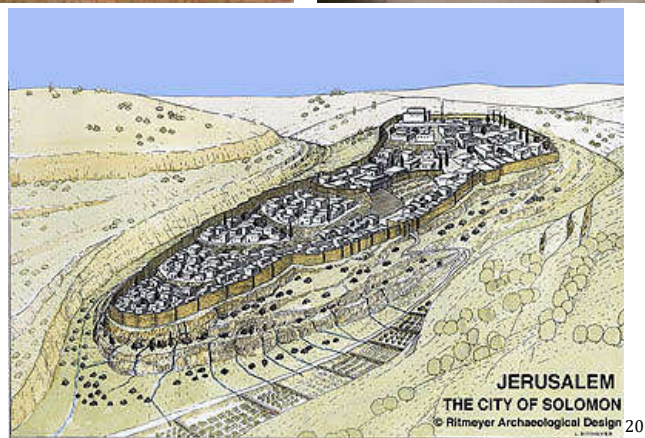
Those formidable Canaanite cities such as Jericho, called "great cities fortified to heaven" (Ibid.) from the Israelite perspective, were Lilliputian by our standards; truly diminutive by the imagined biblical scale. Consider the images below. While the official maximal borders of the Promised Land (given in Numbers chapter 34) stretched well beyond this, the phrase "from Dan to Beersheba", repeated nine times throughout TaNaKh, denotes the Canaan that Israel came to share and partially inherit. It is a narrow stretch of territory some 146 miles (235 km) long. All the names of their tiny walled city-states, just a few dozen, are named in the Book of Joshua. Is this a picture of a country inhabited by millions?



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Images of scholarly reconstructions of biblical Jericho (left) and Megiddo (right), and Jerusalem (below), based on archaeology, with walls "fortified to the sky" from the ancient perspective.

11. Fitting in with this, is perhaps the strongest point of all: Notwithstanding verses that compare the number of Israelites to the dust of the earth (i.e. Number 23,10) --that being, of course, from the perspective of those ancient times-- **the Torah relates in Deut. 7,7 that the Israelites were the smallest in number of any people of the region.** This oft-overlooked verse gives a totally different picture of the demographics of the nation as it stood at Mt. Sinai:

ז לא מרבבכם מפל-העמים, חשק יהיה בכם-- 7 *YHWH* did not set His love upon you,
 ויבחר בכם: כי-אתם המעט, מפל-העמים. nor choose you, because ye were more
 in number than any people--**for ye are
 the fewest of all peoples.**

If each of the Seven Canaanite nations was 3.3 million strong (slightly larger than an Israel of three million), the Canaanites alone would have numbered 23 million. That is the approximate population count of modern Australia, of Beijing, and of Taiwan -- and we haven't added in Philistines or Amalekites. Even if all the Canaanites were considered a single עם-"people" (in spite of what is clearly understood from Deut. 7,1), a Middle Bronze Age Canaan of millions of people is utter fantasy from the real-world, historical perspective.

12. We see the same issue throughout TaNaKh:

Speaking of that young, desert-raised generation of Israelite warriors, **why, in Joshua 7,2-5 were "the hearts of the people melted and become as water" with the tiny loss of 36 warriors out of 3,000** (three *alaphim*) that were sent on the first, failed attack upon tiny `Ai? That would be a loss ratio of only 1%. Large-scale death was a common aspect of war, especially ancient warfare of those days.

How did 27,000 (27 *eleph*) men get crushed by a falling wall at Aphek in 1 Kings 20,30, and that after the Israelites had decimated 100,000 (100 *eleph*) Aramean foot-soldiers? Besides 127,000 being close to the total population of the Levant region at the time, how could the collapse of the wall of one of those diminutive ancient cities (see Point 10 above) wipe out a number of a people that could fill a medium-sized Category 4 sports stadium of our day?

