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Travis J. Cook

Engineering Modernity: The Aswan Low Dam and Modernizing the Nile



The completion of the Aswan Low Dam in 1902 was trumpeted by British policymakers and engineers as a great engineering feat and triumph over the forces of the Nile River. The Dam symbolized a break from traditional irrigation methods that had sustained people in the Nile River Valley for millennia and symbolized a new era of international relations for Egypt. Successors of the Aswan Low Dam have included a number of alterations to the original and the construction of the Aswan High Dam seven km upriver in the 1960s. The Aswan High Dam has garnered much attention from critics of modernization theory, environmentalists and proponents of the Dam alike. However, much of the social and environmental issues that are debated in the historical discourse surrounding the Aswan High Dam were present throughout the history of its antecedent. Understanding the social and environmental issues involved with the construction of the first Aswan Dam provides an example of the potential impacts of large-scale environmental programs on the people who inhabit the areas where they are pursued. Ultimately, the construction of the Aswan Low Dam was the product of British colonial administrators, informed by Orientalist and modernist biases, whose predilections of the value of damming the Nile left them overlooking the social and environmental impacts of this engineering project, which would be repeated sixty years later and continue to have implications for the people who inhabit the Nile River Valley and surrounding bioregion.

The construction of the Aswan Low Dam spanned a four-year period from 1898 to 1902. Structurally, it was a large buttress dam that crossed the Nile at Aswan, forever altering the ecosystem of the Nile and its watersheds. The main

purpose of the Aswan Low Dam was to provide water for perennial irrigation and flood control, both of which would radically transform the seasonal patterns of the Nile and the traditional subsistence strategies for those who relied on the water and surrounding land of the Nile River Valley for subsistence. By the 1960s the Aswan High Dam thwarted its predecessor in size and would take center stage in the historiography on environmental technology on the Nile.

Although the Aswan High Dam has garnered much attention from scholars in multiple disciplines throughout the world, the history of the Aswan Low Dam can be divided into two separate historiographical camps. The first looks at the economic, social and political transformations brought to Egypt by the Dam through a lens of modernization and development. In the colonial context, the development model was underpinned by a series of Western European prejudices that left policy makers viewing the people of the Middle East and North Africa as less civilized and capable than their Western counterparts. Edward Said describes these sets of assumptions within the concept of Orientalism. Said argues that, "Orientalism is a style of thought based upon an ontological and epistemological distinction made between 'the Orient' and (most of the time) 'the Occident.'"¹ With the creation of these ethnic and racial binaries coupled with the 'modernizing' worldview contained in the British vision of progress colonial officials were able to justify projects like the Aswan Low Dam as bringing progress, through engineering, to a people who heretofore were incapable of properly utilizing the environment themselves.

¹ Edward W. Said, *Orientalism* (New York: Vintage Books, 1979), 2.

Modernization or development theorists have a history of validating western international development projects and include scholars from Talcott Parsons to Walt Rostow.² An underpinning of modernist thought is that, “social, economic and political changes were fundamentally integrated, such that fundamental transformations in one aspect of society would necessarily trigger others.”³ Michael Latham discusses the origins of modernization theory by exploring Parson’s ideas of the difference between the “‘traditional’ and ‘rational’ (or ‘modern’) as historical conditions, and that ‘development’ involved the successful transition from the former to the latter.”⁴ The basic ideology that interlocking institutions, if positioned correctly, would lead to a Western type of modernization often involved environmental projects that oriented the economies of developing countries within the export based models of the West. Modernization theorists in the latter half of the twentieth century sought to distance themselves from colonial economic models, but, as will be shown below, the linear conception of development and undervaluing of traditional agricultural methods that justified the Aswan High Dam, among other transformative post-colonial programs, were very similar to the colonial concepts of development.

Many of the British colonial officials that were involved with the Aswan Low Dam were informed by a nearly identical development ideology, which also directed the work of historians that include Bent Hansen, Karim Nashashibi and Robert

² Michael Latham, *The Right Kind of Revolution: Modernization, Development, and U.S. Foreign Policy From the Cold War to the Present* (Ithaca: Cornell University Press, 2011), 44.

³ Latham, 3.

⁴ Latham, 46.

