

The Miracles Of Exodus

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THE DATE OF THE EXODUS

So they put slave masters over them to oppress them with forced labor, and they built Pithom and Rameses as store cities for Pharaoh. Exodus 1:11

In the four hundred and eightieth year after the Israelites came out of Egypt, in the fourth year of Solomon's reign over Israel, in the month of Ziv, the second month, he began to build the temple of the LORD. 1 Kings 6:1

The date of the Exodus is one of the longest-running chronological controversies in the Bible. Historians and biblical scholars are totally divided on the answer, and the causes of their dispute are the two texts quoted above. On the one hand, Exodus 1:11 says that the Israelite slaves in Egypt built Pithom and Rameses, as store cities for Pharaoh, and Egyptologists believe that the building of Rameses started in about 1300 B.C. On the other hand 1 Kings 6:1 says that the Exodus occurred 480 years before the building of King Solomon's temple, which dates the Exodus to about 1446 B.C.

If the Exodus from Egypt occurred in 1446 B.C., then the Israelite slaves wouldn't still have been in Egypt in 1300 B.C. What a puzzle! The authoritative multi-volume *Cambridge Ancient History* writes about the date of the Exodus. "*The statements in the Old Testament are self-contradictory.*" The modern translation of the Bible called the *New International Version*, which has sold millions of copies and which is the translation I'm quoting from in this book, has in the front a time chart called "*Old Testament Chronology.*" Because of the controversy over the date of the Exodus it shows two different time charts up to 1050 B.C.: one dates the Exodus at 1446 B.C., the other gives a date range of 1300 to 1200 B.C. The former it calls the "traditional date," the latter the "date accepted by many scholars" However, in its preface to the book of Exodus it declares its hand and states, "There are no compelling reasons to modify in any substantial way the traditional 1446 B.C. date for the Exodus of the Israelites from Egyptian bondage."

So which date is correct: 1446 B.C. or later than 1300 B.C.? Are the Old Testament texts quoted at the start of this chapter really self-contradictory? Can we tell after three thousand years? In this chapter I'm going to try to solve this problem.

It is a key part of understanding the Exodus story to know roughly when it occurred. What I discovered is a fascinating historical puzzle that hinges on the meaning of certain numbers in the Bible. By the end of this chapter we will have answers not only on the date of the Exodus but also on whether the Bible really does contradict itself about this date.

When Was Rameses Built?

If you look at a map of modern Egypt you will find no place called Rameses. For many years the location of Rameses was unknown, but modern archaeology has revealed that ancient Rameses is modern Qanrir (see map 3.1 on the next page).

Egyptian records show that Rameses was Egypt's capital in the Nile Delta, started by an Egyptian pharaoh called Sethos I but built mainly by his son, the famous Ramesses II, sometimes called Ramesses the Great. The city of Rameses was named after this pharaoh. (It is conventional to spell the name of the city slightly differently from the name of the pharaoh, and I will follow this convention in this book.) Archaeology shows that Rameses was an absolutely magnificent city and I will describe it further in a later chapter.

No pharaoh had built a capital in the Nile Delta since invading pharaohs from foreign lands, called the Hyksos pharaohs, had settled there in the period 1648 to 1540 B.C., much earlier than any possible date for the Exodus. The Egyptian pharaoh Ramesses I reigned for only one year (1295 to 1294 B.C.) then Sethos I ruled from about 1294 to 1279 B.C., and his son Ramesses II from about 1279 to 1213 B.C.



3.1. Map showing the location of Rameses (modern Qanrir) and showing ancient trade routes from Egypt to Arabia.

How accurately do we know the above dates? David Rohl in *A Test of Time* has re-analyzed Egyptian chronology and controversially places the dates of Sethos I and Ramesses II about three hundred years later than the conventional chronology. In particular, he has Ramesses II reigning in Egypt in 950 B.C. at the time Solomon was the king of Israel. Very few Egyptologists believe Rohl's revised chronology, and having looked at the evidence, I don't either, although his book is stimulating and interesting to read. There is an interlocking network of evidence supporting the conventional Egyptian chronology, and the maximum likely error in the dates at this time is about twenty years.

