Resolving Discrepancies in the Exodus Population of Israel

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Abstract

Israel's population at the Exodus given in Num 1 and 3 shows some fatal discrepancies. This paper discusses a translational alternative that resolves the issues and produce an Exodus population of 250,000 to 300,000. Mistranslation of the number system used by Moses has repercussions for many of the numerical references in the Pentateuch, and the books of Joshua and Judges. This significantly changes lifespan values and consequently, the Biblical timeline.

Keywords: Israel population at the Exodus, Colin J. Humphreys, Biblical Timeline, Ancient Number Systems.

Introduction

Discrepancies in the population figures for Israel at the Exodus given in Num 1 and 3, have been highlighted by Colin J Humphreys [1] and other biblical scholars. Similar concerns apply to the census prior to entering the promised land recorded in Num 26. A solution proposed by Colin J Humphrey itself leads to biblical contradictions.

The language used by Moses for the Pentateuch is unknown. Moses grew up as a Prince of Egypt, and would be familiar with Egyptian dialect and number systems. The Israelites living in Egypt for over 2 centuries before the exodus, would also have

[1] The number of people in the Exodus from Egypt: Decoding mathematically the very large numbers in Numbers I and XXVI. Humphreys, Colin J. [ed.] Brill. s.l. : Vetus Testamentum, Apr 1998, Vol. 48, pp. 196-213.

absorbed some Egyptian elements into their language, including their numbering system/systems.

The Hebrew Old Testament with the Aramaic chapters in Ezra, Daniel and Jeremiah, were compiled after the return from Babylonian captivity and exposure to Babylonian dialects and number systems. The Babylonians used different numbering systems from the Egyptians[2]. The numbering system used in the Hebrew Bible, itself differs from the Babylonian number systems.

Ussher[3] estimates the return from Babylon was some 953 years from the Exodus. Errors in number conversions over different cultures, over such a long period, are not unexpected. Other significant numerical inconsistencies in the Old Testament, such as lifespan values in Gen 5, appear in the early books of the Bible[4].

It would seem therefore, that errors in the numerical translation were made at the time the books of Samuel were compiled. Ussher places Samuel's death some 479 years after the Exodus. During that period, Israel suffered multiple occupations under different invaders, who would likely impose foreign trade and number systems.

Addressing Colin J Humphreys' Solution.

Colin J Humphreys, in the referenced paper, outlined discrepancies in the Exodus population of Num 1 and 3, as commonly translated. He pointed out that if the firstborn

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[2] Gill, N. S. Babylonian Table of Squares. ThoughtCo. [Online] March 8, 2017. [Cited: September 7, 2021.] https://www.thoughtco.com/babylonian-table-of-squares-116682.

[3] Ussher, James. The Annals of the World. s.l. : Master Books, 2007. 978-0890515105.

[4] Fouts, David Mack. The Use of large numbers in the old testament, with particular emphasis on the use of 'elep'. Dallas : Dallas Theological Seminary, 1992.

Israelites exceeded the number of male Levites by 273 (Num 3:43), then each Israelite family would have about 50 males, giving a family size of 100, if we assume an equal number of women. This is a clear absurdity and grossly out of line with genealogies of Num 26. Colin J Humphrey proposed a translation alternate which results in a population of males over 20, in Num 1, of 5000, and a total Israelite population of about 20,000. Though Colin's figures temper the problem of the family size, it runs into conflict with another population statistic given in Num 25:9, in which 24,000 died in the plague.

Further Issues with traditional translations of the Exodus Census

The Levite male population, a month and above was 22,000. The population of the men-of-war 20 years and older ranged from 32,200 (Manasseh) to 74,600 (Judah). If we approximate the population of men 1 month and older as twice that of the men-of-war twenty years and older, the non-Levite tribal males ranged from 64,400 to 149,200 by tribes. This is inconsistent with the Levi male population of 22,000, being the third son and expected to have a population count on the higher side.

The population numbers in Num 1 and 3 are rounded to hundreds except for two instances. Yet we see in Num 3:46, the specific number of 273 firstborn non-Levite males in excess of the Levite males. Obtaining a precise difference from imprecise source numbers is unfeasible.

The order of the tribes in the Num 26 census, interchanges Ephraim and Manasseh, compared to Num 1. Manasseh population of males over the age of 20 years, almost doubles in the 40 years in the wilderness.

