

# Archaeology and New Testament Studies: A New Emphasis

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*While excavations of cities, villages, palaces, and art works have their place in providing context for NT texts, the lives of the non-elites—the ninety-nine per cent—are increasingly recognized as important to biblical interpretation. This essay presents evidence of disease from archaeological excavations of Late Second Temple Israel and the wider Roman Empire and compares it with modern demographics. In doing so, it seeks to offer insight into the “ordinary folk” who populated the Greco-Roman world at the time of Jesus and the early church.*

A good historian is a very nosey person. He or she wants to know everything about people of the past. The late twentieth century saw a transformation in the writing of history. No longer were historians only interested in great men, great battles, and great nations of the past. They did not simply ask about emperors, generals, and the monuments they left behind.

They began to ask what life was like for ordinary men and women. What did they do for a living? What did they eat? How did they treat each other? Where did they live? What diseases did they suffer? How long did they live? What did they think about certain issues? Were their lives a misery? What was an ordinary day for them?

In this quest, historians have sought windows into the past.<sup>1</sup> Like surveillance police with telescopic lenses watching people through their windows, historians are

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<sup>1</sup> See for example, Catherine Hezser, ed., *The Oxford Handbook of Jewish Daily Life in Roman Palestine* (Oxford: Oxford University, 2010); William G. Dever, *The Lives of Ordinary People in Ancient Israel: Where Archaeology and the Bible Intersect* (Grand Rapids: Eerdmans, 2012); J. Philip King and Lawrence E. Stager, *Life in Biblical Israel* (Louisville, KY: Westminster John Knox, 2001); Oded Borowski, *Daily Life in Biblical Times* (Atlanta: Society of Biblical Literature, 2003); Jodi Magness, *Stone and Dung, Oil and Spit: Jewish Daily Life in the Time of Jesus* (Grand Rapids: Eerdmans, 2011); Edwin M. Yamauchi and Marvin R. Wilson, eds., *Dictionary of Daily Life in Biblical and Post Biblical Antiquity* (Peabody, MA: Hendrickson, 2014); Craig A. Evans, *Jesus and the Remains of His Day: Studies in Jesus and the Evidence of Material Culture* (Peabody, MA: Hendrickson, 2015); John J. Collins and Daniel C. Harlow, eds., *The Eerdmans Dictionary of Early Judaism* (Grand Rapids: Eerdmans, 2010); John J. Rousseau and Rami Arav, *Jesus and His World: An Archaeological and Cultural Dictionary* (Minneapolis: Fortress, 1995).

in a sense “surveilling” the past. Just as what can be seen through a window tells only part of the story, leaving the surveillance crew to infer the rest, so historians must also extrapolate a coherent story from their windows

To recreate the lives of ancient folk, historians use whatever means are available, including written texts, such as papyri and inscriptions, and archaeological ruins. The same interest is present in NT studies. Interpreters ask about the sorts of people who would have listened to Jesus teach and would have read the NT. What was it like to walk around in their skin? How would they have heard the NT?

Thus, historians and archaeologists are increasingly turning to the study of ordinary people, the 99 percent of ancient society. As Richard Horsley and John S. Hanson observed in their groundbreaking work of 1985:

Until very recently, the modern Western assumption has been that the common people have had little to do with the making of history. . . . Standard treatments of Jewish history and the background of Jesus . . . almost always discuss groups and figures from the ruling class and the literate stratum.<sup>2</sup>

In other words, Horsley and Hanson rightly challenged the focus and near obsession of previous investigations into the great and wealthy—the “beautiful people.” They, on the other hand, were interested in ordinary people, for the upper class—the elites of antiquity—comprised a mere one to two percent of the population. Clearly, focusing on them was presenting a skewed view of history.

Likewise, and more recently, the classical historian Thomas Grünewald has written: “Historians are recognizing that those on the margins of the community . . . have a significant effect on the historical process.”<sup>3</sup> Thus social historians are now paying greater attention to those of lower social standing.

Grünewald then explores the topic of banditry, the low-class version of politics, in the Roman Empire. This essay will look at mostly those of that social stratum: the working-class and low-class, the poor, the ordinary, and the nonfamous—not necessarily infamous—persons of Palestine/Israel in the late Second Temple period.

### THE NEW EMPHASIS IN ARCHAEOLOGY

Not only have NT scholars, such as Horsley and Hanson, and classical historians, such as Grünewald, turned their attention to ordinary people. Increasingly,

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<sup>2</sup> Richard A. Horsley and John S. Hanson, *Bandits, Prophets, and Messiahs: Popular Movements at the Time of Jesus* (New York: Harper and Row, 1985) xii. See also T. L. Donaldson, “Rural Bandits, City Mobs and the Zealots,” *JSJ* 21 (1990) 19, who observes that peasants comprised 90 percent of the population but most historical studies ignore them and focus on the ruling aristocracy; and R. A. Horsley, *Sociology and the Jesus Movement* (New York: Crossroad, 1989) 3: “We are no longer satisfied with such an idealist individualist theological understanding of the biblical texts . . . biblical literature is about the problems and experiences of real people.”

<sup>3</sup> Thomas Grünewald, *Bandits in the Roman Empire: Myth and Reality*. London: Routledge, 1999) 1.

archaeologists also want to know more about them. Learning about the monumental ruins of Herod's reign has its place. But so does learning about John and Jane Doe (or Yoḥanan and Yoḥannah) who never visited the royal palace, never conquered foreign foes, and did not leave behind monumental landmarks.

Toward this end, biblical scholars began more than thirty years ago to use methods and insights from sociology, cultural anthropology, and economics. From the pioneers in this field<sup>4</sup> until its more recent exponents,<sup>5</sup> the goal has been to put a face on the characters of the Hebrew Bible and the NT.

They have asked what it must have been like to live in ancient Palestine/Israel, the ancient Near East, or the Greco-Roman world. What were the values and perceptions of the people, and how might knowing the answers to these questions help in understanding the Hebrew Bible or the NT?

The rise of the social sciences in biblical interpretation resulted from the need for a “sociological imagination” to understand the scenes and scenarios of Scripture.<sup>6</sup> Collecting information is not enough to facilitate interpretation; one must have the means of “envisioning, investigating, and understanding the interrelation of texts and social contexts.”<sup>7</sup> The goal of the social science movement in interpretation has been to enable the interpreter to get to know the people to whom and by whom the texts were originally written.