Tignor. These scholars belong to a historiographical camp that describes the creation of the Aswan Low Dam in glowing terms. Tignor writes that, “[t]he dam immediately proved its value to Egypt. The flood of 1905 was extremely low, and it was feared that the summer supply would prove insufficient. The dam was put into use and the irrigation waters were distributed throughout Egypt without difficulty.”⁵ Furthermore, Hansen and Nashashibi recognize the Dam as useful to Egypt for regulating the cotton export economy by arguing that “[d]uring close to a century of free trade the cotton economy was developed to a high level of perfection.”⁶ There are a number of modernist assumptions that can be observed through the work of these scholars. These historians almost always describe the efforts of the British engineering projects as benefiting the Egyptians themselves. Furthermore, the transition away from traditional irrigation methods is always framed as following a linear path that is seen as progress. These assumptions and representations have informed much of the scholarship, or lack thereof on the first Aswan Dam.

There are many implications of this scholarship for the people who inhabit the Nile River Valley. Perhaps most damaging is that irrigation methods developed by the people in these regions over thousands of years is nearly unanimously overlooked. One example of this is the lack of the discussion of Ibn Al-Haythem in the dominant historiography of irrigation on the Nile. Under the *Fatimids* in the early 11 century Al-Haythem, a philosopher and mathematician, was moved from

⁵ Robert L. Tignor, *Modernization and British Colonial Rule in Egypt, 1882-1914* (Princeton: Princeton University Press, 1966), 223.

⁶ Bent Hansen and Karim Nashashibi, *Foreign Trade Regimes and Economic Development: Egypt* (New York: Columbia University Press, 1975), 4.

Iraq to Egypt to build an engineering work that would “regulate the flow of the Nile.”⁷ Upon arriving in Egypt, Al-Haythem had realized the implausibility of these plans and faked madness to extricate himself from the project. Al-Haythem’s case highlights the expertise of the people who sought to manage the waters of the Nile prior to British intervention. It also reveals the technological sophistication of basin irrigation, which allowed the Nile floods to replenish the soil of the river valley annually and depended on a series of canals to irrigate crops. In a region of North Africa that received very little rain this irrigation method provided sustenance for the peoples of the Nile River Valley for thousands of years and, as recognized by Al-Haythem, would be drastically altered by engineering works that sought to regulate it.

In an attempt to re-conceptualize the impact of the Aswan Low Dam and other interventions by Western developers in North Africa a second historiographical school has emerged in the post-colonial era. This post-colonial scholarship includes historians Timothy Mitchell, Daniel Headrick and Diana K. Davis among others. Headrick identifies technical and engineering projects as essential for colonial ambitions. He writes that, “the appearance of a new technology can trigger or reinforce a motive by making the desired end possible or acceptably inexpensive.”⁸ Headrick’s juxtaposition of technology at the center of colonial studies provides an overview of the way that colonial officials provided the means for their desired ends through technology. In the case of Egypt, projects like the Aswan Low Dam, which

⁷ Eyed Hossein Nasr, *Isma’ili Contributions to Islamic Culture* (Tehran: Imperial Iranian Academy of Philosophy, 1977), 190.

⁸ Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century* (New York: Oxford University Press, 1981), 10.

were framed in modernization discourse reoriented Egyptian social, political and economic institutions to fit the prevailing Euro-centric international economic model that promoted perennial production of export mono-crops.

These scholars also re-examined the utility of the Aswan Low Dam by extricating the project from Orientalist or modernizing biases. Once this becomes the aim of historians the significance of the Aswan Low Dam appears very different. For example, instead of seeing the Dam as being valuable for the Egyptian people by bringing prosperity to the region, Mitchell notes that by 1933 due to the Aswan Low Dam project only, "one-fifth of the Nile valley was now irrigated by the river's annual flood, which in the past had fertilized the soil by depositing a layer of silt and nutrients...By the end of the 1930s Egyptian farmers were using 600,000 tons of fertilizer a year."⁹ Mitchell's description of the dam varies greatly from development minded scholars because of his ability to separate himself from that theoretical framework. His work stresses the difference in irrigation and fertilization practices, but questions the beneficence of these invasive reorientations of Egyptian agriculture.

Building on the work of Headrick and Mitchell scholars who include Jennifer Derr, Jennie Sowers and Alan Mikhail have contributed greatly to the study of Egypt in the colonial period. These scholars take an environmental history approach that explores the impact that environmental policies have had on the inhabitants of colonized regions. Perhaps not surprisingly, all of these scholars focus heavily on the Nile and colonial irrigation policies. Derr notes that "[a]s infrastructure modified the

⁹ Timothy Mitchell, *Rule of Experts: Egypt, Techno-politics, Modernity* (Berkeley: University of California Press, 2002), 20.

river and its interactions with the lands and communities along its banks, the experience of colonial authority interfaced with larger environmental and agricultural trends.”¹⁰ By promoting a specific type of development based on export agriculture the British gained the ability to control the practices of agriculturalists and reinvent the mode of subsistence for many Egyptians.

