

When the Rains Failed: Studies in Climatology and the Biblical Text

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CHAPTER 5: ISRAEL'S PATRIARCHS AND CLIMATOLOGY

Abraham and a Famine in the Land

The first famine has received quite a bit of academic attention in recent years. It began around 2300 BC and lasted for three centuries. This drought was a global event that may have been felt as far away as Australia.¹ In Egypt, it produced the First Intermediate Period when the land descended into political, social, and economic disruption. In western Mesopotamia, many sites were abandoned across the Habur River valley and the Assyrian plains.² In the Levant, drought nearly brought an end to the Early Bronze Age culture. William Dever argued that the years between 2300 and 2000 BC constituted a non-urban interlude between the Early Bronze Age and Middle Bronze Age. Dever argued that cities like Megiddo were reduced to villages and the highlands of Palestine were almost unpopulated. He suggested that the Early Bronze Age culture continued only on the fringe of the semi-arid land.³ Adam Zertal studied the settlements on the Shechem syncline during this drought. He noted that the population of the Shechem syncline collapsed during the drought. Between 2000 and 1750 BC, there were only two settlement sites in the region. Then between 1750 and 1550 BC, populations returned to the syncline. He noted that 22 settlements were built in the highlands and 49 in the valleys. Zertal noted that both fortified and unfortified settlements were built at this time.⁴ By 1800 BC, Ashkelon had grown so large that it had a population between 12,000 and 15,000 people. By the 17th century, Canaan reached its economic and military high point in the Middle Bronze Age. The population of the Shechem Syncline was ten times as large as it had been during the great drought.⁵

The significance of this famine for Israel's history depends on the dates that are defended for Israel's patriarchal age. Traditional patriarchal age dates have been calculated by adding the 480 years of I Kings 6:1 and the 430 years of Exodus 12:40 to 966 BC. This approach was taken by Merrill who suggested that Abraham entered Canaan in 2091 BC and that Joseph was brought to Egypt in 1899 BC.⁶ Similar chronologies have been popular in the evangelical community, but

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H. H. Lamb, *Climate, History and the Modern World*, (New York: Methuen, 1982), 131.

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A. Gibbons, "How the Akkadian Empire Was Hung Out to Dry," *Science* 261, (1993): 985. H. Weiss, et al. "The Genesis and Collapse of Third Millennium North Mesopotamian Civilization," *Science* 261 (1993): 999.

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W. G. Dever, "New Vistas on the EB ('MB I') Horizon in Syria-Palestine," *Bulletin of the American Schools of Oriental Research*, #237 (1980): 35-64.

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Adam Zertal *The Manasseh Hill Country Survey: Volume 1: The Schechem Syncline*, (Leiden: Brill, 2004), 46-53. See also Aaron Brody, "From the Hills of Adonis through the Pillars of Hercules: Recent Advances in the Archaeology of Canaan and Phoenicia," *Near Eastern Archaeology* 65 (2002): 69-71. James M. Weinstein, "The Chronology of Palestine in the Early Second Millennium B.C.E." *Bulletin of the American Schools of Oriental Research* #288 (1992): 634.

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Lawrence E. Stager, "Port Power in the Early and the Middle Bronze Age: The Organization of Maritime Trade and Hinterland Production," *Studies in the Archaeology of Israel and Neighboring Lands in Memory of Douglas E. Esse*. (Atlanta: American Schools of Oriental Research, 2001), 633-634.

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E. H. Merrill, "Fixed Dates in Patriarchal Chronology," *Bibliotheca Sacra* 137 (1980): 241-243.

have not been universally accepted.⁷ For example, Hoerth recently argued for an 18th Dynasty exodus and a patriarchal age during Egypt's Second Intermediate Period.⁸ This would move Joseph forward to the Hyksos era.⁹

If the traditional dates for Israel's patriarchal age are accepted, Abraham entered the Levant in the latter part of this famine. Palestine was occupied only by semi-nomadic people who farmed small fields in the summer and moved to warmer areas in the winter. If Abraham entered Palestine at this time, it should not be surprising that Abraham also led a mobile life style in Palestine. Genesis 12:10 may have referred to this famine. This passage noted that Abraham passed through Palestine and entered Egypt because the famine in Palestine was still severe.¹⁰