### *How Archaeology Benefits NT Study*

In addition to the social sciences, archaeological discoveries have also benefited OT studies. For at least one hundred years—since the “Golden Age” of biblical archaeology—Hebrew Bible exegetes have found archaeology indispensable in their quest to understand the Bible and to inform their students and readers. The use of material remains by OT scholars has passed through several phases and has resulted today in a very nuanced and sophisticated approach.<sup>8</sup>

Unfortunately, NT studies have lagged behind in this. Although OT scholars and church historians use material remains freely in reconstructing their respective

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<sup>4</sup> See, among others, Gerd Theissen, *Sociology of Early Palestinian Christianity* (Philadelphia: Fortress, 1977); Bruce Malina, *The New Testament World: Insights from Cultural Anthropology* (Atlanta: John Knox, 1981).

<sup>5</sup> Dietmar Neufeld and Richard E. Demaris, eds., *Understanding the Social World of the New Testament* (London: Routledge, 2010); John H. Elliott, *What Is Social-Scientific Criticism?* (Minneapolis: Fortress, 1993); R. L. Rohrbaugh, ed., *The Social Sciences and New Testament Interpretation* (Grand Rapids: Hendrickson, 1996); and J. H. Neyrey and E. C. Stewart, eds., *The Social World of the New Testament* (Peabody, MA: Hendrickson, 2008).

<sup>6</sup> See John Elliott, *Social-Scientific Criticism*, 13.

<sup>7</sup> Ibid.

<sup>8</sup> See David A. Fiensy, *Insights from Archaeology* (Minneapolis: Fortress, 2017) 10-14.

histories, NT scholars focus almost exclusively on the texts. Two continental NT scholars recently lamented that for many of their colleagues, NT studies are an “archaeology free zone.”<sup>9</sup> This lack of experience with material remains and excavation and dating methods have led to archaeology’s neglect in NT interpretation.

On the other hand, popular-level online blogs about archaeological findings often make absurd and exaggerated claims, although they are to be commended for calling the attention of the average reader to some archaeological discoveries. However, in using archaeology to “prove the Bible,” they usually press the inferences one can draw beyond reason.<sup>10</sup>

A survey of the few NT scholars who draw on archaeology in their exegetical work reveals that most focus on five ways the material remains can assist. The following table summarizes ten essays on the topic. Note some uses are now unapproved as politically or apologetically motivated.

Table 1: Archaeology’s Use in Biblical Studies by Essay<sup>11</sup>

Use of archaeology	1	2	3	4	5	6	7	8	9	10
Illustrate/visualize		X			X				X	
Supplement the text	X		X	X			X	X	X	
Clarify the text	X		X					X		X
Contradict the text	X			X			X	X		
Confirm the text	X		X	X			X	X		X
Reconstruct the social/ religious world		X			X	X		X	X	X
Reconstruct a practice					X					
Allow us to hear voices left out of the literature									X	
Reconstruct the biblical text										X
Treasure hunting			Y							
Re-enforce political agendas			Y							
Prove the Bible			Y							

1= Meyers and Strange; 2=Charlesworth; 3= Hoppe; 4=Starbuck; 5=J. F. Strange; 6=Reed; 7=Levine; 8=Dever (2X); 9=Moreland, et. al.; 10=McRay. X=approved uses; Y=unapproved uses

<sup>9</sup> See Stefan Alkier and Jürgen Zangenberg, “Zeichen aus Text und Stein—Einladung zu einem interdisziplinären Gespräch,” in *Zeichen aus Text und Stein: Studien auf dem Weg zu einer Archäologie des Neuen Testaments* (ed. Stefan Alkier and Jürgen Zangenberg; Tübingen: A. Francke, 2003) x-xvi. The expression “archaeology free zone” originated with Peter Pilhofer (x).

<sup>10</sup> For example, Dennis Leap, “Archaeology Proves Bible History Accurate,” *The Trumpet* (December 2005) <https://www.thetrumpet.com/1912-archaeology-proves-bible-history-accurate> [accessed January 20, 2019].

<sup>11</sup> Table is based on: Eric M. Meyers and James F. Strange, *Archaeology, the Rabbis, and Early Christianity* (Nashville: Abingdon, 1981) 28-29; J. H. Charlesworth, “Archaeology, Jesus and Christian Faith?” in *What Has Archaeology to Do with Faith?* (ed. James H. Charlesworth and W. P. Weaver;

As becomes evident, these scholars essentially agree on the uses,<sup>12</sup> although some offer a unique perspective. The shaded areas indicate focus on clarifying the text, supplementing the text, confirming the text, and contradicting the text. Noted additionally is the more general use of social-world reconstruction. Most contributions to NT interpretation from the field of archaeology involve the last use: reconstructing the social/economic/religious world in order to place texts into their contexts.

Jonathan Reed compares this to historians working a crossword puzzle: filling in blanks running vertically with the NT and those running horizontally with archaeology, though with some overlap.<sup>13</sup> He believes archaeology's main "contribution to the study of the historical Jesus research lies in its ability to reconstruct his social world."<sup>14</sup> In other words, most of the interpretative assistance archaeology offers to those studying the historical Jesus (not to mention the NT) is background information.<sup>15</sup>

Archaeology can clarify such background issues as demographics, ethnicity, religion, economics, and agricultural practices.<sup>16</sup> However, as Reed observes, it offers little help in reconstructing specific events or interpreting specific verses.

### *Previous Attempts to Use Archaeology in New Testament Study*

Previous NT background and contextual studies using archaeology have focused on monumental ruins (such as whole cities and villages, palaces, theaters,

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Philadelphia: Trinity, 1992) 8-9; Eric M. Meyers and Carol Meyers, "Holy Land Archaeology: Where the Past Meets the Present," *Buried History* 50 (2014) 3-16; Leslie J. Hoppe, *What Are They Saying about Biblical Archaeology?* (New York: Paulist, 1984) 4-8; Scott R.A. Starbuck, "Why Declare the Things Forbidden?" in *Between Text and Artifact: Integrating Archaeology in Biblical Studies Teaching* (ed. Milton C. Moreland; Atlanta: SBL, 2003) 99-113; James F. Strange, "Sayings of Jesus and Archaeology," in *Hillel and Jesus* (ed. J. H. Charlesworth and L. L. Johns; Minneapolis: Fortress, 1997) 296-297; Jonathan L. Reed, *Archaeology and the Galilean Jesus* (Harrisburg, PA: Trinity, 2000) 18; John McRay, *Archaeology and the New Testament* (Grand Rapids: Baker, 1991) 17-19; Lee I. Levine, "Archaeological Discoveries from the Greco-Roman Era," in *Recent Archaeology in the Land of Israel* (ed. Hershel Shanks and Benjamin Mazar; Washington, DC: BAR, 1984) 76; William G. Dever, *Recent Archaeological Discoveries and Biblical Research* (Seattle: University of Washington, 1990) 32-35; William G. Dever, *What Did the Biblical Writers Know and When Did They Know It?* (Grand Rapids: Eerdmans, 2001) 83, 271; Milton C. Moreland, Shannon Burkes, and Melissa Aubin, "Introduction: Between Text and Artifact," in *Between Text and Artifact: Integrating Archaeology in Biblical Studies Teaching* (ed. Milton C. Moreland; Atlanta: SBL, 2003) 1-2.

