NETWORK ANALYSIS IN ARCHAEOLOGY
Acknowledgements

This volume arises from a session organized at the 75th Anniversary Meeting of the Society for American Archaeology at St Louis, Missouri. I would like to thank all the speakers at the session for responding to my invitation, and then being so professional in promptly converting their oral papers into written chapters for this publication. Ray Rivers covered for me when at the last minute I was unable to make the trip to St Louis. Indeed, Ray has been an incredibly informative and patient interlocutor for my research into networks for nearly a decade now, as has his colleague at Imperial College, Tim Evans. I am extremely grateful to both of them. Elena Soboleva gamely took on the challenge of producing a cover image, and I thank her warmly. At Oxford University Press, Hilary O’Shea and Taryn Das Neves have once again been incredibly helpful and accommodating.
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Re-thinking Jewish Ethnicity through Social Network Analysis

Anna Collar

10.1 INTRODUCTION

Between AD 66–135, the Roman province of Judaea was all but annihilated. As an iron-fisted response to various Jewish uprisings against Roman rule, both in Judaea and elsewhere, in AD 66 Vespasian ordered the siege of Jerusalem. By AD 70 the central and singular Temple of the Jews was in ruins. Jews were taken into slavery, and over the next half-century, Judaea was punished again and again, culminating in the uprising led by Simon Bar Kokhba in AD 132. By AD 135, this too was quashed: and Hadrian expelled Jews permanently from Jerusalem—a ban not lifted until the 4th century. Jerusalem was renamed Aelia Capitolina and the province Syria Palaestina. Judaism, its Temple and its self-assurance in tatters, underwent a series of fundamental reforms, dictated by the rabbis in Palestine and Babylon. These reforms were set out by highly educated religious leaders; but what of the Jewish lay-person, the farmers, the smiths, the ordinary men and women living their lives dispersed across the Roman world?

In this chapter, I use the epigraphic data for the Jewish Diaspora to argue that, if the rabbinic reforms of Judaism were necessitated by the destruction wrought in Judaea, then this cataclysm also ‘activated’ the ethnic network of the Diaspora Jews. Before the destruction of the Temple, Diaspora Jews did not define themselves (epigraphically) as such. I suggest that this was because there was an inherent centre to their religious life, manifest in the Temple. The destruction of the real and psychological centre of Judaism changed Jewish existence forever. I argue that the tenets of rabbinic halakhah—the laws and moral codes defined in the Mishnah—were swiftly transmitted across the newly activated ethnic network of the Diaspora, shown clearly in the epigraphic record as a renewed knowledge of the wider Jewish network.
10.2 SOCIAL NETWORKS, ETHNICITY, AND WEAK AND STRONG TIES

Ethnicity is a complex issue, as we shall see below, but it is a fundamental aspect of identity and one that defines individuals—both for themselves and for the people around them. One’s ethnic heritage is essentially membership of a group, albeit sometimes dispersed, and there remains an element of common ground between separated individuals. In network terms, groups can often be identified as local clusters—comprising people who see each other regularly and who can be considered as connected by strong ties. This is the term used in sociology to describe people with whom an individual has close, repeated, and regular contact, with whom they share many aspects of their life, described by sociologist Mark Granovetter as ‘a combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and reciprocal services’ between the two nodes (Granovetter 1973: 1361). These are the people who have the most influence on an individual, because they are trusted and respected parts of a person’s social network. However, most individuals’ social networks are not entirely localized either—they are made ‘global’ by a few long-distance links, or weak ties; for example, our passing acquaintances. Because these weak-tie people are less likely to be involved with many aspects of our strong-tie local social network, long-distance weak ties make important connections between separate local clusters. This combination of local clustering and long-distance links is famously described as the ‘small-world’ network (Watts and Strogatz 1998). In a small-world network, because of the weak ties connecting the separate clusters, the distance between two nodes or people is never that great.

Long-distance weak ties between the clusters have the effect of joining up these local groups into one interconnected cluster, known by physicists as the giant component,1 which brings all the nodes of the network into contact with each other. When a network is not connected by the giant component, events on the network are only felt locally. In social terms, long-distance links in a network were recognized as having real power in terms of the transmission of new information. Mark Granovetter’s seminal 1973 paper, ‘The Strength of Weak Ties’, demonstrated the importance of these individuals that connect up different localized clusters—that ‘span network distance’—to the spread of certain kinds of information. He looked at the way people received information about new jobs, and found that, because our acquaintances (the long-distance weak ties in our social network) have access to local clusters other than our own, they are highly effective at passing information about new jobs

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1 As opposed to the ‘normal component’, describing the set of nodes to which a node is linked, i.e. its ‘cluster’. See Watts 2003: 45–6.
across the network. Our strong ties, our close friends and family, more usually form what is known in sociology as a ‘closed triad’—the structural situation describing three individuals who are all likely to know each other, or else have other markers of strength, such as frequency or length of contact (Shi et al. 2006:1). This means they are less likely to come across information that we don’t already know: our strong ties have a localized quality.

