People of the Book: Empire and Social Science in the Islamic Commonwealth Period

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Abstract: Social science is often described as a product of 19th century Europe, and as a handmaiden to its imperial and colonial projects. However, centuries prior to the Western social science enterprise, Islamic imperial scholars developed their own 'science of society.' This essay provides an overview of the historical and cultural milieu in which 'Islamic' social science was born, and then charts its development over time through case studies of four seminal scholars -- al-Razi, al-Farabi, al-Biruni and Ibn Khaldun -- who played pivotal roles in establishing fields that could be roughly translated as psychology, political science, anthropology and sociology. The axioms undergirding Islamic social science are subsequently explored, with particular emphasis paid to the relations between said axioms and the discursive tradition, 'Islam.' The essay concludes with an exploration of how looking to social science enterprises beyond the 'modern' West can clarify the purported relationships between social science and empire.

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Setting aside notable precursors such as Machiavelli, Giambattista Vico or Adam Smith, the Western tradition of social science is typically held to have been developed during the mid-19th Century. The so-called "Masters of Suspicion" (Marx, Nietzsche and Freud) revealed that much of human thought and behavior seemed to be driven by biological, psychological and socio-historical processes, substantially undermining both the Enlightenment conception of rationality and Western Christian beliefs, norms and values (Ricoeur 1977). New tools, methods and theories for understanding society were pioneered by the likes of Comte, Weber, Durkheim, Spencer, Tonnies and Simmel. Initially, Western social scientists were preoccupied with identifying ways to preserve or revive community, legitimacy and identity in the wake of 'modernity' (Collins 1997). They scoured other socio-historical and cultural contexts – particularly those at the fringes of the colonial and imperial regimes they were part of -- for clues on how to restore balance to their own urban and industrial societies. However, a consensus quickly emerged that their initial formulation of the problem was backwards, in a sense. Western Europe could not, and should not, look to others for guidance—but instead serve as a vanguard for others to follow.

Modernity came to be viewed as a universal process which, while birthed in Europe, would soon swallow all other societies and cultures as well. Every religion would undergo some version of a Reformation and Enlightenment (or be lost to history). Every society would become secular, industrial, urban and capitalist (e.g. Weber 2001). While this process would generally be as brutal, destructive and disorienting for others as it was for Europe, these birthing pangs were predicted to eventually give way to an age of unprecedented worldwide peace and prosperity. Looking to other historical and cultural contexts increasingly became a means through which people in the West demonstrated their superiority over others and justified their eschatology of progress (Connell 1997). 'The West' was thereby placed, in a sense, beyond good and evil. There could be no blame in destroying communities and cultures which were already destined for extinction. While perhaps tragic to observe, it was ultimately a *kindness* to efficiently eliminate socio-cultural phenotypes which were unfit for survival in the 'modern' world, or to accelerate mankind's evolution by reconstructing the exotic and primitive 'other' in the image of the 'modern' West. Operating under such auspices, social science would go on to play a critical role in justifying imperialism (Ake 2000), colonialism (Rhode 2015), eugenics (Leonard 2016) and genocide (Bauman 2006).

Many have argued that the colonial and imperial origins of Western social science continue to structure its theory and practice today. Territoriality around scholarly disciplines is held to reflect an imperial mindset (Steinmetz 2007). Researchers continue to value forms of knowledge useful for administration, surveillance or dominance of subaltern populations – with 'social problems' defined largely in terms of these populations (Magubane 2013).[2] 'Insider' and 'outsider' groups continue to be studied and discussed in asymmetrical ways – with the sociological 'lens' turned primarily towards the latter (Latour 1993). Social research continues to be largely extractive: data is taken from populations to be utilized and analyzed by outsiders. The preferences, priorities and perspectives of those from whom information is collected are often not taken seriously, or in any case, tend to be subordinated to the needs and desires of researchers (Connell 2018). Aspirations towards empiricism, objectivity, rationality, universality and positivism are held to privilege values and worldviews prevalent among those who dominate the social order. Meanwhile, work by and for people from historically marginalized and disadvantaged groups tends to be viewed as less rigorous or significant (Go 2020; Kemple & Mawani 2009). These and other unsavory features are held to be consequences of the imperial origins of Western social science.

[2] Magubane's (2013) contribution is part of a special issue of *Political Power and Social Theory* dedicated to the topic of postcolonial sociology, edited by Julian Go. Readers are encouraged to review the other excellent contributions of that volume for further elaboration on these points. The essay by McLennan (2013) is particularly significant in terms of complicating and challenging some of the more prominent critiques of sociology, as well as popular approaches to 'postcolonial' sociology.

Curiously, although empire is a social formation that repeats across historical, geographical and cultural contexts, the relationship between empire and social science tends to be discussed exclusively in terms of the 'modern' world and the West – as though this connection was historically *sui generis*.[3] Given the much-discussed utility of social science *for* imperial regimes, the apparent lack of other historical cases seems to suggest that the creation of Western social science is equivalent with the creation of social science per se: perhaps the connections between empire and social science are not explored in other cases because no prior empire *had* social science at its disposal.

In fact, centuries prior to the advent of Western social science, Islamic empires had produced their own "science of society." Exploring the character of this alternative imperial social research enterprise may help us gain leverage on the extent to which criticized attributes of Western social science are actually products of imperialism per se or are, perhaps, the result of other factors. Yet, while there is a corpus of excellent scholarship on Muslim contributions to mathematics or the material sciences, there are virtually no English-language resources detailing the breadth, depth and character of the Islamic social research program and how it fit into the broader imperial scientific enterprise. This gap in the literature can be attributed to many factors:

The selection of works to be translated into Western languages or explored by Western scholarship has typically been governed by narrow instrumentalism and Whiggish historiography. For instance, Islamic scholars have been credited 'preserving' Greek texts, allowing them to ultimately be 'restored' to the West; they have been praised for their 'early' contributions to mathematics, medicine and the physical sciences. These priorities: 'recovering' Greek philosophy and importing advances in science and technology, defined initial translation efforts by scholars like Michael Scot and Adelard of Bath towards the tail end of the Crusades (Lyons 2010). In the leadup to the Enlightenment, there was another wave of translation work focused on the Qur'an, *tafsir* (Qur'anic exegesis) and Islamic theology and jurisprudence -- undertaken by Christian scholars who were seeking to understand Islam in order to refute it, to demonstrate the superiority of Christianity and Western civilization and, ultimately, to convert the Arabs (Bevilacqua 2018); the 'orientalist' scholarly enterprise of the colonial and imperial period served a similar set of ends (Said 1979; Steinmetz 2008).

More generally, contributions to mathematics, medicine and material sciences were prized by Western scholars for their perceived practical significance. Social science, however, is and has been consistently held in lower esteem (e.g. Horgan 2013; Levinovitz 2016). Indeed, some of the figures discussed here for their pioneering work in the social sciences are much better known for their innovations in the realms of medicine, mathematics, physics, astronomy, etc. despite often having written just as much (or more) on social issues.

The existing literature on Islamic scholars' contributions to social science is usually centered on specific disciplines or subfields, and oriented towards highlighting how these scholars either anticipated or contributed to the emergence of Western social science.

[3] There have been a handful of works that focus on imperialism and social science within non-Western empires. However, they, too, tend to be focused on 'modern' societies, and on the influence of Western regimes and frameworks abroad. For instance, Chae (2013) explores social science in the context of imperial Japan. However, the essay is focused on Japanese colonization of Korea (c. 1910- 1945) and includes 'the West' as a core component of Japan's 'triadic colonialism.' Likewise, Semyonov, Mogilner & Gerasimov (2013) explore the relationship between empire and social science in Russia – albeit, in the post-1840 period, and focused largely on Russian engagement with Western thought. Both mark valuable contributions to the study of empire and knowledge production, however neither escapes the general orientation of this literature towards the 'modern' world and the West.
The contributions of Chae and Semyonov et al. are part of a book edited by George Steinmetz on sociology and empire. Interested readers are encouraged to review this excellent collection for further elaboration on the connections between (modern) social science and (Western) empire.

That is, the 'modern' West is still the locus around which this scholarship is oriented; the work of these scholars is viewed as significant in virtue of some established relation with the 'mature' social sciences we are familiar with today.

Drawing on Camic & Gross' (2004) "new sociology of ideas," this essay will work from a different set of assumptions, namely: the work of these scholars is neither reducible to what came before, nor is it rendered significant in virtue of what came after. Although the Islamic social research enterprise influenced subsequent efforts to study social dynamics and social problems -- in the West and beyond (Collins 1998) – it is not a mere 'precursor' to Western social science. It is an alternative model that developed in a different (earlier) time, in a different context, responding to different needs and premised on different assumptions. It should be understood relative to the social and cultural milieu in which it existed, and the problems it sought to address. This essay is intended as a preliminary step in that direction.