If the traditional dates for Israel's patriarchal age are accepted, Abraham entered Egypt near the end of the First Intermediate Period. Famine conditions in Egypt had begun to ease after 2135 BC as Nile annual flood levels rose once more. As Abraham entered Egypt, he would have encountered a civil war. Improving climate conditions at this time had led to a struggle for power between the southern ruler at Thebes and the northern ruler at Herakleopolis. The ruler of Herakleopolis may have wanted Abraham's assistance in his struggle with Thebes since Abraham led a very large household. In Genesis 14, Abraham led a force of 314 armed men who had been born into his household. That suggested that Abraham's household may have been as many as a thousand people, and Lot's household was still present with Abraham at the time. So Abraham's household would have been significant help for an Egyptian ruler involved in a civil war. When the Egyptian ruler realized that Sara was Abraham's wife, he forced Abraham to leave the land immediately. The Egyptians viewed adultery by married people as a serious social evil, and Sara's presence in Pharaoh's household could have caused him problems. After Sara was removed from his house, Pharaoh gave Abraham gifts of servants and livestock. MacDonald argued that such gifts were often given to chiefs in the Levant to gain their alliance with Egypt.¹¹

If Israel had left Egypt during the 19th Dynasty as has so often been claimed, Abraham would have entered Palestine somewhere between 1925 BC and 1875 BC. By this time, the

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Kitchen accepted the 430 year claim of Ex. 12:40. Yet he also argued that the 480 years of I Kings 6:1 should be understood as the total of several concurrent periods in order to support a 19th Dynasty exodus date. See the discussion in J. J. Bimson, "Archaeological Data and the Dating of the Patriarchs," 53-89 in A. R. Millard and D. J. Wiseman, eds. *Essays on the Patriarchal Narratives*, (Winona Lake: Eisenbrauns, 1983), 84-85.

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Hoerth argued for this chronology from the Septuagintal text of Ex. 12:40 as well as his interpretation of Gen. 15:13; Acts 7:6; 13:19, and Gal. 3:16-17. A. J. Hoerth, *Archaeology & The Old Testament*, (Grand Rapids: Baker Book House, 1998), 58.

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Hoerth, *Archaeology & The Old Testament*, 142-147, 179.

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Genesis never praised conditions in Palestine. After the exodus, Moses called Palestine "a land flowing with milk and honey." This phrase was used 13 times from Exodus to Deuteronomy.

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J. MacDonald, "Egyptian Interests in Western Asia to the End of the Middle Kingdom: An Evaluation," *Australian Journal of Biblical Archaeology* 2 (1972): 85.

famine was over and cities were beginning to reappear in the Levant.¹² Passing peacefully through the land would have been much more difficult.¹³

Isaac and a Famine in Palestine

Genesis 26 recorded a new famine that struck Palestine during Isaac's life. Genesis 26:1 recorded that Isaac sought refuge in Gerar with Abimelech during the famine. Isaac dug wells to grow crops and support his flocks. The population of Gerar eventually resisted his use of their groundwater during the drought. They filled his wells with dirt and drove him from the region. Genesis 26 gave little information that could be used to date this famine. It happened at some point between the birth of Jacob in Genesis 25 and Jacob's theft of Esau's blessing in Genesis 27. Merrill argued that Jacob was born in 2006 BC.¹⁴ If that date was approximately correct, an Egyptian text may have mentioned the famine. Barbara Bell argued that unusually low Nile flood levels brought distress to Egypt for a few years during the reign of Sesostri I, although the wealth of Nomarch tombs during his reign testified to the general prosperity of age. Nomes were administrative districts in Egypt that resembled city states. Bell noted that Ameny's tomb text recorded such a famine. Ameny was the Nomarch, or local ruler, of the Beni-Hasan nome at this time.¹⁵ Ameny claimed: "When years of famine came, I plowed all the fields of the Oryz Nome, as far as its southern and northern boundaries, preserving its people alive, and furnishing its food so that there was none hungry therein. ... Then came great Niles, producers of grain and of all things, (but) I did not collect the arrears of the field (taxes)."¹⁶ This famine struck Egypt somewhere between 1971 and 1911 BC depending on how Middle Kingdom chronology is understood.