Granovetter develops this further: ‘individuals with few weak ties will be deprived of information from distant parts of the social system and will be confined to the provincial news and views of their close friends. This deprivation will not only insulate them from the latest ideas and fashions but may put them in a disadvantaged position in the labor market, where advancement can depend [...] on knowing about appropriate job openings at just the right time’ (Granovetter 1983). In our modern world of social networking sites, keeping abreast of events and opportunities outside our local cluster may be easier than before. It is also important to remember that everybody is both a weak and a strong tie, that identification as such depends on perspective, and that these classifications are flexible and subject to change.

Of course close-knit communities—the clustering of neighbouring nodes—occur more frequently than long-distance connections. The long-distance links transgress local cluster boundaries, forming shortcuts to other clusters: the ‘small-world’ is a global network phenomenon that arises from local network interactions. The weak ties that are the feature of small-world networks are especially good at ‘simple’ diffusion that does not require frequent contact or trust—like passing on information about new jobs, or infecting us with disease. However, these types of links do not generally exert great influence on people where fundamental issues of serious change or adoption of new ideas are concerned. Strong ties do, because they are our closest family and most trusted friends. These people form the core of our social network, and so exert the most influence on our decisions when it comes to the ‘complex’ transmission of new ideas or information. These are the people and the networks we must focus on when thinking about the spread of new religious ideas.

However, the diffusion of information through strong ties is problematic, at least, mathematically. Theoretically, the path length of strong ties is classed as long; i.e. the information being transmitted must make lots of little hops through different clusters and so may take a long time to travel from one side of the network to the other. However, this is not the case in real life, and empirical social network data has shown that strong ties can still have a short

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<sup>2</sup> Influencing people is more complex than presented here, as certain individuals, especially in the case of religious diffusion, missionaries, who may well come into a community as a ‘weak’ tie, can possess a characteristic such as great charisma, knowledge, status, technology, or wealth which will make them more likely to be influential.
path length; i.e. a network of strong ties still allows information to pass through it relatively quickly. Social physicists Shi, Adamic, and Strauss found that removing the weak ties in a test case did not disconnect the network; rather, ‘the network sheds some nodes and shrinks modestly’ (Shi et al. 2006). They concluded that a high-fidelity strong-tie social network, conceptualized as overlapping clusters, spreads information at almost the same efficiency as the small-world network linked together with long-distance weak ties. A combination of the two is the most accurate representation of the real world—where both overlapping clusters and weak ties connect the network.

10.3 THE JEWISH DIASPORA

The Jewish Diaspora in the Mediterranean offers a good set of data with which to explore these aspects of network theory: comprising, theoretically, a web of ethnically linked groups of people, with a universal notion of the distinctiveness of the Jewish people, faith, and laws. Since the concepts of the religion were transmitted in written form, increasing the potential for standardization, transportation, and access, there was an intrinsic unity to the dispersed Jewish community. Because shared Jewish identity involved most aspects of daily life, ethnic links can be understood in sociological terms as ‘strong ties’, the trusted bonds existing between friends and family, and therefore as extremely powerful for the transmission of social and cultural innovations.

Defining ‘ethnicity’ is a complex issue, as ethnicity itself is a fluid, socially constructed, and subjective aspect of identity, open to reconstruction, adoption, and redefinition by different people in different environments (see Orlin 2010). The epigraphic data mask subtleties of this kind, and must be taken at face value: those who chose to define themselves as Jewish are understood to be part of the Jewish ethnos. These defining markers are objective aspects of the record—but as Orlin says, ‘subjectivity plays a large role here as well, for these attributes do not have independent significance; they become important for group membership only when the group invests them with the power to distinguish between in-group and out-group members’ (2010: 15). Indicators of Jewishness in the epigraphic record are understood to have been used by the Jewish group for the purpose of self-definition: so my aim here is to test the communicative power that ought to be inherent in such an ethnic network. Assessing the network formed by the epigraphic material and how it changed over time draws a bottom-up picture of the developments in the Diaspora, and allows an understanding of how ordinary people marked their ethno-religious identity, and the reasons why the way they did this might have changed.