Our exploration will proceed in a more-or-less chronologically linear fashion, beginning with a brief overview of the Islamic Commonwealth period and the emergence of the scientific method within that context. We will then explore the emergence of the *social* science enterprise, focusing on the contributions of four seminal scholars -- al-Razi, al-Farabi, al-Biruni and Ibn Khaldun—who played a formative role in the development of fields that one could translate roughly as psychology, political science, anthropology and sociology respectively.[4] We will discuss the axioms that undergirded the Islamic imperial social research enterprise, with particular attention paid to the relations between these axioms, the discursive tradition "Islam" and the regimes established in its name. It will become clear that the emergence of Western social science must not be conflated with the creation of social science per se. This opens up new avenues for exploring the relationship between social science and empire. The essay will conclude with reflections on the importance of expanding the scope of inquiry on these questions beyond the 'modern' and 'Western' contexts. However, we must, at the outset, define a handful of key terms.

Empire, Social Science and Islam

For the purposes of this paper, we will rely on Steinmetz's (2014) definition of 'empires' as "expansive, militarized, and multiethnic political organizations that significantly limit the sovereignty of the peoples and polities they conquer (2014, p. 79)." With respect to Steinmetz's taxonomy of empires, this essay explores a period after the Abbasid Caliphate had largely transitioned from a 'premodern land-based' empire into something approximating an 'informal, non-territorial' empire.[5]

"Social science" here refers to systematic, theoretically-informed and empirically-oriented or historically-grounded scholarship on social dynamics, structures or relationships. Although virtually all the scholars discussed here happened to be Muslims, this is not necessarily what is denoted by 'Islamic' social science in this essay. Drawing from Talal Asad (2009), we instead evoke Islam as a *discursive tradition* that "connects variously to the formation of moral selves, the manipulation of populations (or resistance to it), and the production of appropriate knowledges" (p.10), which "includes, and relates itself

[4] It should be emphasized that while we are focusing here on the development of Islamic social *sciences*, there was a parallel tradition of Islamic humanities (*adab*) which focused on literature, poetry, language, and the exploration of classical ethical and political works from the Arabs, Greeks and Persians – with the aim of developing and exemplifying refinement, character and practical wisdom, while establishing a cosmopolitan culture among urbanites, aristocrats, bureaucrats and scholars across the Islamic empire(s). For elaboration see Lapidus (1979).

[5] 'Informal, nonterritorial' empires, Steinmetz argues, exercise international control "through military, economic and other means, but there is no conquest or permanent seizure of political sovereignty and therefore no possibility of systematically enforcing a rule of difference" (p. 84-5).

to, the Qur'an and Hadith" (p. 20) and "aspires to coherence in the way that all discursive traditions do" (p. 23). On this account, it would be possible for those who were not Muslims to participate in "Islamic" scholarship – as indeed, many did. It would similarly be possible for non-pious leaders to erect, preside over or administer "Islamic" regimes, as some did.

Islam was the axis around which the societies discussed here revolved; it *constituted* events, both large and small. Time itself was oriented around Islamic traditions, holidays and (daily, weekly) rituals. We, too, will index chronology to Islam. For the remainder of this essay, we will rely on a hybrid calendar[6] – one which begins in 622 A.D. (the year of the *hijra*), but divides time according to Gregorian units. The logic behind this move is as follows: the most common Islamic calendar, used in most classical Islamic scholarship, also begins in 622 A.D. However, the Hijri (A.H.) calendar is lunar, with months that range from 29-30 days, and years which run 354-5 days. This makes converting years from A.D. to A.H. fairly complex, to the point where providing A.H. dates may not be particularly meaningful for many readers. Our hybrid system achieves its primary goal of orienting time around Islam, while simultaneously empowering those who think in Gregorian terms to more easily conceptualize the temporal distance between the genesis of Islam and the events described here. Henceforth, years labeled "IE" will denote the passage of time during the Islamic imperial period.

The Islamic Commonwealth Period

As anthropologist David Scott (1999) argued, scholarship is generally produced in conversation with other works, or responding to particular states of affairs. Consequently, if one does not understand the arguments, ideas or developments a work is composed to address, it is difficult to truly understand the claims being made, let alone to evaluate the significance of a given contribution. Here, we will briefly survey the social milieu in which the Islamic social sciences were born:

In the aftermath of Muhammad's death (10 IE), there was a debate within the Muslim community as to who should serve as his successor (caliph), and what the nature of the role of caliph should be. Is the caliph primarily a religious leader? A political leader? Both? The first four people to serve in this role were trusted lieutenants of Muhammad who could serve as both religious and political authorities, and were appointed through consensus of tribal leaders. Known as the *Rashidun* (or "rightly guided") caliphs, they helped dramatically expand the reach of Islam, establish a common culture (an official currency, a standardized writing system, etc.), oversaw the codification of the Qur'an and sunna (teachings and practices of Muhammad and his companions), and established more robust state apparatuses. Following the assassination of the 4th caliph (Ali ibn Abi Talib) and a subsequent military coup at the hands of Muawiya ibn Abi Sufyan – formerly the governor of Syria -- a new hereditary dynasty was established, the Umayyad Caliphate. For a time, the role of 'caliph' transitioned to being primarily (although not exclusively) a political role, and a schism emerged between those who would eventually become known as the 'sunni' (who accepted the political authority of the Umayyads) vs. the 'shia' (who rejected Umayyad claims to legitimacy on historical, political and theological grounds). Nonetheless, under the Umayyads, the Islamic empire grew immensely. At its peak, it presided over about 4.3 million square miles of territory and an estimated 11% of the world's population (Taagepera 1997).

Yet, in 128 IE the Umayyads were, themselves, overthrown via a popularly-backed military coup by a 'shia' aligned group, the Abbasids, who claimed to be the rightful successors of the prophet Muhammad -- and declared the Umayyads as illegitimate usurpers (and poor leaders as well).

[6] As Taqizadeh (1937) points out, Islamic empires often relied on both hijri and solar calendars for different purposes -- the former for arranging religious holidays/ services and for marking Islamic history, the latter for state administrative purposes, taxation, planning around harvesting, tax collection, etc. Other times they relied on hybrid calendars, much like we are here.

For roughly a century, the Abbasids oversaw a further expansion of the Islamic empire, deeper integration of the non-Arab and non-Muslim population into the state, and the emergence of the main legal schools of Islamic jurisprudence (*fiqh*). The Abbasids are also widely credited with ushering in a 'golden age' of Islamic culture. Circa 208 IE they established the 'House of Wisdom' (*bayt al-hikma*) to collect, translate and disseminate texts from throughout the 'known world' (Rome, Greece, China, India, Persia, North Africa);[7] they sponsored the establishment of schools to transmit, integrate and build upon this knowledge (Bennison 2010).[8] However, by the middle of the 3rd century IE, as a result of the sheer scope of the empire and heterogeneity its denizens -- as well as a series of revolts, insurrections and legitimacy squabbles -- the caliphate had disintegrated into a constellation of quasi-independent domains, united by an overarching culture (rooted in Islam). The Abbasids were reduced to serving primarily as figureheads for Islamic civilization, sponsors for major projects or initiatives, occasional adjudicates in the event of conflict – and as a check preventing any other power from dominating the region.[9]

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[7] Although the textual translation movement reached its zenith during the reign of the Abbasids, Saliba (2011) argues that changes made during the *Umayyad* caliphate are key to understanding how and why this movement came about: Umayyad Caliph Abd. al-Malik (d. 83 IE) reorganized the imperial administration (*diwan*) in order to favor his fellow Arabs and Muslims. To facilitate this, an initial translation effort was launched to procure texts that could help aspiring Arab bureaucrats master essential skills. As the Arabs gained proficiency in science, logic and arithmetic -- and came to dominate the Umayyad administrative state -- this created a crisis for the (Persian and Greek-speaking) people they displaced. In order to restore their social position, these scholars sought to master more advanced texts, methods and knowledge.
However, *demonstrating* their value as viziers to the Arab caliphs, and establishing superiority over the Arab diwan (by showing that others did *not* possess this same knowledge, or could *not* perform these same intellectual feats), required them to translate key ideas and texts into Arabic. Of course, this spurred Arab elites to try to master these more specialized texts and techniques themselves, leading Greek and Persian-speaking elites to reach for still *more advanced* knowledge and texts, in an ongoing intellectual arms race. That is, inter-elite competition under the Umayyads set in motion (and prepared the ground for) later translation efforts focused on philosophy, mathematics, science, etc.