13. Lest one imagine that there could have been a sacred or religious meaning to the term אֶלֶף-*eleph* --that it was indeed intended to mean 1,000, even though that doesn't match the historical reality-- **we see the same issue with army numbers in Divre HaYamim (Chronicles)-- the state chronicles of the Kingdom of Judah.** As such, it does not appear to have been created for sacred purposes, employing symbolic language; not any more than the "*Divre HaYamim* [Chronicles] of the kings of Media and Persia" (Esther 10,2). For example, In II Chron. 14,9-15, it speaks of the army of Asa being a little over 500 *alaphim*, countering Zerah the Ethiopian's force of "*eleph alaphim*" (!). How feasible would it be for an army even one *fifth* that size to have cut its way through Egypt, up from Kush (Nubia)?

What is needed is a new understanding of the term *אלף*-*eleph*, as none of the above issues make any sense when *אלף*-*eleph* means a thousand. Yet **all these verses and demographics recorded in TaNaKh make sense if the term *אלף*-*eleph* meant "clan chief" or "clan brigade"** when human beings are being counted. It will be seen below why the author sides with "chief" or "troop commander". It is not only the same conclusion that academia have long arrived at, but one that can be explained well from a faithful Torah viewpoint as well, with full respect for the real addition being done in the tallies of the tribal censuses.

THE IMAGINED ROADBLOCK: TORAH ARITHMETIC

The key difficulty for the faithful reader is that the Torah is clearly doing regular addition with the subtotals of the tribal populations, so that 10 hundreds become a thousand, etc. The Torah would essentially be doing false addition to portray non-realities, even suggesting that a later biblical redactor misunderstood the original text he was embellishing, as suggested by Colin-Humphreys.²¹

Moreover, consider how the Torah counts the massive amounts of metals collected from the nation with the same terms *אלף*-*eleph* and *אלפים*-*alaphim* (Ex. 38:24-29). Does the Torah want those, too, to be read as "chiefs" and "clan brigades"?! The total silver collection given to the sanctuary was the sum of a "head tax" of one *beqa`* donation from each of the **603,550 men**. The total silver collected was: 100 talents plus 1,775 *sheqalim*. Since a talent equals 6000 *beqa`im* and one *sheqel* equals 2 *beqa`im*, the total number of *beqa`im* is exactly **603,550**. The gold and bronze contributions were not based on a donation from every man, but the silver was. Total gold given: 29 talents plus 730 *sheqalim* (about 2000 lbs of gold). Total silver given: 100 talents plus 1,775 *sheqalim* (about 7500 lbs of silver). Total bronze given: 70 talents and 2,400 *sheqalim* (about 5300 lbs of bronze). It is the silver that is directly connected with the census of Num 1:1-46 and the fact that 100 talents plus 1,775 shekels exactly equals 603,550 *beqa`im*.²² *No one can claim the Torah openly wants the reader to read a "chief" or "clan brigade"*. It is plain in the Hebrew that one is meant to understand "thousands".

Another example is in Numbers ch.3,40-46. The ransom difference between the firstborn and the number of Levites is a precise 273. The firstborn of Israel numbered **22,273** but the number of Levites numbered **22,000**, so a "head tax" had to be paid for the difference of **273**. The numbers are so precise here, that there was a need to pay a special ransom for the 273 extra firstborn of Israel above the number of the Levites. (*Ibid.*) This proves that the text is indeed painting a picture of real numbers based on simple, base-10 arithmetic.

And yet, per the ever-relevant teaching of RaMBaM (Maimonides), whenever Torah contradicts science, it is generally based on a misunderstanding of Torah. Moreover, he made it perfectly clear that *even received traditions* that are not fundamental tenets of faith can be reinterpreted. (Guide For the Perplexed 2,25)

Whatsoever is proven to be true, however it may clash with old and hallowed misconceptions, should be accepted. Older beliefs may have still have deep moral or pedagogical purposes (as in this case, see below), but whatever is the most logical, parsimonious solution -- if it is within the parameters of permitted belief, should be embraced.