The dates I've given above for Sethos I and Ramesses II are Kenneth Kitchen's article on the chronology of the Old Testament in the *New Bible Dictionary*. These dates are known as the "low chronology" because they are the latest possible dates.

There is another school of thought that gives somewhat earlier dates than these (they are known as the high chronology), and this is the chronology that the *Cambridge Ancient History* uses. In this “high chronology.” Sethos I ruled from 1318 to 1304 B.C. and Ramesses II from 1304 to 1238 B.C.

We don’t yet know with certainty whether the high chronology or the low chronology, or something in the middle, is correct. So the very earliest the building of Rameses could have started was 1318 B.C. The book of Exodus records that Moses killed an Egyptian slave Master supervising the building work. Moses then feared for his life, fled to Midian, and then returned to Egypt when the pharaoh who wanted to kill him, probably Sethos I, had died. He then led the Israelites out of Egypt in the Exodus, so the most likely pharaoh at the time of the Exodus is Ramesses II and the earliest possible date for the Exodus from Egypt is 1304 B.C., though it probably took place some years later than this.

So, if Exodus 1:11 is correct, and the Israelite slaves did indeed build Rameses, it is very difficult to see how the Exodus could have taken place earlier than 1304 B.C. This is the view of most modern scholars, but a substantial number support the traditional date of 1446 B.C. Both can’t be right!

The 480 Years

As we’ve seen, I Kings 6:1 says that Solomon began to build the temple in the fourth year of his reign, which was 480 years after the Exodus from Egypt. So when was Solomon’s temple built? By comparing and synchronizing events in the reigns of Israelite kings with the known dated records from Assyria, we can fix the start date of the building of Solomon’s temple as 966 B.C. This is probably accurate to within five years either side.

Counting back 480 years gives the date of the Exodus as 1446 B.C. The above argument seems clear and convincing. Indeed, had this Old Testament book of Kings been written today, then 480 years would have meant a literal 480 years. But the book of Kings was written over two thousand years ago, and the key questions to ask are what the author meant by 480 years and what the original readers would have understood by 480 years.

I would like to emphasize that I’m not saying that 480 years is inaccurate, but I am saying that it might have had a different meaning over two thousand years ago than it has today, and I want to explore what the writer may have meant by it. Clearly it may mean literally 480 years, but is there another equally valid meaning?

Today, we take our calendar almost for granted. If we’ve forgotten when President Kennedy died we can go to a computer, type *President Kennedy* into a search engine, and seconds later the date of his death pops up on the screen. Now let’s go back to events that occurred live hundred years ago. When did Christopher Columbus discover America? I pulled down a book from my bookcase and found that he landed on one of the Bahama islands in 1492 and he discovered Honduras in Central America in 1502. I could just as easily have found this information on a computer. Today it’s straightforward to find out about historical dates from computer and books.

Let's now go back to the time of Solomon, to the year we call in our calendar 966 B.C. when Solomon started to build his temple. How would the writer of Kings have known the date of the Exodus? In those days there was not a written-down calendar, going both forward and back in time, as we have today. One reason for this was that the Jewish calendar was an observational calendar, with the first day of each lunar month being determined by the first sighting of the crescent of the new moon. So the Jewish calendar wasn't a calculated one, like our modern calendar.

So how did the ancient Israelites date past events? We know that the ancient Egyptians and Greeks dated past events by counting generations and this would have been the simplest method for the Israelites to have used as well. So they would have dated key events by reference to whether they happened in the time of their father or grandfather or great-grandfather, and so forth, or in the time of certain kings. For example, the Old Testament prophet Isaiah dates a life-changing vision he had to "the year that King Uzziah died" (Isaiah 6:1). That's why ancient Egyptian records contain so many lists of kings, generation by generation and why the Bible has so many genealogies.

So how was the dating of past events done in practice? We know that the ancient Phoenicians and Carthaginians often reckoned time by counting each generation to be a nominal forty years, even though a real generation (from birth of father to birth of son) was likely on average to have been less than forty years. Somewhat similarly, the length "one foot" was originally the length of a human foot, even though most people's feet are significantly less than twelve inches long.