[8] Many popular narratives depict Muslims as passive recipients, translators and stewards of previous intellectual traditions – a descriptive tendency which is especially pronounced with respect to Greek and Roman thought. One irony, of course, is that Roman scholars were very forthright about their inheritance from the Greeks. Early Greek scholars, meanwhile, widely attributed the origins of their own mythology, science and philosophy to the Egyptians. For instance, Herodotus, "after relating his eyewitness account informing us that the Egyptians were Blacks, then demonstrated… that Greece borrowed from Egypt all the elements of her civilization, even the cult of the gods, and that Egypt was the cradle of civilization" (Diop 1989). Isocrates described how Pythagoras was educated in Egypt and subsequently became "the first to bring to the Greeks all philosophy" (Conner 2005, p. 123). Hence the Greeks and the Romans could be comparably described as 'stewards' of Egyptian intellectual traditions, which came to be 'returned' to Egypt during the Islamic Commonwealth era.
Across the board, however, it may be more effective to speak in terms of 'appropriation' than 'inheritance' (Sabra 1987). Greek works, for instance, were not 'thrust upon' Islamic scholars -- they actively sought them out and incorporated them into their existing traditions and ongoing debates. Translating terminology, concepts and practices from one sociolinguistic context to another is a very complex and demanding process. As Eleanor Westney (1987) aptly put it, the purported line between copying and inventing is something of a false dichotomy.
Moreover, as Dallal (2012) emphasizes, Islamic scholars had simultaneous access to bodies of knowledge from multiple traditions – not just from Greece and Rome but also Persia, China and India. They chose which ones to focus on in accordance with their needs and interests, or the promise that a given text seemed to hold based on an initial reading. Consequently, they were acutely aware of the possibility that there was more than one model or approach to understanding a given problem, more than one interpretation for a given event or set of facts, and a good deal of available information that they had not yet translated or engaged with.
Indeed, due to the sheer volume and diversity of content available to them, there was a strong emphasis on synthesizing and systematizing, on deriving theories that could translate the multitude of accounts, findings and methods into a coherent picture. These efforts led to the creation of several new fields of science which did not have robust antecedents in the traditions they were drawing from (including many of those discussed here) – which, in turn, generated new communities of practice and scholarship. These activities were generously supported by caliphs with direct involvement of their courts – and were also funded by governors and wealthy patrons throughout the Islamic empire(s).

[9] Throughout the Abbasid period, several rival caliphates were declared and ultimately dismantled – generally arising in the Western periphery of the empire. Most notably, an Isma'ili 'shia' sect, the Fatimids, gradually conquered much of

This metastable arrangement, which persisted through the late-8th century IE, has come to be known as the 'Islamic Commonwealth' era (Fowden 1994). It was a period marked by diversity and pluralism – with many different models of social arrangement and experiments in living, and relatively free movement across and between domains. However, the presence of so many competing approaches – and the regularity with which they failed, were contested, or were overturned -- also rendered much more urgent questions about how to arrange society and toward what ends, on what basis authority could be legitimately derived, how to respond to illegitimate claims to authority, what obligations citizens had towards regimes, to one-another, to non-citizens, the obligations leaders had to those they presided over, the causes of, and appropriate remedies for, social deviance and dysfunction, and the nature of the relationships between individuals, political orders and God.

The Islamic legal/ juridical enterprise expanded significantly -- both in size and prominence -- during this period in order to help the Muslim community (umma) work through these questions. However, the proliferation of ulama – madrasa-trained experts in *fiqh*, *tafsir* and theology who were granted a license (*ijaza*) to teach and issue formal opinions on legal and ethical matters[10] – simply added a new layer of political, theological and epistemological tensions. Questions about which experts to trust (and in virtue of what), what qualified as consensus (and when was it necessary), when were precedents binding (and when could they be ignored or overruled), on the appropriate relationship between these experts and the rulers and publics they served, grew increasingly salient -- even as the pressing social questions that motivated the expansion of madrasas and ulama to begin with remained largely unresolved. This led many to seek out alternative means of getting a foothold on these issues. Some looked to the rapid discoveries and innovations that scholars seemed to be making through the application of scientific methods to the natural world and sought to make similar progress on social issues -- using reason, mathematics, systematic observation and iterative experimentation in order to gain deeper insight into social questions and challenges. In the process, they created new fields of inquiry and bodies of knowledge that would be built upon and expanded by subsequent generations of scholars, both within the Islamic context and beyond.

North Africa and the Levant from 287 - 549 IE before being dissolved and nominally (re)integrated into the Abbasid Caliphate by sultan Salah ad-Din. Remnants of the Umayyads declared a counter-caliphate in Cordoba in 307 IE. It disintegrated in 409 IE after a series of succession struggles and civil wars. Following the collapse of the Fatimids and Umayyads, a Berber movement, the Almohads, declared yet another counter-caliphate in northwest Africa and southern (present-day) Spain from 525 – 647 IE. Finally, in 895 IE Ottoman sultan Selim I conquered Cairo, ending the Abbasid era -- and the Islamic Commonwealth period as well.

The subsequent Ottoman Caliphate persisted for roughly four centuries before being dissolved by Turkish leader Kemal Ataturk in 1302 IE (following the defeat the Ottoman Empire during World War I, and the dismantling of said empire in its aftermath).

Orthogonal to this history, two caliphates were also declared in Africa's Sahel region at the tail end of the Islamic Commonwealth era, although neither attempted conquest over the Abbasids – and in fact, both claimed to have been appointed by the Abbasid Caliph himself to rule over their respective territories (Levtzion 2000). In 854 IE, Ali Gaji of the Bornu Empire declared one of these caliphates – and his successors continued to refer to themselves as 'caliph' until their domain was absorbed into the British Colony of Nigeria. Subsequently, Askia Muhammad I of the Songhai Empire claimed to have been appointed the 'Caliph of the Sudan' in 873 IE. He set Islam as the religion of the empire, and standardized weights, measures and currency across the land with the help of recruited Arab *diwan*. Much like the Abbasids through whom he claimed authority, Askia Muhammad I encouraged learning and literacy throughout his empire – courting prominent scholars to teach at Sankore University in Timbuktu and establishing educational institutions in Gao, Djenne, Walata and other urban centers (Vaum 1997). However, this 'caliphate' ended abruptly when Askia Muhammad I was overthrown by one of his sons in 907 IE, setting off a wave of bitter succession struggles. Although the Songhai Empire continued for decades more, and remained an 'Islamic' empire henceforth, subsequent leaders did not define themselves as 'caliphs' nor their empire as a 'caliphate.'

[10] Makdisi (1981) has argued that the training and testing required to be granted an ijaza, and certified as an ulama, served as the foundation for subsequent degree-granting educational institutions (such as colleges and universities).

The Scientific Method

Al-Khwarizmi (d. 228 IE) and al-Kindi (d. 251 IE) championed the adoption of the Indian numerical system across the Abbasid Empire. The efficiency of these numerals, and the inclusion of the number "zero" (which was also a powerful philosophical concept), allowed for the development and execution of much more complex mathematical operations than the Babylonian system upon which Muslims had previously relied (Baber 1996, p. 36-7). Al-Khwarizmi went on to pioneer algebra, algorithms and the quadratic formula—allowing for even more complex arithmetic operations by subsequent Islamic scholars (Rashed 1994), and paving the way for the emergence of quantitative empirical research.

Ideological commitments would push Muslims further in this direction. For instance, drawing upon Pythagorean cosmology, Islamic imperial scholars widely understood numbers as *qualitative,* rather than merely quantitative, entities (Nasr 1978). Numbers served as "Jacob's Ladder," connecting the physical with the metaphysical: through numbers, it was believed one could better understand the workings of man and the natural world—and thereby, the mind of their mutual Creator. As a result of these convictions, mathematics emerged early on as a central field in Islamic scholarship, and were integrated into many other fields of study. Indeed, al-Khwarizmi himself was a pioneer in demonstrating the possibility and utility of applied mathematics (Rashed 1988). He described the *Compendious Book on Calculation by Completion and Balancing* (his text for teaching elementary algebra) as being of "practical" value; roughly half of the book demonstrates the power of this new form of calculation for resolving problems related to properly distributing inheritances according to Islamic law (Gandz 1938), and much of the rest of the text is oriented towards using mathematics to resolve other social coordination problems. This was a revolution in thought: beyond basic addition or subtraction used by traders or clerks (and typically with the help of calculating tools), people did not *use* mathematics for *practical* purposes in ancient Greece or Rome (Taleb 2014).[11] The incorporation of mathematics as a means to address practical issues and empirically investigate the world enabled breakthroughs in fields like physics, but also in socially-oriented disciplines such as cartography, demography and economics.

Ibn al-Haytham (d. 418 IE) was among the first to articulate a systematic approach for empirical research, now referred to as a "scientific method":

1. Identify a problem
2. Formulate a hypothesis about the answer to that problem
3. Test the hypothesis through experimentation. If valid, he argued, these experiments and results should be reproducible.
4. Analyze the result rigorously by means of logic and mathematics.
5. Come to a conclusion about what (if anything) can be taken away from the experiment
6. Publish the findings if they seem worthy—along with the methods and data--to be critiqued, refined and built upon by others.[12]

[11] As late as the 17th century CE, the notion of applied mathematics remained controversial in Western Europe (Warwick 2003, p.27).

