

# The Rhetorical Work of Science Diplomacy

## *Border Crossing and Propheteering for U.S.-Muslim Engagement*

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In this essay, I critique science diplomacy discourse generated by President Obama's "New Beginning" speech at Cairo University on June 4, 2009. The speech launched the Cairo Agenda, a program of action in education, science, technology, and innovation to build trust between Muslim-majority countries and the United States, and committed the Administration to enhance science diplomacy programs. My critique sets the Cairo Agenda discourses in the context of science diplomacy, considered as a relational strategy to open doors and bridge national and cultural divides.

The public sphere provides a theoretical grounding for my critique. For this purpose, I consider the public sphere a discursive space for informational and cultural exchange in which participants work out what can and ought to be done to effectuate change and direct processes of globalization through dialogue, engagement, and enacted values. In this particular critique, I am less concerned with the legitimation processes of media, public opinion, and institutions, although I acknowledge that this dynamic remains at the core of public sphere scholarship and continues to demand critical evaluation. My critique reflects a different objective, in which the public sphere serves as a framework for assessing and deepening cross-cultural dialogue. I privilege the active arguments taking place among members of a rhetorical community about issues of public concern, which may or may not become visible to those outside that community. Quoting Marc Lynch, "These dialogues require media that can bring arguments before a relevant audience, but media alone do not a public sphere make" (Lynch, 2006, 32).



This perspective elucidates how individuals join public debate as diverse participants rather than as the disembodied voice of the universal citizen (Asen, 1999, 115). Engagement occurs in contexts of varying structure, scope, and formality. More than the transmittal of information and beliefs, discourse functions as a constitutive force. Robert Asen called this discursive process “collective imagining” (Asen, 2002, 349). Collective imagining occurs in the background, coalescing and marshaling the shared assumptions, values, perceptions, and beliefs that guide individuals’ accounts on issues of public concern (Asen, 2002, 351).

I contend that the Cairo Agenda sparked parallel dialogues carried out in two separate loci of discourse: the public sphere through which Obama Administration officials and science envoys promoted the Cairo Agenda to Muslim audiences, and in which their counterparts representing Muslim-majority countries or organizations responded in kind; and the reticulate, performative public sphere in which Muslim scientists engaged each other in conversation, agitating for change. Gerard Hauser’s description of the public sphere as “a web of discursive arenas, spread across society and even in some cases across national boundaries” is especially apt (Hauser, 1999, 71). Hauser attributes to the public sphere an “associative network,” in which “actual practices form a lattice of discursive spaces with permeable boundaries” and that works best when boundaries not only permit but also welcome “border crossings” by interests and actors from other arenas (Hauser, 1999, 72). My critique explores the quality and substance of the Cairo Agenda-inspired border crossings between Obama Administration representatives and their interlocutors, and the community of self-identified Muslim scientists and their advocates.

My methodological approach relies on narrative critique, drawing from three sites of discourse. One set of discourses is comprised of public statements about the Science Envoys program and by the Science Envoys themselves, gathered through searches of U.S. Department of State and Bureau of International Information Program archives. Thirteen individuals have served in this volunteer capacity since the Program’s inception. Four of the envoys were announced in January 2015; their remarks fall outside the scope of this particular critique.

Public statements of U.S. State Department and USAID officials likewise engaged in science diplomacy initiatives compose the second set of discourses, obtained from online archives. Third, I gathered public statements and opinion from non-governmental and civil society actors, including scientists acting in a private or non-governmental capacity. To access these discourses, I focused

primarily on the archives of SciDev.Net, Muslim-Science.Com, and the AAAS Center for Science & Diplomacy. In each case, I supplemented searches of specific archives with broad-based search strategies, including LexisNexis, Google Search, and news aggregators such as EurekAlert.

In the section that follows, I introduce science diplomacy's value as a strategy for cross-cultural engagement, present the narrative framing of science diplomacy that arose at the end of the Cold War, and set forth a number of premises about science diplomacy that underpin my critique. I then illustrate and comment on the dialogues taking place within the Cairo Agenda and Muslim science arenas. I conclude with observations and recommendations to build and strengthen the lattice work between these official and reticulate public spheres, and about prospects for creating a cross-cultural *ethos* to guide the purposes and practices of science.

## **STILL RELEVANT AFTER ALL THESE YEARS: SCIENCE DIPLOMACY'S POST-COLD WAR EVOLUTION**

To establish the context for current day science diplomacy, we need to start with the revisioning process that occurred following the end of the Cold War. Science diplomacy played a critical role in maintaining the *status quo* and building bridges of understanding between Cold War adversaries. As Vaughn Turekian and Norm Neureiter wrote in the inaugural issue of *Science & Diplomacy*, "In many ways, the Cold War was a time of highly effective use of science diplomacy to build bridges and connections despite the existence of great political tensions" (Turekian and Neureiter, 2012, 1). In the post-Cold War period, the dissolution of the Soviet Union, globalization, and transnational threats had a disquieting effect on the purposes and benefits of science diplomacy. Globalization magnified the effects of post-Cold War aftershocks, challenging the compartmentalized, nation-state-centric understanding of the international order. In this changing context, the ampersand in science and diplomacy began losing its grip in both domains. (Turekian *et al.*, 2015, 11-12).

