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Al-Ghazālī, Philosophy, and the Decline of Science in the Islamic World: A Historiographical and Textual Reassessment

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ABSTRACT

Abū Ḥāmid al-Ghazālī (c. 1056–1111) occupies a central and controversial position in histories of Islamic philosophy and science. From nineteenth-century European scholarship to modern popular accounts, he has often been portrayed as an opponent of philosophy, rational inquiry, and the natural sciences whose influence helped precipitate a civilizational decline in scientific activity. This paper reassesses that narrative through a combined historiographical and textual analysis. For analytical clarity, it distinguishes a banishment thesis—the claim that al-Ghazālī rejected philosophy and the natural sciences—from a decline thesis—the claim that his influence caused or decisively accelerated the decline of philosophical and scientific inquiry in Muslim societies. Close attention to The Incoherence of the Philosophers, Deliverance from Error, and The Book of Knowledge indicates that al-Ghazālī's criticism was principally directed at specific metaphysical doctrines and at the philosophers' claims to demonstrative certainty, rather than at mathematics, logic, medicine, astronomy, or the study of nature as such. His critique of causal necessity also cannot be reduced without qualification to a rejection of natural order. Furthermore, the continuation of philosophical, logical, mathematical, and astronomical activity after the eleventh century complicates monocausal accounts of decline. The paper concludes that al-Ghazālī profoundly reshaped the relationship between falsafa and kalām, but the available textual and historical evidence does not support portraying him as the individual who terminated rational or scientific

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inquiry in Islamic civilization.

Keywords: al-Ghazālī, Islamic philosophy, Islamic science, Tahāfut al-Falāsifa, causality, Orientalism, decline thesis, falsafa, kalām

Introduction

Abū Ḥāmid al-Ghazālī is one of the most influential thinkers in the history of Islamic intellectual life. Trained in law and theology and deeply engaged with philosophy, logic, ethics, and Sufism, he wrote at a moment when Arabic philosophical traditions associated especially with al-Fārābī and Ibn Sīnā had developed sophisticated systems of logic, metaphysics, psychology, cosmology, and natural philosophy. His best-known critical work, The Incoherence of the Philosophers (Tahāfut al-Falāsifa), became a landmark in later debates about the relationship between revealed religion and philosophical demonstration (Griffel, 2009; Malik, 2021).

A powerful historical narrative nevertheless came to portray al-Ghazālī as the principal intellectual antagonist of philosophy and science in Islam. In its strongest form, this narrative makes two distinct claims. The first, which may be called the banishment thesis, holds that al-Ghazālī condemned philosophy, mathematics, and the natural sciences. The second, the decline thesis, holds that the success of his theological project caused or substantially accelerated the later decline of scientific and philosophical inquiry in Muslim societies. The distinction is essential because a textually inaccurate account of what al-Ghazālī taught cannot by itself establish historical causation, while even a genuine theological restriction would require separate evidence before it could be treated as the cause of developments across many regions and centuries (Griffel, 2011; Haq, 2009).

The problem is also terminological. The modern English word science can obscure the differentiated intellectual landscape of the eleventh century. Al-Ghazālī discussed mathematics, logic, natural philosophy, metaphysics, politics, and ethics as distinct bodies of knowledge, and he did not evaluate them in the same manner. Consequently, the question "Did al-Ghazālī reject science?" is historically too broad unless the individual disciplines and the kinds of claims made within them are specified (Al-Ghazālī, 2000b; Griffel, 2009).

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This paper therefore asks two principal questions: Did al-Ghazālī's critique of the philosophers amount to a rejection of philosophy and rational-scientific inquiry in general? And does the subsequent history of Islamic philosophy and science support the claim that his intervention caused their decline? The argument advanced here is that the conventional decline narrative overgeneralizes both the scope of al-Ghazālī's critique and its historical consequences. He sharply rejected particular metaphysical teachings and denied that some of them had been demonstrated with certainty, yet he also recognized mathematical demonstration, defended the use of logic, treated medicine and useful mathematics as socially necessary forms of knowledge, and distinguished much of natural inquiry from the metaphysical doctrines he opposed (Al-Ghazālī, 1962, 2000a, 2000b).