There is evidence that in the Old Testament forty years is often a round number meaning a generation. For example, Psalm 95:10 writes of the Exodus wanderings, "For forty years I was angry with that generation." The kings Saul, David and Solomon are each said to have reigned for forty years. Moses is said to have been forty when he killed the Egyptian slave master and fled to Midian, eighty when he saw the burning bush, and one hundred twenty when he died. The number forty is used so many times in the Bible that it seems clear it is often meant to be taken as a round number, and that in particular forty years often means a generation.

So a possible interpretation of 480 years is that this refers to twelve generations, each of a nominal forty years, instead of a literal 480 years. The Hebrew text of the Old Testament was translated into Greek in the third century B.C. by scholars living in Alexandria in Egypt. This Greek version is called the Septuagint, and I'll give further details about it in a later chapter. What I find fascinating is that the Septuagint version of I Kings 6:1 says that there were 440 years (not 480 years) between the Exodus and the building of Solomon's temple. This difference of forty years is easily explained if the reckoning is by generations of a nominal forty years, that is, twelve generations in the Hebrew text and eleven generations in the Greek Septuagint, with one of these texts miscounting by a generation. I suggest the "missing generation" of forty years in the Septuagint text strongly supports the interpretation of 440 and 480 years in terms of generations. (We do not know in detail why the Greek Septuagint text differs here, and elsewhere, from the Hebrew

Old Testament text. One possibility is that in the third century B.C. some Hebrew manuscripts had 480 years and others had 440 years, and the Septuagint writers decided to use 440 years. The Hebrew manuscripts with 440 years were then lost or destroyed, so we no longer possess them. Whatever the reason, I think it likely that 440 years means eleven generations of a nominal forty years.)

The Genealogy of the High Priests

Wouldn't it be good if we could prove the generation interpretation to be either right or wrong by counting the number of generations from the Exodus to the building of Solomon's temple? I think we would have then solved the problem of whether 480 years was intended to be taken as literal years or as twelve generations of forty years (or as eleven generations of forty years, if the Septuagint is correct). We therefore need to look at lists of genealogies in the Bible. I quickly found that genealogies in all ancient literature, including the Bible, must be handled with great care, for a variety of reasons. First, it is easily demonstrated that certain genealogies in the Bible omit some generations. For example, in the New Testament, Matthew 1:8 calls Jehoram the father of Uzziah, but it is clear from the Old Testament, in 2 Chronicles 21:4—26:23, that there were several generations between Jehoram and Uzziah. So father is used in the sense of "forefather" here. Perhaps it is like my cv (curriculum vitae) at work. I have a full cv and a short cv because I give many invited scientific lectures, and some people ask me to send them my full cv, which is three pages long, and others ask for a short cv, which is half a page long. My short CV is not less accurate: it is simply less detailed, and it concentrates on the most relevant issues. I think some biblical genealogies are like this: there are shortened forms that deliberately leave out the less well-known names. Second, some genealogies appear to be schematic, often for reasons that are not very clear to us now. Third, genealogies in all ancient literature are known to be particularly susceptible to copying errors by scribes. Fourth, some genealogies in ancient literature are known to have been deliberately falsified to create desired links with famous ancestors.

So, remembering these strong warnings about genealogies. I decided to try to reconstruct the genealogy of the high priests from the time of the Exodus to the building of Solomon's temple. The high priests were particularly important to the Israelites and if any genealogy can be reconstructed accurately and in detail from the Old Testament, this one is the most likely.

I'm well aware that many people find genealogies boring. If you are one of these people, then please fast-forward to the end of this section because I'm going to have to take a reasonably detailed look at genealogies in order to see whether 480 years does mean twelve generations of a nominal forty years or not. However, I hope some readers will stay with me because I think a fascinating story emerges.

Who was the high priest at the time of the Exodus? The answer is Aaron, who is called the chief priest in Ezra 7:5. The chief priest in Solomon's temple was Azariah, who succeeded the famous priest Zadok. I Chronicles 6:10 makes a point of saying that Azariah was the priest in the temple Solomon built in Jerusalem. So we need to reconstruct the sequence of priests from Aaron to Azariah.