The resulting ambiguity gave rise to divergent and contested meanings for science diplomacy, making it more rather than less difficult for diplomats and scientists to find common ground and common cause. In February 2009, Gordon Brown, then Prime Minister of the United Kingdom, issued a call to revitalize science diplomacy:

Many of the challenges we face today are international and—whether its tackling climate change or fighting disease—these global problems require global solutions. ... That is why it is important that we create a new role for science in international policy-making and diplomacy ... to place science at the heart of the progressive international agenda (The Royal Society, 2010, v).

In response, the Royal Society and the American Association for the Advancement of Science (AAAS) co-convened “New Frontiers in Science Diplomacy” on June 1-2, 2009. Almost 200 delegates from 20 countries in Africa, Asia, Europe, the Middle East, and North and South America participated in their roles as government officials and diplomats, scientists, policy makers, business leaders, and journalists.

The conference report, *New Frontiers in Science Diplomacy: Navigating the Changing Balance of Power*, established a definitional framework that permeates discussion among scholars and governmental officials. The framework, explained in detail in *Science Diplomacy: New Day or False Dawn?* has three dimensions (Davis and Patman, 2015). One is science in diplomacy, which aims to inform foreign policy objectives with scientific advice. A second dimension is diplomacy for science, which facilitates international science cooperation. Science for diplomacy is a third dimension, whose purpose is to use science cooperation to improve international relations between countries. The authors of *New Frontiers* associate science for diplomacy with the soft power of science that encompasses cooperative agreements, institution-building, negotiation, people-to-people exchange, and cultural diplomacy (The Royal Society, 2010, 12-13).

The *New Frontiers* report set forth an agenda of issues that defy unilateral solutions and require nation-states to promote and protect their interests through cooperation, reciprocity as distinguished from *quid pro quo* transactions, and shared advantage (Nye, 1990b, 158). Quoting Chatham House’s Bernice Lee:

Environmental threats are adding to the complexity of international relations in an already turbulent world. The anticipated bottlenecks and constraints—in food, water, energy and other critical natural resources and infrastructure—are bringing new geophysical, political and economic challenges, and creating new and hard-to-manage instabilities (The Royal Society, 2010, 5).

*New Frontiers* associates these transboundary and global threats with science *in* diplomacy, emphasizing scientists' role in building and communicating an evidence base and providing independent advice to foreign policy decision-makers. By contrast, following the logic set forth in *New Frontiers*, science diplomacy's effectiveness is determined by the degree to which cooperation repairs or strengthens nation-state relations independently of achieving international development and sustainability goals.

Science *for* diplomacy optimizes the attractive and universal qualities of scientific endeavor (Turekian *et al.*, 2015, 18). The attractiveness of the United States' institutions of learning and achievements in science and technology supports the inference that science diplomacy can convey if not also generate influence. Quoting Ahmed Zewail, one of the first science envoys appointed under the Cairo Agenda's auspices, America is "a magnet for many members of my generation because of its leadership in science and technology and its unique democratic values" (Zewail, 2011).

*New Frontiers* issued an explicit statement on values transmission through science. The report authors named the scientific values of rationality, transparency, and universality, asserting that "science provides a non-ideological environment for the participation and free exchange of ideas between people, regardless of cultural, national or religious backgrounds" (The Royal Society, 2010, vi). The InterAcademy Council, a broad-based international scientific organization representing ninety of the world's science academies, had earlier affirmed the universality of scientific values in its study titled *Inventing a Better Future*, published January 30, 2004 (InterAcademy Council, 2004).

Chaired by then President of the U.S. National Academy of Sciences Bruce Alberts and former President of the Indian National Science Academy Goverdhan Mehta, the report asserted, "The culture of science and the open, honest values that it engenders are enormously important above and beyond the material benefits that they help produce for human welfare" (InterAcademy Council, 2004, 1). Science had achieved broad acceptance through the development of experimental methods and symbolic languages that allow it to cross linguistic barriers, enabling individuals from diverse cultural contexts to share ways of observing, analyzing, describing, and interpreting natural phenomena (InterAcademy Council, 2004, 30).

The conclusions and recommendations of the *New Frontiers* and *Inventing a Better Future* reports embody three general premises that help explain why the Obama Administration favored

science diplomacy as a strategy to repair America's image and improve U.S. relations with the Muslim world. First, science diplomacy is a relational strategy of engagement, befitting the scientist's *modus operandi* of merit, peer review, objectivity, and transparency. Relational strategies address how countries and peoples interact with each other and how the international system itself is structured and managed. People engage each other as equals rather than as influencer and influenced, each possessing the capacity and will to change opinions, attitudes, and behaviors (Fitzpatrick, 2013, 33).

Second, science diplomacy is as much a constitutive as a persuasive force, a fact that is better understood if we blur the grammatical boundaries established by the *New Frontiers* report. Science *in* diplomacy privileges individual expertise, autonomy from decision-makers, and objectivity toward the context in which decisions are made. Solid, evidence-based advice plus competent, good governance will yield material benefits. Science *for* diplomacy privileges authenticity, individual risk-taking, and activism guided by a personal ethos as well as socially held values.