At the same time, this reassessment should not turn into an apologetic inversion of the older narrative. Al-Ghazālī was not a modern secular rationalist. He subordinated human inquiry to a theological framework, defended revelation as an epistemically authoritative source, warned that some forms of philosophical study could endanger religious belief, and opposed claims of causal necessity that he believed constrained divine freedom. The historically important question is therefore not whether al-Ghazālī was "for" or "against" science in a modern ideological sense, but how he classified forms of knowledge, what precisely he rejected, what he appropriated, and what happened to intellectual inquiry after his intervention (Griffel, 2009, 2021).

Method, Scope, and Historiographical Framework

The study combines primary-source analysis with historiographical comparison. The primary texts are al-Ghazālī's The Incoherence of the Philosophers, Deliverance from Error, and The Book of Knowledge. These works are especially useful because they address, respectively, disputed philosophical doctrines, al-Ghazālī's classification of the philosophical sciences, and his broader hierarchy of useful and religiously significant knowledge. The paper reads these texts alongside modern scholarship by Frank Griffel, George Saliba, Syed Nomanul Haq, and Shoaib Ahmed Malik, while also examining critical or decline-oriented interpretations associated with Ernest Renan, Pervez Hoodbhoy, Taner Edis, Steven Weinberg, and Neil

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deGrasse Tyson (Edis, 2007; Griffel, 2009, 2011, 2021; Haq, 2009; Hoodbhoy, 1991; Malik, 2021; Saliba, 2007; Weinberg, 2008).

The term Orientalist is used in a restricted historiographical sense for nineteenth- and early twentieth-century European scholarship that constructed "the Orient" as a distinct object of academic study. It is not applied indiscriminately to every modern critic of al-Ghazālī. Thus, Renan can properly be situated within nineteenth-century Orientalist scholarship, whereas Hoodbhoy, Edis, Weinberg, and Tyson belong to different modern intellectual contexts and should be analyzed separately. This distinction matters because the arguments, disciplinary expertise, evidential standards, and purposes of these authors are not identical (Griffel, 2011; Malik, 2021).

The Construction of the Decline Narrative

Nineteenth-Century Orientalist Interpretations

The association of al-Ghazālī with the alleged death of Islamic philosophy was shaped decisively by nineteenth-century European scholarship. Salomon Munk's Mélanges de philosophie juive et arabe helped establish an account in which al-Ghazālī's critique constituted a severe blow to philosophy in the Islamic East (Munk, 1859). Ernest Renan developed a more influential version in Averroès et l'averroïsme, where the intellectual history of Islam was narrated through a contrast between philosophical rationalism and theological opposition, with al-Ghazālī functioning as a major representative of the latter (Renan, 1852).

Frank Griffel's study of the Western reception of al-Ghazālī's cosmology shows how this interpretation became connected to a broader explanation of Muslim scientific underdevelopment. Nineteenth-century readers often took the seventeenth discussion of the Tahāfut as a denial of real causal relations and then linked that supposed denial to an alleged hostility toward the natural sciences. Renan, in particular, read al-Ghazālī's position as an anti-rational and mystically inspired opposition to natural science, an interpretation that became highly influential in later Western discussions (Griffel, 2011).

The familiar contrast between al-Ghazālī and Ibn Rushd (Averroes) grew out of this historiographical setting. In a simplified version of the story, al-Ghazālī symbolized

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orthodoxy, theology, and restriction, whereas Averroes symbolized reason, philosophy, and intellectual freedom. Europe allegedly appropriated Averroes and moved toward modern rationalism, while Muslim societies accepted al-Ghazālī and moved toward decline. Later scholarship has challenged this binary by documenting both al-Ghazālī's extensive appropriation of philosophical methods and the substantial continuation of philosophy after the twelfth century (Griffel, 2009, 2021).

Modern Restatements and Popularization

Modern accounts have reproduced parts of this older narrative in different forms. Pervez Hoodbhoy's Islam and Science places the weakening of scientific rationality within a larger history in which religious orthodoxy increasingly constrained rationalist currents in Muslim societies. Al-Ghazālī appears in this account as an important figure in the intellectual ascendancy of orthodoxy over the philosophical tradition, although Hoodbhoy's broader thesis also concerns contemporary educational, institutional, and political problems rather than al-Ghazālī alone (Hoodbhoy, 1991).