This genealogy is given in three places in the Old Testament: in Ezra 7:1—5, 1 Chronicles 6:3—13, and I Chronicles 6:50—54. Unfortunately, each of these genealogies differs slightly in a manner that suggests copying errors. I’ve set them out in the genealogy table below.

I’ve also tried to reconstruct the “original” genealogy which is consistent with the three slightly different genealogies, and I give this in the left-hand column of the table.

The Genealogy of the High Priests

Reconstruction	Ezra 7:1-5	1 Ch. 6:50-53	1 Ch. 6:3-13
Aaron	Aaron	Aaron	Aaron
Eleazar	Eleazar	Eleazar	Eleazar
Phinehas	Phinehas	Phinehas	Phinehas
Abishua	Abishua	Abishua	Abishua
Bukki	Bukki	Bukki	Bukki
Uzzi	Uzzi	Uzzi	Uzzi
Zerahiah	Zerahiah	Zerahiah	Zerahiah
Meraioth	Meraioth	Meraioth	Meraioth
Azariah	Azariah		Azariah
Amariah	Amariah	Amariah	Amariah
Ahitub	Ahitub	Ahitub	Ahitub
Zadok	Zadok	Zadok	Zadok
Ahimaaz		Ahimaaz	Ahimaaz
Azariah			Azariah
			Johanan
	Shallum		Shallum
	Hilkiah		Hilkiah
	Azariah		Azariah

The Genealogy of the High Priests

Reconstruction	Ezra 7:1-5	1Chron.6:50-53	1Chron.6:3-13	
Aaron	Aaron	Aaron	Aaron	
Eleazar	Eleazar	Eleazar	Eleazar	
Phinehas	Phinehas	Phinehas	Phinehas	
Abishua	Abishua	Abishua	Abishua	
Bukki	Bukki	Bukki	Bukki	
Uzzi	Uzzi	Uzzi	Uzzi	
Zerahiah	Zerahiah	Zerahiah	Zerahiah	
Meraioth	Meraioth	Meraioth	Meraioth	
Azariah	Azariah			
Amariah	Amariah	Amariah	Amariah	
Ahitub	Ahitub	Ahitub	Ahitub	
Zadok	Zadok	Zadok	Zadok	
Ahimaaz		Ahimaaz	Ahimaaz	
Azariah			Azariah	
			Johanan	
	Shallum			Shallum
	Hilkiah			Hilkiah
	Azariah			Azariah

Let me explain what I’ve done in order to reconstruct the “original” genealogy. In the genealogy of I Chronicles 6:3—13, the sequence Amariah, Ahitub, and Zadok appears twice, in verses 7—8 and again in verses 11—12. This suggests a copying error, and the genealogy is made clearer if set out as shown. The revised form of

this genealogy is then fully consistent with Ezra 7:1—5. My reconstruction in the left-hand column is then consistent with all three genealogies.

If we look at this reconstructed genealogy we see that Azariah is thirteenth in line from Aaron; that is, there are thirteen generations from the birth of Aaron to the birth of Azariah. However, for two reasons this is not the number of generations from the Exodus to Solomon's temple. First, Exodus 7:7 states, "Moses was eighty years old and Aaron eighty-three when he spoke to Pharaoh," which was shortly before the Exodus. I think the meaning of this text is that Aaron was three years older than Moses but that both were about two generations old at the time of the Exodus. Thus to get from the date of the Exodus to the birth of Azariah, we subtract two from thirteen generations to arrive at eleven generations.

However, Azariah would not have been the high priest of Solomon's temple as a baby; typically he would have been about one generation old, so we have to add one generation to account for this.

Thus from the Exodus to the building of the temple, there were exactly twelve generations. This deduction requires careful counting, and it is easy to see how the writer of this part of the Septuagint could have miscounted and arrived at only eleven generations.

Some biblical scholars have suggested that the number of names in the genealogies listed above from Aaron to Azariah have been carefully selected to fit the 480 years of I Kings 6:1. I think this is unlikely in view of the careful counting required, but if it is correct, then it reinforces the idea that 480 years meant twelve generations to the Old Testament writers. So either way, the evidence is strong that the 480 years of I Kings 6:1 means twelve generations of a nominal forty years each.