Dissolving this grammatical categorization creates a new premise, namely, that honest engagement plus transparency *plus concerted social action* will strengthen relations. Science diplomacy provides rhetorical resources to scientists seeking to enter the public sphere and exercise their voice, individually and collectively (Watts, 2001). These resources, available to all parties as co-arguers or co-creators of a narrative (Brockriede, 1972, 10), include one's culture, familial and social relations, values (as enacted), institutions (as progenitors and keepers of traditions), and historical memory. Participants in science diplomacy give and return these resources, engendering mutual ownership in a successful exchange and its cascading benefits.

Third, science diplomacy is not exclusive to nation states. Technological prowess, educational attainment, and economic growth have subsumed geography, population, and raw materials as indicators of national standing in global affairs (Nye 1990a, 179). Nation-states can no longer claim exclusive control over the resources of international influence. These new resources ease non-traditional actors' entrance onto the diplomatic stage, including media editors and other cue-givers, private sector corporations, non-governmental organizations, intergovernmental organizations, and networks of scientific communities (Nye, 2008, 100). These new actors have democratized science diplomacy, offering critical assessment of the economic and ecological dimensions of global security (Nye, 1990b, 157).

## **PROMOTING MORE THAN AN AGENDA: THE ARENA OF OFFICIAL DISCOURSE**

Modern liberalism provides the core ideology of the Cairo Agenda program and official discourses. One hears in the discourse two key tenets of modern liberalism: faith in reason, which promotes science as a salve for social ills, and a free and fair playing field achieved by leveling up those who are disadvantaged (Lee, 1995, 45). This ideological underpinning for the Cairo Agenda is consistent with President Obama's rhetoric and his signature "journey" metaphor in particular; its *telos* toward equality of opportunity and justice valorizes America's presumed path of upward mobility (Darsey, 2009, 92-94).

As an expression of modern liberalism, the Cairo Agenda and associated discourses fit well within the tradition of American grand strategy, placing America's engagement in foreign affairs in service to a mission: the spread of equality, justice, and opportunity encapsulated in a message of progress (Stuckey, 1995, 223). When placed in the context of President Obama's early foreign policy addresses, progress is instrumental to peace building, effectuating America's reconciliation with its own past and the community of nations (Ivie, 2011, 727). The Cairo address presented an ecumenical call to perform good works and live together in peace. It contributed to the President's public persona as "a prudent visionary patiently seeking true peace" (Ivie, 2011, 738).

The Cairo Agenda is a program of action in education, science, technology, and innovation to build trust between Muslim-majority countries and the United States, announced in President Obama's "New Beginning" speech at Cairo University on June 4, 2009. The Cairo Agenda also committed the Administration to enhance science diplomacy programs with Muslim-majority countries. Beyond this specific aim, the Cairo Agenda speech placed science diplomacy within a larger context of international development and capacity-building programs, including but not necessarily limited to education reform, public health, entrepreneurship, and economic growth (Campbell, 2015, 27). In short, the Cairo Agenda functioned as a strategy for building partnerships to manage intractable problems and interdependent interests.

To view the speech only in terms of diplomatic strategy, however, leaves the full meaning of the President's words unexplored and its rhetorical force unexplained. The "New Beginning" speech extended an argument from the President's campaign speeches and first inaugural address to the effect that religion and science—or more accurately, faith and reason—can co-

exist. The “New Beginning” speech manifested the President’s pluralist impulse in seeking higher truths that are accessible to people of all faiths as well as to secularists and non-believers. Attendant to this claim, truth-seeking relies on dialectic and interrogation as the primary forms of argument—forms that are inherent in the practices and theologies of major faiths, including Christianity, Judaism, and Islam (Frank, 2011, 609–611).

In keeping with Martin Medhurst’s identification of President Obama’s characteristic narrative signature, the President employed the dialectical method of dissociation, dividing two philosophies of knowing in a way that privileges science, and urges those addressed to apply reason as a test of worthiness (Medhurst, 2012, 200–201). Furthermore, the Cairo address employed, and subsequent discourses amplified, the grammatical elements of President Obama’s signature: the mythic and idealized pursuit of redemption and perfection, and public works that yield pragmatic, tangible, and measurable achievements (Medhurst, 2012, 196).

In his “New Beginning” remarks, delivered at Cairo University on June 4, 2009, President Obama encouraged mutual recognition of Muslim and American contributions to learning and civilizational progress:

For over a thousand years, Al-Azhar has stood as a beacon of Islamic learning; and for over a century, Cairo University has been a source of Egypt’s advancement. And together, you represent the harmony between tradition and progress. ... Human progress cannot be denied. There need not be contradictions between development and tradition. Countries like Japan and South Korea grew their economies enormously while maintaining distinct cultures. The same is true for the astonishing progress within Muslim-majority countries from Kuala Lumpur to Dubai. In ancient times and in our times, Muslim communities have been at the forefront of innovation and education (Obama, 2009).

In this opening, President Obama provides a number of narrative strands that tether subsequent discourses. For example, the image of the beacon taps into the light-dark metaphor that other participants in this discourse have invoked. In addition to the reach toward higher ideals and attainments, the metaphor’s inclusion in the Cairo speech opened additional meanings, including the pursuit of internal improvements and a sense of renewal (Osborn, 1967, 122).



