



COMING TO TERMS WITH THE FUTURE

*Concepts of Resilience for the Study
of Early Iranian Societies*

REINHARD BERNBECK, GISELA EBERHARDT
& SUSAN POLLOCK (EDS)



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Resilience in Centralized State Systems. The Persepolis Fortification Archive and Achaemenid Institutional Longevity

Wouter F. M. Henkelman, Kai Kaniuth,
Kourosh Mohammadkhani

Abstract

Robert McCormick Adams pioneered in bringing Resilience Theory to ancient Near Eastern studies, contrasting complex states striving for short-term 'stability' and semi-autonomous groups such as agro-pastoralists practicing long-term resilient strategies. The large time scale he applied leaves little room for ancient *perceptions* of state and institutional longevity, however, and buffering mechanisms and other resilient traits in Mesopotamian and Iranian state systems and institutions challenge Resilience Theory as applied by Adams. Taking the redistributive household economy centred of Achaemenid Persepolis as example, the present paper argues against '(short-term) stability' as a useful measure to evaluate the performance of ancient state institutions and instead proposes 'institutional resilience.'

Keywords: Robert Adams; institutional resilience; Achaemenid Iran; Persepolis Fortification Archive

چکیده

رابرت مک کورمیک آدامز که پیشگام در به کارگیری نظریه تاب‌آوری در مطالعات شرق نزدیک باستان است، دو دسته را در تضاد با یکدیگر می‌شمارد: دولت‌های پیچیده‌ای که برای «ثبات» کوتاه‌مدت تلاش می‌کنند و گروه‌های نیمه خودمختار، از جمله جمعیت‌های کشاورز-دامپرور، که از راهبردهای تاب‌آوری بلندمدت بهره می‌جویند. با این وصف، مقیاس زمانی وسیع به کاررفته توسط وی، جای چندانی برای تعبیرهای دوران باستان درباره دولت و دیرپایی سازمانی باقی نمی‌گذارد. همچنین سازوکارهای ضربه‌گیری و دیگر ویژگی‌های تاب‌آورنده در نظام‌های دولتی و سازمان‌های مربوط به ایران و میان‌رودان، نظریه تاب‌آوری آدامز را زیر سؤال می‌برند. با در نظر گرفتن مثال اقتصاد خانوار مینی بر توزیع مجدد که بر فارس هخامنشی تمرکز دارد، مقاله حاضر بر ضد «ثبات (کوتاه‌مدت)» به عنوان معیار مفیدی برای ارزیابی کارایی سازمان‌های دولتی باستانی استدلال می‌کند و در عوض، «تاب‌آوری سازمانی» را پیشنهاد می‌دهد.

کلید واژگان

رابرت آدامز؛ تاب‌آوری سازمانی؛ ایران هخامنشی؛ بایگانی باروی تخت‌جمشید

Introduction

In a seminal 1978 paper on “Strategies of Maximization, Stability, and Resilience in Mesopotamian Society,” Robert McCormick Adams introduced an early version of Resilience Theory to study Mesopotamia’s millennial settlement record, more particularly to expose the – in his view – fatal and exemplary weaknesses of the highly-centralized Ur III and Sasanian state systems as they manifested themselves in the alluvial plain. Adams (1978, 329) drew a sharp contrast between, on the one hand, urbanized polities focused on “consistency and optimization of performance” in their rural hinterlands (short-term *stability* as prime strategy) and, on the other, agro-pastoralist societies characterized by a “primary concern with long-term survival,” hence inherently more adaptive and resistant to calamities and change (*resilience* as prime strategy).

As argued below, Adams applied a very large scale in measuring systemic lack of resilience, with some intervals comprising over a thousand years. This leaves little room for ancient *perceptions* of state and institutional longevity; it partly obliterates the human experience Adams’ approach had explicitly set out to highlight. Another glaring but rarely discussed problem is the tension between buffering mechanisms and other resilient traits in state systems and institutions as pointed out by ancient Near Eastern historians based on textual evidence and Resilience Theory as applied by Adams.

One of the states reviewed by Adams is the Achaemenid Persian empire (c. 550–330 BCE). A current focus in scholarship on this complex state is its imperial footprint, more particularly the commonalities in state and sub-state institutions at its core and in the satrapies. Having long rejected the orientalist qualification of the empire as a colossus on clay feet, Achaemenid historians increasingly argue for a very tangible state with granular structures and hierarchies that, by and large, remained stable and productive over more than two centuries.

Taking the redistributive household economy of Achaemenid Fārs and documented by the Persepolis archives as a case study, the present paper argues against ‘(short-term) stability’ as a useful measure to evaluate the performance of ancient Near Eastern state institutions or as a means to emphasize their lack of resilience; it proposes ‘institutional resilience’ as an alternative. The resilient strategies deployed in the institutional economy centered on Persepolis included redundancy and flexibility of operational modes, investment in buffering capacities, and rapidity of response, but also foresightedness in the form of long-term planning and sacrifices aimed at perpetuating animal and agricultural fecundity. The last aspect is an important reminder that ancient resilience cannot be studied from a modern perspective alone.

Resilience: from above and below

Adams described the irrigation network developed by the Sasanian state as overshadowing its predecessors in terms of volume (drawing from the Euphrates *and* the Tigris) and resolution (a grid of regular canal polygons). Its maintenance required a constant information flow and sophisticated control mechanisms, which in turn engendered an outsized centralized apparatus and local interdependency. This strategy of “political stabilization and economic maximization” led to decreasing flexibility fatally coupled with other adverse effects: the granular irrigation grid accelerated salinization; the cultivation of fringe lands decreased overall productivity and reduced the area available for pasture; the taxation system was too rigid to accommodate local differences. Collapse in the face of the Arab invasion thus came as a sign of “the extreme fragility of the system, its loss of resilience precisely at the time of its greatest expansion” (Adams 1978, 332). More generally, as argued by Adams, the focus on maximization in centralized state systems like the Sasanian one came at grave costs in the long term:

An essential – perhaps almost a diagnostic – feature of large scale, complex but pre-industrial societies like that of Sasanian Mesopotamia was that short-term and long-term success were antithetical. Political stabilization and economic maximization were achieved only with a progressive weakening of the capacity to adapt to unforeseen challenges and changes. (Adams 1978, 333)

Adams’ model reserves resilient strategies in the framework of complex territorial states for rural communities existing within, or at the fringes of, those entities. In doing so it distinguishes sharply between, on the one hand, “the principal architects and beneficiaries of state policies,” with their drive towards maximization, and, on the other, “the principal victims of those policies” (Adams 1978, 333). Under- and misrepresented by the available, urban-centered textual sources, agro-pastoralist tribal societies were in the long run more adaptive and prone to survive than their erstwhile dominators.

Although parts of the model and some of the underlying data have been questioned or qualified in subsequent scholarship, “Strategies of maximization” remains, over forty years after its publication, a *locus classicus* in discussions on the rise and fall of Mesopotamian complex states, notably those of the Bronze Age.¹ What certainly contributed to this status is that the paper, as Norman Yoffee puts it, is “remarkably lucid and humane”

1 The criticism directed at Adams 1978, 1981 and related publications has mostly centered on the underlying data: an overstatement of population density (see, e.g., Richardson 2012, 10-15 on the Early Dynastic period) and the uncertainties surrounding the projected aggregate cultivated surface (see, e.g., Potts 2011, 285–87 on the

(Yoffee 1997, 407). Yet, for all its humanity and sweeping narrative, Adams' contribution is also meant to be controversial; it is categorical in the contrasts it draws and consequential in the choices it makes. If followed through to its logical conclusion, it leaves little more to the ancient historian or archaeologist than reading any measure of success in complex ancient states as inversely proportional to the darkness of their doom. The model implicitly but determinedly declines to attribute any meaningful form of resilience to complex states of the Ur III or Sasanian types on account of their coercive nature and their focus on maximization and short-term stability.

The problem of Adams' contrastive model is that if resilience is impossible to attain by coercive and stability-oriented systems, it becomes meaningless to say that they were non-resilient. Even the surrogate these systems pursued instead of resilience – stability – did not provide a viable alternative strategy (or way to measure their success) since the apparent stability was mostly short-lived or at any rate attained at very high cost. One is, then, left without any measure to qualify the performance and endurance of the institutional and redistributive systems that characterized most of ancient Mesopotamian but also most ancient Iranian states. By the same token, comparison with agro-pastoralist societies with regard to resilience becomes meaningless. Whereas the importance of addressing coercion and exploitation sustained by socio-economic systems in ancient states needs no further demonstration, "Strategies of maximization" cannot provide an adequate framework to evaluate those same systems. To aggravate this problem some of the systems under discussion were characterized by relative longevity and constancy or persistently recurred under similar circumstances. As a recent evaluation of Adams' 1978 paper points out (Paulette 2012, 176–78), some historians of ancient Mesopotamia have ignored the problem by embracing resilience, as formulated by Adams, as a scale to measure the success of the very institutions and bureaucracies reviled by him. An instructive example may be found in Stone's contribution to a volume in honor of Adams: speaking of temples and palaces as redistributive agencies she notes that

Adams long ago pointed out that communal management of agricultural land is the optimal way to handle the Mesopotamian environment (Adams 1978). Data from 1950s Iraq make clear that

Sasanian period). The low resolution of the image drawn by Adams is addressed by Hritz and Pournelle (2016), who instead apply an integrated data approach to reveal a dynamic microtopography with mixed-practice niches characterized by resilience and 'sustainability' (their alternative term for Adams' 'stability').

small farm owners were considerably worse off than the sharecroppers or tribal groups who operated where the landowners or sheikhs provided large-scale management [...]. Thus, the role played by the temples, and to a lesser extent by the palaces, in managing agricultural land should be seen not so much as indicating an exploitative economic system than as the most efficient means of promoting economic well-being. (Stone 2007, 224–25)²

The argument made here, that institutions can provide a buffer in the face of calamity, is reasonable enough, but making temples and palaces agents of resilience in analogy to communal agriculture schemes among tribal groups is decidedly *not* what Adams had in mind. In his view, semi-autonomous kinship-based groups were the epitome of resilience, yet as the very antithesis of large-scale urban institutions, not as their natural prefiguration.³

To be fair, Adams, in his conclusion, recognized the need for a less unforgiving opposition, indicating that

the contrasting of stability with resilience [...] must consider concretely how they succeeded one another as dominant social goals or characterizations, reflecting fluid accommodations and differences among groups whose risks, needs and opportunities were anything but identical. (Adams 1978, 334)

This assessment creates some space for embedding state institutions in a more diverse network of relations, but it does not allow for a multidimensional view on resilience. It remains too static to measure institutional performance

2 See, similarly, Postgate (1992, 299–300) who additionally notes that temples and palaces, "by the scale and diversity of their own resources" had "a resilience which imparted an element of stability to the society as a whole." Stein (2004, 77), ascribing the relative fragility of northern Mesopotamian cities in the third millennium BCE to the lack of institutional framework, contrasts the southern temple and palace sectors that could "pursue strategies of economic maximization (Adams 1978) with a reasonable assurance that they had the capital and labor resources to survive environmental and localized political stresses." Yoffee (1988, 54), while generally following and expanding Adams' views on collapse, describes the Kassite state as fragile on account of its tribal and not highly centralized character, "weaknesses [...] easily exploited by foreign raiders." As Paulette (2012, 178) notes, such approaches operate a loose definition of resilience that merges Adams' antithetical views on stability and resilience.

3 See Adams 1978, 333–34. The tribally organized corporate cultivation referred to by Stone – known as *musha'* and still practiced in Iraq in the 1950s – is the subject of another contribution by Adams, in which he describes it as the remnant of an ancient resilient system and a strategy to ward off urban pressure or incorporation into larger estates (Adams 1982).

and the mixture of short-, mid- and long-term strategies that informed it.