Taner Edis likewise discusses the conventional claim that al-Ghazālī's strengthening of Sunni orthodoxy contributed to greater suspicion toward the so-called foreign sciences. However, Edis's treatment is more qualified than popular summaries sometimes suggest. His discussion recognizes that the historical relationship among theology, philosophy, and science is more complex than a single turning-point narrative and that al-Ghazālī's arguments must be understood within their philosophical context (Edis, 2007).

Steven Weinberg advanced a stronger modern version of the causal argument. In "Without God," he associated al-Ghazālī's theology with opposition to the idea of laws of nature and then connected this intellectual development with the later weakness of science in Muslim societies. Yet Weinberg also acknowledged that he was not an expert in the relevant history and did not claim to establish the precise magnitude of al-Ghazālī's historical influence. His essay is therefore best read as an influential scientist's interpretation of intellectual history rather than as specialist scholarship on medieval Islamic philosophy (Weinberg, 2008).

Neil deGrasse Tyson offered an even more categorical popular account in a 2010

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lecture. He attributed to al-Ghazālī the judgment that manipulating numbers was "the work of the devil" and treated al-Ghazālī's influence as the decisive end of the earlier Muslim scientific flourishing (Tyson, 2010). The significance of this statement lies partly in its wide public circulation: it illustrates how a complex nineteenth-century historiographical narrative can be compressed into a memorable civilizational explanation. As the primary texts show, however, the attribution concerning numbers conflicts directly with al-Ghazālī's explicit recognition of mathematical demonstration (Al-Ghazālī, 2000b; Malik, 2021).

The Scope of Al-Ghazālī's Critique of the Philosophers

A reassessment must begin with the structure of The Incoherence of the Philosophers. Al-Ghazālī does not simply declare "philosophy" false. He identifies specific doctrines associated principally with the Aristotelian-Avicennian tradition represented by al-Fārābī and Ibn Sīnā and attempts to show that the philosophers have not met their own standard of demonstrative proof. The work contains twenty discussions, the majority concerning metaphysics and a smaller number concerning natural philosophy. Three positions receive the strongest theological condemnation: the pre-eternity of the world, the claim that God does not know particulars in the relevant sense, and the denial of bodily resurrection (Al-Ghazālī, 2000a; Griffel, 2009).

The methodological issue is especially clear in the introduction to the Tahāfut. Al-Ghazālī complains that the philosophers benefit from the prestige of mathematics and logic and that observers may therefore assume their metaphysical doctrines possess the same certainty. He writes that the philosophers use "the appearance of their mathematical and logical sciences" as evidence for their metaphysics and argues that, if metaphysical claims possessed the same demonstrative perfection as mathematics, philosophers would not disagree about them in the way that they do (Al-Ghazālī, 2000a, p. 4). The objection is therefore not to demonstration itself but to an unwarranted claim that a disputed metaphysical proposition has been demonstrated.

Mathematics: Demonstrative Certainty and Its Limits

The clearest evidence against the strong banishment thesis appears in Deliverance

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from Error. Al-Ghazālī divides the philosophical sciences into mathematical, logical, physical, metaphysical, political, and ethical disciplines. He describes mathematics as including arithmetic, geometry, and astronomy and states that these subjects concern rigorously demonstrable matters that do not, in themselves, affirm or deny religious doctrines. His first concern is psychological: a student impressed by the precision of mathematics may mistakenly transfer that confidence to the philosophers' metaphysical teachings (Al-Ghazālī, 2000b).

This distinction is central to understanding al-Ghazālī's position. The problem is not that arithmetic or geometry is false. Rather, demonstrative success in one discipline does not confer authority in another discipline whose premises and conclusions are different. In contemporary epistemic language, al-Ghazālī rejects a transfer of authority from mathematics to metaphysics. His statement in the Tahāfut that metaphysical disagreements indicate the absence of mathematical-style demonstration is consistent with this concern (Al-Ghazālī, 2000a, p. 4; Griffel, 2009).

Al-Ghazālī's second warning is even more damaging to the claim that he opposed mathematics. He criticizes the "ignorant friend of Islam" who imagines that religion must be defended by denying every science associated with philosophers, including calculations of solar and lunar eclipses. According to al-Ghazālī, a person who knows such matters through demonstration will not abandon the proof when a religious partisan denies it; instead, the denial may persuade that person that religion is founded on ignorance. He therefore treats the rejection of demonstrated mathematics in the name of Islam as a serious harm to religion (Al-Ghazālī, 2000b).