It is first necessary to briefly situate the Diaspora within an historical framework. At various points, the Jews were dispersed, whether by force or
voluntarily. The Achaemenids deported a large percentage of the population of Judaea to Persia, and the Hellenistic kings settled Jewish families in Asia Minor and Egypt. The Jewish historian Josephus claimed that there were Jewish communities in virtually every large city in the Roman world in the 1st century AD.\(^3\) This means that, in different periods and places, and for different individuals, the integration or separation of Jews within the Graeco-Roman environment ranged from total assimilation to rigorous separatism, and Barclay points out that these levels would have differed between genders: ‘the least assimilated Egyptian Jews were Jewish women who lived in wholly or largely Jewish districts’ (1996: 118). There are many aspects of Jewish life and belief that were both highly regarded as well as vilified by their Greek and Roman neighbours—but constraints of space preclude their discussion here. Instead, I will simply examine the epigraphy for active display of Jewish identity.

Identifying features of Jewish inscriptions include reference to the synagogue, proseuche, ‘prayer-house’, or gerousia, although non-Jews also use all three. Likewise, offices within these domains—archisynagogos, gerousiarch, and presbyter—are all found in non-Jewish contexts, so texts that mention only one of these terms without further indicators are not included. Later examples use rabbi, but the term does not necessarily denote ‘formal’ priestly rank. Other clear indicators are Hebrew, Semitic personal names, and Jewish symbols (the menorah, lulab—palm branch, etrog—citron, and shofar—the trumpet, being the most common). We also sometimes encounter specific reference to the Laws or the Sabbath. A problem with the data is that, because they are often funerary, they are generally undated. As such, most are dated on palaeographic grounds, and so can cover large time ranges.

I will show that, beginning in the 2nd–3rd centuries AD, the epigraphic evidence, as the record of the lives of ordinary Jews, the largely static minority populations making up the Diaspora, underwent a stark change. In the early Hellenistic-Roman period, Jews integrated with Gentile communities, adopted Hellenized names and practices, and engaged with certain aspects of Graeco-Roman culture. Even though the Diaspora was considerable, there is very little evidence for Jewish self-identification, and where there is, it is limited to particular socio-political contexts: emancipation of slaves and the collective dedications of prayer-houses in Egypt.

The destruction of the Temple and the ensuing turmoil dramatically changed the lives of Diaspora Jews. The resulting tension with the Roman

\(^3\) Josephus, *Ant.* 14. His quotation of a letter at 12.147–53 records the transportation of 2,000 Jewish families to fortresses and strategic places in Phrygia and Lydia, who were given land and permitted to live by their own laws. The authenticity of the documents Josephus uses has been questioned, and it may be that this letter was an apologetic document penned by Jews themselves (Barclay 1996: 260–2).
environment strengthened interpersonal bonds between Jewish communities, re-activating a dispersed ‘strong-tie’ network built on a new understanding of shared ethnicity. And we find also that the epigraphy shows the widespread dissemination and adoption of explicitly Jewish names, symbols, and language. By recognizing and interpreting this trend as the visible symbols of the new universalized halakhah of the rabbinic reforms, we may analyse these as a demonstration of how the community of the Jews created a dynamic network based on strong-tie ‘familial’ ethnic connections.

10.3.1 The Diaspora before AD 70

Although there is substantial literary evidence for the earlier Diaspora, a survey of the epigraphic material from before the fall of the Temple shows that the occasions where Jews explicitly name themselves as such were very limited. Few individuals stated their Jewish heritage or ethnicity, and when they did, they did so for specific reasons. In Egypt, Jews had the distinct politico-legislative purpose of distinguishing themselves from Egyptians, to secure privileges from the Greek rulers. In the Black Sea, the Aegean, and the west, where we find singular rather than collective marking of Jewish identity, there is a clear connection with emancipation (IJO 1, BS9). Although the literature records Jews in Rome by the 2nd century BC, there is no material evidence for this. Likewise, Josephus records Jews settling in Asia Minor under the Seleukids; however, the only epigraphic evidence is a late Hellenistic inscription from Caunus in Caria that records a Samaritan family mostly with Greek names, including Dionysia and Cleopatra (IJO 2, 24). There were Jews in Cyrenaica and Cyprus during the Ptolemaic period according to Josephus, and the Cypriot Jews are known from three Phoenician inscriptions from the 4th century BC (IJO 3, Cyp 6; 7; 8).