FIVE KEYS TO REMOVING THE BLOCK

Occam's Razor, the rule of parsimony, demands the other true, actual meaning of אֵלֶּף-*eleph* found in the Torah itself and elsewhere in TaNaKh: **chief, duke, or military captain.** (Remember that the added vowel *waw-shuruq* [voweling the ל-*lamed* as "oo"] is an unnecessary addition surely not in place when the Torah was given, and we need only believe *the sounds of the words* are from Sinai; not necessarily the spelling). In Genesis 36,15-43 the term *aluf* is used to describe the "chiefs" or "dukes" of Edom no fewer than 42 times! In Zachariah 9,7 and 12,5-6 it is a term for an Israelite captain, and in places such as Psalms 55,13, it seems to indicate a broader term for "teacher." Not only does an *aluf* in the IDF correspond to the ranks of general, admiral, air marshal in other militaries, but even in today's Egyptian army, a military general is called an "alpha" in Arabic. It goes all the way back to the Proto-Sinaitic glyph אֵלֶּף-*eleph* representing the "head of the herd", the *aluf ha`eder*:



The author, for one, believes in the Divine inspiration behind the entire Torah of Moses. Here are five points that have enabled me to embrace this paradigm shift.

1. There are several words in the Torah that have different meanings in different contexts: The same word, אֱלֹהִים-*elohim* can mean God, false deities, judges (plural), or a singular "judge" (singular). If so, then אֵלֶּף-*eleph* can **indeed mean "chief" in the context of people, and "thousand" for weights, measures, and objects.** So it may truly have meant "1000" in Exodus ch. 38. Just as the terms "el", "elohim", "mal'akh", "ish", "ishah" and other terms have quite distinct meanings in different contexts. Note how, like אֵלֶּף-*eleph*, the first two examples "el" and "elohim" also begin with אֵל-*el*, the base phoneme communicating "power". In fact, all three terms may have originated from a single Proto-Semitic bi-radical root.
2. The "false addition" (so that 10 מאות-*me'oth* [hundreds] become an אֵלֶּף-*eleph*) may well have been included for a very good reason: **to obscure the real count,** according to the absolute taboo of counting Israelites -- for which King David would be sorely punished (see II Sam. 24 and I Chr. 21). Although those counts were at the command of *HaShem*, the Torah seems to be covering up the reality to convey the lesson that population tallies, while essentially being given to us (if you know the secret of what אֵלֶּף-*eleph* truly means), are only for *HaShem* to know. **A person is not a number, our true worth is belittled when we are counted like cattle, and as proven through Gideon and the wars of the State of Israel, numbers are not to be relied upon; the true key to success is faith.**

3. As is the case in regards to the historical chronology of the Torah according to the Masoretic text *vis a vis* the Septuagint, there is a precedent for biblical numbers being given to communicate ideas other than the empirical historical reality. Together with the Torah's portrayal of Esau, Ishmael and Jacob as fathering twelve tribes, the figure 600,000 may well be rooted in the sexagesimal (base-60) numeral system of Sumer, from which civilization inherited our divisions of time and more. In that ancient Semitic culture that preserved wisdom from Ur, **the figure 600,000 would have connoted "wholeness" or "entirety"** -- as if to say, despite Pharaoh's vain attempts to keep parts of the nation of Israel --the animals, the women and children-- the nation left *in its entirety*; "not one hoof remained". See Exodus 10,9-11:

ט וַיֹּאמֶר מֹשֶׁה, בְּנַעֲרֵינוּ וּבְזָקְנֵינוּ
גִּלְדִּי; בְּבָנֵינוּ וּבְבָנוֹתֵינוּ בְּצֹאנֵנוּ
וּבְבָקָרֵנוּ, גִּלְדִּי--כִּי חָג-יְהוָה, לָנוּ.
9 And Moses said: 'We will go with our young
and with our old, with our sons and with our
daughters, with our flocks and with our herds
we will go; for we must hold a feast unto
YHWH.'

י וַיֹּאמֶר אֱלֹהִים, יְהִי כֹן יְהוָה עִמָּכֶם,
כַּאֲשֶׁר אֲשַׁלַּח אֶתְכֶם, וְאֶת-טַפְּכֶם;
וְאִנִּי, כִּי רָעָה נִגְדָה פְּנֵיכֶם.
10 And he [Pharaoh] said unto them: 'So be
YHWH with you, as I will let you go, and your
little ones; see ye that evil is before your face.'