The most defensible formulation, therefore, is that al-Ghazālī accepts mathematical demonstration while warning against two opposite errors: granting mathematicians automatic authority in metaphysics and rejecting mathematical truths because some mathematicians hold objectionable metaphysical beliefs. This position is difficult to reconcile with Tyson's claim that al-Ghazālī declared numerical manipulation demonic (Al-Ghazālī, 2000b; Tyson, 2010).

Logic: Appropriation Rather Than Rejection

Al-Ghazālī's treatment of logic further complicates the image of generalized anti-rationalism. In Deliverance from Error, he describes logic as the study of proofs,

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syllogisms, definitions, and the conditions of demonstrative reasoning. These procedures, he argues, do not by themselves affirm or deny religious doctrine. He warns instead that a student may become impressed by the rigor of logical method and mistakenly assume that the philosophers apply the same rigor to all metaphysical questions (Al-Ghazālī, 2000b).

More importantly, al-Ghazālī made extensive positive use of logic. His writings include works devoted to logical theory, and he incorporated logical methods into theology and legal theory. Griffel argues that this appropriation was part of a larger process by which philosophical tools were integrated into Muslim theological discourse, while later Islamic intellectual traditions increasingly treated logic as an important instrument of disciplined reasoning (Griffel, 2009, 2021).

This history does not mean that al-Ghazālī accepted every philosophical application of logic. It shows, rather, that he distinguished formal methods of reasoning from substantive metaphysical conclusions. A scholar who helped legitimate Aristotelian logical techniques in religious scholarship cannot accurately be described as rejecting reason or logical demonstration tout court. His project was selective: some methods were appropriated, some doctrines were criticized, and claims of certainty were tested against the standards they themselves invoked (Al-Ghazālī, 2000b; Griffel, 2009).

Natural Philosophy, Medicine, and the Study of Nature

Al-Ghazālī's discussion of the physical sciences is similarly differentiated. In Deliverance from Error, he describes natural philosophy as the study of the heavens, stars, elements, plants, animals, minerals, and processes of change. He explicitly compares this field with medicine's study of the human body and states that religion does not require the repudiation of medicine or the physical sciences as such, while reserving objections to particular questions treated elsewhere (Al-Ghazālī, 2000b).

The theological qualification is significant. Al-Ghazālī insists that nature is ultimately subject to God and does not possess autonomous power independent of the Creator. This is not equivalent to the modern metaphysical naturalism according to which explanations should exclude divine agency. Nevertheless, affirming divine ultimacy does not by itself prohibit the investigation of proximate causes, bodily

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processes, astronomical motions, or regular natural phenomena. The key dispute concerns the metaphysical status of causal powers and necessities, not whether observable nature can be studied (Griffel, 2009).

Syed Nomanul Haq's discussion of the myth that medieval Islamic culture was intrinsically inhospitable to science similarly cautions against treating theological commitments as automatic barriers to scientific activity. The historical record shows a wide variety of relationships among religious institutions, scientific disciplines, philosophical traditions, and patterns of patronage. A simple conflict model therefore obscures more than it explains (Haq, 2009).

Causality, Divine Agency, and the Question of Natural Law

The strongest basis for the claim that al-Ghazālī undermined science is usually found in Discussion Seventeen of the Tahāfut, where he challenges the necessity of causal connections. His famous example concerns fire and cotton: when fire contacts cotton, burning ordinarily follows, but al-Ghazālī denies that reason can demonstrate an absolutely necessary connection that would make any alternative impossible. The argument serves, among other purposes, to preserve divine freedom and the possibility of miracles (Al-Ghazālī, 2000a; Griffel, 2009).

Weinberg interpreted this position as an attack on the idea of natural law and suggested that such theology was inimical to the scientific enterprise (Weinberg, 2008). The first part of that interpretation identifies a real difference between al-Ghazālī and an Avicennian necessitarian account of nature: al-Ghazālī does reject the claim that causal relations operate with an independent metaphysical necessity that binds divine action. What requires greater caution is the second step, in which rejection of necessary causation becomes rejection of observable regularity or of scientific investigation itself (Griffel, 2011).