<sup>12</sup> See Fiensy, *Insights from Archaeology*, 25-61, for examples of each of these "uses" of archaeology in biblical interpretation.

<sup>13</sup> Compare Hoppe, *Biblical Archaeology*, 3.

<sup>14</sup> Reed, *Archaeology*, 18.

<sup>15</sup> See also Dennis Groh, "The American Field School and the Future of Biblical Archaeology," in *A City Set on a Hill: Essays in Honor of James F. Strange* (ed. Daniel A. Warner and Donald D. Binder; Mountain Home, AR: BorderStone, 2014) 128-160, esp. 147.

<sup>16</sup> Reed, *Archaeology*, 19.

hippodromes, and temples) or on artistic works (such as jewelry, statues, mosaics, frescoes, and ossuaries, which are stone boxes for secondary burial). Such material remains comprise lists of the most important archaeological finds regarding the historical Jesus offered by three recent publications.

For example, James Charlesworth discusses the significance of stoneware vessels and the “Burnt House,”<sup>17</sup> before listing seven discoveries as the most important to historical Jesus studies, with the Church of the Holy Sepulcher crucifixion site ranked first. Six discoveries on his list are located in Jerusalem. Only the first-century synagogues<sup>18</sup> lie outside the holy city. With the exception of the bones of a crucified man, Charlesworth lists only monumental ruins. In a later 2006 publication, he adds the excavations at Nazareth, Cana, the palace at Ramat Ha-nadiv, Herodium, Caesarea Maritima, and Bethsaida and the Galilee boat, bringing his list to fourteen.<sup>19</sup>

Table 2: Comparison of Archaeological Discoveries for Interpreting the Historical Jesus

	Charlesworth <sup>20</sup>	Crossan-Reed <sup>21</sup>	Witherington <sup>22</sup>
1		Caiaphas’ ossuary	Caiaphas’ ossuary
2	Bones of the crucified man	Bones of the crucified man	
3		Peter’s house	House of Peter
4		Monuments of Jewish Resistance (Masada and Qumran <sup>23</sup> )	Dead Sea Scrolls
5	Temple mount		Herodian sites (Masada, Herodium, Temple Mount)
6		Cities of Herod the Great (Caesarea Maritima and Jerusalem)	

<sup>17</sup> James H. Charlesworth, *Jesus within Judaism: New Light from Exciting Archaeological Discoveries* (New York: Doubleday, 1988) 106. The Burnt House was destroyed when the Romans overran Jerusalem in 70 CE.

<sup>18</sup> Just at Masada, Herodium, and Gamla at his time of writing. Since then, several more have been found.

<sup>19</sup> James H. Charlesworth, “Jesus Research and Archaeology: A New Perspective,” in *Jesus and Archaeology* (ed. James H. Charlesworth; Grand Rapids: Eerdmans, 2006) 11-63.

<sup>20</sup> Charlesworth, *Jesus within Judaism*, 103-130. See also his later reiteration of these seven finds plus a few more in Charlesworth, “Jesus Research and Archaeology.”

<sup>21</sup> John Dominic Crossan and Jonathan L. Reed, *Excavating Jesus: Beneath the Stones, behind the Texts* (San Francisco: HarperSanFrancisco, 2001) 2.

<sup>22</sup> Ben Witherington III, “Top Ten New Testament Archaeological Finds of the Past 150 Years: How Do Shrouds, Boats, Inscriptions, and Other Artifacts Better Help Us Understand the Christ of the Ages?” *Christianity Today* (September 2003) <http://www.christianitytoday.com/ct/2003/september-web-only/9-22-21.0.html> [accessed July 3, 2017].

<sup>23</sup> Including Qumran in this category (Jewish resistance) seems odd to me although the site was destroyed by the Romans c. 68 CE.

7		Cities of Antipas (Sepphoris and Tiberias)	Scythopolis and Sepphoris
8		First Century Jewish villages in the North (Yodfat and Gamla <sup>24</sup> )	
9	(stone vessels)	Stone vessels and <i>miqvaot</i>	
10		The Galilee boat	Jesus boat
11		The Pilate inscription	Pilate inscription
12	Church of the Holy Sepulchre		
13	Place of the Praetorium		
14	Pools of "Bethesda"		
15	Walls and gates of Jerusalem		
16	First century synagogues of Palestine		
17			Rylands fragment of the Gospel of John
18			Shroud of Turin
19			James ossuary

The lists of John Dominic Crossan and Jonathan Reed are similar to Charlesworth's. Most of their top ten finds are of large ruins: cities, houses, boats, and monasteries. Only the bones of the crucified man, the Caiaphas ossuary, and the fragments of stone vessels and ritual baths are smaller. However, their lists demonstrate greater geographical variation. Of the ten discoveries, only two and a half are in Jerusalem. The rest are in Galilee, the Golan, and elsewhere in Judea.

Similarly, Ben Witherington lists the monumental ruins of cities, the Caiaphas ossuary, the "Jesus boat," and the Pilate inscription. And he adds the Rylands papyrus fragment of the Gospel of John, the oldest scrap of NT found thus far. But he also adds the dubious Shroud of Turin and James ossuary.

All the lists discussed above feature mostly large, monumental ruins. Their excavations have given NT interpreters insight into the world of Late Second Temple Israel (37 BCE–70 CE) and provided context for Jesus' life and teachings. However, apart from the bones of the crucified man and the fragments of the stone vessels, very few items on the lists concern the lives of ordinary people.