Translation Alternative proposed.

Various translation alternatives to the census count in Numbers were reviewed, such as different number bases, and a reverse sequence so that numbers are displayed increasing from left to right. (Ancient Egypt allowed for the display of hieratic numerals in reverse order[5]).

The best fit selected to rationalize the census count is as follows:

The traditional Exodus Census numbers are broken out into columns of numbers ranging from 1 to 9. E.g., Num 1:25 gives the census of Gad's men-of-war as 45,650. The separate words used are 40;5;(thousand);6(hundred);50. This yields columnar numbers of 4;5;6;5.

Each column is assigned a base 10 multiplier. (Egypt used base 10 number systems). The alternative showing the best results uses a partial reverse order system as follows:

Column 1: 10X
Column 2: 100X
Column 3: 1000X
Column 4: X
The exodus census is computed

Modified Exodus Census.

In Table 1, the Traditional census numbers are separated out into columns.

[5] J J O'Connor, E F Robertson. Egyptian Numerals. MacTutor. [Online] December 2000. [Cited: 8 14, 2021.] https://mathshistory.st-andrews.ac.uk/HistTopics/Egyptian_numerals/.

Table 1:Traditional Census from Num 1 and 3

Traditional Num 1 & 3 Census			Text Translation of Traditional Census					
Reuben	46,500		40	6	(Thousand)	5	(Hundred)	0
Simeon	59,300		50	9	(Thousand)	3	(Hundred)	0
Gad	45,650		40	5	(Thousand)	6	(Hundred)	50
Judah	74,600		70	4	(Thousand)	6	(Hundred)	0
Issachar	54,400		50	4	(Thousand)	4	(Hundred)	0
Zebulun	57,400		50	7	(Thousand)	4	(Hundred)	0
Ephraim	40,500		40		(Thousand)	5	(Hundred)	0
Manasseh	32,200		30	2	(Thousand)	2	(Hundred)	0
Benjamin	35,400		30	5	(Thousand)	4	(Hundred)	0
Dan	62,700		60	2	(Thousand)	7	(Hundred)	0
Asher	41,500		40	1	(Thousand)	5	(Hundred)	0
Naphtali	53,400		50	3	(Thousand)	4	(Hundred)	0
	603,550							
Gershon	7,500			7	(Thousand)	5	(Hundred)	0
Kohath*	8,600			8	(Thousand)	6	(Hundred)	0
Merari	6,200			6	(Thousand)	2	(Hundred)	0
	22,300							

* Kohath population taken as original 8,600 rather than the 8,300 adjusted by some translations to total 22,000.

Table 2 shows the proposed numeral system, with the columns limited to numerals 1-9, and the multipliers applied to each column.

Table 2: Exodus Census using proposed number system

	Proposed Number System with Column Multipliers				
	10X	100X	1000X	X	Value
Reuben	4	6	5		5,640
Simeon	5	9	3		3,950
Gad	4	5	6	5	6,545
Judah	7	4	6		6,470
Issachar	5	4	4		4,450
Zebulun	5	7	4		4,750
Ephraim	4		5		5,040
Manasseh	3	2	2		2,230
Benjamin	3	5	4		4,530
Dan	6	2	7		7,260
Asher	4	1	5		5,140
Naphtali	5	3	4		4,350
					60,355
Gershon		7	5		5,700
Kohath		8	6		6,800
Merari		6	2		2,600
					15,100

From the modified methodology:

The traditional total for the men-of-war is 603,550. The proposed number system yields a total of 60,355. The fact that the proposed number system yields the exact numerals but offset by an order of 10, lends credence to mistranslation thesis.

The traditional total for the Levite males 1 month and older is 22,000 (Num 3:39). There is a conflict in the traditional versions where this total differs from the sum of the tribal numbers,

which adds up to 22,300. The proposed number system yields a total of 15,100.

The proposed number system yields total Levite males 1 month or older as 15,100, with the non-Levite tribes having men-of-war populations varying from 2,230 (Manasseh) to 7,260 (Dan). Assuming males a month and older are twice the males 20 years and over, this yields a proposed 4,460 to 14,520 as the range of males in the different tribes. This is of the order of the proposed males Levites.