As the post-colonial scholarship discussed above highlights, the creation of projects like the Aswan Low Dam are dependent not only on the environment, but the cultural forces at play during the time of the Dam’s construction. The focus of the British on creating the Aswan Low Dam had its roots in nineteenth century British conceptions of Egypt. The British notions of Egyptian history resemble those of the French in Algeria as discussed by Diana K. Davis. Davis argues that in French Algeria “there emerged a colonial environmental narrative that blamed the indigenous peoples, especially herders, for deforesting and degrading what was once the apparently highly fertile ‘granary of Rome’ in North Africa.”¹¹ The Egyptian context differed slightly from Algeria because the demonized Arab inhabitants of Egypt were sedentary, but they were nevertheless blamed for the underutilization of the Nile’s resources. The imposition of a declensionist narrative brought on by the inhabitants of colonized people on Egyptian history has and continues to give a sense of legitimacy to those who pursue grand environmental engineering projects in the name of progress.

¹⁰ Jennifer L. Derr, "Drafting a Map of Colonial Egypt: The Aswan Dam, Historical Imagination, and the Production of Agricultural Geography," In *Environmental Imaginaries of the Middle East and North Africa*, Diana K. Davis and Edmund Burke III (Athens, OH: Ohio University Press, 2011), 152.

¹¹ Dianna K. Davis, *Resurrecting the Granary of Rome: Environmental History and French Colonial Expansion in North Africa* (Athens: Ohio University Press, 2007), 2.

The legitimacy of the Aswan Low Dam in particular was rooted in Western conceptions of the Nile as being underutilized by the denizens of the Nile River Valley. Orientalist assumptions about the people and landscape of the region had its roots in the occupation of Egypt by Napoleon at the turn of the nineteenth century. Napoleon compiled a number of artistic renderings of the ancient ruins along the Nile in the *Description de l’Egypte*. Joan Schwartz and James Ryan argue that these images allowed “only the *savants* [to] ‘organize the view’, only they were equipped to bring a sense of perspective and composition to the labyrinth of ruins that were thereby marked as a dispersed originary of a definitively *European* history.”¹² Within this framework the ancient ruins of Egypt began to be seen by Western Europeans as their own cultural heritage, left to deteriorate from the misuse by the Egyptian inhabitants.

Schwartz and Ryan go on to point out that “[i]n the course of the following decades the photography of Egypt’s monumental landscapes was professionalized and commercialized.”¹³ These photos of the monuments often excluded the inhabitants of the region in a way that cleared the way for Western European onlookers to place the history of Egypt and the Nile within a Western-centric historical narrative. This became a process that reinforced Orientalist conceptions of the peoples of the Nile River Valley and the Western interest in correcting that perceived decline.

¹² Joan M. Schwartz and James R. Ryan, *Picturing Place: Photography and the Geographical Imagination* (London: I.B. Tauris, 2003), 198.

¹³ Schwartz and Ryan, 207.

A tradition that ran parallel to the photographic one included popular travel guides that discussed the people and landscapes of Egypt in the nineteenth century. These guides fit within the artistic and photographic depictions of Egypt already available to would-be Western European tourists heading to Egypt. A recurring theme in these guidebooks involved the devaluing of the land and peoples of the Nile River Valley. One travel book from 1885 reveals the way that the othering of the landscapes related to the Orientalist view of the people. It argued that “the valley of the Nile, [was Egypt’s] only productive part, inhabited by a tax-paying population.”¹⁴ The same book goes on to describe the origins of the people of Egypt as being related directly to the Nile. The book’s author noted that “[f]or thousands of years the banks of the Nile have been occupied by the Egyptians...and still exhibiting many of their ancient personal characteristics unaltered...the character of its inhabitants been apparently molded by the influences of that river.”¹⁵ By devaluing the rest of the landscape outside of the Nile River Valley these imperial narratives promoted a specific type of social organization that excluded nomadic peoples. Furthermore, the people of the Nile River Valley were described as inferior and somehow beholden to the Nile itself in a way that devalued their own ingenuity and understanding of the river.