[12] Ishap bin Ali Al Rahwi (d. 309 IE) produced what may be the first documented description of a peer review process (Spier 2002). In his *Ethics of the Physician,* he portrays it as a duty of medical professionals to make duplicate notes of the condition of a patient after every visit, and what interventions were undertaken. When the patient had either died or been cured, they were to present those notes to a council of other local physicians, who would make a ruling as to whether the patient had received appropriate care, what (if anything) could have been done better or differently, and what could be learned from this case. However, by the time of Ibn al-Haytham (nearly a century later), versions of peer review were being deployed in a number of scientific contexts to evaluate the soundness of findings and the rigor of methods.

This form of systematic empirical inquiry represented yet another revolution in thought (Omar 1979): notwithstanding occasional heretics such as Democritus and Epicurus, induction was disparaged and disregarded by Socrates, Plato and most other prominent Greek intellectuals. One of Aristotle's most controversial and groundbreaking philosophical claims was that observation could spur intuition and generate a crude, but foundational form of knowledge—*to be tested, refined or made whole by means of theory*. However, even for Aristotle, the idea of actually *proving or falsifying* a theory by empirical means was beyond the pale. Theories rose or fell by logical proofs, argumentation, intuitions, etc. While induction was better regarded in classical Indian ideology (Chakrabarti 2010)— al-Hazen's robust methodological approach to developing, testing and building upon empirical data seems to have no exogenous antecedent. Instead, it appears to be a product of a few key Islamic innovations to scientific thought.

Muslim intellectuals routinely and intentionally blurred the traditional disciplinary boundaries between the "arts" and the "sciences." This allowed scholars to approach fields such as medicine, pharmacology, chemistry, lexicography and social studies with the theoretical, methodological and mathematical rigor of the sciences. Conversely, scholars were empowered to transcend Euclid and Aristotle's more narrow conceptions of science by incorporating tools from the arts—most notably inference from observation and experimental testing. This integration of the arts and sciences seems to have been driven in large part by the centrality of *tawhid* (oneness) to Islamic thought: all phenomena in the world, and domains of knowledge about the world, were held to be fundamentally connected to and through God (Rashed 1981).

Meanwhile, Ibn al-Haytham's call to publish scientific findings, methods, and data for the intellectual community to critique and build upon was similarly informed and enabled by the genesis of Islam and Islamic empires: The words and deeds of the Prophet and the early companions—indeed the Qur'an itself—were transmitted orally throughout Islam's formative phase. As a result, from the earliest days of the faith, there was an emphasis on careful reproduction, seeking consensus (*ijma*) with respect to matters that are unclear, documenting evidence, citing sources and evaluating the authority of different accounts and chains of transmission.

Moreover, the Qur'an repeatedly calls upon Muslims to study the world in order to better understand its Creator, to marry observation, proof and reason in order to distinguish true from false—or that failing, to defer to the judgment of those God has endowed with great discernment (al-Ghazali 2016). Muslims took this mandate very seriously. Indeed, according to orientalist scholar Franz Rosenthal (2006), knowledge became the "central concern" of Islamic civilization during this period, defining its "entire intellectual and societal landscape" (p. 340). Rulers and wealthy merchants demonstrated their magnanimity through major investments in education and knowledge production. As a result, public libraries were common, schools and bookstores were attached to most mosques, and literacy was relatively widespread (Nasr 2001). In 237 IE, Fatima al-Fihri established, in Tunis, the world's first degree-granting university: Al-Qarawiyyin. Cairo's Al-Azhar University began admitting students in 353 IE. Nizam al-Mulk would commission an entire franchise of *nizamiyyah* schools—the most prestigious of which was established in Baghdad around 443 IE.

On the technological front, Muslims refined Chinese methods for producing paper, and paired these with Indian methods for binding books. This—alongside innovative techniques for reproducing texts--allowed for the mass production of durable codices (Burke 2009).[13] And the combination of these values, technologies and infrastructures allowed knowledge from across the known world to be collated,

[13] Al-Uqlidisi (d. 358 IE) would further refine Indian numerical notation, allowing calculations to be carried out without deletions. This enabled the use of pen and paper for mathematical problem-solving, rather than requiring a dust board—ensuring that mathematics would also reap the benefits of Muslims' improved codices, further simplifying the integration of mathematics into other fields.

refined, built-upon, and disseminated on a scale hitherto unseen in human history. This was the context in which Islamic social science was born.

Al-Razi (d. 303 IE)

Al-Razi was a renowned physician and champion of experimental science. His medical achievements included producing a detailed differential diagnosis of smallpox vs. the measles, the discovery of compounding methods for kerosene and alcohol, and the pioneering use of the latter as an antiseptic. He deployed perhaps the first ever clinical trial, with a treatment and control group, to test the effectiveness of bloodletting for treating meningitis (Iskandar 2016). He also led the integration of the arts and sciences through the forceful evidentiary demands he made upon the philosophers and theologians of his day. His insistence upon sound evidence and clear thinking led many of his interlocutors (and later, Western scholars) to portray him as hostile towards religion. However, to make such a claim is to fundamentally misunderstand his project:[14]

Al-Razi did not merely oppose *taqlid* (~deference), he offered a positive account of reliable knowledge which prioritized observation, testing and critical reflection instead. He did not content himself with criticizing the physics and metaphysics of Aristotle and his followers, but also offered up an alternative vision—his "five eternals" (Adamson 2016). And far from being irreligious or anti-religion, al-Razi was consumed by his desire to identify a rational foundation for religious belief and practice—particularly given the prevalence of evil and suffering in the world. Indeed, his condemnation of anthropomorphizing God, his opposition to sectarianism and asceticism—and even his denigration of the importance of miracles—all find robust support within the Qur'an.[15] Al-Razi regularly quoted scripture and debated its interpretation (Adamson 2012), and in addition to his "heretical" *On Prophecies* and *On the Tricks of False Prophets*, he also wrote treatises on *The Obligation to Propagate the Teachings of the Holy Prophet Against Those Who Denied Prophecies* and *The Obligation to Prayer in Absolute and Sincere Faith* (al-Biruni 2008). That is, al-Razi deployed critique primarily an instrument of growth: he sought to mercilessly prune withered branches in order to ensure the "tree of knowledge" remained vital, expanded, and continued to bear ample fruits. It was incumbent upon Muslims, he argued, to not only preserve, refine and utilize what was endowed unto them by the prophets and the 'ancients'—but to innovate, to create entirely new fields of knowledge, and to challenge or eliminate those manners of thought which inhibited further growth. On this basis, al-Razi rejected any and all uncritical deference to authority, tradition or superstition.

Consequently, although al-Razi himself was greatly impressed by Greco-Roman thought, and was particularly influenced by Socrates and Galen, he nonetheless grew increasingly disturbed by reverence many of his peers showed towards the 'ancient' scholars – especially as he perceived serious limitations and errors in their aims, methods and (especially) conclusions. For instance, in contrast with dualistic notions prevalent in both Greek philosophy and Christian theology, the Qur'an describes the body and psyche as being *fundamentally* integrated with one-another (Rahman 2009). Drawing from this conception, al-Razi aspired to expand the sphere of medicine to include *all* aspects of a person's being. The psyche, he argued, could be systematically studied, and its ailments treated, much like the body. Indeed, he insisted, the health of mind and body are best understood in tandem.

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[14] This sort of portrayal is hardly unique to al-Razi; it is a common trope that Muslim scholars whom Americans and Europeans have come to admire are virtually sanitized of their religion. For instance, the great Islamic poet and mystic Rumi is also typically presented as being either non-religious or simply "spiritual" in a way that profoundly distorts and obscures the meaning of his work (Ali 2017).

[15] For instance, vis a vis the compatibility of al-Razi's denigration of miracles with the scriptures, see Qur'an 2:118; 6:36-9 & 109-11; 7:203; 10:20; 11:12; 13:7 & 27-30; 17:59-60 & 90-6; 28:48; 29: 50-2. For readers' reference, my preferred English language version of the Qur'an is the translation (with exegesis) of Muhammad Asad (2008).

In numerous works al-Razi highlighted ways in which poor physical health adversely affected the mind, and how bad mental states could lead to unfortunate physical outcomes including decreased longevity and vitality, obesity, impotence, and slowed recovery (e.g. al-Razi 2007). Al-Razi was also a pioneer in psychotherapy and psychosomatic medicine. He demonstrated that many illnesses (of the body *and* mind) could be mitigated by affirming patients' identity, fostering a positive self-image and encouraging optimism. He developed methods for sublimating negative emotions such as fear, shame, anger and vanity towards the end of self-improvement. In order to gain richer insight on where and how to focus therapeutic efforts, he encouraged patients to itemize their perceived weaknesses and failings in a journal.