Whereas the traditional translations yield a family size of about 108 {(603,550*4)/22,273}, the proposed number system yields a family size of 16 {(60,355*4)/15,373}. It was not uncommon at that time to have concubines. When considering that some families may not yet have any children, and that some families may only have girls, the actual families may be higher than the firstborn count, leading to smaller average family sizes.

The proposed number system estimates an Exodus population of 271,620 {(60,355*4) + (15,100*2)}, which can be approximated from 250,000 to 300,000.

Modified Census Prior to entering the Promised Land.

The proposed number system applied to the census taken prior to entry in the promised land (Num 26) is shown in Table 3.

Here we see that the numerals of the total in the traditional census count do not match the numerals in the proposed number system, as was the case in the Exodus census. However, if we reduce any tribal traditional count by 100, we obtain the census count shown in Table 4, where Manasseh traditional count is changed from 52,700 to 52,600.

Table 3: Census at Promised Land

Traditional Num 26 Census			Proposed Number System with Column Multipliers				
			10X	100X	1000X	X	Value
Reuben	43,730		4	3	7	3	7,343
Simeon	22,200		2	2	2		2,220
Gad	40,500		4	0	5		5,040
Judah	76,500		7	6	5		5,670
Issachar	64,300		6	4	3		3,460
Zebulun	60,500		6	0	5		5,060
Ephraim	32,500		3	2	5		5,230
Manasseh	52,700		5	2	7		7,250
Benjamin	45,600		4	5	6		6,540
Dan	64,400		6	4	4		4,460
Asher	53,400		5	3	4		4,350
Naphtali	45,400		4	5	4		4,540
	601,730						61,163

Table 4: Modified Census at Promised Land

Traditional Num 26 Census			Proposed Number System with Column Multipliers				
			10X	100X	1000X	X	Value
Reuben	43,730		4	3	7	3	7,343
Simeon	22,200		2	2	2		2,220
Gad	40,500		4	0	5		5,040
Judah	76,500		7	6	5		5,670
Issachar	64,300		6	4	3		3,460
Zebulun	60,500		6	0	5		5,060
Ephraim	32,500		3	2	5		5,230
Manasseh	52,600		5	2	7		6,250
Benjamin	45,600		4	5	6		6,540
Dan	64,400		6	4	4		4,460
Asher	53,400		5	3	4		4,350
Naphtali	45,400		4	5	4		4,540
	601,630						60,163

In Table 4 the modified total in the traditional count is 601,630, while the proposed number system yields 60,163. The relation is similar to that obtained for the Exodus census with the exact numerals offset by an order of 10. Thus, we see a second system lending support for a modified number system.

Levi Census Totals.

In the traditional translations, for the Exodus census, the total Levite males 1 month and older do not correspond to the individual family branch numbers (Num 3). For the census prior to entry into the promised land, the census does not give individual numbers for the Gershon, Kohath and Merari, as was done in the Exodus census. Is this a subtle sign from the ancient translators of the early books, that they did have an exact match?

Redemption of the firstborn.

In Num 3:46 – 47, the traditional translations show 273 firstborn males redeemed at 5 shekels each. This yields a total of 1,365 (273*5). Table 5 applies the proposed number system to the 273 count.

Table 5: Extra Firstborn Count.

		Proposed Number System with Column Multipliers				
		10X	100X	1000X	X	Value
273		2	7		3	723

The proposed number system yields 723 extra firstborn males for redemption. At 5 shekels each, this comes to 3,615 (723*5).

Here we see that the multiplication result provides the same numerals in both the traditional and proposed number systems, but in different positions, lending support for a mistranslation of the number system.

Discussion

The Exodus census, given in translations emanating from both the Septuagint (circa 300 BCE) and Masoretic (500 CE)[6] texts, fails population analysis in significant factors. Another critical source of suspicion in the Pentateuch numerology, is the Genealogies given in Gen 5, in which the age at which the first son was conceived, ranged from 65 to 187 years.

The Septuagint and Masoretic texts were prepared close to a millennium after the original Pentateuch. During that time the Israelites suffered numerous occupations and exile, in cultures with differing languages and number systems. A mistranslation of the original numbers in the Pentateuch is a likely explanation of the numerical discrepancies.

This paper proposes a number system that produces internally consistent values for the Exodus census and yields an Exodus population of 250,000 to 300,000. Number system corrections applied to the Genealogies will drastically change the biblical timeline shortening Ussher's chronology by close to 2000 years.

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