These depictions of a simple people tied to the river by their inferiority to enlightened Western populates were also prevalent through artwork in the late nineteenth century. Frederick Goodall’s painting, *The Rising of the Nile* (1865, Figure 1), depicted a group of distressed villagers fleeing the Nile floodwaters that were

¹⁴ K. Baedeker, *Egypt: Handbook for Travellers* (London: Dulau and Co., 1885), 30.

¹⁵ Baedeker, 37.

inundating their village.¹⁶ In the distance one can see the pyramids and the biblical feel of the painting, due to its depiction of ancient peoples and ancient architecture, embodies the view of many Western Europeans regarding the primitive backwardness of the inhabitants of the Nile River Valley. The people are depicted as beholden to the forces of the river as they are forced out of their town. They also are positioned as primitive agriculturalists that engage in ancient pastoral practices. Finally, the biblical themes and ancient ruins depict the people of Egypt as historically static and hence similar to the primitive ancestors of Western Europeans. Once the people of the Nile River Valley were depicted as victims of the annual rhythms of the Nile, the stage was set to depict flood control of the Nile as beneficial to the inhabitants of the Nile River Valley.

These depictions of the Egyptian people ran parallel to a series of political developments that gave the British wide-ranging political power in Egypt. After the French departure from Egypt in 1801 a Turco-Albanian military official named Muhammad Ali consolidated control and implemented a series of reforms that greatly reorganized Egypt into a nation-state.¹⁷ The Ali Dynasty would persist through most of the nineteenth century and drastically reform agricultural practices as well.

The main shift in agriculture was away from subsistence crops that were seasonal and depended largely on the annual rhythms of the river to a system that promoted export crops. Al-Sayyid notes that this process was accomplished by

¹⁶ MaryAnne Stevens, *The Orientalists: Delacroix to Matisse: European Painters in North Africa and the Near East* (London: Royal Academy of the Arts, 1984), 180.

¹⁷ Henry Dodwell, *The Founder of Modern Egypt: A Study of Muhammad Ali* (New York: Cambridge University Press, 1931), 37.

selling off lands that had been appropriated from small farmers by the French and redistributed to the new Egyptian elite. Disposition and conscription through a system of forced labor known as *corvee* also altered the life of Egyptian agriculturalists by increasing the days these laborers would work annually from roughly 150 to 250 days per year.¹⁸ This development of an Egyptian nation-state and reorientation of labor and agriculture created a system that was appealing to foreign interests.

Foreign attention in the agricultural exports of Egypt began very early on and left the French and British absorbed in the political and economic affairs of this emerging nation state. Most notably the British sought to ensure an economic advantage in trade within the Ottoman Empire in the 1838 *Treaty of Balta Limon*. This treaty was drafted and signed in order to confront the growing power of Muhammad Ali who at this time had expanded beyond his Egyptian governorship to threaten other Ottoman holdings. In return for military support to kick Ali's forces out of Syria the Ottoman Empire ratified the treaty with Great Britain. Among other things, the treaty ensured that "[t]he subjects of Her Britannic Majesty, or their agents, shall be permitted to purchase at all places in the Ottoman Dominions (whether for the purposes of international trade or exportation) all articles, without any exception whatsoever."¹⁹ These measures were framed as mutually beneficial for the Ottoman Empire and Great Britain under the liberal free trade ideologies

¹⁸ Afaf Lutfi Al Sayyid, *A History of Egypt: From the Arab Conquest to the Present* (Cambridge: Cambridge University Press, 2007), 69.

¹⁹ *The Treaty of Balta Limon Gives the British Economic Advantages Within the Ottoman Empire, August 16, 1838*, in *Sources in the History of the Modern Middle East*, edited by Akram Fouad Khater (Boston: Houghton Mifflin Company, 2004), 49.

articulated by Adam Smith and David Ricardo. In reality these measures were intended to prevent the protectionism sought by Ali and other Ottoman governors, which would have promoted a non euro-centric industrialization. The treaty also gave British manufacturers unrestricted access to the cotton grown in Egypt.