However, the absence in most places of explicit statements of Jewish identity leads to the conclusion that Jews in the pre-AD 70 Mediterranean Diaspora responded to the Graeco-Roman world by assimilating to a degree that meant it was either unnecessary or even perhaps undesirable to identify oneself as Jewish, at least in inscriptions. Moreover, the occurrence on Jewish inscriptions of pagan theophoric names such as Heraclea at Delos (CIJ 1, 725), Dionysia at Caunos, and Muttun-Astart, ‘gift of Astarte’, on Cyprus, the evidence of a Jew who underwent incubation in a pagan temple in Boeotia (IJO 1, Ach 45), or the

4 The analysis of the epigraphy relies on various corpora of Jewish inscriptions, Frey’s Corpus Inscriptionum Judaicarum, (CIJ), Ameling, Noy, and Bloedhorn’s, and Noy, Panayotov, and Bloedhorn’s Inscriptiones Judaicae Orientis vols. I–III (IJO 1–3), Horbury and Noy’s Jewish Inscriptions of Graeco–Roman Egypt (JIGRE), and Noy’s Jewish Inscriptions of Western Europe (JIWE), supplemented by the revised Schürer 2. Unless otherwise stated, inscriptions are in Greek, the lingua franca of the Diaspora even in Italy, making up more than two-thirds of the 900+ items.
fact that there are Jewish dedications in a temple of Pan in Egypt (JIGRE, 121–124) suggest that using pagan temples and names was not necessarily inappropriate or incompatible with Jewish ethnicity in the Hellenistic period.

This lack may be partly due to a strong centralized relationship with Jerusalem, implying an inherent Jewish identity that did not need external expression. A reference from Delos to Yom Kippur (CII 1, 725) shows knowledge of and participation in the Jewish festival year. These connections between Jerusalem and the Diaspora are also visible in the actions of Judaea’s rulers. Inscriptions from Delos and Syros honouring Herod the Great show that the Diaspora was intimately connected to political events in Judaea; and an honorific inscription from the early 1st century AD from Delos, found in the propylon of the Temple of Apollo, was given by the Athenians for Herod Antipas, supporting the notion that the Delian community in particular was closely engaged with the political structures in both Athens and Judaea (IJO 1, Ach 38–39; 69; 74), and also that the leaders in Judaea were involved with the Diaspora even to the extent of donating to pagan buildings.

It seems clear from the lack of ordinary Jews in the Diaspora explicitly named as such, and the special situations of those who are, that before AD 70, Jewish culture and ethnicity in the Diaspora was somehow inherent and not prominently advertised. Jews were given pagan names, Jewish rulers donated to pagan buildings, and Gentiles were interested in Jewish cult. Because Jerusalem was the centre of Judaism in certain absolute and specific religious and fiscal terms, Judaism, with a book and the Temple at its heart, was understood by Jews to be fully formed. Jews engaged with and responded to the circumstances of their life in the Diaspora without losing this sense of attachment to the Jerusalem temple. However, when the emotional and religious heart of Judaism, enshrined in the Temple, was destroyed, how did the Diaspora react?

10.3.2 The Destruction of the Temple

The Jerusalem Temple in the Hellenistic-Roman period was a solid financial and religious focus for the Diaspora: both through the annual didrachma Temple tax levied on all men over twenty and the substantial numbers of pilgrims. The generation of normative and accessible Jewish writings in Greek aided this notion of centre. Goodman claims that for the Romans, the destruction of the Temple was an act of political machismo and posturing.

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5 As recorded by Philo, De Spec. Leg. i 12 (69); and Josephus’ reckoning of the numbers attending the festivals in Jerusalem at 2,700,000, B. J. vi 9, 3 (425). See Schürer 1986 III:i: 148–9.

6 Including the LXX, Sibylline Oracles, 2 Maccabees, and the letter of Aristeas, see Collins 1986: 61–86.
by Titus following the Jewish revolt, essentially an insignificant event in ‘a comparatively minor provincial backwater’ (1994: 43). For Jews, however, the destruction of the Temple marked a major change in the way Judaism was practised and conceived. The combination of the slaughter, subjugation, and impoverishment of the people of Judaea, the renaming of the province, and the destruction of the Temple itself had enormous psychological, spiritual, and financial consequences, kick-starting the period of the Bar Kokhba revolt and the rabbinic reforms, that led ultimately to the composition of the new book of laws, the Mishnah, c. AD 200. What about the situation in the Diaspora? The destruction is lamented in Diaspora works of literature, such as the Fourth and Fifth Sibylline Oracles (Collins 1986: 152). Josephus, writing Contra Apionem probably in the period following the assassination of Domitian, located the essence of Judaism in the rites of the Temple (Goodman 1994: 45). What then for Judaism when the rites of the Temple were no more? ‘The only centre left to the people was the Torah’ (Schürer 1986: 513).