Adams expanded his views on resilience and ancient states in *Heartland of Cities* (1981), maintaining that increasingly large-scale irrigation in the Mesopotamian alluvium and growing managerial and economic complexity meant that system survival became predicated on “an inherently unstable and politically vulnerable imperial bureaucracy” (Adams 1981, 22). A fatal flaw, moreover, was that the system as a whole was anything but a culmination of a natural evolution; it was not a logical adaptation to the natural environment but in fact existed beside more natural forms of adaptation:

Inherently complex and lacking ecological resilience, it appeared relatively late in the historical record. Even when it did appear, it did not eradicate alternative forms of adaptation but only predominated for a spectacular but relatively brief interval. (Adams 1981, 53)

This “relatively brief interval” would be long enough if it were the later Sasanian period, but Adams actually refers here to a macro-period defined as that of “Culmination and collapse of an agrarian base and urban superstructure (Neo-Babylonian – Late Islamic periods)” (Adams 1981, 175). No longer is the Sasanian empire presented as the *n*th cycle of overcomplexity and collapse, but as the dramatic finale of a much longer cycle. As Adams’ own material overwhelmingly shows, this macro-period was characterized by long-term continuities and gradual increases in settlement density and size, despite a series of ruptures at the higher state levels such as the end of the Achaemenid empire. Qualifying these continuities as “cumulatively impressive, if irregularly sustained growth” (Adams 1981, 175) produced by “precariously maintained but often long-lived polities” (Adams 1981, 176), Adams himself seems to struggle with the glaring endurance and stubborn sequentiality of the polities he declared void of (ecological) resilience. *Heartland of Cities* dates the intensification of state-controlled irrigation systems, carrying most of the blame for the eventual collapse, back to the Neo-Babylonian and Achaemenid periods. Their initial form already introduced “an interlocking, much more ‘artificial’ grid of watercourses that broke large, contiguous areas of cultivation into polygons of fairly uniform size and shape” and paved the way for further expansion and refinement under the Sasanians (Adams 1981, 188). This means that the *intensified* irrigation system lasted and evolved some twelve centuries and can thus scarcely be qualified as unnatural or precarious. Its long-term endurance and development beg the question: did the

system not possess a degree of resilience after all, and if so what kind of resilience?⁴

In a broad view, complex states and their institutions can be measured by typical criteria of resilience, such as economic diversification and buffering (redundancy), rapidity of response to crises, adaptivity to natural challenges, coherence and connectedness, strategic flexibility, historical awareness and foresightedness. If, on the other hand, resilience is to be more narrowly understood as an *alternative* and perhaps more desirable social strategy, approaching something like community autarky or bottom-up decision making, the negation of resilience becomes meaningless.⁵

As noted, some historians have introduced alternatives for Adams’ negative concept of ‘stability’ – such as ‘sustainability’ – or have simply ignored the negative connotation of ‘stability’ altogether. What is still lacking is a measure less passive than ‘sustainability’ and similar terms, one that addresses the strategies and mix of short-, mid- and long-term interests underlying the behavior of complex states and their institutions. One could think of *resource-fulness*, in its original sense of having broad access to a variety of materials, hence commanding labor, staple production, trade networks, technologies, logistic power and the ability of large-scale planning to overcome challenges insurmountable to smaller entities or groups. Yet a simpler and perhaps more elegant solution is to adopt a broad definition of ‘resilience’ and prefix it for the present purpose with ‘institutional’ – however oxymoronic that may appear to some.

The ancient historian does well to pay heed to the humanity of Adams’ views, informed as they evidently

4 Compare Wilkinson and Rayne (2010, 137–39) on the buffering and stabilizing potential of first millennium BCE (and later) irrigation systems in northern Iraq and Syria. Developed in relatively wet areas, they facilitated not only intensification but also provided a buffer against insufficient rain fall. Their scale additionally meant that staples could be transported in large volumes in case of local famine. Lawrence *et al.* (2016, 11–12) define intensive irrigation systems as the engine of population growth and economic development during the said twelve centuries, culminating in the ‘green revolution’ of the Early Islamic period.

5 Adams was, of course, not the only one to adopt a narrow view on ‘resilience.’ Betraying its descent from systems thinking, resilience is habitually framed in archaeology as a passive, reactive category, an inherent trait that ensures continuity – or, at least, well-being – in the face of higher-order challenges to existing modes. In the form of a ‘bounce-back’ mechanism, resilience is considered a bottom-up effect, an almost subversive capacity, or, as Bradtmöller, Grimm, and Riel-Salvatore (2017, 8–9) put it, a property “inversely proportional” to social complexity. There is a contrasting trend in both the social and natural sciences now to move from the ‘bounce-back’ concept of resilience towards one that considers resilience not as an inbuilt (and often ill-defined) trait to an understanding of a property that can be developed, of proactively ‘building resilience’ (Moser *et al.* 2019, 28–30).

are by the brutality of the twentieth century. Yet, while acknowledging the unenviable condition of, say, dependent workers in the institutional economies of Achaemenid Pārsa (cf. below), one should still be able to assert that, from a state perspective, the system coercing such people was resilient.

Resilience: longevity is in the eye of the beholder

Two further, interrelated observations apply to resilience as understood by Adams. First, the millennial scale by which anthropological archaeologists measure the longevity or transience of ancient states is more than a mere choice of resolution; it determines to a large extent their views. Seen from a Holocene perspective, the succession of complex states from ca. 600 BCE to ca. 600 CE may entail little more than “qualified, short-term political stability” (Adams 1988, 214). Yet, notwithstanding the call for more focus on the actors and victims of resilient or non-resilient strategies, the interests of these very people is ill served by the grandiose scale: it fails to recognize and elucidate ancient – or, for that matter, modern – *perceptions* of historical realities. The British Empire, which once created its own self-contained universe in space and time and irreparably transformed and uprooted entire societies, was but a fleeting phenomenon by Adams’ standard, existing in true form for only a century or maximally a century and a half.⁶ Yet it was real enough for those who lived and died in it.

Any ancient state that lasted longer than, say, four generations built its own version of eternity, preserved only legendary memory of its distant founders, projected an a-historical view on its existence, and was unable to imagine an end to its own continuity. Although responses naturally varied between individuals and status groups, the circumstance that generation after generation grew old under the aegis of the same self-perpetuating system created a collective experience and a historical artefact of its own. Most ancient historians, perhaps more than archaeologists, will feel compelled to make this artefact a defining parameter of their perspective, regardless of, or precisely because of, its subjective nature.

A second reflection pertains to the particular history of scholarship on later empires of the ancient Near East. Historians of these entities have had to wage their own battles against notions of despotism and decadence that once pervaded the study of the ancient states of the ever unchanging and ever languishing ‘Orient.’ Although long

refuted in their crude form, various re-formulations of these ideas have been promoted well into the twentieth century. The Achaemenid empire, for one, was long seen as a colossus on clay feet, slowly decaying after the disastrous Graeco-Persian wars, with its ever-suffering nations waiting to be liberated by Alexander of Macedon. Deconstructing the gaze of, particularly, the Graeco-Roman sources underlying such views and countering them with an insistence on primary evidence has been a defining goal of Achaemenid historians for at least fifty years.⁷ In doing so, they have demonstrated the essential stability of the empire and the significance of its footprint and argued that this evaluation equally applies to the last decades of the empire’s existence. Despite several severe challenges, the Achaemenid world never fragmented, not even as it was under Macedonian attack. The reasons for its downfall were manifold, but decadence was not one of them.

Thus, the question that typically occupies today’s historian of the Neo-Assyrian, Achaemenid or Sasanian empire – even while insisting on what he or she considers a *longue durée* perspective – is not what design failures explain its fleetingness but rather what structures ensured its longevity. This central question is naturally informed by the timescale chosen, but also imposed by the density of data that are currently available, be it in the form of Neo-Babylonian business or fiscal deeds, Achaemenid Elamite administrative records, or Sasanian seal impressions revealing intricate political and geographical hierarchies. These afford – and *demand* – a more granular view, but also allow more significant comparison over distances of time and space. Adams once wearily noted that it was up to archaeologists to cull ancient textual sources for clues on anthropological problems, for “humanists have their own, and different, priorities” (1988, 42). That assessment was no more than half-true as it was made, and it no longer applies in a situation where historians of ancient Near Eastern empires routinely adopt perspectives derived from anthropology and the social sciences in general in their exploration of textual (and other) material. More important, the study of documentary sources has, in several of the sub-disciplines involved, reached a stage where quantifiable evidence can be produced which, in turn, can meaningfully be confronted with the material record.

6 The British Empire in a strict sense, i.e., as a global colonial and centralized territorial state, may be defined by the Government of India Act of 1858 on the one hand and the Suez crisis of 1956 (and its aftermath) on the other. If more broadly defined as starting in 1815 and ending ca. 1960, it still covers less than 150 years.

7 Sancisi-Weerdenburg 1987 remains a standard reference on ‘decadence’ in the Achaemenid empire; for a review of the debate see McCaskie 2012. Despite this and numerous other efforts, viewing the Achaemenid empire through the lens of Greek historiography and European colonialist imagination, as a negative counter-image or at least as a theatre of *Greek* history remains discouragingly common. For discussion of a recent case, see Briant 2021.

The Persepolis archives in the mosaic of Achaemenid sources

The widened focus of *Heartland of Cities* and its insistence that systematic exploitation of the Babylonian countryside started halfway through the first millennium BCE makes Adams' studies and models directly relevant for the study of the Achaemenid empire (c. 550–330 BCE). This field is a very dynamic one, blessed with a rich, varied and still expanding body of administrative sources, mostly of institutional or 'peri-institutional' types. They include, but are not limited to, the Aramaic correspondence of Aršāma, satrap of Egypt; an Aramaic sub-satrapal archive of letters and inscribed tallies from Bactria; thousands of Aramaic district-level ostraca from Idumea; thousands of Babylonian legal records from private and temple archives (Murašû archive, Eanna archive, etc.); seal impressions and Phrygian ostraca from Daskyleion, the satrapal seat in Hellespontine Phrygia; Aramaic workshop inventory notes and Elamite tablet fragments from Arachosia; Aramaic and Demotic ostraca and papyri from Elephantine, Saqqara, 'Ain Manāwir and other places in Egypt.⁸

Unambiguously situated at the heart of this mosaic of sources are the Persepolis archives: two rich bodies of Elamite, Aramaic, glyptic and other evidence deriving from a redistributive institutional economy, a network spanning across Achaemenid Pārsa (roughly modern Fārs plus the western mountain areas bordering Khūzestān). The largest, the Persepolis Fortification archive, documents the intake, storage, and outlay of livestock and agricultural commodities including cereals, beer, wine, and fruits. Actors include the satrap of Pārsa (or a person with comparable rank), regional directors, treasurers, officials charged with commodity handling or with labor logistics, inspectors, registrars, accountants, and, indirectly, the King of Kings; the recipients range from animals, through workers, craftsmen, and travelers, to members of the royal family and gods. Although produced and used mainly by Iranophone scribes and officials, the archive bears witness to the empire's linguistic complexity with its seven thousand texts in Achaemenid Elamite, over eight hundred in Imperial Aramaic, two or three documents in Demotic and single texts in Old Persian, Phrygian, Greek, and Babylonian. It is also the largest corpus of Achaemenid iconography with over four thousand discrete seal images identified to date. They occur with most of the aforementioned inscribed

tablets as well as with some five thousand anepigraphic tablets; they reflect a range of styles and iconographic themes as a function of varying geographical origin and of social and administrative context. The smaller Persepolis Treasury archive comprises 129 published Elamite texts and 199 anepigraphic tablets and 'labels.' Its Elamite documents record disbursements in silver in lieu of payments in kind.⁹

All the sources mentioned here, Persepolitan and non-Persepolitan, are to a larger or lesser degree inflected by the grammar of imperial administration: the textual documents are mostly dated by the Babylonian-inspired Achaemenid calendar; some of the glyptic styles and seal image types recur across the empire; some of the peculiarities of the Aramaic of Achaemenid Bactria are also found in Achaemenid Egypt and elsewhere; the few Elamite tablets from Susa and Old Qandahār (Arachosia) are analogous to those from Persepolis in format, sealing protocol, ductus, and jargon; Old Iranian loanwords and calque translations for technical expressions occur in all languages mentioned; the same or similar occupational designations occur across multiple corpora; the same or similar hierarchies, protocols and networks are reflected throughout the documentation, albeit from varying angles. All this does not mean that the imperial footprint or 'imperial signature' is always uniform and evident: there are, unsurprisingly, many uncertainties, apparent contradictions and local variations. Where available, pre-existing local systems were co-opted; differences in scale, physical environment and other factors informed further adaptations. At the same time, a general outline can be recognized with increasing confidence; it suggests a more active and deliberate approach than had previously been recognized. The Achaemenids sometimes introduced entire institutional systems in areas with little or no previous tradition in centralized management and record keeping. Where they did, they seem to have replicated (and adapted) the layout of the institutional household centered on Persepolis (and Susa), an indication of a

8 More recent publications include Kaptan 2002 (Daskyleion), Naveh and Shaked 2012 (Bactria), Porten and Yardeni 2014–2020 (Idumea), Fisher and Stolper 2015 (Arachosia, Elamite), King 2019 (Arachosia, Aramaic), Tuplin and Ma 2020 (Aršāma correspondence). See Kuhrt 2007 for a copious presentation of sources pertinent to the Achaemenid empire; numerous texts (and other sources) are available in digital format on www.achemenet.com.