As we've seen, a generation is from the birth of a father to the birth of his son, and various ancient civilizations reckoned this to be a nominal forty years. But what is the average length of a true generation? A colleague told me that antique dealers estimated the ages of objects passed down through a family from generation to generation in terms of the average life of a generation, so I went into an antique shop in Cambridge and asked if this was true. "Yes," the man in the shop replied, "and antique dealers take the length of a generation to be thirty years: it's a very good average length." In addition, the *Oxford English Dictionary* defines generation as "30 years as a time measure."

So in the last few hundred years, the time length of a generation has been about thirty years. Twelve generations is therefore about 360 years. If a generation was thirty years at the time of the Exodus, then the date of the Exodus, according to I Kings 6:1, was therefore about 360 years before the building of Solomon's temple in 966 B.C., so that the Exodus took place in about 1326 B.C. (966 + 360). However, Bright in *A History of Israel* states that in ancient civilizations a generation was about twenty-five years, presumably because people had children when they were younger. If Bright is correct, then twelve generations were about 300 years, and the Exodus took place in about 1266 B.C. This places the Exodus squarely in the reign of Ramesses II.

We can now return to the questions we asked at the start of this chapter. First, which date for the Exodus is correct: 1446 B.C. or somewhat later than 1340 B.C.? I believe we can say with reasonable certainty that 1446 B.C. is wrong and that the evidence strongly supports a date of around 1300 B.C., probably between 1300 and 1250 B.C., when the pharaoh was Ramesses II. We know what this pharaoh looked like from the massive statues of himself he had carved from rock (photograph 3.2). Second, are the Old Testament texts quoted at the start of this chapter self-contradictory? The answer to that question is clearly No, when the texts are properly understood. The *Cambridge Ancient History* view that ‘the statements in the Old Testament are self-contradictory’ seems not to be substantiated. Having solved the problem of the date of the Exodus, we now turn, in the next chapter, to the start of our story, to the birth of one of the greatest men who has ever lived, Moses, and his journey to the mysterious land of Midian. Midian is largely ignored by biblical scholars. As we will see, this is a big mistake: Midian is absolutely central to the events of the Exodus, just as Moses is the central character in these events.



Massive statue of Ramesses II from the Luxor temple.

How Many People Were In The Exodus?

And so he [Moses] counted them in the Desert of . . . All the men twenty years old or more who were able to serve in the army were listed by name. . . . The number in the tribe of Reuben was 46,500. . . . The total number was 603,550. Numbers 1:19, 20, 21, 46

As we saw in chapter 3, we have to be careful when interpreting large numbers in ancient literature. The 480 years between the Exodus and building Solomon's temple could have meant a literal 480 years, but it could also have meant twelve generations of a nominal forty years each. By considering other evidence we were able to show that the latter interpretation is almost certainly the correct one.

What about the very large number of people the Old Testament says were involved in the Exodus? According to the passage from the book of Numbers quoted above, there were 603,550 men twenty years old and older. This implies a total number of men, women, and children of at least two million. This is a huge number of people, particularly three thousand years ago when populations were a lot smaller than they are today. In addition, this very large number of people seems to be inconsistent with other biblical statements that imply a much smaller number of Israelites at the Exodus. So we have another puzzle to solve involving Old Testament numbers. As with the 480 years we looked at in the earlier chapter, 603,550 men can clearly be interpreted literally, "but is there another interpretation that is equally valid? Unlikely as it may seem, I think there is, and the answer is fascinating. First, however, let's look at the problems involved if we try to interpret 603,550 men literally.

Problems with the Very Large Numbers in Numbers

Let me list some of the problems involved:

1. *"The Israelites went up out of Egypt armed for battle"* (Exodus 13:18). Over 600,000 Israelites armed for battle would have been an incredibly formidable army. For example, it would have been nine times as great as the whole of the Duke of Wellington's army (69,000 men) at the famous battle of Waterloo in 1815. According to the ancient Greek historian Herodotus, 600,000 Israelites would have outnumbered the total number of soldiers in the Egyptian army. Why then should such a mighty Israelite army have been "terrified" by the Egyptian army that pursued them when they left Egypt, as described in Exodus 14:10? Why should such a huge Israelite army have struggled to defeat some tribesmen called the Amalekites, as described in Exodus 17:8?
2. The clue of the midwives. Exodus 1:15 states, *"The king of Egypt said to the Hebrew midwives, whose names were Shiphrah and Puah..."* I think this phrase clearly implies that there were only two Israelite midwives, particularly since they are named. But only two midwives would be hopelessly inadequate for a population of over two million people.