יא לֹא כֹן, לְכוּ-נָא הַגְּבֵרִים וְעַבְדוּ
אֶת-יְהוָה--כִּי אַתֶּה, אַתֶּם מִבְּקָשֵׁיכֶם;
וַיִּגְרַשׁ אֹתְכֶם, מֵאֵת פְּנֵי פְרֹעֹה.
11 Not so; go now ye that are men, and serve
YHWH; for that is what ye desire.' And they
were driven out from Pharaoh's presence.

And later in chapter 10, verses 24-26:

כד וַיִּקְרָא פְרֹעֹה אֶל-מֹשֶׁה, וַיֹּאמֶר לְכוּ
עַבְדוּ אֶת-יְהוָה--רַק צֹאנְכֶם וּבָקָרְכֶם,
יָצֵגוּ: גַם-טַפְּכֶם, גִּלְדִּי עִמָּכֶם.
24 And Pharaoh called unto Moses, and
said: 'Go ye, serve YHWH; only let your
flocks and your herds be stayed; let your
little ones also go with you.'

כה וַיֹּאמֶר מֹשֶׁה, גַם-אַתָּה תִתֵּן בְּיָדֵנוּ
זִבְחִים וְעֹלֹת; וְעַשִּׂינוּ, לַיהוָה אֱלֹהֵינוּ.
25 And Moses said: 'Thou must also give
into our hand sacrifices and burnt-offerings,
that we may sacrifice unto YHWH our God.'

כו וְגַם-מִקְנֵינוּ גִלְדִּי עִמָּנוּ, לֹא תִשָּׂא
פְרִסָּה--כִּי מִמֵּנוּ נִקַּח, לְעַבְדֹת יְהוָה
אֱלֹהֵינוּ; וְאִנִּי לֹא-נִדְעֶה, מִה-נִעַבְדֹת אֶת-
יְהוָה, עַד-בֹּאֵנוּ, שָׁמָּה.
26 Our cattle also shall go with us; there
shall not a hoof be left behind; for thereof
must we take to serve YHWH our God...'

In fact, besides additional layers of meaning in the TaNaKh that subtly communicate more information, there are details we would consider very historically important being deliberately left out. An example: the hanging *n-nun* in *Shofetim* (Judges) 18,30, covering up Moshe being the grandparent of a priest to idolatry: **יְהוֹנָתָן בֶּן-גֵּרְשֹׁם בֶּן-מִשֵּׁה**.

4. **Meanwhile, the Torah's mathematics does provide plenty of meaningful information:** the relative gains and losses in population of different tribes over the long sojourn in the desert, such as the huge drop in the numbers of Shim'on and Gad, *vis a vis* the large gains of Menashe and Yehudah. These differences

suggest their respective levels of righteousness; according to how hard each tribe was hit according to its degree of involvement in the sinful incidents in the Torah, particularly in Numbers.

All the while, the Torah is giving us *actual census figures* for each tribe as follows:

For the tribe of Reuben there would be '46 troop commanders with 500 men' adding up to a total of 546. If you then work through the tribal contingents in Numbers 1:20-47, you will arrive at a total of 6,148 fighting men, plus around the same number of wives, a couple of elderly parents, and perhaps three children per family unit, adding up to a grand total of 35,000 people.²³

The author believes this figure is too conservative. Israel could well have left with as many as 40,000 human souls, including the *`erev rav* (mixed multitude). It might well be possible that the grand total of Israelites and foreigners mixed in reached 50,000. But again: we are limited by the many factors mentioned above, such as the Torah's insistence that Israel was the smallest people of the region, how many could have subsisted on the meager water and food resources of the Sinai Desert for forty years, and what the population of the hill-country of Canaan could have been at the time of the Conquest. Many fail to realize what a mass of 40,000 migrating human beings actually looks like (see images below).