Griffel's detailed reconstruction shows that al-Ghazālī's cosmology cannot be reduced to a single simple formula. The Tahāfut presents arguments compatible with strong occasionalism, yet al-Ghazālī's broader corpus also allows for secondary causes or created natures so long as their efficacy remains contingent upon God's will and the created order. In this interpretation, the dispute is over the modal status of causal connections—whether they are necessary in themselves—not over the

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empirical fact that regular connections are observed and can be studied (Griffel, 2009).

This distinction is essential. Denying that fire must burn cotton by an independent metaphysical necessity is not the same as denying that fire normally burns cotton, that combustion can be investigated, or that reliable expectations can be formed from repeated experience. Al-Ghazālī's theology remains fundamentally different from modern naturalism, but that difference does not establish the stronger historical claim that scientific explanation became impossible within his framework (Griffel, 2009, 2011).

Useful Knowledge and Communal Obligation

Additional evidence comes from The Book of Knowledge, the opening book of the Revival of the Religious Sciences. Al-Ghazālī classifies knowledge according to religious and social value and includes medicine and mathematics among praiseworthy worldly sciences when they are needed for the proper functioning of society. Medicine contributes to the preservation of health, while mathematics is required for transactions, inheritance, and the distribution of property. Such knowledge can therefore fall under the category of communal obligation (farḍ kifāya), meaning that a community must contain people competent in these fields even though not every individual must master them (Al-Ghazālī, 1962).

This classification does not make al-Ghazālī a proponent of modern scientific institutions, nor does it imply that every branch of knowledge is equally valuable in his hierarchy. His priorities remain theological and ethical. Nevertheless, the category of communal obligation is strong evidence against the claim that mathematics and medicine were intrinsically condemned. A thinker who regards socially necessary mathematical and medical expertise as a collective obligation cannot plausibly be represented as seeking the blanket elimination of such disciplines (Al-Ghazālī, 1962; Malik, 2021).

Philosophy After Al-Ghazālī: Transformation, Integration, and Continuity

Even if al-Ghazālī did not intend to abolish philosophy or science, the decline thesis could still be defended as a claim about unintended historical effects. It must therefore be tested against the intellectual history after 1111. On this question,

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recent scholarship has substantially revised older assumptions. Griffel argues that al-Ghazālī did not destroy Aristotelian philosophy in Islam; instead, he contributed to its integration into theological discourse and to a transformation in the genres through which philosophical questions were discussed (Griffel, 2009).

Griffel's later study of post-classical philosophy develops this argument in greater detail. The decline of falsafa as a self-description did not entail the disappearance of philosophical reasoning. Philosophical material continued within kalām and in works described as ḥikma, while thinkers such as Fakhr al-Dīn al-Rāzī engaged deeply with Avicennian questions. Thus, a history that searches only for authors who continued to identify themselves straightforwardly as falāsifa risks overlooking large bodies of later philosophical work (Griffel, 2021).

The post-Ghazālian history of logic likewise resists a simple extinction narrative. Logical theory remained important in later Muslim education and scholarship, including in disciplines that were explicitly religious. This continuity is especially significant because logic was one of the principal instruments of the philosophical tradition that al-Ghazālī himself appropriated. The result was not the elimination of rational method but a reconfiguration of where and how it was practiced (Griffel, 2009, 2021).

Science After Al-Ghazālī: The Chronological Problem for the Decline Thesis

The history of the mathematical sciences poses an equally serious problem for any claim that al-Ghazālī brought scientific inquiry to an end around the beginning of the twelfth century. George Saliba's research on Islamic astronomy documents major theoretical and mathematical innovations from the thirteenth through the sixteenth centuries. Using astronomy as a case study, he shows that the centuries often labeled an "age of decline" included creative criticism of Ptolemaic models, new mathematical devices, and sophisticated efforts to reform planetary theory (Saliba, 2007).

The Marāgha astronomical tradition and later figures such as Ibn al-Shāṭir demonstrate that scientific production did not simply stop after al-Ghazālī. This does not prove that every scientific discipline flourished equally in every region, nor does it deny that long-term changes in scientific productivity occurred. It does show

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that the simplest chronology—al-Ghazālī attacks philosophy, therefore science ends—does not fit the evidence (Saliba, 2007).