3. In various places in the Exodus account the impression is given that the number of Israelites was not large. For example, when Moses was speaking to them at Mount Sinai he said, "The Lord did not set his affection on you and choose you because you were more numerous than other peoples, for you were the fewest of all peoples" (Deuteronomy 7:7). In addition, the Bible states that initially the Israelites were too few to occupy the promised land (Exodus 23:30). Yet two million Israelites would easily have filled the promised land, and until the relatively recent Jewish immigration into Israel the total population of Israel was only about one million.

4. Now for a point involving the size of families. The book of Numbers states, "*The total number of first-born males a month or more old was 22,273*" (Numbers 3:43). However, if the number of Israelite men aged twenty and over was 603,550, then very roughly the total number of Israelite men of all ages would have been about one million, because in ancient civilizations roughly half the population was under twenty. So what was the average family size? This was the total number of men divided by the total number of firstborn men, that is one million divided by 22,273, which is about fifty. So the average mother must have had fifty sons. But we've forgotten about the women. The average mother must have had about fifty daughters as well! In fact, if we interpret the numbers in the book of Numbers as being literally true, then the average mother must have had about a hundred children. This is unlikely!

For these reasons, it is difficult to believe that the very large numbers in the book of Numbers should be interpreted literally. In fact, most biblical scholars believe they are fictitious numbers that shouldn't be taken seriously. But we saw in chapter 3 that the number 480 wasn't fictitious, and it was to be taken seriously. In 1Kings6:1, 480 years has a real meaning: twelve generations of a nominal forty years, which when properly understood enables us to date the Exodus. Are the very large numbers in Numbers like that? Do they have a meaning that has been forgotten, and can we discover the real meaning? Can we find out how many people were involved in the Exodus from Egypt? To do this we are going to have to understand the meaning of a certain Hebrew word that holds the key to unlocking this puzzle.

Words with Several Meanings

In the English language the same word can sometimes have a range of different meanings. Let's take the word crab as an example. This can mean a sea creature, a zodiacal constellation, a famous nebula called the crab nebula, a wild apple, or something that can be caught when rowing. (To "catch a crab" means that a rower leaves the oar too long in the water before repeating the stroke. The rower is then struck by the handle of the oar and falls backward in the boat.) The context usually makes clear the particular meaning intended, but there is obviously the potential for misunderstanding.

Similarly, in Hebrew the same word can sometimes have more than one meaning, and I was fascinated to find that this is the case for the Hebrew word *'elep*, which is the word translated "a thousand" in the Numbers texts quoted in this chapter.

The word *'elep* does indeed mean "a thousand." It has this meaning in "I am giving your brother a thousand shekels of silver" (Genesis 20:16), for example. I also believe it has this meaning in some texts in Numbers, for example, "*He [Moses] collected silver weighing 1,365 shekels*" (Numbers 3:50). In both these cases, and in many others in the Old Testament, it is correct to translate *'elep* as "a thousand."

However, *'elep* has another meaning, which is "group" (as in family, clan, or troop). It has this meaning in "My clan [*'elep*] is the weakest in Manasseh" (Judges 6:15) and in "So now present yourselves before the Lord by your tribes and clans [*'elep*]" (1 Samuel 10:19). The word *'elep* has carried these two meanings in Hebrew, "thousand" and "group," since ancient times, and Professor Alan Millard tells me that the equivalent word in ancient Assyrian has the same two meanings.