The *Treaty of Balta Limon* was by no means the only way that European powers sought to gain from involvement in Egyptian affairs. One of the largest environmental projects to be pursued in the nineteenth century was the construction of the Suez Canal, which was completed in 1869. This project, coupled with shifts in the international cotton market, left the Egyptian government indebted to many European powers. The French had mainly participated in the practices of loaning money and buying shares in the Suez Canal project.²⁰ However, by 1876 the complications with this project and other international debt would set in motion a process that legitimized the British occupation of Egypt six years later. An 1876 decree from the Egyptian *Khedivel* establishing a European controlled public debt administration reveals these problems over debt and the way the British saw their role in the affairs of Egypt because of it. The decree was officially created to settle ballooning debt, but it officially allowed a centralized agency under English control to “receive the funds for the yearly payment due to the English Government, and representing the interest of the Suez Canal shares.”²¹ This growing influence of British policymakers in Egyptian affairs would culminate in the 1882 British occupation of Egypt.

²⁰ Al-Sayyid, *A History of Egypt*, 80.

²¹ *An Egyptian Kedivel Decree Establishes a European-Controlled Public Debt Administration, May 2, 1876*, in *Sources in the History of the Modern Middle East*, edited by Akram Fouad Khater (Boston: Houghton Mifflin Company, 2004), 52.

The colonial official put in charge of Egyptian affairs immediately looked to putting a dam on the Nile to bring economic prosperity to Egypt. Evelyn Baring (Lord Cromer) was made British Consul-General of Egypt in 1883. Perhaps not surprisingly, in the climate of the Egyptian Government's financial woes, Cromer's mandate was to help pay off the Egyptian government's loans and to 'modernize' the country.²² Building the Aswan Low Dam became a focus of Cromer for a number of reasons. Not only would it provide for a Western model of development, but in Cromer's view "if any civilized power holds the waters of the Upper Nile, it may in the end be in a position to exercise a predominating influence on the future of Egypt."²³ Cromer's conception of the value of the Dam would be that it gave the British hegemonic power over the peoples of Egypt by harnessing their most vital resource. Furthermore, he assumed that no civilized people other than the ancient Egyptians had harnessed the waters of the Nile properly.

This fit within the tendency of British colonial officials to try and distance themselves from the Ottomans by emphasizing European technological expertise. These efforts were based in a devaluation of the irrigation systems already in place along the Nile. However, developing irrigation infrastructure to harness the resources of the Nile had been occurring in the Nile River Valley for thousands of years. Since at least the sixteenth century the Ottoman Empire's involvement in the affairs of the people of the Nile River Valley included the intensive promotion of canal development, which allowed them to collect taxes off of crops that followed

²² John Marlowe, *Cromer in Egypt*. (New York: Praeger Publishers, 1970), 81.

²³ Afaf Lutfi Al Sayyid, *Egypt and Cromer: A Study in Anglo-Egyptian Relations* (New York: Frederick A. Praeger Publishers, 1969), 131.

the flood and drought cycles of the Nile.²⁴ Furthermore, as discussed above, when Muhammad Ali gained control in Egypt he instructed much of the *corvee* labor force to develop canals and irrigation systems and promoted a centralized system of growing cash-crops.²⁵ It was only in the minds of British colonial officials that no civilized people had utilized the river properly through development projects. The Aswan Low Dam would serve as the tool to achieve the desired colonial aim of separating Egyptian irrigation from a perceived uncivilized and primitive past.

Cromer had also brought with him all the Orientalist prejudices that underpinned much of the colonial thought discussed above. When describing the people of the Nile River Valley he urges his readers to:

“[c]ontrast again the talkative European, bursting with superfluous energy, active in mind, inquisitive about everything he sees and hears, chafing under delay, and impatient of suffering, with the grave and silent Eastern, devoid of energy and initiative, stagnant in mind, wanting in curiosity about matters which are new to him, careless of waste of time and patient under suffering.”²⁶

He continued his critique of the people to the political realm by discussing the failures of the Egyptian military to retain order within their ranks in the early 1880s by stating that the army should have better-known the “naturally suspicious

²⁴ Alan Mikhail, *Nature and Environment in Ottoman Egypt: An Environmental History* (New York: Cambridge University Press, 2011), 11.

²⁵ Timothy Mitchell, *Colonizing Egypt* (Los Angeles: University of California Press, 1988), 34.

²⁶ Evelyn Baring, the Earl of Cromer, *Modern Egypt* (New York, 1908), in *Colonial Rule in Africa: Readings from Primary Sources*, edited by Bruce Fetter (Madison: The University Wisconsin Press, 1979), 49.

character of the Orientals."²⁷ These assumptions left Cromer in a position that devalued traditional forms of irrigation and subsistence as mere misunderstandings of simple-minded Easterners and framed his role in the government to control these 'naturally suspicious' peoples.