In contrast to the muted hue of the metaphor, the *topos* of progress is a vibrant strand. According to this *topos*, the subtext of neoliberalism, understood as “a relentless belief in the realization of the highest human potential,” belies a perspective rooted in American exceptionalism (Murea and Josan, 2014, 77). America has a moral obligation or duty to save the world from itself (Edwards and Weiss, 2011, 2). Because U.S. experience is in harmony with the natural order, nation-states following its example will share in freedom and prosperity (Heidt, 2013). By this logic, culture and tradition might not impede progress, but neither will they energize it. Advancements in science, the liberal arts, and material progress etch over past epochs’ social and cultural remnants (Murea and Josan, 2014, 77–78).

The narrative strand of progress supports the President’s account of reclamation and recovery. In one section of the speech, the President acknowledges that

It was innovation in Muslim communities that developed the order of algebra; our magnetic compass and tools of navigation; our mastery of pens and printing; our understanding of how disease spreads and how it can be healed. Islamic culture has given us majestic arches and soaring spires; timeless poetry and cherished music; elegant calligraphy and places of peaceful contemplation (Obama, 2009).

This statement is then juxtaposed with the President’s claim that “the United States is one of the greatest sources of progress the world has ever known.” The innovations in Muslim communities may be an enduring, literally monumental, legacy, but the implication is that they exhausted their creative energy. In contrast to a reservoir that has been depleted and must be replenished, American genius is said to be a well spring of ideas and innovations that is self-perpetuating.

Subsequent discourses by American officials extend this narrative of reclamation and recovery. Speaking at the Forum for the Future on November 3, 2009, Secretary of State Hillary Clinton said:

It was the Islamic world that led the way in science and medicine. It was the Islamic world that paved the way for much of the technology and science that we now take for granted. And now we face global challenges ... We want to look to your societies and we want to help Muslim majority communities develop the capacity to

meet economic, social and ecological challenges through science, technology, and innovation (Clinton, 2009).

In Clinton's narrative, innovation that drives progress is the United States' gift to the Islamic world. This stance, as gift-giver, buttresses the United States' superior position and leaves the recipients in the unenviable position of thanking the United States for their indebtedness. Clinton references problems that defy single-actor solutions, but Muslim-majority communities cannot join the United States in cooperative solutions because they are not up to the task. The relationship of giver and receiver negates attraction with obligation.

Science envoy Rita Colwell's commentary during her July 2011 visit to Malaysia extended this recovery and reclamation narrative. Colwell observed that Malaysians have:

a keen interest in education, a desire to stimulate innovation, creativity and for Malaysia to become a developed country in a given period of time. ... There's a history of mathematics and science that is rich in the Muslim world and I think that can be re-kindled through collaborations (Gomez, 2011).

By choosing "re-kindled" to ascribe action, Colwell tapped into the rhetorical power of the light-dark metaphor. Light signifies the fundamental struggle for survival and development; with sight, one may escape danger, find profit, manipulate the environment, and enjoy warmth and sustenance. Colwell thus placed the United States in the role of bringer of light, the Malaysians' protector (Osborn, 1967, 117). *Re-kindling* brings forth the twilight-to-dawn cycle of birth, death, and rebirth; the United States is not just a giver of light, but of life (Osborn, 1967, 121). Colwell thus inverted President Obama's attempt to valorize the Islamic civilization's curation of knowledge throughout the Dark Ages.

Other envoys' accounts placed the impetus, will, and capacity for scientific advancement in the hands of the Muslim communities with whom they were engaged, adjusting the narrative frame toward self-reliance. Science Envoy Bruce Alberts, for example, offered an alternative to those who placed the United States in a dominant position as bringer of gifts and light. Contrasting the "old" and "new" way of engaging with the developing world, Alberts said:

In the past, the way we've thought about international help to developing countries has been too much based on 'We're going to help them fix the problem.' But we

don't fix the problem unless we give them the capacity to fix the problem themselves (Alberts, 2010).

Alberts includes among his focus areas an effort to help science academies in other countries become more powerful entities for advising their governments, “for bringing the wisdom of science to their people” (Pellerin, 2010). Speaking more bluntly, Science Envoy Ahmed H. Zewail said that “although many Muslim countries possess a wealth of both human and natural resources, it is clear that a cultural rebirth is badly needed—Muslims are ultimately responsible for their own destiny” (Zewail, 2010).

The self-reliance frame opens the possibility of consubstantiating U.S. and Muslim participants in the value of merit or meritocracy as a particular way of practicing science. This framing resonates with American notions of progress without the overt hierarchy of gift-giver and bringer of light. Regrettably, however, the narrative strand of self-reliance is too short to change the quality and *telos* of the progress narrative into a discourse in which all could participate on equal terms.

The narrative of progress draws on a vocabulary of material production. In her remarks at the U.S.-Islamic World Forum on February 14, 2010, Secretary Clinton reaffirmed that the United States possesses the means of producing knowledge:

President Obama and I believe that education and innovation are the currency of this century. That's why he announced a new era of engagement with Muslim communities to expand educational opportunities, support entrepreneurs, and promote advances in science and technology. Our goal is to identify excellent ideas and successful projects in Muslim communities and then invest in them, help to scale them up, and to connect innovators and entrepreneurs, so that they can support and enhance each other's work (Clinton 2010).