9 For the current dating of the Fortification and Treasury archives see n. 12 below. Editions of Elamite Treasury and Fortification texts are Cameron 1948, Cameron 1958, Cameron 1965, Hallock 1969, Hallock 1978, and Arfaee 2008; an edition of over five thousand Fortification texts is in preparation by Henkelman (see for now <https://oi.uchicago.edu/research/projects/persepolis-fortification-archive>, accessed February 10, 2023). For glyptic evidence see Schmidt 1957, 4–41, pls. 2–14; Garrison and Root 2001; Garrison 2017a; and further bibliography in Garrison 2017b. Surveys include Henkelman 2008a, 65–179; Henkelman 2013 (in connection with archaeological evidence); Garrison 2017b, 15–116; Azzoni *et al.* 2017; and Henkelman 2021b. Henkelman 1400 AP [2021] presents a collection of studies emanating from the Chicago-based *Persepolis Fortification Archive Project* in Persian translation and includes a full bibliography on the Fortification archive by project members.

startling awareness of its properties *as a system*, hence as a template and instrument of control.¹⁰

Since institutional longevity is at the center of the present discussion, the chronological distribution of the available sources from and on the Achaemenid world is a critical issue. Textual evidence from (peri-)institutional contexts is particularly rich in the earlier part of Achaemenid history (later sixth and early fifth century) and includes the Fortification archive from the middle years of Darius I (cf. below). The second half of the fifth century has another cluster of sources including the Murašû archive, the Aršāma correspondence but also, if properly contextualized, Xenophon's *Anabasis*. The fourth century in general is less rich in material, but the situation improves towards the end of the Achaemenid period. Newly added corpora, notably the (sub-)satrapal archive from Achaemenid Bactria and the Idumean ostraca, contribute to this, but the most formidable body of evidence remains that of the long-known Graeco-Roman accounts deriving from the lost original Alexander biographies. Mostly written, in their received form, centuries after the fall of the empire, these sources come with a set of problems of their own: defective transmission of underlying accounts, selectiveness, outside perspective, and at times a hostile gaze. Despite their limitations, however, they remain indispensable and still under-explored reservoirs of information on the empire under its last king, Darius III. As Briant has repeatedly emphasized, the Graeco-Roman accounts, if properly scrutinized, confronted with earlier (and contemporary) sources, and skimmed for institutional-administrative clues, afford a *longue durée* perspective on Achaemenid history. The 'inventaire du monde achéménide' in its final years, drawn up from the later sources, adds an invaluable counterbalance to the early ones, some of which, it should be remembered, cover relatively short periods.¹¹

10 The views presented here derive essentially from Henkelman 2017a, where the terms 'imperial signature' (for the footprint) and 'imperial paradigm' (for the systematic approach) are proposed. The notion that Achaemenid central and regional administration had a clear and sometimes systemic impact has been proposed in various forms since Pierre Briant pioneered his 'vision dure' of the empire in the 1970s. See the synthesis of the discussion in Briant 2017 and compare the various other contributions in Jacobs, Henkelman, and Stolper 2017. On the empire-wide use of Babylonian calendar and the need to address the phenomenon, with Sayyed Hasan Taqizadeh, as the 'Achaemenid calendar' see Henkelman forthc. 2.

11 See notably Briant 1996, 713–88, 1032–59 (citation from p. 713) and Briant 2009, with references to earlier discussions by the same author. Henkelman (2017a, 47–80) analyzes 'with "Fortification eyes"' (79) a passage from Arrian (*Anab.* VI.23–46) on Alexander finding large stores of grain and other commodities in Gedrosia.

Two archives: alternating strategies

The administrative archives from Persepolis are by now well established as central bodies of primary evidence to which other sources can be related. The imperial signature is often first identified here before it can be recognized elsewhere. The same archives offer ample material for discussions on institutional resilience. This starts with the very existence of *two* archives: the Persepolis Fortification archive (PFA) dealing with livestock and edible commodities, the Persepolis Treasury archive (PTA) with payments in silver. As has recently been confirmed, the two archives reflect different administrative levels and operations within a single overarching system. They can be shown to overlap in time and content, meaning, concretely, that some workers were alternately or complementarily paid in edible commodities and in silver.¹²

An example of an alternate payment scheme is that of a large group of Babylonian stone cutters active at Pārsa (here Persepolis or its immediate surroundings) and assigned to the chiliarchy of Daddana:

Fort. 2025-101:11'-12' (PFA; register entry; no preserved seal)

¹¹ [25,200 (l. barley)], ¹¹ (in accordance with) a sealed document from Ziššawiš that was delivered, ¹¹ 630 Babylonian laborers (engaged in) stone cutting, ¹¹-¹² (at) Pā[rsa ...], ¹² chiliarchy of Daddana, ¹² received (as) rations (for) 2 months: the seventh and the eighth, year 16] (Sept./Oct. and Oct./Nov. 506 BCE).

12 Earlier research regarded the Treasury archive as succeeding the Fortification archive in time. On this basis it is sometimes assumed that the silver payments were a novelty introduced in the later years of Darius I; that they reflect a shift away from redistribution in kind; and that the structures that produced the Treasury archive proceeded from or replaced those responsible for the Fortification archive. Three recent insights show that this view can no longer be upheld: some Treasury texts prove to date back as far as years 15 or 16 of Darius, giving a minimal span of July/August 506 – January 457 BCE for the Treasury archive (Henkelman forthc. 3); a recently edited Fortification text dates to as late as Dar.35, the current estimation of the lifespan of the Fortification archive being 518/17 – May 487 BCE (Stolper 2017, 774; Stolper forthc.); the Fortification archive surveys all Pārsa, the Treasury archive only a subdivision of it known as the 'Persepolis region' (Henkelman 2017a, 99–100; Henkelman 2021b, 885). The overlap of personnel, seals and groups of recipients between the two archives confirm that they refer to the same complex phenomenon, an institutional economy with an administrative-geographical hierarchy that simultaneously handled commodities in kind, silver and plausibly other materials, and that minimally existed from 518/17 through January 457 BCE. As the evidence cited shows, it may well have survived until the end of the Achaemenid period.

PT 1963-20 (PTA; letter order; seal: PTS 033*/PFS 0071* [sealed surfaces not recorded])

⁰¹ [Speak to PN₁, ⁰¹⁻⁰² Ir]dumar[tiya speaks as follows: ⁰²⁻⁰⁴ 2]50 *kar[ša*, 7 ten]ths, 1 twe[nthie]th silver ⁰⁴⁻⁰⁵ to Babylonian labourers ⁰⁵⁻⁰⁶ who are cutting stone (at) Pārsa, ⁰⁶⁻⁰⁷ chiliarchy of Daddana, ⁰⁸ under responsibility of Abbateya, ⁰⁸⁻¹⁰ to those issue in lieu of rations (in kind!) ¹⁰⁻¹¹ Fifth and sixth months, ¹²⁻¹³ (during) a total of two months, which are now accounted for delivery², issue to them according to what follows (lit. that): ¹⁴⁻¹⁶ 660 men each will receive a tenth (and) a twentieth (*karša*) silver; ¹⁷⁻¹⁹ 30 boys each will receive three² fourths of a tenth (*karša*) silver; ¹⁹⁻²¹ 21 boys each will receive a twentieth (*karša*) silver; ²¹⁻²² 203 women each will receive a tenth (*karša*) silver; ²³⁻²⁵ 25 girls each will receive three² fourths [of] a tenth (*karša*) [silver]; ²⁵⁻²⁷ 18 gir[ls each will receive a twent]ieth (*karša*) silver. ²⁷ [Total: 957] dependent workers. ²⁸ [PN₂ wrote (this document)], ²⁸⁻²⁹ he received the ord[er thereto from PN₃].

The group of 630 laborers of Fort. 2025-101:11'-12' roughly correspond to the 660 men who, in PT 1963-20, are part of a larger group of 957 (men, women, children). The year date of the second text can be inferred as Dar.16, Dar.15, or possibly a bit earlier still; the first text pertains to VII-VIII/16. Otherwise, both texts describe the workers in identical terms: they are Babylonian stone cutters at Pārsa in the chiliarchy of Daddana. The identity of the two workforces mentioned is not in doubt: the main difference is that the first text deals with rations in kind, the second with silver replacing such rations. In other words, while dealing with the same recipients in the same setting, administrators had a choice between issuing grain and spending silver. Under normal circumstances they would probably open the granaries, as barley was not durable and had to be spent. If barley was scarce, however, they could issue silver in lieu of (part of) the rations in kind; yet other texts indicate that they could also provide fruit and other kinds of grain in place of barley. This gave a flexibility much needed in handling a workforce of immense proportions: the total of Babylonian stone cutters alone, in chiliarchies deployed at Pārsa in Dar.15–16, amounted to at least some five thousand but possibly as many as ten thousand individuals.¹³

13 For edition of PT 1963-20 see Cameron 1965, 182–86 (1 *karša* equals 10 sheqels; the common base underlying the silver rations is $\frac{1}{40}$ *karša* or a quarter sheqel). Fort. 2025-101:11'-12' has not yet been published; in this text 'laborers' is an approximate translation for *puhu*, lit. 'boys, children,' a term with a range of meanings depending on context. It also occurs in PT 1963-20, where it is used 1) for the mixed group of 957 as a whole; 2)

The empire at Persepolis: dependent workers

The limiting factor for the survival of the institutional economy centered on Persepolis and similar systems in the empire was labor. Trained and untrained hands alike were much in demand throughout the Achaemenid period and at times hard to find. Various policies, particularly in the heartland, suggest an active strategy to counter scarcity in manpower, hence intentionality in reinforcing the system's resilience. First, the kings distributed gifts to (pregnant) women, and the Persepolis administration issued bonus rations to mothers of new-born children. Secondly, large numbers of people were recruited in the satrapies to join the ranks of dependent workers or were forced to do so. Although some of these undoubtedly were deployed locally, many were sent to the empire's core. As such groups regularly numbered hundreds of individuals and they often travelled over distances of thousands of kilometers, the costs of their displacement were enormous, thus underscoring the value of labor.¹⁴

The above-mentioned Babylonian stone cutters at Pārsa were among the people sent, under various regimes and statuses, from the satrapies. Many other non-Persian workers, some in very high numbers, occur in the Persepolis archives and show that the Achaemenids could draw labor from the entire empire. The Elamite material, rich by itself, is complemented by archaeological evidence suggesting labor-intensive infrastructural investments in the heartland. The Dašt-e Morḡāb surrounding Pasargadae and the Tang-e Bolāḡī to its south provide a telling example in the form of an extensive hydraulic system comprising a series of large dams, a 28.8 km long (or 35 km including double sections) canal in the plain, and yet other canals hewn into the rocky slopes of the Tang-e Bolāḡī (Fig. 1). The manpower, logistic force and, above all, the large-scale planning

for the boys and girls among them. For discussion of these and other texts on the Babylonian stone cutters at Pārsa and the word for 'chiliarchy' or division of one thousand (*hadarakkaš*) see Henkelman forthc. 3. Examples of fruit and *tarmu* (perhaps emmer) given as substitute for barley rations are PF 0992 (apples), PF-NN 1521 (apples), PF-NN 1499 (*kazla*-fruit; half rations), PF-NN 1934 (figs³), Fort. 1750-102 (figs³; half rations), PF 1577 (figs³; as travel rations), PF 0984 (*tarmu*), PF 0985 (*tarmu*), PF 0990 (*tarmu*; half-rations), PF 1034 (half rations in barley, with reference to complementary half rations in *tarmu*), and PF-NN 2057 (letter ordering the replacement of rations of [barley] flour for craftsmen by wheat).