These Orientalist prejudices held by Cromer legitimized his role in promoting the socially and ecologically transformative Aswan Low Dam project. In his reflection on the transitions of Egyptian irrigation he asks "[h]ow did man utilize his advantages? In the early days of Egyptian civilization, he made great and creditable efforts to turn them to account...[t]he Turks, who ultimately succeeded them, hid theirs in a napkin."²⁸ By placing the irrigation systems of the 'Turks' within a declensionist framework and devaluing local knowledge Cromer had created a vision of his role in the Aswan Low Dam project as benign for the peoples of Egypt.

Once he decided on this project of almost divine intervention in the affairs of Egyptian agriculturalists he promoted the Dam project as "a grand opportunity for the English man."²⁹ In order to create the Dam he would have to rely on British engineers who were equally as fascinated with ancient and biblical narratives and just as steeped in Orientalist prejudice.

Within the colonial Egyptian narrative it was up to the engineers to return the Nile River Valley to its former glory. The British engineers were active throughout the nineteenth century in depicting the Nile through photographs and

²⁷ The Earl of Cromer, *Lord Cromer: "The Mutiny of the Egyptian Army: January-September 1881"*, in *Imperialism and Orientalism: A Documentary Sourcebook*, edited by Barbara Harlow and Mia Carter (Anchorage: Blackwell Publishers, 1999), 146.

²⁸ The Earl of Cromer, *Modern Egypt* (New York: The Macmillan Company, 1916), 457.

²⁹ The Earl of Cromer, 458.

visual representations. An Egyptian civil engineer named Felix Teynard began photographing the ruins along the Nile in the 1850s in order to create “a photographic atlas’ that would, so he hoped, ‘complement’ the *Description de l-Egypte*.”³⁰ This was an early example that placed the Egyptian ruins within the broader context of Western engineering. As this narrative developed, British civil engineers began to place themselves alongside the great ancient engineers of the ruins.

Throughout the nineteenth century British engineers also photographed biblical ruins in the Middle East. Schwartz explores engineering expeditions that included biblical scholars which caused problems for the engineers as, “[t]he intellectual inquiry was to be informed by two potentially divergent mental habits: an absolute faith in the literal truth of scripture on the one hand, and the demands of scientific accuracy on the other.”³¹ Through the dual endeavors of representing biblical and Egyptian ruins as the forbearers of British engineering these technocrats had reinforced their own role in rescuing Egypt from decline and reified their Orientalist assumptions.

There were a number of prolific British engineers who worked on the Aswan Low Dam that included Benjamin Baker and John Aird.³² William Willcocks stands out among these engineers due to his central role in planning the Aswan Low Dam and his prolific writings on Nile irrigation. For Willcocks, like the travel guide

³⁰ Schwartz and Ryan, 202.

³¹ Schwartz and Ryan, 234.

³² William Willcocks, *The Nile in 1904* (London: Spon & Chamberlain, 1904), 75.

discussed above, Egypt's value lay primarily in the Nile River Valley.³³ This led him to actively promote the Aswan Low Dam project to Cromer and other British officials. In 1933 his obituary in the *Royal Geographical Journal* bemoaned the loss of a man who "spent most of his professional career, in which he distinguished himself as the greatest irrigation engineer of his time...in the service of the Egyptian Government."³⁴ As his obituary read, his efforts were also framed in developmental discourse as benefiting the Egyptians over any other interested parties.

However, the British engineers were often trained through working in India for the East India Company, which influenced their Orientalist worldviews.³⁵ This would be coupled with the hubris of Willcocks who saw himself as continuing a tradition that began among the ancients and was maintained through Western European engineering expertise. Willcocks also consulted sources that included Herodotus and the Bible, which gave him faith in the Egyptian declensionist narrative. In 1904 Willcocks wrote that, "Egypt, in Roman times, supported a population twice as dense as that of to-day."³⁶ Willcocks clearly saw his role in building the Aswan Low Dam as returning Egyptian agricultural productivity to a perceived ancient abundance.

Willcocks' efforts on the Dam were also underpinned by his own conception of the god-like abilities of engineers to create long lasting structures that could cure human suffering. Both his obituary and the preface to one of his books refer to him

³³ William Willcocks, *Egyptian Irrigation* (London: Spon and Chamberlain, 1899), 1.