This idea, that the psyche could be subject to afflictions amenable to being studied or treated like physical aliments, was revolutionary. Appointed as chief-physician of Baghdad Hospital, al-Razi established and presided over the world's first ever medical ward for the mentally ill, and established the clinical study of mental illness (Syed 1981). Under his administration, and for the first time in recorded history, patients were ascribed medical records with their age, sex, profession and treatment history. Doctors were trained, licensed and certified in order to help the public distinguish between competent practitioners and charlatans peddling nostrums. Effective treatments were analyzed and iteratively built upon. Al-Razi's posthumously-published *Compendium* taxonomizes an astonishing array of physical and mental illnesses, and details their apparent causes, symptoms, and (preventative, palliative or curative) treatments, drawn from a lifetime of clinical experience and the case studies of his best students and colleagues.

As a result of his renowned expertise and effectiveness, al-Razi's counsel was sought out by social elites from throughout the known world, and many engaged in pilgrimages to be attended by al-Razi and his staff. However, as a result of his philosophical and religious convictions, al-Razi was deeply committed to ensuring treatment and medical knowledge were available to all who needed it, regardless of their social status. He treated the poor without any kind of payment, and even provided stipends to support them during their recovery. Aware that he could only assist a small portion of those in need, he compiled a guidebook describing common ailments and their remedies, along with suggestions for maintaining good health, entitled *For One Who Has No Physician to Attend Him* (Adamson 2017). He later produced a companion, *Spiritual Medicine* (al-Razi 1950), which distilled his psychological research into a format which was intended to be compelling and accessible for laymen.

In large part due to al-Razi's leadership, the "science of the psyche" emerged as a significant field of study during the Islamic Commonwealth period (Awaad et al. 2020; Haque 2004), and mental hospitals were gradually established in urban centers throughout the Islamic Commonwealth.[16]

Al-Farabi (d. 329 IE)

Although his work had myriad political implications (Walker 1992), al-Razi largely avoided questions about the structure and nature of society per se—focusing instead on the *individual* and their total well-being. Al-Farabi would argue that this view was too narrow: the psychological character and well-being of individuals was determined in large part by the societies they inhabit and social circumstances in which they are enmeshed.

[16] Critically, mental hospitals at that time were not institutions where poor and difficult individuals were locked away from 'civilized' society, a la Foucault (1988). Mental illness and intellectual disabilities did not carry the same stigma in the Islamic Commonwealth context as they came to have elsewhere. Generally, families were expected to care for adults who could not take care of themselves, commensurate with Qur'anic injunctions to provide for such people and to treat them with kindness (e.g. Qur'an 4:4). Extended stays in mental hospitals were usually reserved for severe and chronic cases where families were not able to provide the help that was needed – and those placed in hospitals were neither abandoned nor imprisoned, but were expected to be treated well and to be regularly visited by relatives. Men and women, the wealthy and the poor, were expected to receive commensurate care (Youssef & Youssef 1996).

In his *Aphorisms* (2004, pp. 1-68) and other works, he explored both the psychological needs that drive men to form societies, and the extent to which the structure of society shapes the character and behaviors of its constituents—going so far to insist that a person could never be *truly* happy and fulfilled unless they were members of a virtuous society.

This naturally led to questions about what society *should* look like: what forms of social organization best promote virtue or allow its development? How can they be established and maintained? Al-Farabi believed that philosophy was essential to answering these questions. He viewed Reason and Revelation as complementary and mutually-enhancing: absent the discernment philosophy cultivates, Muslims could never have full understanding or certainty of Divine truths, and could never make full use of the spiritual endowment bestowed upon them by the Prophets. On these grounds, alongside al-Kindi, he spearheaded campaigns for Muslims to preserve, translate and utilize Greco-Roman texts. And in his ambitious *On the Principles of the Opinions of the Inhabitants of the Virtuous City* (al-Farabi 1998) and *The Political Regime* (al-Farabi 2015, pp. 27-96), he demonstrated the power of philosophy for addressing questions about the purpose and structure of society.

Yet despite his love of philosophy and his respect for the ancient philosophers, al-Farabi argued that they began their enterprise from a place of relative impoverishment, owing to their lack of foundation in revealed Truth. Much like al-Razi, al-Farabi argued that Muslims were well-positioned to far surpass the "ancients" in learning. The Greeks, he argued, seemed blind to the limitations of Reason, leading them to pursue impossible objectives and posit imaginary entities as not only real, but in a sense, realer and more important than the world we actually live in: for Plato and Aristotle, philosophy was about discovering 'big T' truths, for coming to know the 'real' essences of the 'apparent' phenomena we perceive with our senses. In his *Book of Demonstration*, al-Farabi (2007) described this as a fool's errand. Philosophy is better understood, he argued, as a quest to understand the powers, conditions and limitations of human knowledge. Contrary to classical Greek (and much Christian) thought, al-Farabi insisted that the world of our experience is *not* a mere phantom or chimera. Consequently, philosophy must give an account of the world we actually live in, rather than attempting to lead us beyond it. This shift, from 'metaphysics to method' (Colmo 2005), dramatically changed both the character and purpose of philosophical investigation.

Plato and Aristotle, for instance, viewed philosophy as the highest of human activities -- almost divine -- an end unto itself. Irrespective whether progress was made on the questions or not, regardless of whether or not inquiry yielded *useful* insights, the pursuit of 'big T' truths was, itself, perceived to be of value. Al-Farabi rejected this line of thought, positing that philosophy only had *value* in virtue of being applied in the world. It was the duty of philosophers to translate their wisdom into policies that enhance human happiness and well-being, to leverage theory towards effectively interpreting and responding to worldly affairs, and to serve as a counterweight to overly narrow or reactionary thinking (Mahdi 1987). Philosophers were to fulfill these duties, first and foremost, by providing guidance to rulers and training to viziers.[17] However, al-Farabi also took pains to write in a clear, compelling and accessible manner—and to avoid becoming a partisan in the theological, sectarian and political struggles of his day--in order to allow the broadest possible swath of society to gain from his enterprise. He encouraged others to do the same, insisting that the ability to relate one's ideas to the capacities and needs of ordinary people is the mark of a "true philosopher" (Mahdi 1962, p. 6).

Al-Farabi was also perhaps the first to articulate a robust social construction theory. In his *Book of Religion* (2004, pp. 85-114) he argued that faiths are not "true" per se, but are symbolic renderings of

[17] Al-Farabi was most strongly influenced by Plato and Aristotle. In contrast to many other philosophers of their day, these seminal thinkers *did* attempt to integrate their ideas with state power directly. Later in his life, Plato became deeply embroiled in the politics of Syracuse, serving as a close advisor to a series of ill-fated tyrants who—under his tutelage--disastrously aspired to be philosopher kings (Plutarch 2001). Aristotle had much better luck serving as a mentor to Alexander the Great.

Truth. Prophets, in virtue of their sublime capacities of imagination, can directly commune with the Active Intellect (which intermediates the created and the Creator)—and most importantly, they can render Its Truths accessible to ordinary people. They achieve this latter feat by creating sacred texts, and establishing rituals, laws and institutions around their revelations. However, prophets are guided in this enterprise by the particular character and needs of their people—and the social orders that emerge from this process reflect these primordial circumstances just as powerfully as they point towards the transcendent. That is, religions are divinely-inspired but socially-constructed. They are also socially *constructive*, he argued, serving as the foundation for social legitimacy, solidarity and purpose (Mahdi 2001). This is why most societies have religions, and why there is so much variation between them—but also so much common ground.[18]

In virtue of these leanings, al-Farabi rejected any aspiration towards universalism: a religion or social order which tried to be for *all* people couldn't fully serve the (material and spiritual) needs of anyone. It was best, he argued, for virtuous societies to instead seek confederation with one another, and to learn from one another: each committed to living by its own foundational Truth, and each committed

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[18] In formalizing these ideas, al-Farabi greatly influenced subsequent Islamic scholarship. For instance, Ibn Arabi (d. 526 IE) similarly argued that multiplicity is an extension of the One, and far from being illusory, we gain knowledge of the One through empirical investigation 'in the world':

> "He commanded [His servants] only to seek knowledge of God by considering the engendered things which are temporally created. Each engendered thing gives them knowledge of the divine relationship from which it became manifest." (Chittick 1989, p. 156).

Building upon al-Farabi's arguments on the constructed nature of religion, Ibn Arabi went so far to argue that the God one thinks about and worships is little more than a projection, a figment of the imagination:

> "When a person rationally considers God, he creates what he believes in himself through his consideration. Hence, he worships only a God which he created through his consideration" (ibid. p. 339).