### *The Archaeology of Daily Life*

While most ordinary people of the Late Second Temple Israel left behind no writings and built no monuments, they did leave behind their personal remains. A careful analysis of their bones, personal ornamentation, and even waste can provide a great deal of information about their personal stories.

As Justin Lev-Tov observes, the archeological study of Roman Palestine has been conducted largely like Classical Archaeology (that of Greece and Rome),

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<sup>24</sup> Again, an odd designation. These were not just any villages but those destroyed by Rome.

engaging in “massive excavations of Greek and Roman cities, studies of public architecture, sculpture and other ancient artistic endeavors. Economic studies of the classical era have focused on trade in luxury goods.” Other items, such as bones, have been discarded as unimportant or uninteresting. But Lev-Tov pleads for a “holistic approach”<sup>25</sup> that considers all remains, not just the beautiful and shiny ones.

Likewise, Tal Ilan laments that in the past when archaeologists found ossuaries, “bones in them have traditionally been swept away as an uninteresting and messy addition to a piece of fine craftsmanship.”<sup>26</sup> She argues these skeletal remains are also of interest.

Therefore, this essay is dedicated to the everyday lives of ordinary people, including their sickness and pain. For illness and suffering were taken for granted in the biblical world. A careful analysis of their remains may be, as recognized over a century ago, neither: “attractive nor cheerful . . . but it may not be labor altogether useless.”<sup>27</sup> By placing these finds in the context of literary sources and other archaeological discoveries, this essay will attempt to narrate a partial account of the health of ordinary people in first-century Israel.

Four examples of meeting ancient persons through their (skeletal) remains can be seen in Giv’at Ha-Mivtar tomb complex excavations,<sup>28</sup> one of the earliest to study both the ossuaries and their contents. Information can be gleaned by setting the ossuary inscriptions<sup>29</sup> and anthropological analyses of the bones<sup>30</sup> side by side:

1. Ossuary 2 was inscribed “Jonathan the Potter.” A pathological examination of the bones inside the stone box revealed that Jonathan died between the ages of 45 and 50 and was five feet, five inches tall. His bones showed no evidence of disease but did indicate hands and forearms “strongly shaped” by an occupation requiring their frequent use, which confirmed the inscription.
2. Ossuary 4 was inscribed “Martha.” Inside were the bones of a woman who died between the ages of 23 and 25 and was four feet, nine inches tall. The bones were very thin and showed pronounced osteoporosis and periodontitis. One of Martha’s limbs was 3cm shorter, perhaps due to an endocrine disorder. She would have suffered quite a lot from her condition.

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<sup>25</sup> Justin Lev-Tov, “Upon What Meat Doth This Our Caesar Feed . . . ? A Dietary Perspective on Hellenistic and Roman Influence in Palestine,” in *Zeichen aus Text und Stein: Studien auf dem Weg zu einer Archäologie des Neuen Testaments* (ed. Stefan Alkier and Jürgen Zangenberg; Tübingen: A. Francke, 2003), 420-446 (425-426).

<sup>26</sup> Tal Ilan, “Ossuaries of the Herodian Period,” in *The World of the Herods* (ed. Nikos Kokkinos; Stuttgart: Franz Steiner, 2007) 61-69 (64).

<sup>27</sup> M. Merrins, “The Deaths of Antiochus IV, Herod the Great, and Agrippa I,” *BSac* 62 (1904) 562.

<sup>28</sup> This tomb is located north of the “old city” of Jerusalem.

<sup>29</sup> J. Naveh, “The Ossuary Inscriptions from Givat ha-Mivtar,” *IEJ* 20 (1970) 33-37.

<sup>30</sup> N. Haas, “Anthropological Observations on the Skeletal Remains from Giv’at ha-Mivtar,” *IEJ* 20 (1970) 38-60.



3. Ossuary 6 was inscribed “Saul.” Analysis of Saul’s skeletal remains showed he was four feet, eleven inches tall and was burned to death on a rack at about age 16. The fire set under the rack had torturously burned the flesh from his back side.
4. Ossuary 7 was inscribed “Salome, daughter of Saul, who failed to give birth.” The bones of the four-foot, eleven-inch-tall female, aged 30-34 years, had a full-term fetus in her pelvis. The right side of her pelvis was deformed, and she was slightly hunch-backed. Her birth canal was curved making birth difficult. Anthropologists speculated that had she had the help of a mid-wife, both Salome and her child would have survived.<sup>31</sup>

Each of these people speaks from their personal remains. Their examples demonstrate that part of knowing ancient, ordinary people is understanding their daily challenges, especially with regard to health. Information about ancient diseases can be drawn from pathological examinations of Egyptian mummies, a survey of the archaeology focused on diseases of the world, and from ancient Greco-Roman medical texts. For comparative purposes, the five deadliest diseases worldwide today (for children) are also included. The table below shows the frequently attested ancient diseases.

Table 3: Major Diseases in the Ancient World (Those in all caps are in two or more lists)

Pathology from over 8000 mummies <sup>32</sup>	Diseases featured in <i>The Archaeology of Disease</i> <sup>33</sup>	The major diseases in the ancient world according to the ancient literature <sup>34</sup>	The major causes of childhood mortality in the modern world <sup>35</sup>
TUBERCULOSIS Smallpox Skin infections LEPROSY INTESTINAL PARASITES <sup>36</sup>  MALARIA	TUBERCULOSIS  LEPROSY INTESTINAL PARASITES	TUBERCULOSIS  LEPROSY <sup>37</sup> INTESTINAL PARASITES line DIARRHEA MALARIA	       Pneumonia DIARRHEA MALARIA Measles AIDS

<sup>31</sup> For the inscriptions in each case, see Naveh, “The Ossuary Inscriptions.” For a pathological examination of the bones, see Haas, “Anthropological Observations.”

<sup>32</sup> Srboľjub Živanović, *Ancient Diseases: The Elements of Palaeopathology* (New York: PICA, 1982) 220; Piers D. Mitchel, “Human Parasites in the Roman World: Health Consequences of Conquering an Empire,” *Parasitology* 144 (2017) 52 <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/S0031182015001651> [accessed June 7, 2017].

<sup>33</sup> Charlotte Roberts and Keith Manchester, *The Archaeology of Disease* (Gloucestershire: History, 2010).