Aside from the psychological import, the most immediate changes for the majority of Diaspora Jews would have been the transformation of the Temple tax into the fiscus Judaicus, now payable to the Romans, and, in certain places, the influx of Judaean refugees or prisoners of war. The increased tension between Jewish communities and the Roman environment led to Jews turning inwards, increasing their reliance on an ‘ethnic network’ that had previously been less important. However, the longer-term effects of the destruction of the Temple on the Diaspora communities were cognitive, seen in the revolts that took place over the following fifty years. It has been argued that the Bar Kokhba revolt and the various violent revolts in the Diaspora in Cyrenaica, Cyprus, and Egypt, marked the ‘powerful messianic expectations’ (Hengel 1979: 655–86) of the dispersed Jewish nation. However, the revolts were all quashed, and instead, the most important reaction to the destruction of the centre is seen in the rise of rabbinic Judaism, which promoted a greater focus on the texts of the Torah and stricter adherence to the Laws governing norms of behavior—halakhah: it was ‘precisely the annihilation of Israel’s political existence which led to the triumph of rabbinic Judaism’ (Schürer 1986: 555).

10.3.3 The Transmission of Rabbinic Judaism in the Diaspora

The epigraphic evidence shows a massive increase in explicit statements of Jewish identity from the 2nd century onwards. I argue that this should be interpreted as evidence that the new religious authorities in Palestine used the highly influential strong-tie ‘familial’ connections of the ethnic network of the Diaspora to transmit the religious and social discipline of rabbinic Judaism. The reforms of rabbinic Judaism arose in Judaea and emphasized reading and
interpreting the Torah and standardizing norms of behaviour (Rajak 1992: 11–12). This reconstruction of Judaism and the new universalized *halakhah* are clearly manifest in the records of the ordinary people of the Diaspora. The indicators found on Jewish monuments that reflect an increased awareness of a common Jewish practice, history, and behaviour include specifically Jewish symbols as referents to a universalized ritual and the religious calendar, and the use of Hebrew as a marker of education and a revived knowledge of the sacred texts, Torah, Jewish Law, and Jewish history. In addition, the increasing use of specifically Jewish name forms provides a subtle indication of the universal engendering of a more strongly defined Jewish identity, matched by the trend during the 3rd–4th centuries AD for individuals to define themselves as ‘Jews’ or, more often, as ‘Hebrews’.

Williams has argued that the 4th–5th century Hebraization of names in the Diaspora was a reaction to Christianity’s appropriation of Biblical names and the ‘increasingly intolerant attitudes of the Christian emperors towards people of other religions’ (Williams 2007: 192). However, because these changes begin to be enacted before Christianity was the state religion, I instead suggest that this represents the internal transformation of Judaism. To demonstrate this, I show Hebraization as a series of network maps, comprising the findspots of the pieces of evidence. The technique used is simple and well known: Proximal Point Analysis (PPA), where every known node is linked to its three closest neighbours. However, simple as it is, the technique allows some interesting observations to be made.

### 10.3.4 Proximal Point Analysis

The first PPA (Fig. 10.1) functions as a preliminary, static snapshot of the geographical pattern of data, showing nearest neighbours and hypothetical interactions and information flow between Diaspora communities. It highlights places of geographical isolation and connectivity, but does not reflect existing connections. It allows the initial observation of the geographically determined Diaspora network: the empty spaces, long-distance overland or maritime links, and some of the constraints that terrain imposed on communications.

Immediately clear are the long-distance links across the western and northern Diaspora, as opposed to the tightly integrated eastern networks of Asia.

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7 This terminological change has been linked to the destruction of Judaea, but may be better explained by the renewed emphasis on Jewish history. However, it may simply be connected with how scholars have interpreted the term, i.e. dating inscriptions using ‘Hebrews’ later on the grounds of its use. See the recent discussion of a Latin inscription from Capri (Noy and Sorek 2007).
Minor, Egypt, and Syria. In the west, Ibiza, Malta, and Sardinia provide links between Hispania, North Africa, and Rome, with Ibiza and Rome emerging as centres. There is a clear disconnect between southern Italy, linked via the major immigration port of Hydrantum to Greece, and the northern Italian sites around the Po valley. This reflects a divide between the two areas, highlighting patterns of local interaction and the different origins of their Jewish communities. The sparser network in the northern Adriatic is composed mainly of single finds, suggesting that the Jewish presence here was superficial. The epigraphy supports this: the only evidence from Ravenna is an amphora fragment inscribed in Hebrew (JIWE, 10), and the find from Concordia is an epitaph for the wife of a soldier from Emesa in Syria (CIJ I, 640). The larger, more established communities are later: the inscriptions from Brescia and Mediolanum date from the 4th–5th centuries.
The most striking thing about the western Diaspora is the separation of Magna Graecia from the rest of Italy, and the clear importance of Sicily as a local network, connecting with Malta, Carthage, and Calabria. Malta seems to serve as a communications hub between Sicily and Africa. Another interesting area is the pocket of introspection along the Danube *limes*, which must be connected with the military camps—indeed, a *praepositus stationis* made a dedication in the synagogue at Intercisa (*CIJ* I, 677). The long-distance links into Raetia and Germania Superior are misleading, as both of the finds (*CIJ* I, 673; 674) are portable amuletic texts that may not actually have been used by Jews per se, although they do show that Jewish *religious ideas* were attractive and taken far beyond places where there were established communities.