Claims like these may strike some contemporary readers as highly controversial, even blasphemous. As a matter of fact, although al-Farabi scrupulously avoiding citing scripture in his work, this general depiction of religion (as divinely-inspired but socially, culturally and historically informed) closely mirrors that of the Qur'an:

- All people are born with an innate intuition about the divine (7:171, 30:30). Moreover, creation itself testifies and serves to remind mankind of God (21:16-18, 39:19-21). Nonetheless, out of His grace, God sent prophets and messengers to people across the world, and in all ages, to help them understand His signs and His will (3:164, 10:47, 14:4, 16:35-6, 24:55, 30:47, 40:78).
- Prophets are not, themselves, religious partisans. However, their messages serve as the basis for most religions (3:64-9, 24:55). All prophets espouse the same core message. However, there are limits to people's abilities to comprehend, perceive and communicate about the divine (6:73 & 103). Further differences arise from people interpreting the message differently, failing to understand the message, mistranslations (6:105-108 & 159, 10:57-60 & 66-70)—or from cynical people exploiting religion for their own gain, etc. (2:213, 3:7 & 78, 6:144). However, this diversity of beliefs is ultimately part of God's plan and a function of His will (2:106, 5:48). Indeed, many variations reflect the particular needs, character and circumstances of the people to whom particular revelations were addressed (3:50, 7:157 & 168, 16:101-2).
- Muslims can both verify and better understand their own endowment by looking to other faith communities (10:94-5). Therefore, different customs, languages and beliefs are not a threat to Islam, but a blessing to all (30:22, 49:13). Muslims are called to respect and protect other forms of religious expression (2:256 & 62, 5:69, 22:39-41, 29:46-7, 109:1-6) and to work with other believers to establish God's will on earth (2:146-8, 3:103-5, 22:67-8), emphasizing points of commonality over differences. Although God has exalted some prophets over others (2:253), *Muslims* are to make no distinction between them (2:135-6 & 285, 3:84).
- In the end, people will be judged in accordance with the revelations and messengers they were provided (5:107-20, 16:84). All differences will be reconciled in the light of God's truth (2:113). Until then, as long as believers try their best to live in accordance with the scriptures they recognize, God is satisfied (5:68-9, 6:131-2, 21:92-4).

first and foremost to serving and cultivating its own people as best as possible for as long as possible.[19] In his *Enumeration of the Sciences*, al-Farabi (2004, pp. 69-84; see also Mahdi 1973) described research exploring proper social organization and leadership as 'political science.' It evolved into an essential field of Islamic scholarship during the Islamic Commonwealth period and beyond, centered on deriving general rules of good leadership, determining how to prioritize rules in the event of conflict, and providing guidance on how to apply general rules to particular cases.

Al-Biruni (d. 426 IE)

In many respects, al-Biruni was an embodiment of al-Farabi's ideal intellectual. He was a preeminent scholar who also served as a close advisor for many of the most significant political figures of his day-- even acting as a diplomat upon occasion. Nonetheless, he disagreed with al-Farabi's claim that research gains significance primarily through application. Instead, al-Biruni insisted, the worthiness of scientific inquiry was established in the Qur'an itself, through its repeated calls for Muslims to "contemplate the Heaven and Earth which God has created by Truth" (Nasr 1978, p. 113-4). That is, knowledge production was neither to be pursued as an end unto itself, nor solely as a means to enhance human happiness or capacities – but instead for the sake of following God's mandate and realizing His plan on earth. It was a path of submission (Islam).

Al-Biruni was greatly influenced by al-Razi. He wrote a biography of his life, compiled a bibliography of his work (al-Biruni 2008), and penned a series of critiques of his research on physics. Picking up where al-Razi left off, al-Biruni strove to push science, to include social research, in a more empirical direction. Although it was widely embraced among Muslim scholars of his time that theories could be enriched, constrained or discredited by observed realities, al-Biruni argued that theories should also be *derived* inductively. Hypotheses should relate to observed regularities or apparent aberrations (rather than proceeding from logical or ideological axioms)—and then be tested by experimentation and fieldwork whenever possible.

Al-Biruni held quite similar views with respect to studying society. Accounts from expatriates and travelers, brief tours, or studies of translated texts, he argued, could only produce a shallow and unreliable understanding of other regions and peoples. In order to gain deep or reliable knowledge, one had to actually *reside* in the region one wished to study, to *live among* people and communities one wished to understand, and to learn through engagement and observation. Researchers must develop fluency in the relevant languages—allowing them to interact without the use of translators, and to study the lore and sacred texts of others *in their original languages*. Noting systematic differences in belief across social strata, al-Biruni recommended that researchers consult not only scholars and leaders in a region, but also common people, as to what they believe and why. Finally, they must carefully record not only words and deeds, but also people's manner and customs—and report these findings as faithfully and non-judgmentally as possible (Ataman 2005).

In addition to his ethnographic research on the 'Hindus' (al-Biruni 1910),[20] which he is best-known for today, al-Biruni conducted intensive studies on Zoroastrianism, Judaism, Christianity, and Buddhism. His explicit goal in all these works was to relate the history, practices and claims of others *on*

[19] Exceptions to al-Farabi's pluralism included regimes which seek to dominate, exploit and oppress their own citizens or others'. He argued that these "tyrannical regimes" must be confronted, contained, or even dismantled by virtuous regimes whenever feasible. Once again, al-Farabi's arguments here closely track with the Qur'an (for instance, see al-Gharbi 2014).

[20] The term "Hindu" is an exonym. That is, it was not a label that people in India used to refer to themselves or their faith traditions. Instead, it was a term created by Muslim scholars, originally referring to the people beyond the Indus river, and later, their religion (Leaf 2014, p. 36-37). That is, in describing the people on India and their religious beliefs, al-Biruni and successive scholars also constructed 'Hinduism' per se.

their own terms—rather than normatively evaluating other religions and cultures in relation to Islamic doctrines and social orders (Akbar 1984). Following on al-Farabi, he believed that all specific religious expressions and their respective cultures were human constructs—and were fundamentally related to both to one another and to (and through) God. His comparative studies emphasized points of commonality over apparent differences.

Despite his emphasis on empirical investigation, al-Biruni was also a pioneer for the integration of mathematics into social research. In his *Chronology of Ancient Civilizations* (al-Biruni 1879), he developed innovative mathematical tools to compare chronologies, calendars and conceptions of time across cultures and civilizations. In *The Determination of the Coordinate of Locations and for Correctly Ascertaining the Distance Between Places* (al-Biruni 1967), he developed highly efficient and accurate methods for determining the distance and latitude between locations. He used these mathematical tools to map out the known world— with the hope of allowing Muslims determine the *qibla* (~proper direction of prayer) from virtually anywhere therein. In the process, he made important contributions to geography and cartography which would be built upon by his successors (Mercier 1992).

Ibn Khaldun (d. 784 IE)

Ibn Khaldun lived in a time of contradiction. On the one hand, Islamic regimes presided over more territory than they ever had. However, in the aftermath of the Black Death and centuries of invasions--beginning with the Christian Crusades and Reconquista, and culminating with the Mongol conquest of South Asia--governance, infrastructure and trade in many regions had fallen into a state of disrepair. Longstanding dynasties were collapsing (soon to be subsumed by the Safavid, Mughal and Ottoman Empires). Ibn Khaldun tried to leverage state power towards the end of reviving and reforming his society—serving as a diplomat, chief minister and close advisor for a number of sultans in Spain and North Africa. He played a pivotal role in many of the power struggles of his day, and as a result, spent several years of his life in exile, in prison, and on the run (Fromherz 2011).

In this and many other respects, Ibn Khaldun brings our investigation full circle: al-Razi lived during the flowering of Islamic Commonwealth Period, while Ibn Khaldun witnessed its zenith. While al-Farabi was a scholar who believed science and philosophy only gained value through application, Ibn Khaldun was a veteran politician who came to realize that he could more effectively influence society through scholarship instead. Following on al-Biruni's empirical investigations of society, Ibn Khaldun believed it was more important to look at the *actual* (rather than ideal) state of man and society—and to focus on what *was* happening and *did* happen rather than what *could* or *should*. As a result, he concluded that history probably provided richer insight and utility for social researchers than political science.

However, Ibn Khaldun found himself in a dilemma, as there was no line of scientific inquiry which could effectively leverage historical analysis.[21]

[21] One significant predecessor to Ibn Khaldun is Abu Jafar Muhammad Ibn Jarir al-Tabari (d. 301 IE), whose monumental *History of Prophets and Kings* ran from the time of creation through his present day. The goal of that work was to identify reliable sources and valid chains of transmission for an account, and then present said account with minimal editing or commentary – citing both contradictory and confirmatory perspectives of a given event. As Bashir put it (2018, pp. 33-34):

> "His drive to amass as many traditions as possible reflects cosmological and epistemological commitments. His traditionalism is, I would suggest, not simply a reflection of adopting principles of hadith criticism, developed by his predecessors, into the practice of writing about the past. Rather, the tradition-as-past approach leads to a complex overall conceptualization that privileges contingency as a critical issue with respect to how knowledge about the past becomes available. He posits a clear separation between occurrences in the world and reports about them. His concern is solely with the latter, which he treats with the base expectation that they will vary when describing the

In his estimation, historiography of the time lacked theoretical or analytic rigor: works were often designed to flatter the powerful, or to serve the interests and worldview of the narrator—and as such, they were rife with revisionism, biases, glaring omissions, questionable sources, unsubstantiated claims and clear mythological elements.[22] Ibn Khaldun set out to establish an independent "science of culture" (Mahdi 1971) which could, first, help identify and account for how ideological commitments and power relations informed narratives, and second, systematically extract from history useful insights for contemporary society. His goal was to not merely describe *what* had happened, but *why* and *how*.