Joseph and the Famine Years

If traditional dates for Israel's patriarchal age are assumed, Joseph was brought to Egypt around 1899 BC. This would have been during the Middle Kingdom when Egypt was a dominant power in the region. Merrill argued that Joseph's years of abundance and famine in Genesis 41:46-49 were dated between 1886 BC and 1872 BC.¹⁷ Even if these dates are accepted, it is difficult to identify the pharaoh that Joseph served. Callender noted that high, middle, and low chronologies continue to be defended for the Egyptian Middle Kingdom. Possible co-

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G. Auld and M. Steiner, *Jerusalem I: From the Bronze Age to the Maccabees*, (Macon University Press, 1996), 24.

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This problem would be less severe if Auld and Steiner's dates for the famine are accepted. They dated the famine in western Mesopotamia between 2200 and 1900 BC. Auld and Steiner, *Jerusalem I: From the Bronze Age to the Maccabees*, 24.

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Merrill, *Fixed Dates in Patriarchal Chronology*, 242.

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A Nome was an Egyptian administrative district not unlike a city state.

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Barbara Bell, "Climate and the History of Egypt: The Middle Kingdom," *American Journal of Archaeology* 79 (1975): 225.

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Merrill, "Fixed Dates in Patriarchal Chronology," 247.

regencies remain a source of debate, and the chronology of the period remains in flux.¹⁸ Joseph could have been a vizier for Amenemhet II, Sesostris II, Sesostris III, or Amenemhet III depending on how the Biblical and Egyptian chronologies are understood.

The historical evidence for Joseph's famine remains problematic. Barbara Bell used textual and archaeological evidence to suggest that Amenemhet III could have been Joseph's sovereign. She noted evidence for unusual abundance followed by economic difficulty during the reign of Amenemhet III. Agricultural abundance in Egypt was almost entirely tied to the annual Nile flood levels. High floods produced abundance because a larger land area could be cultivated. Low floods brought hardship and famine. Bell noted that flood inscriptions have been found written on the valley walls beside Semna and Kumma near the second Nile cataract. These texts recorded very high Nile flood levels during the reign of Amenemhet III. His inscription at Semna described Nile floods that were between 8 and 11 meters higher than normal flood levels.

Bell argued that the flood texts at Semna and Kumma were supported by physical evidence. Bell noted that a line could be seen on the rock cliffs around the valley near the second cataract. Below that line, the rocks were clearly worn by water. Above the line they were not water worn. This line appeared 8.73 meters above the level of the 1931 high flood line and it appeared at the same level everywhere in the valley. Bell also found a pocket of water laid flood deposit in a rock level 6.23 meters above the 1931 high flood line. A piece of pottery found in this flood deposit could not be dated by pottery style, but it did demonstrate that the high flood levels had occurred at some point after pottery came into use in the valley.

The high flood levels of Amenemhet III could fit Joseph's seven years of abundance. Bell noted that the highest recorded flood level occurred during Amenemhet III's 30th year. After that, Nile flood levels retreated to their normal height. Bell suggested that these lower levels might have caused economic difficulty for a nation that had grown accustomed to unusually high flood levels. Bell suggested that this may have been the setting for Joseph's famine years.¹⁹ That suggestion would seem difficult to accept. A retreat to normal flood levels would not have caused a devastating famine in the Levant. It may also be difficult to make this suggestion work chronologically.²⁰ This famine would have struck Egypt after Merrill's suggested dates for Joseph's famine, but earlier than Hoerth's suggestion of Hyksos era dates. So Bell's work demonstrated the instability of Nile flood levels at the end of the Middle Kingdom, and demonstrated the possibility of Joseph's years of abundance. However Bell's suggested association of Joseph with Amenemhet III may not have been correct.

If Amenemhet III's abundance is not associated with Joseph, could evidence for Joseph's famine be found earlier in the Middle Kingdom? No evidence has survived for a famine during the reigns of Amenemhet II or Sesostris II, although the Egyptians may simply not have preserved a record of economic difficulties during their reigns. The possibility of a famine during the reign of Sesostris III is rather intriguing. At first sight, Joseph's famine would seem to

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G. Callender, "The Middle Kingdom Renaissance (c. 2055-1650 BC)," 148-183 in Ian Shaw, ed. *The Oxford History of Ancient Egypt*, (Oxford: University Press, 2000), 148-149.