14 On royal gifts for having many children (Hdt. I.136.1, Strabo XV.3.17) and for the women of Pārsa, especially those who were pregnant (Plut. *Mul.Virt.* 246b; also Plut. *Alex.* 69.1. Ctes. F8d §43 Lenfant) and on bonus rations for mothers in the Fortification archive see Brosius 1996, 171–78; Briant 1996, 448–50, 754, 966. On non-Persian workers in Pārsa or on the road there-to see Henkelman and Stolper 2009; Henkelman 2017a, 159–61.

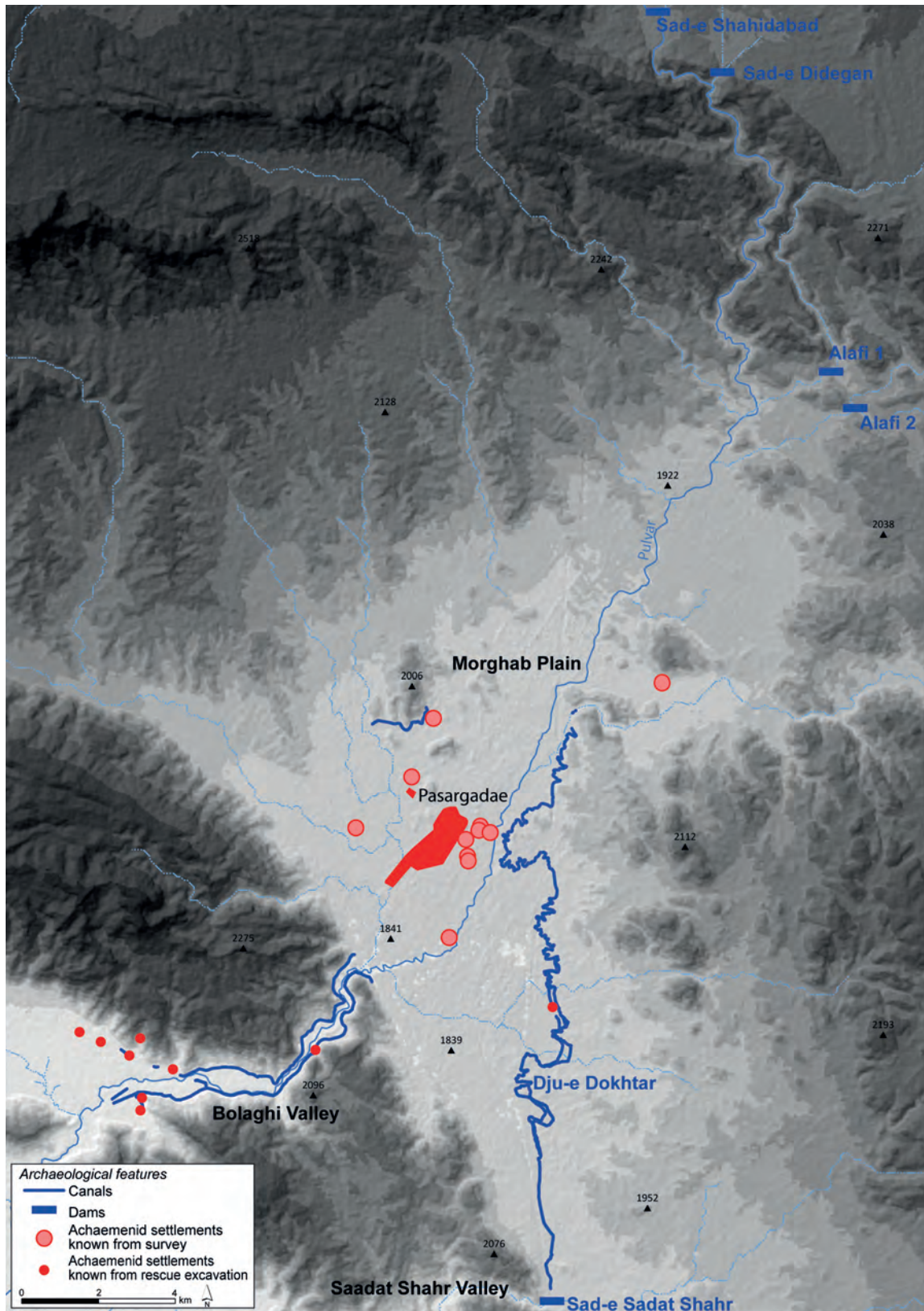


Fig. 1: Map of the Pasargadae Plain. © Kourosh Mohammadkhani.

required for such a project are potent reminders of the long-term investments the Achaemenid administration was able and willing to make.¹⁵

The development of the institutional landscape of Pārsa and the local administrative system in general is not the whole story, however. As the Elamite tablets amply show thousands of workers of non-Persian origin were sent onwards to Tamukkan/Taoce, the ancient name for the Borāzġān region in the Būšehr hinterland. Some of these Egyptians, Cappadocians, Lycians, ‘Skudrians,’ Sogdians and Bactrians are described as stone masons or painters/decorators. They were therefore plausibly involved in the construction of the palatial complexes of which three have been unearthed in the Borāzġān district. Occasionally described as ‘pavilions’ the complexes were more plausibly seat(s) of power of a new administrative region of its own, the development of which started under Cyrus but received a new impulse under Darius. In year 21 of his reign, for example, over 2,500 workers were sent to Tamukkan/Taoce:

PF 1557 (PFA; memorandum; seals: PFS 0017 left edge; PFS 1442 upper edge and reverse)

⁰¹⁻⁰² 180 l. wine, ⁰²⁻⁰³ allocation ‹from› Ušaya, ⁰³⁻⁰⁵ Bakabaduš the (professional) guide received. ⁰⁵⁻⁰⁸ 547 Egyptian dependent workers, to them he gave (it). ⁰⁹⁻¹⁰ They went to Tamukkan; ¹⁰⁻¹² he (B.) carried an authorisation from Bakabana (*the satrap in Susa*). ¹²⁻¹³ 21st year (501/00 BCE).

PFa 30:11-13 (PFA; register entry; seal: PFS 0120)

¹¹ 490 (l. wine) ¹¹ (a man) named Yadaušiya, ¹¹⁻¹² who escorted Cappadocian dependent workers from Rakkan (*near Persepolis*) to Ušbaka (at) Tamukkan, ¹² for them he received (it as) ration (for) 1 day, ¹² ninth month, year 21 (Nov./Dec. 501 BCE). ¹²⁻¹³ 980 dependent workers each received 0.5 (l.).

15 The hydraulic landscape of the Pasargadae area was first documented in the surveys of Kleiss (1988; 1991; 1992; 2000) and received new attention from the surveys and salvage excavations in the Tang-e Bolāġī (Atai and Boucharlat 1991). On the Ģū-ye Dokhtar Canal (tentatively dated to the Achaemenid / post-Achaemenid period) and the associated 500 m long Sa’adat Šahr dam, see Chambrade *et al.* 2020 and Gondet *et al.* 2021 (with further references); these publications also address the important site of Miyān Ģadeh, which appears to have an institutional character.

PFa 30:14-6 (PFA; register entry; seal: PFS 0120)

¹⁴ 100 (l. wine) ¹⁴ a man) named Šiyatiparna, ¹⁴⁻¹⁵ who escorted Lycian dependent workers from Rakkan (*near Persepolis*) to Ušbaka (at) Tamukkan, ¹⁵ for them he received (it as) ration (for) 1 day, ¹⁵ sixth month, year 21 (Aug./Sept. 501 BCE). ¹²⁻¹³ 303 dependent workers each received 0.33 (l.).

Here again the Elamite tablets provide a snapshot of a high-level mechanism at work: the empire-wide mobilization of labor to serve the long-term strategic interest of control over the northern Persian Gulf region. The success of this investment appears two centuries later, as the Persian Gulf coast and the Būšehr Peninsula were described by Nearchus as well populated and dotted by fruit gardens.¹⁶

Most of the institutional workforce deployed in Achaemenid Pārsa consisted of Persian and non-Persian *kurtaš* (from Old Iranian **grda-*). Originally denoting ‘household servant’ this term came to be used for dependent workers bound to large estates or, in the case of the Persepolis archives, an institutional economy. *kurtaš* are mostly mentioned in records of regular ration payments, in which they typically receive amounts of barley covering only about two-thirds of their caloric needs. If, by contrast, they are mentioned in travel contexts, *kurtaš* may receive full rations. In conjunction with incidental references to the distribution of seed and livestock to *kurtaš* the low rations for stationary groups strongly imply that the administration expected them to draw part of their income from other sources. Since family structures among the *kurtaš* appear to have been respected and since there is some evidence for community-internal distribution mechanisms, one may assume that particularly the non-Persian *kurtaš* lived in villages of their own, maintained their own social structures, and practiced small-scale agriculture and animal husbandry. Yet while the *kurtaš* were semantically and practically differentiated from chattel slaves, their lives were not necessarily very rosy. The rationale for granting them partial autonomy was, moreover, primarily economic: it allowed the institution to reduce its burden if so needed and afforded a flexibility that the keeping of slaves in the narrow sense would not. A likely added advantage was that more (fringe) lands were

16 For the Achaemenid structures uncovered at Ģarkhāb, Sang-e Siāh and Bardak-e Siāh at or near Borāzġān, the ancient Tamukkan/Taoce region, see the useful synthesis in Zehbari 2020. For Tamukkan in the Fortification tablets, its identity with coastal Taoce in Greek and Taḥ(u)makka in Babylonian sources, and its role as administrative center see Tolini 2008; Tolini 2011 vol. I, 73–7, 191–200; Henkelman 2008b, 304–10; Henkelman 2017a, 135–43; Henkelman 2017c, 278–82; Henkelman 2018a, 229–32. For edition of PF 1557 see Hallock 1969, 435, for Pfa 30 see Hallock 1978, 130–32.

PF 1941 (PFA; register; unsealed)

Obverse

(01)	2,200 (l.)	was transported to Akkuban, Mikurrašba and Karkiš recei[ved (it)].
(02)	7,240 (l.)	was transported to Ukbakumaš, Attiya the grain master and Baka[...] received (it)].
(03)	19,900 (l.)	was transported to Tikraš, Pirriyana the grain master and Šuduk[ka received (it)].
(04)	This (is) the total	(of) barley, year 15 (507/06 BCE).
(05)	2,000 (l.)	was transported to Tikraš, the grainmast[er] named Pirriyana [and]
(06)		Šudukka his deliveryman received (it).
(07)	1,200 (l.)	the food producer named Zarnamiya
(08)		(at) Ukbakumaš, received.
(09)	This (is) the total	(of) barley, year 16 (506/05 BCE).

Lower edge

(10)	8,200 (l.)	was transported to Appištapan, Pirradukka [received (it)].
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Reverse

(11)	280 (l.)	the fruit <producer> named Irmama (at) Kamenuš [under responsibility of?] Datapparna
(12)		(and) the food producer named Zarnamiya received.
(13)	2,240 (l.)	the food producer named Itinapuš received;
(14)		the brewer named Bagizza received;
(15)		it was transported to Ukbakumaš, Badda received (it).
(16)	This (is) the total	(of) <barley>, year 17 (505/04 BCE).
(17)	2,220 (l.)	the grain master named Yaya received (for) seed.
(18)	9,200 (l.)	was transported to Pārsa (<i>here: Persepolis</i>), Mannuya and Manmakka received it.
(19)	This (is) the total	(of) barley, year 18 (504/03 BCE).
(20)	This (is) the total	(of barley) from Puktena (at) Kamenuš

Upper edge

(21)		transported to elsewhere; this barley is for Napapartanna
(22)		to apportion (is under logistic supervision of N.).

brought into production, thereby fulfilling a central tenet of Achaemenid governance.¹⁷

Can a strategy that displaced thousands and underpaid them for their toil be deemed resilient? While the people involved might have disagreed, its advantage for the socio-ecological system that was the Persepolis economy is clear enough. More important, there are indications for its endurance until the end of the Achaemenid period. According to the Graeco-Roman sources, dependent workers, including Greeks, were still living and working in Pārsa at the arrival of Alexander. While these testimonies speak of slaves and predictably focus on their erstwhile misery and subsequent liberation, they also suggest the remarkable longevity of a system that some would consider too costly and high maintenance to endure.¹⁸

Granaries: the institutional landscape

Documents from the Fortification archive, notably registers and accounts, indicate an institutional topography with central distribution sites surrounded by satellite settlements, hence potentially reflecting a division in districts. The central sites were the smallest nodes reproducing the core institutional layout with its intertwined branches of ‘storage and supply’ and ‘logistics and rationing.’ They would typically be home to several suppliers for different staples at various storage facilities and one or more logistics officials who held ‘accounts’ at these facilities. They would furthermore have personnel for processing and transporting commodities, scribes producing records in Elamite and/or Aramaic, controlling officers, and team leaders. More important places also had a craft center where items from leather, stone, metal and other materials were produced.