<sup>34</sup> These diseases are discussed in the Greek and Roman medical texts as well as in the Talmud. See Jonathan Reed, “Instability in Jesus’ Galilee: A Demographic Perspective,” *JBL* 129 (2010) 355; Robert

Pathology from over 8000 mummies	Diseases featured in <i>The Archaeology of Disease</i>	The major diseases in the ancient world according to the ancient literature	The major causes of childhood mortality in the modern world
	INFECTIONS OF THE SINUS/EARS OSTEOMYELITIS TREPONEMAL DISEASE <sup>38</sup> Brucellosis <sup>39</sup>	INFECTIONS OF THE SINUS/EARS OSTEOMYELITIS SYPHILIS  Typhoid Chickenpox Diphtheria Mumps Whooping cough Cancer Anemia Rickets Dysentery Scabies	

Interestingly, tuberculosis<sup>40</sup> and leprosy<sup>41</sup>—both of which appear in studies of Egyptian mummies and modern patients—were rare in ancient Israel. But these ill-

Salares, “Disease,” in *The Oxford Classical Dictionary* (ed. Simon Hornblower and Antony Spawforth; Oxford: Oxford University Press, 2003) 486; Mirko D. Grmek, *Diseases in the Ancient Greek World* (Baltimore: Johns Hopkins Press, 1989) 131-151; Živanović, *Ancient Diseases*, 217-245; Julius Preuss, *Biblical and Talmudic Medicine* (New York: Sanhedrin, 1978) 151-170; and Alain Touwaide, “Disease,” in *Brill’s New Pauly: Encyclopedia of the Ancient World* (ed. Hubert Cancik and Helmuth Schneider; Leiden: Brill, 2006) 4.543-554.

<sup>35</sup> Max Roser, “Child Mortality,” *OurWorldInData.org* (2015) <http://ourworldindata.org/data/population-growth-vital-statistics/child-mortality/> [accessed December 4, 2015]; Kpurkpur Tyoalumun, Sani Abubakar, and Nongu Christopher, “Prevalence of Intestinal Parasitic Infections and Their Association with Nutritional Status of Rural and Urban Pre-School Children in Benue State, Nigeria,” *International Journal of MCH and AIDS* 5 (2016) 146-152.

<sup>36</sup> See Ralph Jackson, *Doctors and Diseases in the Roman Empire* (London: British Museum, 1988) 15, 37: “As examination of mummies has made abundantly clear, intestinal and other parasites were widespread . . . in many places certain intestinal parasites were endemic.”

<sup>37</sup> Touwaide, “Disease,” 547, explains this (in the Greco-Roman medical texts) was not leprosy in the modern sense but a skin disease. Yet the “leprosy” described in the mummy autopsies and in the archaeology of disease is really Hansen’s disease or the modern use of the term “leprosy.”

<sup>38</sup> This category includes syphilis.

<sup>39</sup> This is a disease that mimics malaria but is caused by a bacterium instead of malaria’s parasite. See “Brucellosis,” Wikipedia, <https://en.wikipedia.org/wiki/Brucellosis> [accessed April 23, 2019].

<sup>40</sup> See Joseph Zias, “Human Skeletal Remains from a Second Temple-Period Tomb in Arnona, Jerusalem,” *Atiqot: English Series* 54 (2006) 117-120. Zias notes he has found only two cases of tuberculosis in the skeletal remains of Jews in antiquity and suggests they had an “inherited immunity” (119). See also Zias, “Death and Disease in Ancient Israel,” *BA* 54 (1991) 152-153, for the same assertion. But Shimon Gibson, *The Final Days of Jesus: The Archaeological Evidence* (New York: Harper Collins, 2009)

nesses were certainly present in the rest of the ancient world,<sup>42</sup> along with influenza, cancer, heart disease, and other still-prevalent illnesses.

But this essay will not discuss the above diseases because many either do not show up in the archaeological remains (a disease must be chronic to leave traces in the bones) or were not common in Israel. Instead, the rest of this essay will focus on parasitic diseases, which were ubiquitous in the Roman Empire and endemic to Israel in the Second Temple period.<sup>43</sup>

Once contracted, these illnesses affected their victims for years, perhaps even for life. They could weaken a person's immune system, making him or her more susceptible to other diseases, which was especially a problem in times of famine. They could affect the physical or mental development of the victim's offspring. And they could be especially lethal to pregnant women.

### INTESTINAL PARASITIC INFECTION IN LATE SECOND TEMPLE ISRAEL

As one historian of disease (a palaeopathologist) has observed: In the Roman Empire, "intestinal parasites were endemic."<sup>44</sup> This assessment, based on a review of Greco-Roman medical literature, is now supported by archaeological excavations of latrines and cesspits throughout the Roman provinces.

The effects of this infection on the human body will first be considered before examining the direct archaeological evidence for it in Israel and then results from more widely scattered excavations. In this way, ordinary folk—albeit anonymously and *en masse*—will be met by learning their morbidity.

#### *Intestinal Parasites and Their Effects*

In the fall of 2017, South Korean doctors were shocked when they examined a North Korean defector.<sup>45</sup> Not only did he have four or five gunshot wounds,

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139-147, reports on a man with tuberculosis and three others in the same tomb (two were infants) dating to the first century CE. Thus some Jews of the time period discussed did contract tuberculosis, but this was, evidently, rare.

<sup>41</sup> See again Zias, "Death and Disease," 149-150; and No author, "DNA of Jesus-Era Shrouded Man in Jerusalem Reveals Earliest Case of Leprosy," *Science Daily* (December 16, 2009) <https://www.sciencedaily.com/releases/2009/12/091216103558.htm> [accessed August 21, 2018] for a single case of actual leprosy from the first century CE. See Gibson, *Final Days*, 139-147, for an account of finding and investigating this person.

<sup>42</sup> See Grmek, *Diseases*; Preuss, *Biblical and Talmudic Medicine*.

<sup>43</sup> Some ancient diseases are known only from the literature (physician treatises and other references). Grmek, *Diseases*, 133-151.

<sup>44</sup> Jackson, *Doctors and Diseases*, 37.

<sup>45</sup> No author, "'Enormous Number' of Parasites in North Korean Defector's Body, Doctors Say," Fox News (November 17, 2017) <http://www.foxnews.com/world/2017/11/17/enormous-number-parasites-in-north-korean-defectors-body-doctors-say.html> [accessed December 22, 2017].

tuberculosis, and hepatitis B, he also was infected with an “enormous number” of intestinal parasites. The body of this twenty-four-year old man was, according to one physician, “a broken jar.”<sup>46</sup> He was a walking pathology study. The most shocking sight was the nearly foot-long round worm—one of many—extracted from his intestines, photographed, and uploaded to the internet.