5. In I Samuel 6,19, we find what is perhaps the clearest example of how אֵלֶף-*eleph* as "chief" is truly the best option. It is a verse over which the classical commentators of the Torah are divided over its very unclear meaning:

יט וַיִּדָּבֶר בְּאַנְשֵׁי בֵּית-שֹׁמֶשׁ, כִּי רָאוּ בְּאֲרוֹן
יְהוָה, וַיָּבֹאוּ בָּעָם שִׁבְעִים אִישׁ, חֲמִשִּׁים
אֵלֶף אִישׁ; וַיִּתְאַבְּלוּ הָעָם, כִּי-הִכָּה יְהוָה
בָּעָם מִכָּה גְדוֹלָה .
19 And He smote of the men of Beth-Shemesh because they had gazed upon the ark of *YHWH*, even **He smote of the people seventy men -- fifty *eleph*-men**; and the people mourned, because *YHWH* had smitten the people with a great slaughter.

There is no break between 70 men and 50 "eleph" men; not even a ו-*waw* for "and". The most-likely reading by far seems to be: **"70 men, 50 (of them) chiefs."** Seventy men died, fifty of whom were elites.

Similarly, when that wall fell at Aphek in I Kings 20,30, 27,000 men did not get crushed, but 27 elite officers -- a truly devastating blow, but belonging to *this* world, not fantasy.

CONCLUSION

It is heartening that one Orthodox Jewish scholar, Michael Dallen, came to this realization many years ago. In his own way, he explains the issue well:²⁴

This number [603,550 foot soldiers] exceeds the troop numbers for Napoleon's Grand Army when he invaded Russia! The Industrial Age had already begun in Europe; the population had boomed. Still, the only way Napoleon could assemble such a huge army - fewer than 603,550 troops - was by enlisting soldiers not just from France but from most of the countries of Europe. ...

Beyond the period of the Exodus, during the reign of King David, another census of men of military age in Israel gives an even higher number: 800,000 "valiant men who drew the sword," 500,000 of whom came from the tribe of Judah/*Yehuda* (2 Samuel 24:9). In 1 Chronicles 21:5 the census figures given are 1,100,000 total; of the Judeans, 470,000. These figures, so it's said, imply a total population - including women and children - of more than five or six **million** (A.F. Kirkpatrick, *Samuel*). And Israel, even then, was one of the world's smallest countries.

Of greater weight is the opinion of the renowned Israeli scholar, Professor Manashe Har-El of the Hebrew University in Jerusalem, who also supported a different reading for אֵלֶּף-*eleph*, a position similar to our own:²⁵

'*Eleph* is related to the Arabic word *aileh* meaning "family". If we accept the assumption that *eleph* refers to a family, then from Numbers 1:21 it is evident that the twelve tribes constituted 598 families and 5,550 men of war.'

Har-El does not equate אֵלֶּף-*eleph* with "clan leader" or "family head" but just "family", so he gets a lower number by not adding 598 leaders to the total. But his basic concept is the same. To the credit of his position, we must not forget that the phrase used in Numbers is 'counted by families'.

An ancient voice support, even if passive, can be gleaned from Josephus Flavius' epic defence of traditional Jewish history against its Greco-Egyptian deniers, *Against Apion*.²⁶ While he spares no verbiage in systematically refuting their every distortion of Jewish history to his knowledge, while he cites Manetho's figure that the enslaved Hebrew slaves numbered 80,000 shortly before being "expelled" from Egypt on account of their "leprosy", nowhere in the exhaustive rebuttal does Josephus protest the 80,000 figure in the slightest:

Manetho adds... that their number was eighty thousand; whom he sent to those quarries which are on the east side of the Nile, that they might work in them. (Book 1, 26:235)

Josephus' only argument on the number is:

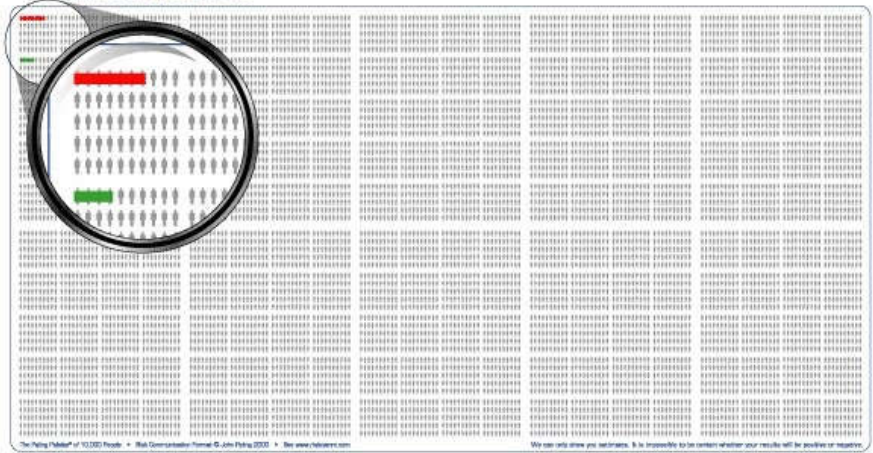
... and as to the eighty thousand lepers, and those in an ill state also, how is it possible to have them gathered together in one day? (Ibid. 27:237)

In other words, the Jewish historian cannot argue with the number; only that such a massive gathering would be impossible if the Hebrews were sickly. To conclude, below is a visual of what 40,000 individuals actually looks like, not including their belongings, herds and flocks. It is truly the size of an epic exodus for any time period. Moreover, a military force of over 6,000 men was indeed a large, formidable army for the Middle Bronze Age.

It is our hope that this analysis has revealed the true scale of the Exodus to be a non-problem. While critics might focus their attention on other issues, they should no longer misrepresent the Torah's censuses as impossible. Ultimately, however, that will also depend on how the faithful choose to portray it in our own discourse.

Ten Thousand People

- pictures to help you see your odds



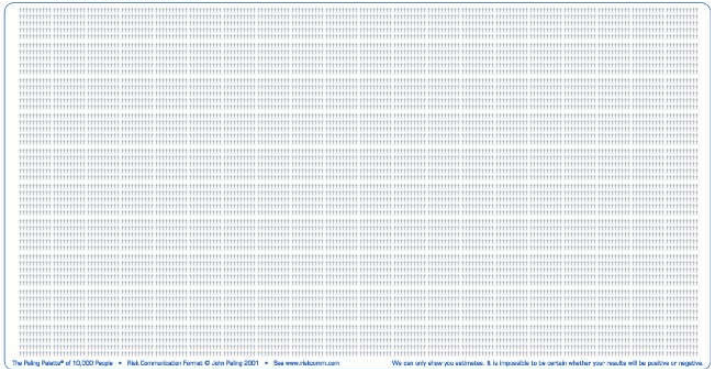
Ten Thousand People

- pictures to help you see your odds



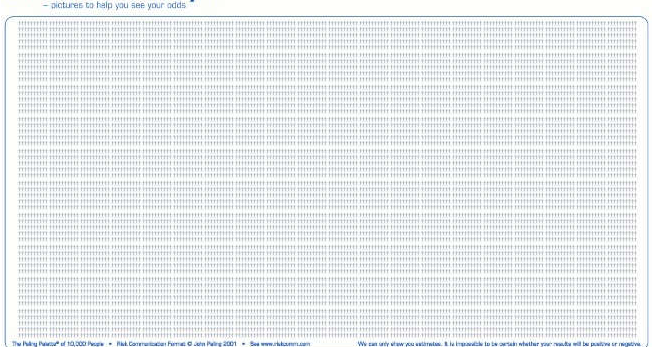
Ten Thousand People

- pictures to help you see your odds



Ten Thousand People

- pictures to help you see your odds



These four rectangles give some visual sense as to what a mass of 40,000 people, alone, looks like. To portray a group of three million, we would require 75 identical pages to this one.

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Appendix: Population Estimates for Ancient Egypt and Canaan

(Sources graciously provided by David Rohl)

Egypt

Guillemette Andreu has suggested that the population of Egypt more than doubled from 850,000 at the start of the third millennium to over 2 million by 1800 B.C.E.^{1,2}

Karl Butzer estimates a generally steady growth from just under 1 million inhabitants in the Predynastic era (6000-3100 BCE) to over 5 million in Roman/Byzantine times (c. 30 BCE- 40 CE).^{3,4} Butzer's attempt remains the best at scientific demography regarding pre-Roman Egypt.