By describing the United States as an investor, Clinton makes an ownership claim in Muslim-majority countries' indigenous production of knowledge. In the words of Zewail, “Preserving knowledge is easy. Transferring knowledge is also easy. But making new knowledge is neither easy nor profitable—in the short term. It has, however, proved to be hugely profitable in the long run” (Zewail, 2011, 40). In Clinton's account, the U.S. discovers and extracts ideas as the raw material of knowledge production and manages the value chain. The pay-off is immediate; the distribution of profits, ambiguous.

This narrative of production was simultaneously shared and contested, as one can hear in the account of Princess Sumaya bint El Hassan, President of the Royal Scientific Society of Jordan:

In our modern and mismanaged world, so many of the benefits of scientific achievements have been limited to a comfortable minority of our global population—to the wealthier nations and to the elites of the developing world. Perhaps more worryingly, the development of scientific knowledge is also being hampered by short-term economic interests. Developing nations—some with more power than others—must challenge notions of the ‘ownership’ of science. Should our greatest innovative tool belong to a narrow echelon of the vast global population, or instead applied to achieve global goals that could improve the lives of millions and bring stability and security to our planet? (El Hassan, 2011).

Princess Sumaya co-opted the vocabulary of production, but shifted the focus away from actors who exploit indigenous knowledge to a “modern and mismanaged world” in which such behavior is permissible and unanswered. The division between haves and have-nots is woven into her account, its rectification serving as a motivating force for community action. The change in perspective, emphasizing the scene in which nation-states engage each other—as opposed to finding fault with the actors or their actions—changes the meaning of ownership from possession to stewardship. Interests are converted into purposes. This change in perspective transforms knowledge from an inert substance into a rhetorical resource for social agency.

Let us sum up. The narrative of progress contained in the President’s “New Beginning” speech framed the Cairo Agenda as a recovery project and an engine for economic growth. The sub-current of liberalism, however, keeps the United States in a position of influence over Muslim-majority countries and thus frustrates attempts to deepen identification. Contestation is the predominant mode of interaction between Western, Muslim, Arab, and hybrid voices. Muslim rhetors co-opt the vocabulary of production and re-contextualize progress in ways that reduce dependency, but only in a defensive rather than constitutive move.

The Cairo Agenda address performed rhetorical work in two registers. When contextualized in the Obama Administration’s message to the Arab and Muslim world, it advanced the President’s pursuit of reconciliation and further ingrained his *mythos* of human progress as a progression toward peace (Ivie, 2011, 738).

The Cairo speech and the discourses it inspired envision science as *doing things*. By reconciling faith and reason, science would reclaim its rightful place in service to economic growth.

The dominant discourses within the official public sphere suggest a perspective that is outward facing—to change others attitudes and behaviors—and downward looking, with concern for material conditions. As we will hear in the next section, the discourses that illustrate the Muslim science public sphere adopt a perspective that, by contrast, is introspective and inclined to cast its gaze upward and in which self-reflection reinvigorates one’s striving toward redemption and perfection.

### **PROMOTING MUSLIM SCIENCE: A COMMUNITY ENCLAVED BUT ENGAGED**

The discursive arena in which questions of Muslim science are debated may be characterized as an enclave. Participants are bound to each other through a set of shared assumptions and identifications that motivate action (Lynch, 2006, 36). Their discourse generates a “hidden transcript,” which conveys an alternate interpretation of political structures and relations that as yet cannot be generally aired or openly practiced (Lynch, 2006, 57). Accordingly, when discourses taking place within the Muslim science arena are introduced to other communities and amplified in widely accessible media, we must acknowledge that the discourses we see and hear are but fragments of that transcript.

Moreover, the solidarity of member’s shared assumptions does not guarantee consensus. Rather, the public sphere of Muslim Science reflects the dynamics described by Lynch with regard to the Arab public sphere. Generally it is “deeply riven with intense disagreements” (Lynch, 2006, 35). In contrast to the Arab public sphere, in which these disagreements lead to discourses that push individuals from the center to the periphery and toward more extreme views, the individuals in dialogue about Muslim science present a conversation that is civic-minded and deliberative. The conversation reflects an effort to renegotiate personal and collective approaches to religious and civic practices, and to “re-intellectualize” Muslim science in terms that are emotive, accessible, and experiential (Cesari, 2004, 92; Eickelman and Anderson, 2003, 12–13).

In this section I highlight fragments of the conversation among Muslims about science. I have selected the fragments to illustrate the breadth of values that emerged in narrative accounts on what it means to be a scientist and to practice science. The fragments

suggest that diplomacy has the capacity to enjoin Western and Muslim scientists in a dialectic of faith and reason. Whereas the Cairo agenda discourses imbued science with agency to achieve economic growth, the Muslim science discourses infuse science with social purpose. It is possible that the discourses on Muslim science can successfully resolve the dialectic through an alternative *ethos* and reconstituted meaning of progress. This *ethos*, in turn, may be the lattice connecting the official Cairo Agenda and Muslim science arenas.