Ibn Khaldun composed his *Book of Observations* to showcase the power of his "science of culture."[23] In the prologue to that work, ("al-Muqaddimah"), Ibn Khaldun posits that *asabiyyah* (~social cohesion or group solidarity) is responsible for one group being able to prevail over others: a nascent social order is formed by people united along some dimension of identity (e.g. tribe, religious sect). As a result of their strong social cohesion, they are afforded a period of conquest over territories and peoples with less *asabiyyah*. Eventually, however, a society's rate of expansion and production outpace its ability to maintain solidarity and preserve its identity. This leads to a period of decadence and decline that culminates with another group, typically hailing from the margins of the prevailing order, attempting to take over. These upstarts often seem relatively barbaric as compared to the dominant civilization, yet as a result of their greater *asabiyyah* they are frequently able to prevail. Thereafter, the ascendant power reorients the existing social order according to their group's own founding premise (i.e. the source of their *asabiyyah*) – yet the conquerors are also changed in the process, "civilized" by customs, habits and constraints of the existing order. The pattern then repeats itself. History, therefore, proceeds dialectically: new civilizations integrate, reimagine, and build upon the social orders they cannibalize—however, in so doing, they plant the seeds for their own eventual demise at the hands of groups their new social order marginalizes or excludes (Ibn Khaldun 1958). The rest of the work shows this theory in action: Ibn Khaldun traces the rise and fall of civilizations and empires leading up to the Berbers, then provides a rich and detailed account of their particular origin, rise and decline—marking the first extant *theory of history* (Alatas 2014).

Book of Observations was also a foundational text on economics (Oweiss 1988; Soofi 1995): Ibn Khaldun articulated a labor theory of value, and argued that social cohesion generated higher economic growth by allowing for a greater division of labor (Boulakia 1971). He argued that state investments in infrastructure can serve as a multiplier for socio-economic development—yet high taxes can inhibit

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> same event. His presentations of events then keep the fact of uncertainty in view rather than attempting to approximate what may have truly happened. Doubt is a cardinal principle in his historiographical practice."

Al-Tabari's work was hugely influential and became a much-cited source for historical accounts of past events. However, few subsequent historiographical works followed al-Tabari's method – instead preferring approaches that yielded more straightforward and expedient narratives.

[22] For instance, the *Compendium of Chronicles* by Rashid ad-Din Hamadani (d. 696 IE) marks what may be the first attempt at a global history (Robinson 2016, p. 194) – exploring Jewish history and the prophets (beginning with Adam in the garden of Eden – drawing heavily from al-Tabari), Muhammad and the Arab Caliphs, pre-Islamic Iran, the Islamic dynasties of Persia, the history of the Turks, the Papal States and Holy Roman Empire, and the history of China and India (drawing heavily from al-Biruni). It was a work that pulled from a wide range of sources, contained more than 70 illustrations, and was more than 400 pages in length. Producing the work was a massive undertaking. Hamdani, a wealthy vizier, set up a precinct in his university (Rab-i Rashidi) to produce the original text, and then reproduce copies in Arabic and Persian. More than 300 workers were dedicated to the project over the course of more than a decade. Although wider in scope, the work lacked the theoretical heft of Ibn Khaldun's *Book of Observations.* Moreover, while the work generally tried to adopt a matter-of-fact in tone, it also reflected Hamdani's biases and political interests. In particular, the work was commissioned by Mongol leader Ghazan Khan, and often praised the Mongols and attempted to legitimate Mongol rule (Hillenbrand 2011).

[23] Despite Islamic imperial scholars' already highly-developed prowess in demography, the tools and methods Ibn Khaldun deployed in his *Book of Observations* marked a major contribution to that field as well (al-Alwani 1982).

productivity and thereby lower overall tax revenues (Weiss 1995). Macroeconomic factors such as population changes, new technologies and cultural dispositions were also demonstrated as affecting socioeconomic development. These observations were presented methodically, building upon one another, into a unified vision—with measurable and prediction-generative variables (Haller 2009).[24]

Diversity, Pluralism and Unity

Science and empire have always travelled hand in hand (Harari 2015). However, the aims, methods and axioms of scientific inquiry are informed in many respects by the social order being served (al-Gharbi 2016). The Muslim scholars discussed here all lived in an imperial context, and often closely served imperial power. However, because Muslim social scientists understood their positionality in relation to the Eternal, they also possessed a deep understanding of the transience of all social orders—to include their own. In fact, the most commonly-used word for regime, empire or state in Arab scholarship or parlance has always been *dawla* which means "turn" -- as in "turn of fortunes" (Rosenthal 2012). While many scholars were fundamentally convinced that their own societies and cultures represented the apex of human achievement to date,[25] they did not believe they were at the "end of history."

Rather than positivism, Islamic social science was premised on humans' fundamental fallibility, weaknesses and limitations. The diversity among men, their capabilities, interests, perspectives and priorities was understood to be a "feature" rather than a "bug" of God's creation—allowing people to accomplish together what none could do apart. Out of this sense of finitude and complementarity emerged a deep commitment to ideological, methodological, and even *legal* pluralism. This is not to say that there were not often intense rivalries for (political, spiritual, epistemological) authority between rulers, intellectuals, jurists, clerics, merchants, and mystics. Moreover, flare-ups between the ruling class and various socio-political or ethno-religious minority groups were common in the Islamic empires, as with all imperial projects. And of course, there were methodological and hermeneutical tensions between science (*'ilm*), philosophy (*falsafa*), theology (*kalam*), Qur'anic exegesis (*tafsir*), jurisprudence (*fiqh*), the humanities (*adab*) and mysticism (*tasawwuf*). And even within these disciplines there was competition among different schools of thought associated with various geographic regions, prominent scholars, financial or political patrons, etc. However, there was also immense overlap, cross-engagement and multi-specialization.

At the foundation of the Islamic enterprise was the oneness of God, and the interrelation of all things both to and through Him (Bakar 1998). This widespread sense helped inspire many Muslim scholars to simultaneously pursue, and excel in, a wide array of fields. For instance, alongside al-Khwarizmi, al-Kindi played a pivotal role in transforming mathematics. However, he also a groundbreaking physician, chemist, musician and linguist who oversaw the translation of Greek texts into Arabic and helped establish an indigenous philosophical vocabulary. Abu Zayd al-Balkhi (d. 312 IE) was

[24] Koehler (2015) makes a persuasive case that capitalism actually emerged in Arabia during the Islamic imperial period. Italian city states such as Venice and Genoa imported and adapted institutions, practices and ideas which, while revolutionary for Europe, were already well-established in the Muslim world. Turner (1987) further argues that the creation of a stable, international framework for trade, advances in banking and credit techniques, and the rise of a politically and socially powerful merchant class (who prioritized the patronization of science and the arts), were major factors in the blossoming of knowledge production during the Islamic Commonwealth era. At the other end of the period discussed here, Blaydes & Paik (2019) have argued that changes in global trade patterns (particularly following Europeans' discovery of the 'new world') led to a decreased wealth and productivity in the Muslim cities, and an eventual decline in the influence and dynamism of Islamic empires relative to their European counterparts.

[25] The Qur'an refers to Muslims as the greatest community God has yet brought forth (3:110). However, throughout Muslims are warned that if they stray from the Path (*al-sharia*), God will destroy their civilization as well, and raise up another in its place (e.g. 6:131-4 & 165, 7:97-102, 10:13-4, 21:10-5).

a respected physician who also pioneered cognitive-behavioral therapies for treating psychological distress (Badri 2013), *and* helped launch an influential cartography movement (Tibbetts 1992). Al-Biruni was a pioneer of social research—however, he made important contributions to physics, geology, zoology and astrology too. Ibn Khaldun pioneered major innovations in the study of history, culture and economics – and he was also so well-versed in the Qur'an and Islamic law that upon his retirement from politics he was appointed as Grand Qadi for Malaki jurisprudence at Al-Azhar. All of these pursuits were understood as interrelated (Asad 2003): To better understand the world is to better understand mankind;[26] to understand the creation is to better understand its Creator. Conversely, to study the revelations God bestowed upon man is to gain the perspective necessary to translate empirical "facts" into wisdom. Science, philosophy, jurisprudence, theology and mysticism represented different ways of knowing, with different methods and points of emphasis, which were placed in constant dialog with one another. The objects of social analysis were not deconstructed but instead *made whole* by means of integration into the broader network of knowledge.

Conclusion

It is typically a critique to describe social science as 'imperial' or 'colonial' in nature. Rarely (if ever) are characteristics of social science that a scholar supports and approves of described by that scholar as products of imperialism or colonialism. Instead, aspects of Western social research that contemporary social researchers find distasteful get associated with social formations described as oppressive, parochial, exploitative and rapacious. Meanwhile, 'premodern' or 'non-Western' scholars, such as those discussed here, are often held up as exemplars for constructing a non-imperial or non-colonial social science (including in many of the works cited here). Historical Islamic regimes are often presented favorably in contrast with those that came to prevail in the West.