Besides fruit plantations, livestock inventory stations, bird farms, fortified production sites, road stations, and other physical infrastructure, the institutional landscape of Achaemenid Pārsa must have been readily perceptible due to the many state-run granaries of comparable dimensions situated at the central sites. There are some indications in the Elamite texts for a recurring storage volume of about 120,000–130,000 l. barley, which would compare well with excavated Achaemenid-period granaries from

17 On the status of the *kurtas* (**gr̥da-*, Akk. *gardu*) see Briant 1996, 442–52, 471–75, 965–66, 969–70; Henkelman 2017b; Henkelman 2018a, 235–43; Henkelman 2018b, 812–13; Tamerus 2018; Tuplin 2020, 131–32, 180–84, 221–22.

18 See Briant 1982a, 223 n.353, 329 n.161, 148–49; Briant 1996, 755–56, 1049; Briant 2009, 167–68; Briant 1982a; and Henkelman 2018a, 240 for discussion on the pertinent Graeco-Roman sources. It may be noted that these sources refer to mixed marriages between deportees and Persians and the existence of bilingualism.

Tell Jemmeh (Transeuphratene) and Čogā Miš (Elam). If the granaries of Pārsa were circular and domed, as the archaeologically attested ones appear to be, they would have been to Pārsa what church spires were to a rural landscape in the European Middle Ages.

Transports, sometimes of considerable volume, between the granaries (and between other storage facilities) are well documented in the Fortification archive. A series of these is summarized in PF 1941 (see p. 233):

PF 1941 demonstrates that as much as 29,340 liters barley could be transported from Kamenuš to other places in the so-called Persepolis region during a single year (ll.1–4). The same destinations occur over several subsequent years, yet with different amounts. Persepolis itself drew 9,200 liters (l.18), but only once during the four-year period covered by the text.

The reasons for transports between the storage facilities of different places are rarely made explicit but are likely to reflect the standard policy to avoid excessive surplus as well as measures to counter local shortage. The varying amounts transported according to PF 1941 suggest decisions made on a case-by-case and year-by-year basis; the single transport to Persepolis may, e.g., indicate an incidental increase in the number of workers deployed there or the presence of the court. The institutional system was well equipped to respond to oscillations in supply and demand as detailed information on grain and other stores was available to central administrators, but also to officers charged with logistics and rationing. Transports within the same region could be authorized by them, as shown by the case of Napapartanna, responsible for part of the Persepolis region (PF 1941, ll. 21–22).¹⁹

Whereas it remains an open question whether the institutional economy centered on Persepolis co-opted, as it emerged, existing, small-scale socio-ecological systems or additionally developed entirely new districts, a high degree of connectedness is at any rate in evidence, and *this* layer was certainly purposely introduced. Under normal circumstances it allowed for local specialization and the local deployment of high numbers of dependent workers (cf. above); in times of crises, it probably buffered against disasters such as pests, drought or inundation.

The type of institutional landscape here described, like the system of dependent workers, appears to have endured until the later fourth century BCE. Alexander

and his army profited much from it, even to the point that the invasion became successful exactly because of its calculated use of Achaemenid infrastructure with its well-developed network of roads and its plentiful stores of grain, wine, beer and other staples.²⁰

Storage facilities also afford a view on a strategy rarely evoked in literature about resilience in ancient societies: the daily, monthly and seasonal sacrifices meant to ensure pluvius seasons, herd fertility and the preservation of stores. The Fortification archive is a rich source on state-organized cultic activity in Pārsa. The reflection of this activity in the tablets is not simply a function of accounting expenses, but points to the firm embeddedness of sacrifices in socio-economic and institutional context. Most pertinent to the case of resilience are sacrifices like those performed at wine stores or for Šetrabattiš – an Indo-Iranian ‘Lord of the field’ associated with ploughing. Cultic activity was an integral part of strategies deployed by the institution to perpetuate itself. Sacrifices for Adad (the storm god), Napiriša (associated with sweet waters), and other gods, often at various types of storage facilities, presumably continued earlier practice of an acculturated Irano-Elamite pre-Achaemenid society. Their scale and regularity betray, however, a concerted effort to take to another level a strategy meant to boost ecological resilience and therefore institutional survival. In other words, strategies of resilience can never be fully understood if the ancient attitudes are not taken into account: for the administrators of the Persepolis economy sacrifices for Adad were as essential to maintaining prosperity as keeping a network of granaries or investing in irrigation networks.²¹

Fruit: regional strategies

The magnitude of the operations directed under the aegis of the ‘Persepolis economy’ is notably apparent in a file comprising just two Elamite account texts. Together they list over 16,000 fruit trees planted in fifteen plantations (‘paradises’) and other locales, apparently all in the direct vicinity of Persepolis. The first of the two records, PFa 33, may be cited here in full to convey the scope and granularity of the documentation.

19 For discussion of granaries in Achaemenid Transeuphratene, Elam and Pārsa see Henkelman 2017a, 82–97 (with references to the relevant archaeological reports). Garrison and Henkelman 2020 offers a discussion of several grain stores, the associated bureaucracy and institutional layout. For edition of the Elamite text of PF 1941 see Hallock 1969, 523–24. For Napapartanna and some of the place names here mentioned (belonging to a subsection of the ‘Persepolis region’), see Henkelman and Stolper 2021, 173–74, 182–84.

20 See, among others, Briant 2009, Briant 2018, and Henkelman 2017a, 45–80.

21 On the nature of cultic activity documented in the Fortification archive and its connection to the agricultural fecundity, see Henkelman 2008a; Henkelman 2021c; Henkelman 2021d; see also the forthcoming paper by Hamaseh Golestaneh on “A Feast of Garlic at Persepolis.” For sacrificial feasts and their economic and ideological significance, see Henkelman 2011a and 2017d, 303–19.

PFa 33 (PFA; inventory; unsealed)

⁰¹⁻⁰⁸ 75 olive saplings[?], 241 *karukur* saplings[?], 60 *kazla* saplings[?], 5 *silti/telte* saplings[?], 384 apple saplings[?], 30 quince saplings[?], 70 mulberry saplings[?], 303 pear saplings[?]; ⁰⁹⁻¹¹ total 1,168 saplings[?] – trees / an orchard for planting[?] at the plantation at Pirdubattiš, for Mišputra to take care of.

¹²⁻¹⁴ 1,800 *karukur* saplings[?], 40 apple saplings[?], 27 pear saplings[?]; ¹⁵⁻¹⁷ total 1,867 saplings[?] – trees / an orchard for planting[?] at the storage complex at Pirdubattiš, for Ulla to take care of. ¹⁸⁻¹⁹ Total 3,035 saplings[?] – trees / an orchard for planting[?], counted at Pirdubattiš.

²⁰⁻²⁵ 552 apple saplings[?], 442 pear saplings[?], 59 quince saplings[?], 196 *karukur* saplings[?]; ²⁴⁻²⁵ total 1,249 saplings[?] – trees / an orchard for planting[?] at the plantation at Tikranuš, for Zimakka to take care of.

²⁶⁻²⁸ 153 *kammaka* apple saplings[?], 420 *kammaka karukur* saplings[?], 72 *kammaka* pear saplings[?]; ²⁹⁻³⁰ total 645 *kammaka* saplings[?] – trees / an orchard for planting[?] at the plantation at Tikraš, for Maduduma[?] to take care of.

³¹⁻³⁶ 55 apple saplings[?], 50 fig[?] saplings[?], 472 *karukur* saplings[?], 7 quince saplings[?], 6 mulberry saplings[?]; ³⁶⁻³⁸ total 600 saplings[?] – trees / an orchard for planting[?] at Halibbaš, at the storage complex, for Zarnuya to take care of.

³⁹⁻⁴⁵ 114 apple saplings[?], 22 mulberry saplings[?], 54 olive saplings[?], 46 *ku[tmana[?]]* *karukur* saplings[?], 274 *karukur* saplings[?], 80 fig[?] saplings[?], 57 pear saplings[?]; ⁴⁶⁻⁴⁸ total 697 saplings[?] – t[rees / an orchard for planting[?]] at the plantation at Appištapan, for [PN] to take care of.

⁴⁸⁻⁵⁰ This (is) the total at pla[ntations[?]] under the oversight of [Na]papirruna[?], year [xx]. This tablet [pertains to] Napapirruna (Naparpartanna).

Apart from the two tree inventories, many other texts record the harvest of some forty kinds of fruit at localities throughout Pārsa. They show that the tree inventories are but a faint echo of a large-scale campaign to develop arboriculture. Data obtained from palynological research in central and southwestern Fārs supports this view, showing increases of tree cultivation during the Achaemenid period. Although more research is needed, several regional trends are already discernible: olive cultivation was more pronounced in the warm region

around Lake Parišān (southwestern Fārs), while the Lake Mahārlū sample (central Fārs) suggests abundant vineyards in this area. Such differences, in tandem with the apparent amplitude of the various cultivation schemes, suggest deliberate regional choices. In short, the planning, management and control that enabled the fruit production of Achaemenid Pārsa must have required not only an army of nurserymen, but also the type of bureaucracy that Adams thought of as inherently weak. Still, some two hundred years after the tree inventories were drafted, Alexander's companions sang the praise of verdant landscapes in late Achaemenid Pārsa and elsewhere in Iran. Quintus Curtius, following older sources, describes the Marv Dašt as a wooded paradise; Arrian, paraphrasing admiral Nearchus, speaks of lush fruit gardens on the Persian Gulf shores and on the Būšehr peninsula. These and other reports are testimonies to the endurance of arboricultural strategies in place from the times of Darius I since the arcadian landscapes could not have existed without organized cultivation efforts. The historiographic evidence pertaining to the late Achaemenid period thus points to the continuity of administrative and bureaucratic systems; conversely the sudden drop in pollen levels of some cultivated species in the later fourth century marks the dissolution of Achaemenid maintenance structures.²²

Surplus of empire: the mobile court

Achaemenid fruit production in Pārsa, at least as visible in the Fortification archive, did not typically flow back to the household economy: although sometimes served to the institution's dependent workers as bonus rations or as substitute for barley, none of the attested types of fruit was a staple commodity. Grapes are the only exception to this rule as they were regularly consumed in the form of wine by parts of the workforce. What happened to the remaining grapes (and wine), apples, pears, quinces, dates, figs, berries, plums, pomegranates and other fruits is not difficult to

22 The two Elamite tree inventories, PFa 33 and Fort. 0119-101, are (re-)published with commentary in Henkelman and Stolper 2021; the translation of PFa is cited after Henkelman 2021a, 137–38. The locations of the plantations and their short distance to Persepolis are further discussed in Henkelman 2021a, which also offers a lexicon on fruit names and an attempt to confront the textual evidence with the results of recent palynological research in Fārs. Stolper 2021 discusses interim fruit accounts and the underlying management schemes (estimation of maturing crops). See Djamali, Saeidi Ghavi Andam, and Poschlod 2021 and Saeidi Ghavi Andam 2021 for recent surveys on arboriculture in Fārs based on sediment cores drawn from Lake Mahārlū and Lake Parišān (with further bibliography). For the pertinence of the Graeco-Roman sources drawing from the original Alexander biographers (such as Arr. *Ind.* 38.6, 39.2 and Curt. V.4.6–9, referred to above) and the continuity of administrative structures in Pārsa see Briant 1996, 753–57, 778–82, 1049, 1055. Tuplin 1996 and 2018 provide exhaustive surveys of Achaemenid gardens and plantations.

gauge: most of it appears to have been stored or processed for consumption by the royal court and to a lesser extent by the households of members of the royal family. Such is notably suggested by the quantities of fruit that, alongside cereals, beer, wine, poultry, sheep, goats and cattle, are booked in the Elamite tablets as having been ‘consumed before the king’ (i.e., at the royal court) or ‘before’ the royal women Irtašduna (Artystone), Irdabama, and Udusa (Atossa). The following examples illustrate the court’s appetite:

PF 0694 (PFA; memorandum; unsealed)

⁰¹ 1,124 sheep/goats, ⁰²⁻⁰³ allocation from Kampiya, ⁰³⁻⁰⁵ were consumed at the king’s court (lit. before the king). ⁰⁵⁻⁰⁶ Year 19 (503/02 BCE). ⁰⁶⁻⁰⁹ The sealed document of what was consumed Harbezza took.