³⁴ H. E. Wiley, "Obituary: Sir William Willcocks," *The Geographical Journal* 81, no. 1 (1933): 94, <http://www.jstor.org/stable/1783932> (accessed March 03, 2013).

³⁵ Garth Watson, *The Civils: The Story of Civil Engineers* (London: Thomas Telford, 1988), 54, 2.

³⁶ Willcocks, "The Nile in 1904," 65.

as Joseph from the Old Testament.³⁷ The biblical story of Joseph involved Joseph foretelling of seven years of famine to an Egyptian Pharaoh and urging him to store grain to feed the Egyptian people. This nickname that was affixed to Willcocks fit with his own thoughts of himself as bringing great agricultural abundance to regions through engineering and his attempts to frame his work in biblical terms.

By 1920 Willcocks had a series of lectures that included him relating biblical figures and stories to the work that he and other British engineers had, were and would like to be doing throughout the Middle East and North Africa. In one such speech he revealed his attempt, “[w]hile in Babylonia for three years...to see where a garden could be placed which could be irrigated by free flow through the twelve months of the year.”³⁸ Willcocks’ efforts to recreate a Garden of Eden on the Euphrates never materialized, but his pursuit gives insight into the thought process of civil engineers in North Africa and the Middle East. Not only were they reforming agricultural production for people they saw as inferior through a process of Orientalism, they were also, through their ingenuity and ability to bring life with irrigation, on par with the biblical figures of old.

The confidence of Cromer and Willcocks in their abilities as colonial administrators and the perceived value of building a dam to the Egyptian people as seen through a declensionist narrative left little in the way of breaking ground on the first Aswan Dam. However, the depictions of the Egyptian ruins throughout Europe in the nineteenth century would also encourage Euro-centric public

³⁷ Willcocks, *Egyptian Irrigation*, xvii.

³⁸ William Willcocks, *From the Garden of Eden to the Crossing of the Jordan* (London: Spon and Chamberlain, 1920), 13.

opposition of the dam. The design of the dam threatened to flood the ruins of Philae, which, due to its central location on an island within the river and symmetrical structure, was a popular destination for European tourists and a popular muse for artists and photographers.³⁹ Just as the Ancient ruins were seen by British engineers and policymakers as something to be emulated and an example of more abundant times, the British public saw the ruins as their cultural heritage that ought to be preserved.

The main debates in the British press surrounded the potential of the Aswan reservoir of flooding the ruins. One British daily articulated the argument held by “several representatives of Art, Science and Literature, who deprecate needless destruction of monuments.”⁴⁰ The article served as a petition that urged the British government to recognize the “importance of Egypt in the history of civilization [which] is now so fully recognized that...we may rely upon your Lordship’s sympathy in the consideration of any means whereby injury to, or destruction of, the ancient monuments of that country may be avoided.”⁴¹ These appeals to those in charge of the Aswan Low Dam construction concerned the ruins themselves. Complete with the disregard of the people of the Nile River Valley and the way the Dam would alter their way of life. Furthermore, the call by British academics to save the monuments displays the connection that many Europeans made between the ancient empires and that of their own.

³⁹ Stevens, 196.

⁴⁰ “The Nile Reservoirs,” *London Standards*, (Wednesday July 25, 1894): 3, *The British Newspaper Project*, <http://www.britishnewspaperarchive.co.uk/viewer/bl/0000183/18940725/017/0003> (accessed March 04, 2013).

⁴¹ “The Nile Reservoirs,” 03.

It was this opposition that posed the biggest obstacle to political administrators and engineers' attempts at building the Aswan Low Dam. The response from the engineers was one that had been proposed in the aforementioned petition. The plan called for "constructing a lower dam at an available point, with the addition at a later period of another above it...or for building a lower part of a large dam where it would effect the least."⁴² The proposals for building these lower dams were also predicated on the assumption that a large reservoir would be useless until the agricultural and industrial infrastructure of Egypt was developed to utilize that much water. Building a lower dam was decided upon and engineers were enlisted to help fortify the temple itself against flood. John Ball was later praised in the British press for his efforts, "[w]hen the temples of Philae were endangered by the construction of the Aswan Dam in 1901...to design and supervise the execution of the important underpinning works."⁴³ The public sentiment against the Dam was satiated through even more reliance on technological fixes to facilitate protecting the ruins. A solution that left the temple of Philae partially submerged throughout much of the year.