The first fragment I have selected emphasizes empiricism:

Science has, indeed, reshaped our thoughts and has developed progressive societies. From curing various ailments to building rockets for exploring the universe, we see fruits of science everywhere. I want to study science because I want to progress. I want to seek the truth of reality. I want to know how the universe really works. I want to rule out myths and superstitions, that mask the face of true evidences. I believe that instead of worrying about what flaws are there in our society, I need to focus on correcting myself. It is science that gives me the tools of skepticism and empiricism to do so (Arslan, 2014).

This fragment introduces meanings invoked by the word “progress” as an ongoing struggle to improve not a nation or a community or an economy, but oneself. Empiricism answers the known unknowns about the world. For the empiricist, understanding oneself is a categorically separate domain or discipline. In the fragment above, the individual is a part of God’s creation. Knowledge of oneself and knowledge of the external world are inextricably and indelibly linked.

The next fragment suggests that the scientific *ethos* is spiritual:

Cooperation at the international level is desired for scientific investigations by Eastern societies and these investigations demand a link between the physical and spiritual spheres. A critical analysis of Muslim history reveals that most of Muslim scientists and scholars of the golden era were also eminent scholars of Islam and theology. An approach to supplicate thinking with spirituality is required, in order to influence scientific learning in Muslim societies (Iftikhar, 2014).

The word “supplicate” belies this writer’s perspective with its implied relationship between material and spiritual inquiry. The

link *between* the physical and spiritual spheres is, however, ambiguous with respect to their relative position. The claim that Muslim scientists and scholars *were also* eminent scholars of Islam and theology suggests that the two spheres sit side by side, a grammar of “both/and” in which two opposing halves are perfectly conjoined, but in a way more characteristic of the past than the present. The third reference, to *supplicate thinking with spirituality*, elevates the latter and humbles the former. Empiricism cannot unlock the most important mysteries.

In a third fragment empiricism and spirituality are reconciled in notions of a community empowered to act:

Sciences are always enmeshed with social structures and political power. For knowledge always works to consolidate Power, and the latter, in its turn, always strives to produce systems of knowledge. Therefore, as Muslim believers, we must learn to be the producers of knowledge, not the consumers of imported knowledge, we will hold possession, not of definite truths, but of the discourse over the facts of Nature and existence. And yes, this is the POWER in developing sciences; it’s the ability to enforce a worldview which is in intelligent harmony with one’s faith and culture (Guendouzi, 2014).

This scientific *ethos* recasts knowledge away from one’s ability to access and interpret epistemic materials, toward one’s ability to respond appropriately to problems through the exercise of one’s voice (Majdik and Keith, 2011, 371–373). The passage suggests a reconciliatory move by objectifying the locus of difference and conflict. Systems of knowledge—rather than people who hold beliefs or the doctrines they uphold—are placed in contestation. Accordingly, individuals of differing beliefs can engage with questions of whether and how systems of knowledge production may be reformed. The participants to discussion draw upon shared and unique rhetorical resources, including their values, culture, and institutions, to justify their proposed reforms. The key is that the rationale for reform is contingent upon and constituted through discourse.

In addition to the productive tension between empiricism and spirituality, other fragments reconcile pragmatism and idealism in an agenda for reform:

If we really want the Muslim societies to progress in science, we need to follow the principles of unity, faith and discipline, with education and a platform being available to each individual and child irrespective of

gender, race or financial status. If all the Muslim countries work together they can move towards a more bright future where the Muslims are in a more powerful position in the world (Noorani, 2014).

This fragment invokes unity, faith, and discipline as ideals. It conveys an egalitarian impulse to affirm equal opportunity. Nonetheless, this move supports a bottom-line approach to identifying a problem, targeting its cause, and proposing a solution, in this case greater access to education.

Ultimately, the espousal of an alternative set of values has the potential to integrate the physical and spiritual spheres in a scientific *ethos* centered on humankind's relationship to nature, transcending the division of faith and reason:

The global food system is a behemoth that connects every single human being on this planet. There are few human constructions that can boast of such an achievement. Each decision made on where one shops for food, what diet they follow and what happens to the smallest scrap of food waste, has an effect on this system. The Muslim world has the opportunity to shoulder some of the responsibility to ensure that it functions to the best of its ability, for the good of the planet and all of mankind. And when it comes to matters of everyday essentials, of something as intimately relevant and viscerally profound as food, no challenge is too big, or, opportunity too small (Hasnain, 2014).

In keeping with the empowerment theme, this fragment addresses the relationship through the lens of individual choice. The account places the individual—whether a consumer whose consciousness is raised or a budding scientist who wants to make a difference—within a global scene of production. The connection between local to global is mirrored in the connection of pragmatic action to idealist purposes.

The final fragment projects an *ethos* centered on humankind's relationship with nature into the existential realm:

Revelation is not the source of scientific inquiry, it is the source of ethics and in order to apply those values to the scientific enterprise, it is necessary that the metaphysical recognition of the existence of divine entity, together with the axiological ethics put science to the service of humanity, instead of nature to the service of capitalism, materialism, and consumerism. The most important



factor in promoting creativity and innovation within the Muslim societies, is by inculcating the principle of moderation in the scientific enterprise. Thus, Islamic moderation must promote the accountability and responsibility of man towards nature as a sign and manifestation of the creator of the universe, removing the ego of modern man denying the creator and divinizing the domination of reason over revelation, by claiming that the scientific enterprise can deliver absolute truths (Fortich, 2014).