PF 0701 (PFA; memorandum; seals: PFS 0007* reverse; PFS 0066a* left edge, right edge)

⁰¹⁻⁰² 126,100 l. flour, ⁰³⁻⁰⁴ allocation from Masdayašna, ⁰⁴⁻⁰⁵ were consumed at the king’s court, ⁰⁶ (at) Pārsa (here: Persepolis), ⁰⁶⁻⁰⁷ year 21 (501/00 BCE). ⁰⁸⁻¹⁰ Miššabada and Irdamišša (were) the grain masters.

PF-NN 1383 (PFA; memorandum; seal: PFS 0007* left edge, lower edge, upper edge, right edge, reverse)

⁰¹ 5 l. honey, ⁰²⁻⁰³ allocation from Mipanda, ⁰³⁻⁰⁴ were consumed at the king’s court, ⁰⁵ (at) Širubba, ⁰⁵⁻⁰⁶ year 22 (500/499 BCE).

PF-NN 0923 (PFA; memorandum; seal: PFS 0007* left edge, lower edge, upper edge, right edge, reverse)

⁰¹ 500 (l.) *karukur* fruit, ⁰²⁻⁰³ allocation from Zimakka, ⁰³⁻⁰⁴ were consumed at the king’s court, ⁰⁵ (at) Appištapan, ⁰⁶⁻⁰⁷ year 24 (498/97 BCE).

PF 0728 (PFA; memorandum; unsealed)

⁰¹⁻⁰³ 12,350 l. wine, ⁰³⁻⁰⁴ allocation from Karakka, ⁰⁴⁻⁰⁶ were poured out at the king’s court ⁰⁶⁻⁰⁷ (in accordance with) a sealed document from Ukurduš.

More still than these individual texts, the cumulative annual amounts for the commodities requested by the court convey the size of what is commonly known as the table of the king, but which really was a redistribution mechanism of its own that served tens of thousands. This impression is reinforced by accounts of the king’s dinner

preserved in the works of Athenaeus (citing Heraclides of Cumae) and Polyaeus.²³

One might discern in the voracious court an extreme form of Adams’ parasitical state, but on an imperial scale things look rather more nuanced. The Achaemenid court was a mobile one that regularly migrated between administrative centers such as Susa, Persepolis and Babylon. It included the court in a strict sense, but also the royal guards, royal chancelleries and other administrative bodies; it was the pulsating heart of the empire and whatever village, field or park it halted at would become the center of the Achaemenid world. Although its itinerant nature has sometimes been read as a trace of the assumed nomadic background of the Achaemenid kings, the court’s size and complexity were probably weightier determinants for its mobility. By regularly changing location the Achaemenids avoided depleting the regional institutional economies that hosted them. Presumably calibrated to the productivity of the host regions, the system enabled the maintenance of the court, the ultimate expression of Achaemenid imperial power, for over two centuries.²⁴

The Fortification archive affords glimpses into the planning of royal visits and piling up of reserves at projected halting places long ahead of the king’s arrival. The same is true in the case of the independent courts of leading royal women such as Irtašduna and Irdabama. Together with the documents on commodities consumed at the court while in Pārsa, this yields a rich dossier that allows for estimations

23 Editions of PF 0694, PF 0701, and PF 0728 are found in Hallock 1969, 214–15, 216, 221 (PF-NN 1383 and PF-NN 0923 remain unpublished). For fruit consumption at the royal table see Henkelman and Stolper 2021, 172 and Henkelman 2021a, 144; for provisions for the royal table and related stockpiling see Henkelman 2008a, 419–24 (livestock, poultry), 2010 (king, royal women, the satrap Karkiš), Stolper 2018 (Udusa) and Henkelman forthc. 4 (Irdabama). For evaluations of the testimonies of Heraclides (*apud* Ath. IV.26/145e–f), Polyaeus (*Strat.* IV.3.32) and other pertinent classical sources see Briant 1996, 297–309, 947; Amigues 2003; Kuhrt 2007, 604–15; Lenfant 2009, 277–98; Jacobs 2010; and Henkelman 2010, 684–89.

24 The idea that ancestral nomadism inspired the migration of the Achaemenid court is widespread and evoked by, e.g., Llewellyn-Jones who states that, ‘The Great King and his court used these routes to traverse the realm not just for pragmatic reasons of state, but also to satisfy a deep-set instinct in the Persian psyche, for the Achaemenids were essentially nomads, and thus the regular progression of the royal court around and across the Empire should be regarded as a migration on a par with the relocation patterns typical of nomadic peoples generally’ (Llewellyn-Jones 2013, 79–80). Briant’s foundational contribution on the itinerant court (1988) highlights political, social and ideological aspects, argues that the climatic reasons mentioned in classical sources are reductive in their received form, and notes the logistic preparations and heavy burden that the table of the king meant for local communities. Further scrutiny of the classical sources, especially on the purported fixed cycle of travel, is found in Tuplin 1998 and Jacobs 2021, 1020–22.

of daily consumption needs. Organizing the king's table was, however, not only a matter of close collaboration between the court and the regional administration(s) in the satrapy where it resided at any given moment. Commodities were sometimes transported between satrapies to supplement local reserves. A relatively modest case is that of commodities transferred from Irtašduna's estates in Pārsa to be served at her table in Ecbatana. More consequential were the transfers from Pārsa and Babylonia to Susa, where the court resided during relatively long stays and where it welcomed delegations from around the empire at the beginning of the Achaemenid year. The Kabar Canal – started under Cambyses, navigable under Darius I and henceforth connecting southern Babylonia to Susa – probably should be seen in the context of feeding the court and its guests. As such, its conception appears to have been informed by interregional planning; its construction certainly was a long-term investment that enhanced flexibility in procuring additional staple commodities when needed. A third example is that of the satraps of Areia and Parthia who, upon short notice, were able to form caravans comprising a great number of camels and pack animals carrying prepared food to relieve Alexander's suffering army in southeastern Iran. The rapidity of their response and the volume of the aid necessarily imply existing structures and routines, hence intra-satrapal exchanges as a regular possibility, built into the system. These and other examples underscore the elasticity of Achaemenid administration, even at imperial level, but also its foresightedness.²⁵

The itinerant court enhanced the king's visibility and authority within the core satrapies and fostered the crown's rapidity and mobility potential in the face of major crises. It was made possible by an intricate system of built-up reserves and interregional exchanges, hence an overarching management of the empire's stores. Put differently, the itinerant court was, in its size and

complexity, only possible *because* there was a supra-national state, it was a function of the 'surplus of empire.'

Coping with crises: connectivity

The so-called Ionian Revolt of 498–93 BCE posed an unmistakable threat to the northwestern Achaemenid empire on account of its complexity (involving several theatres of war) and scope (the local satraps having insufficient means to counter the rebel strategy). The crown had to step in, but when it did it effectively directed land and naval forces to western Anatolia and could end the revolt relatively quickly. Given the logistic challenge the operation posed in combination with the distance from the empire's core, tight coordination was of the essence but not necessarily easy to achieve. Put concretely, the success of the counter-offence depended to a larger part on the reliability and speed of communication lines. As Hyland has recently shown, the Fortification archive offers glimpses of just that in the form of receipts for travel provisions issued to fast messengers. The relevant records are clustered in years 27 and 28 of Darius (495/494, 494/493 BCE), hence in the time of the centrally organized offensive. They provide evidence for the exchange of messages between the court and the satraps in Egypt, Lydia and perhaps Cilicia. The contents of the messages are, of course, lost, but the time frame and the administrative centers involved render a connection with the Ionian Revolt likely. Their frequency, moreover, points to the renowned Achaemenid express messenger system which appears to have compared favorably to that of other ancient states; according to a recent estimation by Colburn, the distance between Sardis and Persepolis could, e.g., be covered in a mere fortnight. Such communication speed, high in comparison to the Roman empire, in turn translates into relatively intense connectivity, hence resilience, in the Achaemenid empire.²⁶

Besides the mobile court, the extensive network of state-maintained roads was a second major burden on the Achaemenid budget; its existence, too, was a function of the 'surplus of empire.' Its heavily bureaucratic nature (and, in Adams' view, inherent precariousness) notwithstanding, it endured throughout the Achaemenid period. As a complex phenomenon it included not only the physical roads (apparently constructed with a standard width and regularly maintained) and the celebrated way-

25 For Irtašduna at Ecbatana see Henkelman 2017a, 134–35, 195–202; for transports from Pārsa to Susa, see Henkelman 2017a, 122–29. Susa's position in the Achaemenid network in general is discussed in Briant 2010. For food commodities shipped to Susa as *upiyātu* (table tax) and the travels of Babylonian elites in the same direction to attend court around the time of the New Year, see Waerzeggers 2010 and Tolini 2011 vol. I, 255–86, 307–34, 459–62. Since Tuplin (1998) first analyzed Persepolitan evidence for the migration of the royal court the study of the Fortification archive has advanced significantly; the regular residence of the court at Susa around the turn of the year has changed from an uncertain possibility to a strong plausibility (as argued in Henkelman's forthcoming study *This Wide Earth with Many Lands in It*). For the Kabar Canal see Waerzeggers 2010, 778–79, 790, 804; Tolini 2011 vol. I, 49–72, 311–14, 323–31, 491–98. For the camel caravan(s) sent to Alexander by the satraps in Areia and Parthia (Arr. *Anab.* VI.27.6; Curt. IX.10.17–18, 22) see Henkelman 2017a, 55–63 (with further references).

26 See Colburn 2013 for further elaboration on the connectivity of empire and the estimation of the time it took the express service to reach Sardis (13.8 days) or Memphis (12.0 days) from Persepolis. For the reflection of the Ionian Revolt in the Fortification archive see Hyland 2019. Henkelman forthc. 1 discusses the case of the Persian general Daurises who was dispatched to Anatolia in an earlier phase of the revolt and who previously had held an important administrative and perhaps military assignment in Pārsa. For Achaemenid defensive schemes and the process followed before the central authorities would step in see Jacobs 2003.

stations at intervals of a day's travel, but also a corps of road inspectors; logistic structures to maintain the stores of travel provisions from hinterland reserves; the production, scrutiny and archiving of satrapal travel authorizations and daily receipts for travel provisions; horses trained and kept ready for the express service; and, perhaps most important, a mental map of the empire operated by those engaged in maintaining the system. The enormous investment in commodities, labor and organization necessitated by the network defies, all by itself, the idea that ancient complex states like the Achaemenid empire focused, more or less by default, on short-term investments.²⁷

The roads, safe and commodious as they were, encouraged mid-range and long-distance commerce, allowed for the circulation of labor, the dispersal of cultivated trees and plants, and the spread of ideas. They made the Achaemenid world a unified space in which circulation was much easier than it had been before or would be after. The habitually evoked greater mobility and cultural exchange the Greek world witnessed during the Hellenistic age already existed in the Achaemenid empire two centuries prior to Alexander. In this respect it is interesting to note that some of the Hellenistic novels (Chariton's *Callirhoe*, Heliodorus' *Aethiopica*), typical in their evocation of a wide and marvelous space, are situated in a loosely constructed Achaemenid décor.²⁸

Coping with crises: interregional defense schemes

Maintaining the road network was not 'only' for the sake of commerce and circulation. At least as important was the rapidity of response to crises it guaranteed. As such, the roads should be studied in conjunction with defensive hierarchies and schemes designed to counter any upheaval by a coordinated response. The 'rebellions' that broke out throughout the empire as Darius I made his bid for supreme power (522–21 BCE) may have been a major inspiration in this regard. Although defensive structures and roads were developed from the beginning of the Achaemenid period (and incorporated earlier networks),

it is likely that investment intensified under Darius I exactly in response to the succession crisis.