Saliba's historiographical point is methodologically important. Explanations of scientific development must attend to scientific production itself and to the social, economic, intellectual, and institutional conditions that sustain it. Patronage, educational institutions, political fragmentation, trade networks, economic resources, disciplinary specialization, and changing relationships between courts and scholars can all affect scientific activity. A single theologian may influence some of these processes, but temporal succession alone does not demonstrate civilizational causation (Saliba, 2007).

Reassessing the Banishment Thesis

The strong banishment thesis is difficult to sustain when the primary sources are considered discipline by discipline. Al-Ghazālī accepts the demonstrative character of mathematics while warning against extending mathematical authority into metaphysics. He criticizes religious defenders who deny astronomically demonstrable events such as eclipses. He accepts logic as an instrument of reasoning and employs it extensively. He describes medicine as socially necessary, and he states that religion does not require the rejection of the physical sciences as such (Al-Ghazālī, 1962, 2000b).

The evidence nevertheless does not justify the opposite extreme of describing al-Ghazālī as an unrestricted champion of philosophy. He feared the religious effects of some forms of philosophical education, opposed major Avicennian doctrines, defended revelation as an authoritative source of knowledge, and imposed theological limits on metaphysical claims. His relationship to philosophy was simultaneously critical and appropriative. Modern scholarship increasingly treats this combination as central to understanding his intellectual legacy (Griffel, 2009, 2021).

The most precise conclusion is therefore that al-Ghazālī did not ban philosophy or science as undifferentiated wholes. He evaluated disciplines and propositions according to different epistemic and theological criteria. Some philosophical doctrines were condemned; some logical techniques were appropriated; mathematical

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demonstrations were recognized; useful worldly sciences were accepted; and metaphysical claims were subjected to a demanding critique of demonstrative certainty (Al-Ghazālī, 2000a, 2000b; Malik, 2021).

Reassessing the Decline Thesis

The decline thesis raises a more complex historical question because al-Ghazālī was undeniably influential. It is reasonable to argue that his critique changed the status of particular philosophical doctrines and helped reshape relations between falsafa and kalām. What is not justified is the additional inference that these changes amount to the termination of philosophical or scientific inquiry across Islamic civilization (Griffel, 2009, 2021).

A robust causal claim would require evidence that al-Ghazālī's influence substantially reduced scientific activity and that this effect explains the later trajectories of multiple disciplines better than competing institutional, political, economic, and intellectual explanations. Yet the continuation of sophisticated philosophy, logic, astronomy, mathematics, and medicine after his death complicates that thesis. Saliba's history of astronomy and Griffel's reconstruction of post-classical philosophy both show significant intellectual continuity and innovation in precisely the centuries that older decline narratives often treated as post-Ghazālian stagnation (Griffel, 2021; Saliba, 2007).

Haq likewise warns against general civilizational claims that portray medieval Islamic culture as structurally hostile to science. Such claims often collapse diverse centuries, regions, institutions, and disciplines into a single narrative of religious suppression. The better historical approach is disaggregated: different sciences experienced different trajectories, and changes in one philosophical tradition cannot automatically be generalized into an explanation for all scientific production (Haq, 2009).

Accordingly, the strongest conclusion is not that al-Ghazālī had no historical effect, but that his effect should be described as transformation rather than termination. He altered the boundaries and language of intellectual debate, strengthened criticism of some Avicennian positions, and helped create conditions in which philosophical materials were reworked inside theological traditions. These developments were

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significant, but they are not equivalent to a blanket rejection of rational inquiry or a demonstrated cause of a centuries-long scientific decline (Griffel, 2009, 2021).

From Renan to Tyson: Why the Narrative Persists

The persistence of the al-Ghazālī decline narrative is itself a historiographical phenomenon. Renan's nineteenth-century contrast between rational philosophy and theological opposition provided a clear protagonist and a clear turning point. Later conflict-oriented accounts could adapt the same structure to the modern language of religion versus science. Hoodbhoy emphasized orthodoxy and rationality; Weinberg emphasized natural law; and Tyson condensed the narrative into a public story in which al-Ghazālī's alleged rejection of mathematics ended a scientific golden age (Hoodbhoy, 1991; Renan, 1852; Tyson, 2010; Weinberg, 2008).