The possibility of misinterpretation arising because of the different meanings of *'elep* can be seen from different English translations of the same biblical texts. For example, the KJV and the RSV translate 1 Samuel 23:23 as, "All the thousands [*'elep*] of Judah," whereas the more recent NIV reads, "All the clans of Judah." Similarly, in Joshua 22:14 the KJV translates *'elep* as "thousand," whereas the RSV and NIV have "clans." In both cases, interpreting *'elep* as "clans" seems correct. However, the important point is this: if expert Bible translators can misinterpret *'elep* as "thousand" when "clan" was intended by the original writer, then there is clearly scope for a scribe, or an editor, working on an ancient Hebrew text to interpret *'elep* as "thousand" when "group" (or family, clan, or troop) was intended. Since the numbers in Numbers refer to "all the men twenty years old or more who were able to serve in the army," I propose we use the word troop for a group of these military men.

The Clue of the Number 273

How do we decide in a particular text whether *'elep* means "a thousand" or "troop"? Usually, the context makes this clear, so there is no problem. However, as we've seen, at times it will be unclear. This set me thinking: Could it be that the very large numbers in the book of Numbers, and possibly elsewhere, arise because of a misinterpretation of *'elep*? In some of these large numbers has *'elep* been interpreted as "thousand" when it should have been "troop"? How can we possibly know after three thousand years?

I was rereading the book of Numbers when suddenly one figure leaped off the page: the number was 273. This is where it occurs: "The 273 firstborn Israelites who exceed the number of the Levites" (Numbers 3:46). Why was I so forcibly struck by this number? First, because of its precision: 273 is clearly not a rounded number. Second, because it is small: amid all the large numbers in Numbers, 273 really stands out for its smallness, like a dwarf among giants. Third, 273 does not look like a "symbolic" number in the way that 3, 7, and 40 are sometimes symbolic

numbers in the Bible. So I think there are good grounds for believing that the number 273 literally means 273.

I then performed a mathematical analysis of all the large numbers in Numbers based on the very reasonable assumption that the number 273 was factual. Don't worry, I'm not going to present the equations here, but if you want to see this, I have published it in the leading Old Testament journal *Vetus Testamentum* (vol. 48 [1998], pp. 196-213). Incidentally, the paper generated huge interest, including letters from scholars to the journal to which I replied in print, and many more letters to me personally. The response from nearly everyone was very positive. A leading British newspaper, the Sunday Times, even picked this up and ran a large article on my new interpretation.

Essentially, I argue in the paper, what the book of Numbers tells us is that there were 273 more firstborn Israelite men than the total number of Levite men, who were the priests. This may seem a very obscure clue, but it enabled me to write down and solve some mathematical equations. This enabled me to test which interpretation of '*eleph*' is correct.

If '*eleph*' is translated "thousand," then as we've seen, there were 603,550 Israelite men twenty years of age and older at the Exodus. However, this figure is totally inconsistent with my mathematical analysis. On the other hand, if '*eleph*' is translated as "troop," then the total number of men over twenty is 5,550 (a huge difference!). This means that the total number of men, women, and children at the Exodus was probably about 20,000.

Let me explain how my new interpretation works. The text quoted at the start of this chapter states, "The number in the tribe of Reuben was 46,500" (Numbers 1:21). The Hebrew text essentially says 46 '*eleph*' and 500 men. The traditional interpretation of this is 46 thousand and 500 men, that is, 46,500 men. My suggested interpretation is 46 troops and 500 men. Thus there were 500 men in the tribe of Reuben over twenty years old, not 46,500 men. So interpreting '*eleph*' as "troop" instead of "thousand" gives large differences in the numbers. In my new interpretation, the numbers in the tribes of Israel add up consistently to a total of 5,550 men twenty years of age and older.

Only one thing puzzled me. As we've just seen, my interpretation of the numbers in the tribe of Reuben is that there were 46 troops and 500 men. This means that there were only about ten men per troop. Isn't this much too small? Well, in a modern army it would indeed be much too small, but what about in 1300 B.C.? Do we know what troop sizes were like then?

In 1887, 380 clay tablets were discovered in Egypt by the local inhabitants at a place called Tell el-Amarna. They have come to be known as the Amarna tablets. The tablets are letters from foreign kings to the Egyptian pharaoh of the time, and they were written in the fourteenth century B.C., only slightly earlier than the date of the Exodus. In one of these tablets, King Rib-Addi of Byblos (in modern Lebanon) asked the king of Egypt for a contingent of troops of twenty men each. In another letter he asked for a troop of ten men from Nubia (in southern Egypt). This is remarkable confirmation that at the time of the Exodus, troop sizes were

about ten men, just as I deduced from the book of Numbers when *'elep*h is interpreted as "troop." I believe this is a powerful argument in favour of this interpretation.