The cases of Gaumāta ('Pseudo-Bardiya' I) and Vahyazdāta ('Pseudo-Bardiya' II) provide an illustration of the above. Both started their uprising in southeastern Fārs, the region that gave access to Kermān and the regions beyond. A stronghold alternately called Paišiyāuvādā (Old Persian, Akkadian) and Naširma (Elamite) in the Bisotūn inscription plays a key role in the events: the first rebel, Gaumāta, rose here and the second, Vahyazdāta, drew fresh troops from it during his insurgence. Vahyazdāta, who appears to have been the most formidable of Darius's adversaries, was himself originally positioned in the area of Tāravā (at or near modern Tārūm). From there he controlled the southeastern access to the Achaemenid heartland, but additionally dispatched troops to Arachosia that posed a serious threat to the local satrap. Almost incredibly, he also managed to stir a proxy revolt among Darius's own palace troops in Babylon.²⁹

Vahyazdāta's military strategy was well-advised as it gave him control over part of an essential artery of the nascent Achaemenid empire. A trade network connecting Egypt and eastern Africa, via the Arabian Peninsula and Babylonia, to southern Iran and the Indian subcontinent had emerged in the first half of the first millennium BCE. It resulted from the increasing deployment of the dromedary from about 1200 BCE onwards, which had made trans-desert routes more viable than before. It eventually came to rival the older northern network that connected the Mediterranean, northern Mesopotamia, northern Iran and Central Asia. The new network motivated in part the Neo-Assyrian aggression against Babylonia and the Neo-Elamite state; it probably also informed the remarkable renaissance witnessed in Elamite material culture after the dissolution of the Assyrian empire if not the emergence of the Achaemenid empire itself. It was segments of this system that Vahyazdāta controlled, showing that his strategy transcended the regional and attained the level of empire.³⁰

27 Literature on the Achaemenid road network (in broadest sense) is expansive; for recent surveys and bibliography, see Briant 2012 and Henkelman in Jacobs 2021.

28 The background of this setting requires further study. Adopting a common view, Romm argues for Herodotus (and, to a lesser extent, Xenophon and Ctesias) to have remade the Achaemenid world into a "literary landscape ideally suited to the particular kind of erotic intrigue in which the ancient novel clearly delights" (Romm 2008, 112–14; citation from p. 113; see also Stephens 2008). While this may be part of the answer, the sometimes expressive evocation of space and connections over wide distances in the novels presumably owes something to Achaemenid reality, not to mention similar themes in literary traditions indigenous to the ancient Near East such as those reflected in *Ahīqar* and *Tobit*.

29 Gaumāta's rise and fall is described in DB_c I.27–45, the campaigns of Vahyazdāta in II.85–III.35.

30 Later Neo-Elamite history itself may be read from a resilience perspective, as Carter implied when speaking of 'resistance to empire' (Carter 2007). Indeed, the mobility of its court, the demographic shift towards eastern Khūzestān, the strategic alliances with Aramaean and other tribal groups, the participation in the southern trade network, and the regional web of alliances that included agro-pastoralist groups in the mountains north and east of Elam all contributed to its survival under Assyrian pressure and its renaissance once that pressure subsided. See Henkelman 2017a, 55–63 and Henkelman 2018b, 805–7 on rivalling northern and southern trade networks and the place of Neo-Elamite and Achaemenid Iran in these, an idea informed by Gibson's thesis on the impact of the introduction of the dromedary in the relations between Elam, Babylonia, and Assyria (Gibson 1991).

As said, the real danger posed by Vahyazdāta's and other rebels' insurgences to the coherence of empire must have been an eye-opener for Darius and his advisors. The Persepolis Fortification archive bears witness to the risk management strategies developed ostensibly to avoid another such episode. To safeguard the empire's eastern artery and the high level of connectivity it afforded, the Achaemenids set up an interregional defensive strategy in which the aforementioned stronghold of Paišiyāvādā/Naširma played a decisive role. Perhaps to be identified with Tall-e Zohāk (Pasā) near Fasā, Paišiyāvādā in any case must have controlled the road to Kermān. Enter Karkiš, a pivotal figure in the defensive system. This Karkiš occurs as destination of travelers heading to Kermān, as the person issuing travel authorizations for travelers coming from Kermān, and as the person renewing the authorizations for those coming from satrapies further east such as Hinduš. From these contexts it is clear that Karkiš was satrap in Kermān (Krmāna, Carmania). His jurisdiction additionally included Puruš, the administrative center of eastern Kermān or Gedrosia, where Alexander would camp and find provisions for his hungry army about two centuries later (cf. n. 11 above). Most crucially, however, Karkiš' strategic duties frequently brought him to Pārsa proper:

PF-NN 0306 (PFA; memorandum; PFS 0233, seal of Karkiš, left edge and reverse)

⁰¹ 50 (l.) wine, ⁰²⁻⁰³ allocation from Ušaya, ⁰³⁻⁰⁴ (at) Parmadan, ⁰⁴⁻⁰⁶ were poured at Karkiš' court (lit. before Karkiš).

As this text from the Fortification archive shows, Karkiš exercised his satrapal rights even while he visited Pārsa (in this case the place Parmadan); he had the right to travel with his satrapal court or retinue; and he used his satrapal seal to acknowledge receipt of provisions drawn from the institutional economy. The same is true for contexts in which he appears in the company of *taššup*, '(armed) troops,' as the following five documents demonstrate:

PF 0328 (PFA; memorandum; PFS 0233, seal of Karkiš, left edge and reverse)

⁰¹⁻⁰² 32,310 l. flour, ⁰³ allocation from Ukbeza ⁰⁴ (at) Mannandanuš, ⁰⁵⁻⁰⁷ Karkiš together with (his) troops received.

PF-NN 1310 (PFA; memorandum; PFS 0233, seal of Karkiš, left edge, upper edge, and reverse)

⁰¹ 2,000 (l.) wine, ⁰²⁻⁰³ allocation from Anpirruša ⁰³⁻⁰⁴ (at) Mannandanuš, ⁰⁴⁻⁰⁷ Karkiš together with (his) troops received.

Fort. 6179 (PFA; memorandum; PFS 0233, seal of Karkiš, left edge and reverse)

⁰¹⁻⁰² 14,970 l. flour, ⁰²⁻⁰³ allocation from Dayurisa, ⁰⁴ (at) Mišapar, ⁰⁴⁻⁰⁷ Karkiš received together with (his) troops.

PF 0329 (PFA; memorandum; PFS 0233, seal of Karkiš, left edge, upper edge, and reverse)

⁰¹ 21,400 l. flour, ⁰²⁻⁰³ allocation from Dayurisa, ⁰³⁻⁰⁷ Karkiš received together with Beziyamatiya-troops, ⁰⁷ (at) [...]pidanuš?, ⁰⁸ [...].

PF 0683 (PFA; memorandum; seals: PFS 0017 left edge, PFS 0146 lower edge and reverse)

⁰¹ 2,000 (l.) wine, ⁰¹⁻⁰² allocation from Ušaya, ⁰³⁻⁰⁵ Karkiš of Naširma received as rations. ⁰⁵⁻⁰⁶ He carried an authorization from the king. ⁰⁷⁻⁰⁹ Year 23, twelfth month (March 498 BCE).

No numbers are cited for the troops in Karkiš' company, but the amounts of flour and wine would be enough to feed thousands, even if intended for several days. The regularity of the dossier and the repeated use of seal PFS 0233, the seal of Karkiš, furthermore underscores that one and the same recipient is at stake. This Karkiš can be identified with the satrap in Kermān, but he is additionally associated with Beziyamatiya-troops (i.e., 'from *Pēšiyāvādā' < Paišiyāvādā; PF 0329) and himself called 'of Naširma' (*Naširmannu*, PF 0683), using the Elamite name of Paišiyāvādā. The fact that Karkiš and his troops, while on mission, turn up in the Fortification archive means that they found themselves at that moment *within* the borders of Pārsa proper. In other words, the satrap of Kermān had a strategic assignment that gave him control over the crucial military stronghold Paišiyāvādā (perhaps just outside ancient Pārsa) and access to the imperial heartland in strict sense.

Beyond Kermān and Pārsa, Karkiš also moved to and from Sagartia with his armed troops:

PF-NN 2261:16-18 (register entry; accounting seal PFS 0027* left edge, reverse)

¹⁶ 291 (sheep/goats) Karkiš of Kermān received and ¹⁶⁻¹⁷ gave to *hallinup* troops; ¹⁷⁻¹⁸ they went from Sagartia to Kermān, ¹⁸ year 22 (500/499 BCE).

Fort. 11811:04-06 (register entry; accounting seal PFS 0027* left edge, reverse)

⁰⁴ 1580 (l. wine) Karkiš of Kermān [received and ⁰⁴⁻⁰⁵ gave it to troop]s of Naširma; ⁰⁵⁻⁰⁶ [they went] from Sagartia to Kermān, ⁰⁶ [year x].

Karkiš of Kermān, i.e., the satrap, is here explicitly associated with Naširma (Paišiyāvādā), but is at the same time said to be returning from Sagartia with – judging by the amounts – a large number of troops. Previously thought to be situated in the region of Arbela, Sagartia can now confidently be located somewhere between the satrapies of Media and Pārsa, plausibly in the plain of Esfahān. This region, too, had seen a rebellion only twenty years before, at the time of Darius's ascent: Čiçantaxma, who claimed descent from Cyaxares the Mede, took control of Sagartia and was defeated by Median and Persian troops dispatched by Darius. Against this background the activity of Karkiš and his troops in Sagartia is scarcely a coincidence: it probably was intended to keep the region pacified. Karkiš thus appears to have been vested with – to put it anachronistically – praetorian powers to safeguard the northeastern, eastern and southeastern flanks of Pārsa. Though his assignment was primarily aimed at preventing future rebellions that would imperil the core of the empire, an additional benefit was the safety of travelers on the road to or from Media (through Sagartia) and to or from Kermān and further east (through southeastern Fārs).³¹

The tribes and pastoralists of Pārsa: the world beyond the tablets

The view offered by the Persepolis archives on the institutional economy of Achaemenid Pārsa suggest an impressive administrative and bureaucratic system that directed and affected the lives of thousands, but the view is nevertheless far from panoramic. Certain types of institutional activity, such as textile and other craft production, are only known from ration texts but remain otherwise practically undocumented. The institution's purview should, moreover, not be overestimated despite

31 For the Čiçantaxma episode see DB, II.58–67. After his arrest Čiçantaxma the Sagartian was brought to Darius, tortured and executed at Arbela/Erbil, the reason why Sagartia was previously believed to be centred on that city. Its location in Central Iran is demonstrated in Henkelman's forthcoming monograph *This Wide Earth with Many Lands in It*. For Karkiš, perhaps the Gergis of Herodotus (VII.82, 121), and his various assignments see Henkelman 2010, 704–13; Henkelman 2017a, 49–54; Henkelman *forthc.1*; and Potts *forthc.* Garrison 2020, 245–47 discusses PFS 0233, the seal of Karkiš and impressed on some of the texts cited above. For editions of these texts Hallock 1969, 148–49, 212 (PF 0328, PF 0329, PF 0683), Arfaee 2008, 74–75 (Fort. 6179), and Henkelman 2010, 704, 775 (PF-NN 0306); PF-NN 1310, PF-NN 2261, and Fort. 11811 are as yet unpublished.

the overwhelming documentation it produced. In parts of the territory its presence may have been insular; its direct reach presumably was largely limited to intermontane plains and valleys and even there it did not directly control the peasant population or estate holders. The most important limitation, however, is that the institutional economy centered on Persepolis and more broadly the sedentary population existed side-by-side with pastoralist groups inhabiting pastoral zones. The two systems interacted and probably were mutually dependent; both existed within the same polity – what might be called a dimorphic state – but had very different ties to its leadership, the Achaemenid crown and its representatives. In addition, Persian heartland society as a whole appears to have retained a relatively strong tribal organization and some tribes existed across the dimorphic divide (or better: interdependence). While reflections of neither tribal organization nor pastoralist ways of life are especially numerous in the Fortification archive, occasional references do imply a recognition of tribal identities, if not of a certain autonomy, as well as a tacit recognition of the economic role of pastoralism.³²

Because the tablets essentially pertain to agricultural production in sedentary zones, their references to the semi-external environment are typically indirect. Consider the following cases of the institution's surplus produce being exchanged with anonymous trading partners:

PF-NN 2284 (PFA; account; unsealed)

⁰¹⁻⁰² (This is) the account made (of) year 18 (and) year 19, ⁰²⁻⁰³ (at) the fortified place called Hardappatkaš?. ⁰⁴⁻⁰⁵ The sto[rekeeper] named Umaka withdrew 25,355 (l.) [bar]ley. ⁰⁶⁻⁰⁷ Then, 4 medium? quality cows, ⁰⁷ 2 inferior quality cows, ⁰⁷⁻⁰⁸ 1 medium? quality jenny, ⁰⁹⁻¹⁰ 1 medium? quality mare and 1 medium? quality stallion, ¹¹ 1 medium? quality male mule, ¹¹ 6 nanny goats, ¹² 1 ram: ¹² (for) this total of livestock he made an exchange. ¹³ Its counter value (was) 24,190 litres barley; ¹³⁻¹⁵ the ba[lance] (of) 1,165 (l.) barley (that) he had with[drawn?, for that?] he did not make a (new) exchange. ¹⁵⁻¹⁶ The cattle (and) donkeys? (*and the mule*) were allocated to Bakaparna, ¹⁶⁻¹⁸ the horse were allocated to Annamasa, ¹⁸ the small livestock were allocated to Umatakma. ¹⁹ 20th year, eleventh month (Febr./March 501 BCE).