During the New Kingdom (c. 1550-1069 B.C.E.), this leads to a population total of approximately 2.5 – three million. (Professor Fekhry Hassan generally agrees with this citing the population at 2.1 million.⁵ David O'Connor puts the population during the New Kingdom at 2.9 – 4.5 million and as high as 7.5 million in Hellenistic and Roman Egypt.⁶

To David Rohl, these figures seem high, and Butzer's estimate is far more likely due to it being based on substantial research on geographical and agricultural realities. Dr. Bill Manley, in *The Penguin Historical Atlas of Ancient Egypt*, opts for a population figure of 1.5 million during the Middle Kingdom.

Putting these estimates together, it is probably safest to roughly estimate the entire population of **Egypt at the eve of the Exodus (circa 1450 BCE) at about 2 million souls.** Notice how wildly disproportionate these numbers are from an Israelite slave population of three million, let alone the many other peoples enslaved in Egypt at the time.

According to Dr. Mark Janzen, slave numbers in the New Kingdom: '... a *very rough* estimate of approximately 200,000-250,000 slaves in Egypt during the New Kingdom can be made.'⁸ Considering the other peoples enslaved in Egypt at the time, if there were 200,000 slaves at the time of the Israelite Sojourn, how many, percentage-wise, would have been Israelite. This is one of the most convincing figures that reveals the author's estimate of 40,000 departing Hebrews, including the mixed multitude, to be most reasonable.

Finally, again, according to Hassan, the size of the Egyptian army during the New Kingdom period was 40,000,⁹ and may well have been smaller in Middle Kingdom times, given the slightly lower population. Does an army of 600,000 armed ex-slaves have a place in such a small-scale world?

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Canaan and Israel in the Late Bronze Age

We must bear in mind that, as described in TaNaKh, the Israelites were essentially limited to the hill country of Canaan during the Late Bronze I period. That is the Judges era, according to the New Chronology of David Rohl. So the hill country population of this time period have been even lower at the time of the Conquest under Joshua. All the below are found in the doctoral dissertation by Titus Michael Kennedy.*

Broshi, assuming a density coefficient of 250 people per hectare for all ancient societies, estimates the population of the region of Western Palestine was approximately 60,000 people based on an alleged 240 hectares of total settlement in 1200 BC at the LB II/Iron I transition. (Broshi 1993: 423)

According to that settlement size data, and using the previously employed 200 or 250 per hectare density constants for Canaan, urban Canaan west of the Jordan River and south of Lebanon in the Late Bronze Age would only have had a maximum population of about 41,000 to 51,000. In an unpublished doctoral thesis, a similar figure is arrived at presumably by utilizing the site data from the Gonen study and the density coefficients from the Broshi and Gophna study. Following previous uses of a universal density coefficient for settlements in the Middle East, the sedentary population of Late Bronze Age Canaan was estimated at 58,000 or 46,000 by multiplying density coefficients of either 250 or 200 per built up hectare by total built up hectares. (Bunimovitz 1989: 152)

A more recent study examining the estimated settled area of various sites within the city-states of Canaan also used the density coefficient of 200 people per hectare to estimate a total combined population of the city-states of part of Canaan (not rural or nomadic areas), but arrived at a figure of about 90,000. (Finkelstein 1996: 244).

In his doctoral thesis, Titus Michael Kennedy came to the following in regards to the total population of the country:

This analysis of Late Bronze Age Canaan demonstrates that in Canaan there are 713 archaeological sites which were used in some form during the Late Bronze Age, perhaps an additional 108 existed, known from texts of the period but which remain undiscovered or at least unidentified archaeologically. Research suggests that the unknown number of sites would significantly increase the overall population total—hypothesized by this study to be a suggested 10% increase. According to the methodology used in this study, the total peak population of Canaan in Late Bronze I was approximately 588,000 people, with approximately 552,000 forming the settled population and approximately 36,000 forming the nomadic population of the region.

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