These writers should not be treated as making identical arguments or possessing identical expertise. Renan was a nineteenth-century philologist and historian; Hoodbhoy is a physicist and critic of contemporary intellectual conditions in Muslim societies; Edis is a physicist and scholar of science-religion debates; Weinberg was a Nobel Prize-winning physicist writing a broad essay on religion; and Tyson is a science communicator speaking in a public lecture. Academic analysis should distinguish their contexts and evidential aims rather than combine them under a single label (Edis, 2007; Hoodbhoy, 1991; Weinberg, 2008).

What they share, in varying degrees, is an explanatory template in which a flourishing scientific culture is followed by al-Ghazālī's victory over philosophy and then by long-term decline. The template is memorable because it compresses a complex history into a single causal sequence. Its weakness is the mismatch between that simplicity and the primary-source evidence concerning al-Ghazālī's classification of knowledge, as well as the historical evidence for post-Ghazālian philosophical and scientific activity (Al-Ghazālī, 1962, 2000b; Griffel, 2021; Saliba, 2007).

Discussion

The controversy illustrates a broader methodological danger in intellectual history: the tendency to make a famous individual personify a complex civilizational transformation. Scientific productivity depends on scholars, teachers, texts,

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instruments, institutions, patronage, economic resources, political conditions, communication networks, and educational structures. Theology can influence these conditions, sometimes profoundly, but it is rarely sufficient by itself to explain multi-century changes across geographically diverse societies (Haq, 2009; Saliba, 2007).

Al-Ghazālī's writings also demonstrate why the categories "religion" and "science" should not be projected backward as though they were self-contained modern institutions. He could deny the metaphysical necessity of causal connections while accepting the study of nature; he could criticize Avicennian metaphysics while appropriating logic; he could warn about the spiritual risks of philosophical study while condemning the denial of mathematical demonstration; and he could rank religious knowledge above worldly sciences while still treating medicine and mathematics as communal necessities (Al-Ghazālī, 1962, 2000a, 2000b).

The distinction among content, method, and metaphysical interpretation is therefore decisive. Al-Ghazālī may reject the content of a metaphysical proposition while using philosophical method to refute it. He may accept a mathematical result while rejecting the worldview of a mathematician. He may accept regularity in nature while denying that the relation has independent and absolute necessity. Once these distinctions are restored, his intellectual project appears neither as a simple endorsement nor as a simple repudiation of philosophy, but as a critical program of appropriation, differentiation, and theological reconstruction (Griffel, 2009).

Conclusion

The claim that al-Ghazālī condemned philosophy and science and thereby caused the decline of scientific inquiry in the Islamic world is too broad to survive careful textual and historical analysis. Nineteenth-century scholarship helped create a powerful contrast between al-Ghazālī and philosophical rationalism, and modern writers have repeated parts of that narrative in different forms. Yet the primary texts show that al-Ghazālī's objections were selective and discipline-specific rather than a categorical rejection of rational knowledge (Al-Ghazālī, 1962, 2000a, 2000b; Griffel, 2011).

In mathematics, he recognizes demonstrative certainty and condemns the rejection of astronomical calculation merely because it is associated with philosophers. In

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logic, he adopts and develops methods of proof and definition. In medicine and natural philosophy, he distinguishes useful investigation from metaphysical claims about causal autonomy. In causality, he challenges the necessity of causal connections in order to preserve divine freedom, but this does not entail that regular natural relations cannot be observed or studied. His position is explicitly theological, but theological commitment and hostility to scientific inquiry are not equivalent propositions (Al-Ghazālī, 1962, 2000b; Griffel, 2009).

The later historical record further complicates the decline thesis. Post-classical philosophy continued in transformed genres, logic became embedded in religious scholarship, and astronomers produced significant theoretical and mathematical innovations centuries after al-Ghazālī's death. This evidence does not prove that Islamic scientific traditions never declined; it demonstrates that decline cannot be satisfactorily explained by a simple causal sequence beginning with the Tahāfut (Griffel, 2021; Saliba, 2007).

The most historically defensible description of al-Ghazālī's legacy is therefore transformation rather than termination. He reshaped the relationship between theology and philosophy, challenged the epistemic authority of certain Avicennian doctrines, and contributed to new forms of philosophical-theological discourse. A more adequate account of scientific change in Muslim societies must move beyond the question of whether one theologian "killed science" and instead investigate the changing fortunes of particular disciplines, institutions, regions, and intellectual networks across time (Haq, 2009; Malik, 2021; Saliba, 2007).

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