Moving east, although northern Greece, Moesia Inferior, and Thrace also have long-distance links west into Dalmatia via Stobi and Doclea, and east into
Bithynia through Chalcedon, their communities were bigger, with attested synagogues. The missionary journeys of Paul into northern Greece also testify to the importance of these places in the Diaspora, and also to the intercommunications between them, regardless of their geographical distribution. By contrast, the network in Asia Minor is tightly integrated and even, presenting a picture of regular low-level interactions.

Although the analysis takes no account of geographical costs or directionality, the network reflects the geographical features of the landscape. The sites in Lycia, Pisidia, and Pamphylia mainly connect amongst themselves and along the coast of Cilicia, rather than across the high mountains of internal Lycia. This creates a pocket of introspection, supported by the fact that most of these are single inscription findspots. However, this area links to Apollonia in Phrygia, noteworthy because the inscription makes explicit the connection: the epitaph of Debbora, of Pisidian Antioch, who married Eumelos from Sillyon in Pamphylia (*IJO* 2, 180). Amastris provides the only link to the communities of the north shore of the Black Sea, which are otherwise completely isolated. The centrality of Panticapaeum, and the remoteness of the Black Sea sites probably reflects reality. Although the Diaspora was well established beyond the Roman Empire, the Roman-Parthian/Persian frontier will have restricted communications in this direction.

On first impressions, the Cypriot network appears introspective, with only a couple of links from the north to the Cilician coast. The high mountain ridge between north and south does not divide the network, until we recall that in the early period, Jews are epigraphically attested only on the eastern side of the island, at Kition in the 4th century BC (*IJO* 3, Cyp7–9), and in the 1st century BC at Kourion (*IJO* 3, Cyp5). The link to the Near East at that time is explicit—the inscriptions at Kition are in Phoenician. There were many Jews in Salamis, as attested at Acts 13:4. The strong communications between Cyprus and Judaea continued, as the Jews revolted under Trajan, demonstrating interaction with Palestine and the rest of the Diaspora. However, the network connectivity has been skewed by the post-banishment (Schürer 1986: 68) return of Jews in the 3rd–4th centuries. This has reconfigured the network on the island: masking the links with Phoenicia, creating a stronger internal network, and highlighting instead new links to Cilicia.

Egypt and Cyrenaica are the only parts of the network that are entirely isolated. This is quite accurate, as the Egyptian Diaspora was well established and, as a consequence, fairly introspective. The PPA misses Alexandria as a major Mediterranean hub, but the lack of an emergent centre in Egypt suggests that the population was evenly diffused. Cyrenaica is also entirely introspective.

This initial analysis captures pockets of isolation, and this reflects the real situation that may have existed in the agricultural hinterlands of Asia Minor, Egypt, Cyrenaica, and the Black Sea. It is notable that two of these more
introspective areas, Egypt and Cyrenaica, were regions where Jewish rebellions occurred. The divide between north and south Italy is probably reflective of reality, although the gravitational pull of major cities is absent, and as a result the Jewish communities in Rome, as well as Alexandria and Jerusalem, do not look very important. This is partly to do with the fact that this model does not have different costs built in for land and sea connections—a more complex version of this analysis could factor these in. This analysis is also only built on epigraphic data, and a more developed version could include literary evidence, which would add a more realistic gravity to these three major cities.

10.3.5 Networks Over Time: Hebraization

Following from these initial observations of clustering and isolation, we now build in the date range of the evidence for Hebraization, mapping only those finds that use Hebrew, Jewish symbols, or make explicit reference to Israel. New nodes this time connect not to their three closest neighbours, but to Judaea and to one established connection. This series responds to what is known of the date range of the evidence, by mapping findspots in hundred-year blocks, and builds into the network the role of Judaea as the place from which the reforms were disseminated as well as attempting to simulate more localized contact and exposure to Hebraization. Rome is also treated as a centre of gravity.