Shocking as they may be, parasitic infections are not uncommon in the world inhabited by the majority of the populations on this planet. Indeed, one of the man’s South Korean doctors, Dr. Choi Min-ho, surmised that at least half of the North Korean population is infected with intestinal parasites.<sup>47</sup> The same conditions can be found throughout the rest of the “developing world.”

One parasitologist estimates that one billion people worldwide are infected with the intestinal parasite, round worm.<sup>48</sup> A recent study estimated 3.5 billion people are infected with parasites of various kinds.<sup>49</sup> Worldwide the estimate is that 250 million children are stunted due to parasites, 99 million are underweight, and 51 million are “wasted.”<sup>50</sup>

Parasitic infections were also common in the ancient world, as archaeological excavations show. Readers often assume Isaiah wrote his poetic prophecies in reasonable comfort. Or that Jesus’ audience contemplated the parables he delivered in relative comfort, even as readers do today.

Most presume that aside from occasional illnesses, ancient people enjoyed much the same health as their modern, Western counterparts. But, in fact, a large percentage of the population was infected as seriously as the North Korean defector. One can only imagine how Jesus’ message was received by such “broken jars.”

Parasites can be divided into two broad categories: ectoparasites, such as fleas and lice, and endoparasites, which include intestinal parasites and the microscopic

<sup>46</sup> Paula Newton and Tachoon Lee, “North Korean Soldier: Surgeon Says Defector ‘Was Like a Broken Jar,’” *CNN* (December 5, 2017) <http://www.cnn.com/2017/12/04/health/north-korea-defector-doctor-intl/index.html> [accessed December 22, 2017].

<sup>47</sup> Ben Westcott and Tachoon Lee, “What Parasitic Worms in Defector Reveal about Conditions in North Korea,” *CNN* (November 23, 2017) <http://www.cnn.com/2017/11/22/health/north-korea-defector-parasites-health/index.html> [accessed December 22, 2017].

<sup>48</sup> F. E. G. Cox, “History of Human Parasitology,” *Clinical Microbiology Reviews* 15/4 (2002) 595-612; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC126866/> [accessed June 6, 2017].

<sup>49</sup> Kpurkpur Tyoalumun, Sani Abubakar, and Nongu Christopher, “Prevalence of Intestinal Parasitic Infections and Their Association with Nutritional Status of Rural and Urban Pre-School Children in Benue State, Nigeria,” *International Journal of MCH and AIDS* 5/2 (2016) 147.

<sup>50</sup> Tyoalumun, et al., “Prevalence,” 147; Carolina Cruz-Cruz, Dolores López-Hernández, Juan Antonio Hernández-Shilón, Lorena Mercedes Luna-Cazáres, Jorge E. Vidal, Javier Gutiérrez-Jiménez, “Stunting and Intestinal Parasites in School Children From High Marginalized Localities at the Mexican Southeast,” *Journal of Infection in Developing Countries* 12/11 (2018) 1026. I interpret the term “wasted” to mean emaciated or anorexic.

parasites that cause several types of malaria (three of which were common in the ancient Mediterranean world). While ectoparasites have also shown up in the archaeological evidence,<sup>51</sup> this essay will focus on intestinal parasites.

Generally speaking, intestinal parasites are not in themselves *directly* fatal, but they compete with their “host” for food. In times of plenty, they may only cause mild anemia and a feeling of weariness, weakness, or physical malaise, especially in otherwise healthy adults. But if the host’s diet is challenged, the parasites can cause many complications.

Children are especially vulnerable. Their physical stature can be stunted and mental and speech development hampered due to “vitamin deficiencies and impaired growth.”<sup>52</sup> Parasites can also cause emaciation. Chronic malnutrition usually leads to deteriorating immune systems and susceptibility to other diseases. Thus parasites can often lead *indirectly* to death.<sup>53</sup>

A real crisis arises in times of famine because the host is competing with the infestation for less and less food. So those infected will suffer the effects of starvation more rapidly than they might otherwise. Mitchell and Tepper observe grimly, “Those with the most parasites in their intestines . . . die from starvation first.”<sup>54</sup> Thus, the indirect consequences of intestinal parasites range from anemia in times of plenty to starvation in times of famine.

But intestinal parasites can also bring about death more *directly*. Extreme cases of infection can lead to diarrhea, bowel blockages, malabsorption of food, and hence to death with extreme abdominal pain.<sup>55</sup> Although only a minority of victims die as

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<sup>51</sup> Karl J. Reinhard and Aduato Araújo, “Archaeoparasitology,” in *Encyclopedia of Archaeology* (ed. Deborah M. Pearsall; Amsterdam: Elsevier, 2008) 496; Zias, “Death and Disease,” 159; and Amanda Borschel-Dan, “A Bit Player in Human History, The Mighty Louse Is Important—and Here to Stay: From the Migration of Early Hominids to Jewish Rebels at Masada, The Perfectly Adapted Parasite Is a Portal in Time to Shed Light on Even the Smallest of Mysteries,” *The Times of Israel* (September 25, 2018) <https://www.timesofisrael.com/a-bit-player-in-human-history-the-mighty-louse-is-important-and-here-to-stay/> [Accessed October 25, 2018].

<sup>52</sup> P.D. Mitchell and Y. Tepper, “Intestinal Parasitic Worm Eggs from a Crusader Period Cesspool in the City of Acre (Israel),” *Levant* 39 (2007) 93-94. See also Mitchell quoted in No author, “Human Parasites Found in Medieval Cesspit Reveal Links between Middle East and Europe,” *Heritage Daily* (No date) <https://phys.org/news/2015-03-human-parasites-medieval-cesspit-reveal.html> [accessed December 22, 2017].

<sup>53</sup> See in this regard, especially Javier Gutiérrez-Jiménez, Lorena Mercedes Luna-Cazárez, and Jorge E. Vidal. “Malnutrition and Intestinal Parasites: Mexico Perspectives,” *Academia*, 1-18 (4); on line at: [https://www.academia.edu/34590130/Malnutrition\\_and\\_Intestinal\\_Parasites\\_Mexico\\_Perspectives](https://www.academia.edu/34590130/Malnutrition_and_Intestinal_Parasites_Mexico_Perspectives) (accessed January 29, 2018); and Tyoalumun, et al., “Prevalence.” In Nigeria, one study found that 37 percent of children were stunted, 29 percent were underweight, and 18 percent were “wasting” due to intestinal parasites (Tyoalumun, et al., “Prevalence,” 147).