However, it is critical to understand Islamic empires *as* empires, and the social scientists discussed here *as* imperial scholars, often deeply committed to the preservation and expansion of imperial power. And although scholars like al-Razi and al-Farabi strove to make their work accessible to as broad a swath of the population as possible, and others like al-Biruni, al-Tabari and Ibn Battuta occasionally sought to incorporate perspectives or accounts of non-elites into their works, at present it would be difficult to produce a 'people's history' of social science during the Islamic Commonwealth period because, as Conner put it (2005, p. 163), "Most of the documented science of the Muslim world was the work of literate intellectual elites in the service of powerful ruling classes." That is, the Islamic Commonwealth era social science that is known to us today was largely produced by social elites -- with works enduring in part because of the value they were perceived to hold with respect to the priorities and concerns of other elites in the Islamic world and, eventually, beyond.

Knowledge and empire were deeply entangled and mutually-constitutive during the Islamic Commonwealth period, just as they were in the Western imperial context. Islamic social science even

[26] Scholars during the Islamic Commonwealth period regularly articulated evolutionary ideas: life forms were understood to change over time in response to their environment, with many creatures that existed in the past no longer present in their own time; the fittest organisms were understood as the ones who survive and reproduce, thereby shaping the direction of successive generations; humankind was understood to have evolved from animals. These were common beliefs, held and elaborated upon by many thinkers discussed here, including al-Biruni and Ibn Khaldun (Malik, Ziermann & Diogo 2018). Within Islamic thought, they date back at least to the work of al-Jahiz (d. 246 IE). Critically, evolutionary ideas were not viewed as being in tension with Islam or the scriptures. Instead, evolution was understood as a process guided by God, culminating with the appointment of mankind as His vicegerents on Earth -- and being endowed by God with Reason in order to carry out this charge. In short, most scholars during the Islamic Commonwealth period did not draw a sharp distinction between 'man' and 'nature.' Instead, they believed that studying the world could provide deep insights into mankind and God, and understanding mankind could enable a deeper knowledge of both nature and the Divine.

arose in a milieu similar to Western social science. The primordial conditions for both included massive social upheavals, crises of legitimacy, slavery,[27] rapid urbanization, disruptive advances in trade, science and technology.

Thinking of Islamic regimes and scholars in terms of empire could lead to a more complex appraisal of their value and legacy -- and perhaps a more ambivalent understanding of the connections between empire and knowledge production as well. Indeed, while there are substantial points of commonality between the Islamic and Western imperial social science enterprises, there are also significant differences in their aims, methods and axioms. Some characteristics of Western social science that have been attributed to its imperial foundations do not seem to be present or especially pronounced for Islamic social science in the era described here, despite shared ties to empire. It may be that the respective forms of Islamic and Western social science owe more to their idiosyncratic historical and cultural contexts than their relationship with empire per se. Hence, some derided attributes of Western social science that have been ascribed to its imperial origins may actually be contingent artifacts of how events happened to unfold in particular environments at particular moments in time.

Alternatively, the differences between Islamic and Western imperial social science may be products of the different forms these empires took. The Islamic Commonwealth era was defined by the Abbasids' 'informal, non-territorial' empire, in contrast with the 'modern continental' and 'colonial' empires from whence Western social science sprang. It is plausible that these different imperial configurations could generate systematic variation with respect to how society was studied and described therein.[28] As Steinmetz notes (2014, p.79), imperialism, colonialism and capitalism are often rhetorically

[27] It should be acknowledged here that slavery in the Islamic context was importantly different from Roman slavery, or chattel slavery in the U.S. and Europe: there were significant restrictions on the circumstances under which someone could be made into a slave, and on how slaves should be treated. Moreover, there were many social and religious incentives to free slaves, and manumission was fairly common (Lewis 1992).
However, it should also be conceded that at least part of the difference between how slavery developed in the Islamic context, as compared to the West, may have also been due to the relative weakness of the Abbasid Empire at the time the Islamic slave trade peaked: just prior to the Islamic Commonwealth period, there was a massive slave-led insurrection against the plantation economy in southern Iraq. Known as the Zanj Rebellion (247-261 IE), the highly-disruptive uprising established fear throughout the Abbasid Caliphate that heavy reliance on slave labor would likely lead to further unrest, and destabilize or destroy the empire (which was already under significant strain). In the aftermath of the revolt, the importation of slaves was significantly reduced, large concentrations of slaves were avoided, and the use of slaves shifted away from manual labor (Phillips 2013).
Instead, throughout the Islamic Commonwealth period, female slaves primarily served as concubines and domestic servants. Male slaves were mostly put into military and administrative roles – and their loyalty and dedication were ensured by providing them a high standard of living. Indeed, when military slaves were freed (manumission was often given as a reward for military valor), they regularly continued voluntarily in the service of their master. Some former slaves even managed to become sultans themselves (Freamon 2019).
Yet despite these substantial differences, readers should take care not to romanticize slavery in the Islamic Commonwealth era. Although slaves were recognized as fellow humans rather than animals or objects, and perceived differences between groups of peoples or societies were held to be historically contingent rather than intrinsic or immutable (Hannoum 2003), nonetheless there was a clear racial dimension to slavery in the Islamic context (Segal 2001). And although slaves were not dehumanized, oppressed or abused as severely within the Islamic Commonwealth as in other cultural and historical contexts, neither were they free.

[28] Just as the reduction of the Abbasid Caliphate to an 'informal, non-territorial' empire was followed by a period of rich cultural innovation and development, Scheidel (2021) has argued that the fall of the Roman Empire, and the failure of any comparably robust successor regime to emerge, provided Western Europe with extraordinarily broad and durable 'space' for economic, political, technological and scientific development – eventually putting Western Europeans in a position to economically and militarily dominate (and then subvert and exploit) societies with a more continuous history of centralized imperial rule. As Randall Collins put it (2019, p. 84), "Both the history of religions and the history of education show the pattern: Religious movements and schools have proliferated where governments were relatively weak and decentralized; they have been kept under stricter limitations where governments were strong… it has been weak governments, unable to intervene to control the cultural market, that have allowed cultural production to expand on its

collapsed together. Disentangling which aspects of social science seem to flow from empire per se, and how the structure of empire affects the structure of social inquiry, may help produce an account of the relationship between social science and empire which generalizes more fully beyond the 'modern' West – enriching our understanding of the relations between regimes of knowledge *about* society and regimes of power *within* a society.

Across the board, the literature on the relationship between social science and empire would be enriched by looking beyond the frontiers of the 'modern' West. This essay was intended to provide an entry point for exploring one such alternative: the social science enterprise of the Islamic Commonwealth era. However, Islamic empires continued after this period, as did Islamic social science.[29] Moreover, there were many empires worldwide prior to the 19th century CE which were neither 'Western' nor 'Islamic' (in Russia, South Asia, East Asia, Africa, the Pre-Columbian Americas). Exploring social theory and research in these other imperial contexts can deepen our understanding of knowledge production, empire, and the connections between them.[30] Perhaps most critically, provincializing the 'modern' West in the study of empire and imperial social scholarship can allow us to discover alternative ways of understanding social orders, and perhaps open new possibilities for engaging in contemporary social research. Insofar as scholarship remains focused primarily on the 'modern' West, it will be difficult for scholars to properly contextualize, let alone transcend, the imprint of Western empires on their disciplines.

own. In preindustrial times, the greatest proliferations of culture production have been in situations where an economically prosperous society was nevertheless politically fragmented or decentralized."

[29] According to many popular narratives, the end of the Islamic Commonwealth period marked the end of Islam's 'golden age' -- and was followed by a period of stagnation, decline and fundamentalism. This perspective is in large part informed by a perception that the transition of Western Europe and parts of North Africa back into Christendom was as significant for Islamic culture as it was to the 'West.' In fact, these were viewed as peripheral domains. The Mughal, Ottoman and Safavid Empires continued to control contiguous territory spanning from the Levant to Central and Eastern Europe to South and Central Asia. Rich Islamic intellectual and cultural traditions persisted and expanded all the way up through the colonial era. That is, contra West-centric narratives that essentially equate the loss of Europe with the decline of Islamic society, the post-Commonwealth and pre-colonialism period was a fertile time in Islamic civilization (Dallal 2018).

[30] Of course, many of these alternative regimes may not refer to modes of social inquiry, social categorization or social management *as* 'science' like Islamic and Western scholars did. The working definition of social science laid out at the outset of this paper ('systematic, theoretically-informed and empirically-oriented or historically-grounded scholarship on social dynamics, structures, or relationships') may provide a good starting point for identifying alternative 'cases.' Of course, it is possible this definition itself represents an overly parochial view of what constitutes 'social science.' However, some alternative rough definition may be helpful for identifying relevant 'cases' and drawing comparisons across contexts.

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