This fragment adopts an attitude of self-restraint and humility. The principle of moderation applies to the conduct of science; creativity and innovation occur naturally when science is unadulterated by human ambition. When members of the scientific enterprise enact the altruistic ideal of serving humanity, they reject the narrative of economically-tinged progress that was established in President Obama's "New Beginning" speech and subsequent discourses. To be a scientist is to struggle against one's base impulses while contributing to the discovery of larger truths.

What we hear in these discourses is a community in the making. Reason and spirituality represent mutually related and interacting perspectives (Burke, 1969, 503). The voices emerging from within the Muslim science public sphere affirm in an ideational or symbolic sense what it means to be a scientist and to conduct science in a cross-cultural and humanistic context (Burke, 1969, 511). As such, they are not fully in harmony with Obama's approach. And yet there remains a sufficient degree of ambiguity and un-finishedness to allow rhetoric to perform its work.

## **THE EMERGING *ETHOS* IS PROPHETIC**

As we have heard in the fragments just presented, for Muslim scientists a new *ethos* must emerge if the scientist is to adopt the attitude of a reformer. This impetus toward reform is not far removed from the narrative of progress that emerged from official discourses. Each discursive arena, therefore, is attuned to calls for introspection and renewal. In this regard, participants in both arenas exercise the prophetic voice.

By employing this term, I borrow heavily from the research Lynda Walsh published in *Scientists as Prophets: A Rhetorical Genealogy* (Walsh, 2013). Walsh's work provides a number of markers of the prophetic voice that appear in the discourses I have gathered for my critique. The prophetic voice embraces dialectic and exercises judgment; an individual claims his or her right to

speak, raises a warning based on the interpretation of signs, issues a judgment (a promise or a threat) that rests on a shared covenant or values, and mediates others' responses until the crisis passes (Walsh, 2013, 9–10, 35).

Prophecy is in this connection a communal act. Recognition of the warning signs and concurrence with the judgment are necessary to the process; that is, witnesses are required to vouch for such a claim (Walsh, 2013, 84). Further, prophecy concerns itself with questions that form the crux of the emerging scientific *ethos*: how to resolve problems that arise when we try to define our knowledge, our society, and relationships between them, and how to live with each other and in the world (Walsh, 2013, 83).

Among the characteristics Walsh identifies, the responsibility of raising others' awareness to danger appears most clearly and consistently in the discourses critiqued. For founder of Muslim-Science.com, Athar Osama, that danger is isolation. From Osama's perspective, the developed world will maintain its gravitational pull on knowledge production. The division between haves and have-nots is less likely to be evened out and more likely to result in winner-take-all, leaving Muslim scientists and innovators as well as their beneficiaries to continue their striving in isolation: "For the developing world in general, and the Islamic World in particular, this could mean the loss of a significant economic opportunity. Thus it is all the more important, even if the more difficult, for Islamic countries to create a knowledge economy before they are bypassed" (Osama, 2012). Osama conveys a sense of urgency of acting before the tipping point is reached. The appeal to *kairos* is very pronounced in his writings.

The sense of isolation also becomes poignant when future prospects are set within the expanse of time, as expressed by Datuk Dr. Zakri Abdul Hamid, Science Advisor to Malaysia's Prime Minister, on the occasion of President Obama's May 2014 state visit:

The "Golden Age of Islamic Civilisation" referred to by Obama lasted about 1,000 years—from the 7<sup>th</sup> to the 17<sup>th</sup> century—and spanned a territory from southern Spain to China. Sadly, the 67 Muslim-majority member countries of the Organisation of Islamic Cooperation are among the poorest in the world today and lag behind in science, technology, and innovation, the engine that drives prosperity (Hamid, 2014).

Hamid conveys a deep sense of loss and regret in this passage. Muslim-majority countries shared a civilizational covenant that has

been broken, and for which a multi-lateral organization provides a poor substitute.

Accounts vary on how the covenant was broken. Still, participants in this discourse demonstrate an impetus for self-reflection:

To change the world for the better, we have to change ourselves. I can talk about peace but for that I have to be at peace with myself first. Finding your inner wealth and fighting your inner poverty is extremely important. Poverty you see on the streets is external poverty. Corruption is internal poverty. We need to address that. As long as you have corruption and greed, you are not going to change. If the mindset is poor, the work that those people are doing will also be affected. And that's bad for development (Amadei, 2014).

This account, taken from Science Envoy Bernard Amadei, emphasizes the personal struggle to avoid temptation and to eschew the quest for personal gain that blinds oneself to others' despair. To go through the struggle is also to strive to improve the human condition, and ultimately, an act of altruism.

The personal corruption of which Amadei spoke has deep roots and long-term, systemic consequences, described by MuslimScience.com essayist Dr. Yarub Al-Douri:

It would be a gross mistake to single out religious conservatism alone for the lack of scientific progress in the Islamic world. Far more telling are the antiquated administrative and bureaucratic systems that many Islamic countries inherited from their colonial occupiers and that have still not been replaced due to a chronic lack of political will to reform, tackle corruption, and overhaul failing educational systems and institutions (Al-Douri, 2014).