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Bell, "Climate and the History of Egypt: The Middle Kingdom," 261.

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This problem would be less severe if the Septuagintal reading of I Kings 6:1 is accepted instead of the reading in the Massoretic text. The Septuagint claims a time period of 440 years instead of 480 years. This would move Joseph 40 years closer to the reign of Amenemhet III.

be historically unlikely at this time. Sesostris III was a very strong ruler, and the records of his reign give little indication of economic difficulty. Sesostris III was reputed to be one of the strongest rulers that Egypt ever knew. Herodotus claimed that he, “traversed the whole continent of Asia, whence he passed on into Europe, and made himself master of Scythia and of Thrace.”²¹ While not historically accurate, Herodotus' claims exemplified the renown gained by Sesostris III among succeeding generations.

The strongest evidence for Sesostris III's power was that he regained control of Egypt's delta nomes from the nomarchs. During the First Intermediate Period, these Nomarchs had become independent. Earlier Middle Kingdom Pharaohs had been unable to control them, and several of the Nomarchs had built very expensive tombs for themselves. The Nomarchs' title was Great Overlord. This title went out of use during the reign of Sesostris III.²² The Nomarchs also stopped decorating their own tombs in an expensive way during his reign. This has been interpreted as evidence for the great political and military strength of Sesostris III. If he could control the Nomarch's power, he must have been a strong ruler indeed.

It would be just as easy to interpret the evidence in a different way. Genesis 47:13-25 noted that all the money and land in Egypt came into Pharaoh's hands except the lands owned by the priests. So Joseph's famine would have given Pharaoh complete control of every Nome in Egypt. Even the Nomarchs themselves would have become his slaves to buy grain during the famine. The Nomarchs would have been unable to build new tombs for themselves because they simply would not have had the resources to do so. This interpretation would be consistent with Paul Ray's suggestion that Joseph's land reforms may have been connected with Sesostris III's ability to break the Nomarchs' power.²³ Genesis 47:26 noted that Pharaoh continued to collect his 20% for property ownership all the way down to Moses' day. That remained true even through the Hyksos era.

Evidence for unusually high Nile flood levels during the reign of Sesostris III can be found in an inscription at the Dal cataract. This text noted that the Nile river water level in the winter of that year equaled the high water line usually reached at the height of the annual Nile flood.²⁴ If the river water was this high in the winter, how high was the annual flood that year?

Unusually high Nile flood levels may also be suggested by the location of forts which were built by Sesostris III near the second Nile cataract. The fort at Semna was 83 kilometers north of the Dal cataract. Amenemhet I and Sesostris I had built forts near the second Nile cataract at the beginning of the Middle Kingdom. These forts were reused by Pharaohs Amenemhet II and Sesostris II. However, Sesostris III did not use these older forts. He rebuilt the fort at Semna 15 meters above the high flood line. The bottom level of the older fort had been eroded by flood water even though the fort was almost eight meters above the normal high flood line. It would be tempting to suggest that the very high flood levels had already appeared during the reign of Sesostris III and that he had rebuilt the second cataract forts above the new high flood level.

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M. Komroff, ed. *The History of Herodotus*, trans. G. Rawlinson, (New York: Tudor, 1928), 114.

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Callender, “The Middle Kingdom Renaissance (c. 2055-1650 BC),” 167-175.

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P. J. Ray, Jr. “The Duration of the Israelite Sojourn in Egypt,” *Andrews University Seminary Studies* 24 (1986): 242.

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Bell, “Climate and the History of Egypt: The Middle Kingdom,” 238.

During his eighth year, Sesostris III reopened an old canal around the second Nile cataract. It was dug at a low enough level that it could be reopened in the 18th Dynasty by Thutmose I and Thutmose II. The level of this canal suggested that Egypt saw normal flood levels in the eighth year of Sesostris III. The Nile flood levels may have risen by the tenth year of his reign. Flood levels may then have fallen below normal levels by the nineteenth year of his reign because in that year, Sesostris III noted that he could only pass the second Nile cataract with great difficulty. The water level was too low for him to pass even in the canal that he had opened in his eighth year. This may suggest a water level so low that it could have caused famine conditions in Egypt. So Joseph's years of abundance and famine could have occurred during the reign of Sesostris III even though his reputation would not be consistent with such a famine.