32 Rowton expounded his particular views on 'dimorphism' (a term ultimately deriving from Mauss) in a series of papers, including Rowton 1973 and Rowton 1974. While Rowton's thesis has been embraced, challenged and modified over the last fifty years, its reception has been troubled by the reductive way it has sometimes been cited, making it more antagonistic than intended by its author (Porter 2012, 24).

PF 0367 (PFA; memorandum; seals: PFS 0044s reverse, PFS 0134 left edge)

⁰¹ 1200 (l.) barley, ⁰¹⁻⁰² allocation from Kullili, ⁰³ was issued and ⁰³⁻⁰⁴ 6 sheep/goats were acquired for it through exchange. ⁰⁴⁻⁰⁶ Kitindu the priest received (them) and ⁰⁶⁻⁰⁸ used them as sacrificial (animals) for the gods. ⁰⁹Year 24 (498/97 BCE). ¹⁰⁻¹¹ For each sheep/goat 200 (l.) barley was issued.

PF-NN 2252 (PFA; memorandum; seals: PFS 1603 left edge, PFS 2576 upper edge)

⁰¹ [520] (l.) barley, ⁰¹⁻⁰² allocation from Kabba, ⁰²⁻⁰³ Ušdana received; ⁰⁴⁻⁰⁵ it was issued and 4 *marna* textiles were acquired for it through exchange. ⁰⁵⁻⁰⁸ He (U.) gave (them) to 4 female *harrinup* dependent workers. ⁰⁸⁻¹⁰ For each garment 130 (l.) barley was issued. ¹⁰⁻¹¹ Year 24 (498/97 BCE).

These three texts concern three different situations in which the institution, through its agents, reached out to individuals outside or at the fringe of the institutional sphere. In the first case (PF-NN 2284), a storekeeper with standing instructions to reduce his year-end barley surplus to zero withdrew a large amount of grain to acquire various animals. The absence of the producers' names is telling: had they been officials in a parallel branch of the administration it would have been necessary to identify them for the purpose of accountability. In the second text (PF 0367), the administration issued barley so that sacrificial animals could be acquired at 200 l. per animal, a standard rate fixed by royal decree. The rationale of the exchange was not a taboo on animal sacrifice (as has sometimes been surmised), but a policy to avoid spending the institution's own capital on the hoof. Here, too, the people from whom the animals were acquired remain anonymous and were presumably (semi-)external. The same is true for the third case (PF-NN 2252), in which garments were acquired for a price of 130 l. of barley each from unnamed producers.³³

That parts of Achaemenid Pārsa were inhabited by tribally organized agro-pastoral groups has long been inferred from Graeco-Roman sources. The combined testimonies of Arrian and Curtius on the Ouxians at the western edge of the territory, for example, suggests that some Ouxians lived in the plain, engaged in agriculture and answered to an Achaemenid administrator; that some

33 In PF-NN 2284 (unpublished) 'medium' quality' is a tentative translation for Elamite *ma-a-kur-ti-ia-nu-iš*, itself probably a loan from Old Iranian **(h)uvagrđyani-*, '(animal) of the own house.' Though the term appears to suggest small-scale breeding, it actually occurs in contexts (see, e.g., PF-NN 0704, Fort. 1252-101)

Ouxians lived in small villages in the mountains, engaged in herding and horse breeding, and had a semi-autonomous status; and that both groups had a joint 'Ouxian' identity. Add to this that the Achaemenid kings, when entering Pārsa, made a detour to meet the Ouxian chiefs for a gift-giving ceremony that probably was designed to seal and renew bonds of loyalty. The case of the Ouxians suggests, in other words, not an opposition of tribes and the state, but different perceptions of the same complex reality. The satrapal administration of Pārsa presumably treated the Ouxians of the plain as any other farmers under its purview (which does not necessarily mean that they were co-opted in the institutional economy in strict sense). Those of the mountains were beyond its direct reach, though the administration may have engaged – via the institutional economy centered on Persepolis and perhaps otherwise – in livestock exchanges with them. From an Ouxian point of view, judging by their common name, the herdsmen and the farmers were part of the same group, dimorphic in its symbiosis of pastoralist and agricultural elements and plausibly tribal in its organization. Finally, seen from the Achaemenid state, the fact that the Ouxians of the mountains did not answer to an appointed administrator did not mean that they were outside the Achaemenid world: it was just the modalities and formulation of dependence from the crown that differed.³⁴

As said, the inclusion of tribally organized groups in Achaemenid society is suggested by their occasional appearance in the Fortification texts. Certain individuals may be identified by an ethnonym such as Masdayašna 'the Maraphian' in the same way that others are identified by a patronym or toponym. Groups and individuals belonging to tribes known from the Graeco-Roman sources include Kušiyap (pl.; Cossaeans), Dappurap (pl.;

that suggest a quality term used besides *nu-tam₆-maš* < **nitama-*, 'inferior,' and *pūr-ra-tam₆-mi-ia-iš* < **fratamya-*, 'prime' (cf. Hallock 1969, 17, 63, 723; for the etymologies see Tavernier 2007, 404 [4.4.2.6], 406 [4.4.2.13], 414 [4.4.6.4–5]). For edition of PF 0367 see Hallock 1969, 156. For the *marna* textiles issued in PF-NN 2252 (unpublished) see Tavernier 2007, 445 [4.4.11.2] (suggesting **varna-* and comparing Middle Persian *warr*, 'wool'). For exchanges in religious context, fixed exchange rates, and the suggestion of (semi-)external parties see Henkelman 2005; for the trading of year-end surpluses see Aperghis 1997, Tamerus 2016, 261–80 and Stolper 2017, 752–57, 770–89.

34 The Ouxians and their world are described in Arr. *Anab.* III.17.1–6; Curt. V.3.1–16; Diod. XVII.67.1–5; and Strabo XV.3.4 (royal gifts). Briant's analysis of these passages and of the social contract sealed by the gift-giving ceremony remains the most important reference (Briant 1976, 180–81, 189–94, 214–21; Briant 1982b, 67–93); see furthermore Henkelman 2011b, 8–11, Bahadori 2017, 176–83 and Balatti 2017, 205–13, 270–72. As Briant surmised, the ceremony may have enabled more regular exchanges similarly ruled by the codes of gift-exchange. In this light, it should be noted that the exchange rates documented in the Fortification archive were fixed (Henkelman 2005).

Tapyrans), Battišmariš (Patischorian), and Marappiyap (pl.; Maraphians); all these may be referenced without apparent need for further clarification. In one case, the leader or responsible of a group of Tapyrans sealed a receipt on behalf of his people in the authoritative ‘single-seal protocol’ (i.e., requiring no counterseal); in another, a member of the Patischorian tribe is recognized as being under the responsibility of Gobryas, its apparent chief and a leading Persian noble. The same Gobryas and another member of Darius’s court retinue appear identified as Patischorians on the king’s tomb façade at Naqš-e Rostam. Marapiya(š) (‘Maraphia’) and Battišmaran (‘Patischoria’) occur a few times as toponyms and appear to be tribal towns, i.e., sharing their name with the Maraphians and Patischorians. Such references and especially their rarity reveal a world that lay largely beyond the tablets but decidedly not beyond the reality of Achaemenid Pārsa.

While the transformations that pastoralist ways of life and tribal organization underwent in the age of empire remain to be elucidated, it is unlikely that they were primarily characterized by the kind of marginalization Adams predicted. The numbers of sheep and goats recorded in the Fortification archive coupled with palynological evidence pointing to increased grazing rather suggest the prominence of animal husbandry in Achaemenid Pārsa, hence presumably of pastoralist groups (be it as contract herdsmen or otherwise). In addition, the combined evidence of Elamite and Graeco-Roman sources suggests that tribal organization was as strong in the age of Darius III as it had been in that of Darius I.³⁵

If the age-old interdependency of agricultural and pastoralist ways of life in the highland of Fārs should be read as a resilient strategy, then the situation here described for the Achaemenid period is nothing but a reformulation and partial formalization of that same strategy. Despite differences in scale and, presumably, the level of autonomy of the actors, the case for Achaemenid Pārsa as a symbiotic system cautions us that an assumed contrast of resilience from below and resilience from above (or imposed ‘stability,’ etc.) may be illusory after all.

35 The names of Persian tribes appearing in the Fortification archive are treated in Henkelman 2011b, 11–16 (Tapyri and others; see also Garrison 2011) and Henkelman and Stolper 2009, 284–87 (Patischorians); the case of the tribal towns awaits further exploration. On Gobryas and a second Patischorian (whose name is lost) at Naqš-e Rostam see Henkelman 2003, 119–20, Delshad and Doroodi 2019, and Schmitt 2019, 43–48 (and compare Henkelman and Stolper, 2009, 284–87). For general surveys of the pertinent Graeco-Roman sources see Briant 1976, Balatti 2017, 195–246, Potts 2014, 88–119 and the references in the previous note. For palynological evidence on overgrazing in central Fārs see Saeidi Ghavi Andam 2021 (with further references).

Conclusion

The Fortification archive, in combination with other sources available for Achaemenid Pārsa, offers a view on a costly, high-maintenance, energy-intensive, and generally very complex institutional economy. It existed not only in Achaemenid Pārsa but also in Achaemenid Elam, Achaemenid Media, Achaemenid Arachosia, Achaemenid Bactria, and presumably elsewhere. In Pārsa, and probably in other regions, it was part of a larger socio-economic system with the characteristics of symbiotic dimorphism. Its complexity notwithstanding it was far from ephemeral; it survived down to the age of Darius III and in some cases beyond.

The longevity of the institutional economy centered on Persepolis and the socio-ecological system of which it was part may be explained from flexibility and redundancy (parallel rationing schemes, semi-dependent workers, diverse production); adaptivity (interregional transports, regional and district planning), buffering capacity (local transports); connectedness and rapidity of response (road network, fast messengers, interregional military strategies); predictability and foresightedness (minute documentation available at different levels, response to earlier crises); and intentionality of design and expansion (long-term investments, template-like replicating of administrative systems).

The projected adaptability and longevity of the socio-ecological system reflected by the Persepolis archives challenge Adams’ reluctance to award such state institutions with a degree of resilience. While base laborers in the Persepolis economy may well have felt that their lives were miserable and perpetuation of their condition undesirable, the system that bound them did persist generation after generation. It ensured long-term productivity levels; it buttressed a supra-national state by contributing to a ‘surplus of empire’ – the mobile court and the road network – and in doing so contributed to the wider systemic resilience of the Achaemenid world. To capture this phenomenon this paper proposes the term ‘institutional resilience,’ with the proviso that the real test of its value as a measure lies in a future comparison with other systems, such as that of Sasanian Fārs.

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