Although this skews the maps towards having very long-distance links and makes Judaea a heavy centre, it acts as a counterpoint to the initial, un-weighted PPA and creates a picture of more ‘realistic’ interaction patterns, the idea of rabbinic ‘mission’ to the Diaspora, in which places were first exposed to the reforms, and subsequent localized spread of information. It simulates potential routes of information transmission from community to community, and also from a central authority, highlighting the growth of localized centres and clusters. The spread of halakhah was driven by the rabbinical centres of Palestine and Babylon, but the models also suggest potential routes of a more organic process of contact and adoption.

10.3.6 First and Second Centuries AD

Fig. 10.2 comprises the sparse evidence for the early stages of Hebraization after the destruction of the Temple and the Bar Kokhba revolt. The links are naturally very long. Some are not connected with the rabbinic reforms; for example, the amphora fragment inscribed with Hebrew from Ibiza simply implies long-distance trade with Judaea (JIWE 178), and the evidence from Pompeii is connected with slaves taken to Italy after the Jewish Wars (CIJ 1, 562). However,
the targeting of the established communities in Rome and Athens, and to a lesser extent Egypt, is fairly clear. It is more interesting however to look at the gaps in the network, which for Cyrenaica and Egypt can be plausibly connected with the heavy-handed quashing of revolts there, but in Asia Minor are quite striking. Presumably, attempts to bring the reforms into these well-established communities (as highlighted by the missionary journeys of the Christian apostle Paul through the synagogues of Asia Minor) were less successful.

10.3.7 Third Century AD

The jump in the network connectivity in the 3rd century is impressive. What is immediately clear in Fig. 10.3 is that Hebraization was not an organic process, spread through geographically proximate places, but rather a pan-Empire phenomenon: from Caesarea in Mauretania to Pannonia, from Sicily to the Black Sea. Many of the places where Hebraization can be identified at this stage are coastal—Carthage, Catania, Hydrantum, Kos, and Corycus, highlighting the importance of geographical position within the network for exposure to and acceptance of new religious ideas. However, the sites in the hinterland of Asia Minor also begin to open up at this stage, notably in Phrygia and Bithynia. A reason for this might be
found in the contemporaneous flourishing of Christianity in internal Asia Minor, which although it did not drive the process of Hebraization, was a localized change in the dynamics of the Jewish communities. Hebraization also spreads into Syria, although only to a superficial degree at this stage.

10.3.8 Fourth Century AD

The process in this period (see Fig. 10.4) becomes more organic in Asia Minor, Syria, and Sicily. The communities on the coast of Ionia are drawn inland towards the tightly interconnected sites in Phrygia. Phrygia becomes the connective corridor to the sites in Bithynia, with Nicomedia emerging as a centre between the Black Sea sites and the rest of Asia Minor. This highlights an increase in cross-Euxine connectivity centred near the Bosphorus that may reflect that Nicomedia was Diocletian’s capital from the late 3rd century until the final transferral of Rome to Constantinople in AD 330. A similarly tight network emerges in the sites round the southeast corner of Sicily, including Malta, and likewise in Syria. The network between the communities on the heel of Italy probably represents a similarly introspective process. The evenly distributed pattern in the well-established communities of Thessaly and Macedonia may result from prior exposure to the phenomenon. The network in
the west appears more centralized than in the east, reflecting the continuing importance of Rome. The lack of an eastern centre outside of Judaea is therefore particularly noteworthy.

### 10.3.9 Fifth–Sixth Centuries AD

Fig. 10.5 shows a deepening of the process, especially at a localized level. The notable growth in the east is in the region of Constantinople, creating an area of introspection, reflecting the new capital’s gravitational pull. In the west, Hebraization spread through the locally integrated networks of communities in Sicily and Calabria. The geographical distances in the western network are...
longer than in the east, suggesting that the network was of a different quality. It may indicate that either the west was more centralized around the Roman hub, or alternatively that the places on the coast of Spain were more cosmopolitan and had long-distance links elsewhere. This may find support in an inscription mentioning Cyzicus in Asia Minor, which was found in Tarragona (JIWE, 186). The sites along the coast of Spain and southern France make up an almost separate network, which may reflect the disintegration of the centralizing Roman force: it was during this period that the western provinces came under Barbarian control and the Empire split.

What the use of networks helps to show is how Hebraization as the visible remains of the pan-Judaic universalizing reforms might have moved across the Diaspora. The analyses suggest that it was a centralized process, occurring throughout the Roman Empire during and after the 3rd century. It may be that certain large Jewish communities were ‘targeted’ for reform, for example, Sardis,
Athens, and Rome. It has shown the difference in the network structure in east and west, in particular the more regular eastern network, especially in Asia Minor, implying a more organic adoption based on localized interactions. Further, the models have highlighted areas of introspection and more gradual diffusion (Sicily and Syria) and shown that some places were more receptive to new information. It has also illuminated some interesting lacunae—namely, Egypt, explained by the Egyptian Jewish revolt that destroyed a large part of the Jewish population.