How one interprets Al-Douri's account depends in part on one's entry point and the emphasis one gives to the chain of consequence stemming from colonial rule. My reading is that corruption saps both the personal and political will to reform. The source of redemption remains internal to the community, an admonishment issued by Princess Sumaya: "We Arabs have a demon within us who calls for the biggest and the brightest, a demon that appeals to us to build an edifice that will put the neighbours in the shade. Unfortunately, we do little to work together" (El Hassan, 2010).

With introspection comes the future promise of scientific advancement for the greater good. Rashid Iftikhar, writing for Muslim-Science.com, expresses the hope that:

The Muslim world will again flourish in the near future, as science and technology are now believed to be potential ingredients for a nation's progress. Economic globalization is dispersing western technologies throughout the east, promoting unprecedented science ideology. Eastern governments have realized the importance of science directed efforts towards economic welfare and attempts are being made to develop research capabilities, through wide research policies implementation and research cooperation between private and government sectors. Although the scientific future of Muslim world will be on the rise, but this does not guarantee the return of the golden era (Iftikhar, 2014).

Iftikhar reclaims progress not as a binary between culture and tradition but as a natural outgrowth of the diffusion of knowledge and research collaboration. He proclaims a re-awakening. It is a re-awakening with full cognizance of past faults that could again prevent the inhabitants of the Islamic world from achieving their destiny.

I assert that these accounts work collectively to motivate Muslim-majority countries toward reform, constructing an affirming parable of redemption, promise, and progress. The people are on a righteous path toward discovery. They have made a covenant to enlighten the world with their knowledge and science. Blinded by short-sightedness, envy, inequality, and corruption, they have experienced a fall, isolated and impoverished. The fall is to be followed by a period of introspection and re-commitment, leading ultimately to a reclamation encompasses far more than economic standing.

## **PARTING THOUGHTS**

I have delved into the discourses generated by and associated with the Cairo Agenda in order to assess science diplomacy's capacity to open borders between two discourse communities. I find that discourses emanating from the "New Beginning" are limited in their rhetorical force. The narrative of recovery entails commitment to a conception of progress that was unilaterally developed and pronounced, not co-constructed. President Obama's New Beginning speech contained the potentiality for subsequent speakers to

amplify his foreign policy vision of peace and reconciliation. Instead, the narratives presented by Obama's surrogates functioned metonymically, reducing progress to a singular meaning of material production. The narrative of production maintains a hierarchy that reaffirms the United States' place of privilege and keeps Muslim-majority countries in a state of dependency. Efforts to redirect the narrative of progress toward self-reliance and resilience may falter still.

Through venues such as Muslim-Science.com and the entrée to U.S. officials afforded by the science diplomacy initiatives I have discussed, Muslim scientists now have a platform from which to agitate for reform. The Muslim voices partaking in the call to community imbue scientific discovery with an ethical purpose that melds humanism and spirituality in ways that contrast with how the west deals with these themes (*topoi*). This finding raises doubt about science diplomacy's capacity to forge or repair nation-state relations absent the pursuit of tangible outcomes.

An implication is that categorical definitions of science diplomacy may have run their course. An integrative framework that functions synecdochally may be more desirable. A framework that connects cross-cultural engagement with actions and outcomes responds to the impetus for reform. That is, engagement strategies (science for diplomacy) and strategies to build capacity and improve the human condition (science in diplomacy) are interdependent and share the same qualities. A discourse that replaces "science in" and "science for" with "science *through*" diplomacy generates opportunities to influence relations and enact one's values through practice.

In conclusion, one might hope that the dialectics of empiricism and spirituality, pragmatism and idealism, and faith and reason will be reconciled in a purpose-driven narrative of service and stewardship. An activist, ethos-driven engagement with others and the world will create and share new knowledge. This knowledge, in turn, may generate an understanding of the natural forces affecting our planet and the cosmos, and yields social benefits for global health, sustainable livelihoods, and human security.

This nascent scientific ethos converts the impetus for reform into the performance of public works. This conversion encapsulates the rhetorical work of science diplomacy: to reinterpret progress in the Cairo Agenda in ways that conform more closely to President Obama's foreign policy vision of peace and reconciliation; to generate narratives that catalyze and celebrate these good works;

and to craft from these narratives a lattice connecting official (U.S. diplomacy) and reticulate (Muslim science) public spheres.

Service and stewardship contain a vast store of rhetorical meanings and symbolic resources to motivate the crossing of cultural boundaries and discursive arenas. Each dialectic draws on qualities that are intrinsic, situational, and social. Reconciliation of perspectives occurs when we leave the realm of the ideational for the realm of action. Service and stewardship animate covenant values as authentic expressions of the prophetic voice.

And I end with a parting thought why science diplomacy matters:

We are the people who both love and fear science; we are the people who value industry and capital and yet want our natural environment to remain pristine; we are the people who prize solidarity and yet cannot bring ourselves to silence the voices speaking from the margin. And so, although our science advisers cannot tell the future or tell us what to do, they do—and will continue to—help us to know ourselves (Walsh, 2013, 198).

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