<sup>54</sup> Mitchell and Tepper, “Intestinal Parasitic Worm Eggs,” 94.

<sup>55</sup> *Ibid.*

a direct result of the infection, such cases are, nevertheless, well known in the developing world today. And several apparent instances of such outcomes are narrated in the ancient literature (for example, 2 Macc. 9:5-10; Acts 12:23).

Because of these health dangers, two historians conclude: “Parasites are the major cause of ill health and early death in the world today.”<sup>56</sup> If true today, one may conclude it was also true in antiquity.<sup>57</sup> Thus the health consequences of parasitic infections, especially for children, in both the ancient and modern, developing worlds, are significant and often lethal.

### *Parasitic Infection at Seven Sites in Israel*

Examining evidence of these infections first from a *diachronic* perspective (evidence in Israel through the centuries) may be helpful. One way to establish a common infestation of intestinal parasites is to analyze ancient fecal remains.<sup>58</sup>

Archaeologists look for remains in ancient latrines, cesspits, coprolites, fecal soil (namely, areas where defecation occurred), and in pelvic soil from burials.<sup>59</sup> The evidence of eggs from intestinal worms survive for thousands of years in these soils,<sup>60</sup> which is precisely what happened at seven archaeological sites in Israel.

Evidence collected from sites in Israel ranging from the eighth century BCE to the fifteenth century CE—five latrines from different eras and locations, one fecal area, and one tomb—yielded about the same results:

#### 1. Iron II period Jerusalem (Latrine)

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<sup>56</sup> Reinhard and Araújo, “Archaeoparasitology,” 495. Compare the statement of Gutiérrez-Jiménez et al., “Malnutrition and Intestinal Parasites,” who note that intestinal parasites are “some of the main causes of morbidity and mortality (in Mexico today)” and that of Roberts and Manchester, *Archaeology of Disease*, 217: “infection by parasites is a cause of considerable morbidity.”

<sup>57</sup> For more information on the parasites and other chronic and widespread illnesses, see Reed, “Instability”; Zias, “Death and Disease;” and J. Philip King, and Lawrence E. Stager, *Life in Biblical Israel* (Louisville, KY: Westminster John Knox, 2001) 71-75.

<sup>58</sup> S. Harter, F. Bouchet, K.Y. Mumcuoglu, and J. Zias, “Toilet Practices among Members of the Dead Sea Scroll Sect at Qumran,” *RevQ* 21 (2004) 579-584; Mitchell and Tepper, “Intestinal Parasitic Worm Eggs;” Edward Neufeld, “Hygiene Conditions in Ancient Israel (Iron Age),” in *The Biblical Archaeologist Reader IV* (ed. E.F. Campbell Jr. and D.N. Freedman; Sheffield: Almond, 1983) 151-179; Zias, “Death and Disease;” Jane Cahill, et al., “It Had to Happen—Scientists Examine Remains of Ancient Bathrooms,” *BAR* 17 (1991) 64-69; Reinhard and Araújo, “Archaeoparasitology;” Laura Geggel, “Medieval Parasite-Filled Poop Found in Jerusalem Latrine,” *Life Science.com* (March 30, 2015) <https://www.livescience.com/50268-jerusalem-latrine-parasites.html> (accessed December 22, 2017); No author, “Human Parasites.”

<sup>59</sup> See Mitchell, “Human Parasites in the Roman World: Health Consequences of Conquering an Empire,” *Parasitology* 144 (2017) 49 <https://www.cambridge.org/core/services/aop-cambridge-core/content/view/S0031182015001651> [accessed June 7, 2017].

<sup>60</sup> Reinhard and Araújo, “Archaeoparasitology,” 495.

2. Early Roman period Qumran (soil samples from fecal area<sup>61</sup>)
3. Early Roman period Jerusalem (pelvic soil from a tomb)
4. Late Roman period Beth Shean (Latrine)
5. Roman period<sup>62</sup> Caesarea Maritima (Latrine)
6. Crusader period Acco (Latrine)
7. Late Arab Jerusalem (coprolites in cesspit)

The remains of the latrines and cesspits were full of intestinal parasites, whipworms mostly, but also tapeworms and roundworms. In the Iron Age Jerusalem sample, for example, each milliliter of organic residue contained about 11,000 parasite eggs. Eighty-five percent were whipworm and 15 percent were tapeworm.<sup>63</sup> At the Qumran site, archaeologists found evidence of whipworm, tapeworm, pinworm, and roundworm.<sup>64</sup>

Likewise, pelvic soil from a Herodian tomb in Jerusalem yielded the discovery of “two hollow, pebble-like artifacts” found in the abdominal cavity of one individual. The two objects turned out to be cysts of intestinal parasites.<sup>65</sup>

Excavators found the fish tapeworm in latrines dating from the Middle- to Late Roman periods at Beth Shan (Scythopolis) and Caesarea Maritima.<sup>66</sup> The results from a cesspit in Acco similarly indicated whipworm and tape worm infestations.<sup>67</sup> Finally, a latrine, located near the Church of the Holy Sepulchre in the old city of Jerusalem and dating from about the fifteenth century CE, yielded twelve coprolites (fossilized feces) containing thousands of worm eggs (mostly round worms and whip worms).<sup>68</sup>

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<sup>61</sup> The Qumran samples were not actually from a latrine or cesspit but from an area evidently used by the residents to defecate in shallow holes which were then immediately covered.

<sup>62</sup> Matthieu Le Bailly and Françoise Bouchet, “*Diphyllobothrium* in the Past: Review and New Records,” *International Journal of Paleopathology* 3 (2013) 182-187, do not give dates for these samples but one assumes this era from the context.

<sup>63</sup> Cahill, et al., “It Had to Happen.”

<sup>64</sup> Harter, Bouchet, Mumcuoglu, and Zias, “Toilet Practices”; Joe E. Zias, James D. Tabor, and Stephanie Harter-Lailheugue, “Toilets at Qumran, the Essenes, the Scrolls, New Anthropological Data and Old Theories,” *RevQ* 22 (2006) 631-640; No author, “Biblical Latrine: Ancient Parasites Show That Cleanliness May Have Been Next to Sickliness,” *Science Daily* (November 13, 2006) <https://phys.org/news/2006-11-ancient-parasites-cleanliness-sickliness.html> [accessed February 15, 2018]. This case is the first archaeologically attested evidence of pinworm in the ancient Near East.