10.3.10 Conclusion: Activating ‘Familial’ Networks of Ethnicity

Contrary to recent claims that the rabbis in Persia ‘abandoned’ the western Diaspora (Edrei and Mendels 2007), this analysis has shown the on-the-
ground adoption of the rabbinic reforms, and that the Jewish communities in the Roman Empire underwent a Diaspora-wide process of Hebraization, starting in the 2nd century AD. The destruction of the Temple in Jerusalem and the subsequent quashing of the Bar Kokhba and other Diasporan revolts changed the situation of Jewish communities both in Judaea and in the Diaspora: Judaism ultimately turned inwards. A newly heightened sense of persecution ‘re-activated’ the familial ethnic bonds already in existence, encouraging the susceptibility of the strong-tie network to religious innovation. The rabbinic reforms were spread in this way.

The rapid and universal process of Hebraization, manifest epigraphically in the use of Hebrew, Jewish symbols, and the rise in popularity of explicitly Jewish names, could be understood in network terms as the result of an ‘information cascade’ (see Watts 2003). The strong-tie ethnic connectivity of the Jewish Diaspora that was activated in the years following the destruction of the Temple and the Bar Kokhba revolt made the network increasingly
susceptible to religious innovation. The ‘real-world’ network, consisting of the strong ties of ethnic bonds in combination with the influences of weak-tie (but also ethnically strong) missionaries or carriers of the new information, means it could be argued that the Jewish Diaspora became what is known as a ‘percolating vulnerable cluster’ (see Watts 2003), in other words, it was absolutely ready for change: and the religious authorities in Palestine used it to transmit the rabbinic reforms.

But it was not just the rabbis: Christianity made a similar use of the same strong-tie ethnic network and the sense of anxiety and persecution that was latent in the Jewish communities at the end of the 1st century. Pauline Christianity was marked by the application of linguistic terms for close family to all those who lived in the community of Christ. The creation of an ethnic
'pseudo-family' is a commonly used persuasive rhetorical device to highlight the ethnic bond between Paul and his audiences—he addresses the mob in Jerusalem at Acts 22, calling them 'brothers and fathers', and again when he addresses the council of chief priests—and it has the effect of creating a cognitive strong-tie network bond between them. The Acts of the Apostles always refers to the Christian 'believers' as 'brothers' (for example, Acts 1:15; 3:17) and as such, reinforced the social ties that bound them. Christianity was able to persuade and convert effectively both by utilizing the actual strong-tie familial network of the Jewish Diaspora, and by simultaneously manufacturing a new one for believers in Christ.
Because the Jews were ready for change, the network they formed was highly susceptible to the religious innovations brought by people who preached change. Martin Hengel has argued (see above) that Diaspora Jews had strong messianic hopes in the decades following the destruction of the Temple, manifest in various revolts and also in the person of Simon Bar Kokhba. At the same time, the sect of Christianity believed that it already offered a messiah, and also an explanation for the cataclysm—punishment of the Jewish people by God for failing to recognize the divinity of his Son. Rabbinic *halakhah* and Christianity are different manifestations of the same cognitive response to the disasters that befell the Jewish people, and both required an internal change in the religion: promoting better adherence to Laws and moral codes. Both used the same type of strong-tie social network to transmit their message, and both swept across the Roman Empire.

This analysis shows that, when thinking about the application of networks to examine or explain archaeological or historical datasets, we must be prepared to reassess the theories we use. The ‘small-world’ network phenomenon is a fantastically useful heuristic device for approaching ancient data—but we must not lose sight of the human and social aspects of the worlds we study. Weak ties are powerful, it is true; but strong ties have the power to change the way people think and believe. Network studies will benefit from paying further attention to the potentially long-range effects of strong ties, which are often assumed to operate only at a local cluster level.

**ACKNOWLEDGEMENTS**

I should like to thank Carl Knappett for inviting me to contribute this chapter both at the 2010 SAA session on Networks in Archaeology, and to this volume; and more broadly for sharing his ideas about networks with me when I was beginning my research. This chapter develops work begun in my 2008 PhD thesis, *Networks and Religious Innovation in the Roman Empire*, written under the careful and thorough supervision of Prof. Stephen Mitchell at the University of Exeter. My thanks to him for all his guidance.

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Re-thinking Jewish ethnicity through social network analysis