Near the start of this chapter I asked several questions. Do the numbers in Numbers have a meaning that has been forgotten? I believe the answer is yes. Can we discover the real meaning of these very large numbers? Yes again. Can we find out how many people were involved in the Exodus from Egypt? Yes, about twenty thousand.

In this chapter I've given a new interpretation of the very large numbers recorded in the book of Numbers. The much smaller numbers resulting from this new interpretation are consistent with other numbers in the text, which they weren't before, and also credible, which again they weren't before. In the new interpretation, *'elep*h is interpreted as "troop" instead of as "thousand," which is a known and valid interpretation.

Many people have had great difficulty in believing that the Exodus from Egypt as recorded in the Bible could have been a factual, historical event because of the impossibility of two million Israelites surviving in the desert for forty years. There is simply not enough drinking water to have supported this many Israelites in their travels. However, as we will see, I believe that twenty thousand Israelites could have survived. An important feature of this chapter, therefore, is that it has removed a major obstacle to belief in the Exodus and greatly added to the plausibility of the biblical account of the Exodus being a factual account. Of course, we will need more evidence if we are to claim that the Exodus really happened, but this chapter has removed a significant problem.

When Were Exodus and Numbers Written?

I've just argued that the numbers in Numbers had an original meaning that has been forgotten. So when was the book of Numbers written, and who wrote it? As we've seen in chapter 5, the traditional view is that Moses was the author of the first five books of the Old Testament. These books are often called the Pentateuch, meaning "five-volumed book." If Moses was the author, then they would have been written in the thirteenth century B.C., according to our date for Moses and the Exodus (see chapter 3).

However, during the last two hundred years, many scholars have come to believe that there are four underlying sources of the Pentateuch. These sources are called J, E, D, and P, and they are usually dated from the tenth to the fifth centuries B.C. So what are the facts?

First, nowhere does the Bible claim that Moses wrote all of the Pentateuch, but it does claim that he wrote some of it. For example, "At the Lord's command Moses recorded the stages in their [the Israelites] journey" (Numbers 33:2). However, since the book of Deuteronomy records the death of Moses (Deuteronomy 34), it is clear that Moses could not have written all of the Pentateuch.

Second, we can look at the style and the language used in the Pentateuch. If we read a Shakespeare play, for example, then it is obvious from the spelling and

grammar used that this wasn't written today. Look at the writing in figure 1.2, pg. 8, made in 1680. It is very clear that this wasn't written today. Similarly, experts can look at the spelling and grammar used in the standard Hebrew text of the Pentateuch that we have today and deduce that it was written much later than the thirteenth century B.C. It is impossible to say with our present state of knowledge exactly when it was written, but scholars like Professor Alan Millard date the text to somewhere between the tenth and sixth centuries B.C., and some other scholars date it even later.

As I've said above, many scholars believe there were four main sources of the Pentateuch, the earliest of which comes from the tenth century B.C. Throughout this book I will give evidence that suggests that at least some of the book of Exodus was written by an eyewitness, and I see no reason why this could not have been Moses himself. Therefore, my very tentative conclusion is that although an editor may have put together the text of the first five books of the Bible some time in the tenth to sixth centuries B.C., the original source(s) of this text may be much earlier, and go back to Moses. This would explain the factual reliability I keep finding in the books of Exodus and Numbers. It would also explain how the original meaning of the numbers of Israelites recorded by Moses in the Desert of Sinai has been misinterpreted by an editor hundreds of years later and incorrectly transmitted, because the editor incorrectly understood the meaning of *'elep*.

In the next chapter we look at the plagues of Egypt. Were these a series of independent events? Or did one plague lead to another in an escalating sequence of natural events? Can modern science explain the plagues? Can we tell if the order of the plagues has been faithfully preserved since the time of Moses? Come with me to learn how the water of the Nile was turned to blood, why this was followed by a plague of frogs, and much, much more.