<sup>65</sup> Joseph Zias, “Death and Disease,” 147-159.

<sup>66</sup> Le Bailly and Bouchet, “*Diphyllobothrium*.”

<sup>67</sup> Mitchell and Tepper, “Intestinal Parasitic Worm Eggs.”

<sup>68</sup> Hui-Yuan Yeh et al., “Human Intestinal Parasites from a Mamluk Period Cesspool in the Christian Quarter of Jerusalem: Potential Indicators of Long Distance Travel in the 15th Century AD,” *International Journal of Paleopathology* 9 (2015) 75; Geggel, “Medieval Parasite;” and No author, “Human Parasites.” Every coprolite contained roundworm and whipworm. Only one or two also had eggs from beef/pork tapeworm, fish tapeworm, and two protozoa causing dysentery.

The parasites were ingested, for the most part, as a result of either undercooked meat or of handling and subsequently ingesting, fecal remains (for example, on vegetables).<sup>69</sup> Evidence of parasite eggs in the fecal remains of ancient humans indicates a poor hygienic environment and overcrowding.<sup>70</sup>

### *Parasitic Infection Elsewhere in the Empire and Beyond*

Having taken a diachronic perspective above, the essay will now consider the remains from a synchronic perspective by comparing Israel's findings with those roughly contemporaneous throughout the Roman Empire. In recent years scores of excavations of ancient latrines and cesspits have been conducted with the results about the same in every case.

Piers Mitchel has collected data on many latrine digs throughout the Roman empire. He notes intestinal parasites have been found in latrines and graves in ten European and Middle Eastern countries. Whipworm was the most frequently identified, with roundworm being the second most common.<sup>71</sup> These and two others found in multiple sites in Israel from four different time periods were also the most common in the Roman empire in the first and second centuries CE. Tapeworm infestations also frequently occurred. The table below offers a summary of Mitchel's evidence.

Table 4: Findings of Helminth (Intestinal) Parasites in the Early to Late Roman Empire<sup>72</sup>

Species	Country
Tapeworm	Austria, France, Britain, Egypt, Germany, Israel, NW Iran
Fish tapeworm	Austria, Britain, France, Germany, Israel, Poland, Egypt
Roundworm	Austria, Britain, Germany, Israel, Netherlands, Poland, Greece, Turkey, NW Iran
Whipworm	Austria, Britain, France, Germany, Israel, Italy, Netherlands, Poland, Greece, NW Iran

The widespread infection in the Roman empire provides a *prima facie* case for presuming it was also widespread in Israel during this period. This disease was simply everywhere in the Greco-Roman world during the late Second Temple period. In every case where archaeologists have examined latrine remains, they have found the parasites. How many people were infected? Was the percentage 50 percent as the South Korean doctor speculated for North Korea?

<sup>69</sup> Harter, et al., "Toilet Practices," 582, surmise that the residents of Qumran also contracted the parasites by ritually bathing after an infected person.

<sup>70</sup> Reinhard and Araújo, "Archaeoparasitology," 498.

<sup>71</sup> Mitchel, "Human Parasites," 50-51.

<sup>72</sup> Summary of table in Mitchel, "Human Parasites," 51; plus Le Bailly and Bouchet, "Diphyllobothrium"; Evilena Anastasiou et al., "Infectious Disease in the Ancient Aegean: Intestinal Parasitic Worms in the Neolithic to Roman Period Inhabitants of Kea, Greece," *Journal of Archaeological Science* (2017) <https://www.academia.edu/> [accessed December 21, 2012]; Faith W. Williams et al.,



## CONCLUSION

This essay has appealed to humble objects: human fecal remains. No one will likely visit Israel or a museum to see these items. No archaeological magazine will likely feature them on the front cover with glossy, color photographs. No movie mogul will make an *Indiana Jones* film based on this type of “artifact.”

But from these remains, this essay has attempted to meet the ancient real folk, the people who suffered daily from their chronic maladies and to understand their plight by appeal to modern cases for comparison. Many (possibly most) children and even adults in Late Second Temple Israel likely never felt quite right, never felt well. Indeed, feelings of well-being in the majority of a population might be a modern phenomenon of developed countries. If so, how might modern readers re-imagine the first reception of some of the biblical texts and events?

In the Synoptic Gospels (Mark 10:13//Matt 19:13//Luke 18:15) parents bring children to Jesus so that he might “touch them” and bless them. Readers must imagine, in light of the above evidence, malnourished children, lethargic toddlers, anemic little ones, even emaciated children—in a word, very sick—among those coming for blessing. Were they about a third to a half of the total number?

The children were not thriving, were not growing properly, were not as smart as the other children, and the parents did not know why. Many may have contracted strange diseases because they were already weakened by the parasites. So, the parents must have brought their precious treasures to Jesus, hoping he could do something. Desperate and fearing the worst, they may have pleaded, “Please, Jesus, bless my child. I fear he/she will not live much longer.”

Many of the adults likely felt the same way, but they were older and stronger and could more easily ignore the symptoms. And if one can scarcely remember what it feels like to be well, one does not miss wellness so much. Somehow, they made it through the day fighting fatigue and weakness. They no longer expected to get past their condition but hoped that perhaps their children could.

So, when they heard such words as: “Blessed are the meek (weak) for they will inherit the earth . . . come to me you who are weary . . . my burden is light . . . blessed are those that hunger now. . . blessed are those that weep now,” what did they think and feel? These words must have been a balm, a comfort to “broken jars.”<sup>50</sup>

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“Intestinal Parasites from the 2nd–5th Century AD Latrine in the Roman Baths at Sagalassos (Turkey),” *International Journal of Paleopathology* 19 (2017) 37–42; M. Nezamabadi et al., “Paleoparasitological Analysis of Samples from the Chehrabad Salt Mine (Northwestern Iran),” *International Journal of Paleopathology* 3 (2013) 229–233; Nicole Searcey et al., “Parasitism of the Zweekoo Woman: Dicrocoeliasis Evidenced in a Roman Period Bog Mummy,” *International Journal of Paleopathology* 3 (2013) 224–228. The reader should also note the many studies of mummies from Egypt (more than 8,000) that show evidence of parasitic infection. See Jackson, *Doctors and Diseases*, 15, who lists five species of intestinal parasites, and Živanović, *Ancient Diseases*, 220.