Once the solution to the British public's concern was accepted there was little in the way of Cromer and Willcocks who began construction of the Dam in 1898. By 1902 it was completed, which "increased the supply of summer water throughout the country...allowing some areas in the region to switch from basin to perennial

⁴² "The Nile Reservoirs," 3.

⁴³ "Town and County Gossip," *The Derby Daily Telegraph*, (Friday May 21, 1909): 2, *The British Newspaper Archive*, <http://www.britishnewspaperarchive.co.uk/viewer/bl/0000327/19090521/005/0002> (accessed March 03, 2013).

irrigation.”⁴⁴ With the completion of this Dam a fundamental transformation in the ecology of the Nile River Valley had occurred. No longer would the annual floods of the Nile replenish the land every year. Furthermore, the British led transition from basin irrigation to perennial irrigation had been achieved.

Initially Cromer and Willcocks saw the Dam as a great success. In 1916 Cromer praised the British engineers for their role in the construction of the Dam by proclaiming that they, “ha[ve] already rendered invaluable service to the country.”⁴⁵ In his description of the Dam Cromer overlooks the problems that were already beginning to show surrounding the unsustainability of perennial agriculture in regards to water evaporation, water salination and soil depletion. He also expressed his great joy that, “[w]orks are now in course of execution which will increase its storage capacity by about 2¼ millions of cubic metres.”⁴⁶ The British engineers who worked on the project also saw the Dam in glowing terms immediately after its construction.

In 1904 Willcocks wrote that “[s]ix years ago a few far reaching men saw clearly what all of us understand to-day.”⁴⁷ In this quote Willcocks referenced the original plans of the Aswan Low Dam and his colleagues Airs and Baker. As he stated by 1904 the Dam “had worked for two years and given satisfaction.”⁴⁸ What is clear is that by 1904 Willcocks and other civil engineers would view the first Aswan Low Dam not as a project that disrupted traditional ways of irrigation and fertilizing for a

⁴⁴ Alan Richards, *Egypt's Agricultural Development, 1800-1980: Technical and Social Change* (Boulder: Westview Press, 1982), 69.

⁴⁵ The Earl of Cromer, 460.

⁴⁶ The Earl of Cromer, 460.

⁴⁷ Willcocks, “The Nile in 1904,” 75.

⁴⁸ Willcocks, “The Nile in 1904,” 76.

model that was far more ecologically disruptive, but as a shining example of British colonial ingenuity.

The Orientalist and developmentalist assumptions held by these men would prove detrimental as Cromer would be removed from his post and Willcocks would later denounce some of the shortcomings of the Dam. Rather than accepting Cromer's benevolent vision of his role and the role of the British government in advancing the interests of Egyptians there was a growing Egyptian nationalist movement that would force his resignation in 1907. His resignation was hurried by an incident in the small town Denshawai where a group of villagers were punished for the death of a British officer who was killed in an altercation.⁴⁹ Egyptian nationalists saw the punishment that was enforced by the British as particularly cruel because it included multiple death sentences and floggings. This incident amplified claims by nationalists that were articulated by Ahmad Lutfi al-Sayyid in 1907. He wrote in an Egyptian newspaper *Al-Jarida* that Cromer "has deprived Egypt of the political life for which every living nation yearns."⁵⁰ The nationalist opposition to Cromer emphasized his Orientalist assumptions of the inability of Egyptians or Ottomans in participating in the government. In Cromer's demise the same prejudices that led him to blindly support the Aswan Low Dam led to a growing nationalist sentiment among those whose lives were affected by his far reaching policies.

⁴⁹ Marlowe, 265.

⁵⁰ Ahmad Lutfi al-Sayyid, "Lord Cromer before History," *Al Jarida* (April 13, 1907), in *Colonial Rule in Africa: Readings from Primary Sources*, edited by Bruce Fetter (Madison: The University Wisconsin Press, 1979), 51.

Willcocks went on to critique his own project as history proved that the hubris that had led him to believe he could control the Nile was unfounded. The main critique he had was the inability of the Dam design to let the Nile silt downriver, as he had expected. In 1919 Willcocks condemned elements of the Dam and also gave strong recommendations for not raising it. He wrote that, "I maintain that, if the Aswan Dam is to be raised, measures must be taken to increase the water supply passing Aswan."⁵¹ The policies that Willcocks now endorsed followed a lengthy critique of the problems of not letting enough sediment through the Dam sluices, which would require far more water to pass through than he had originally planned. This realization came to him through an understanding of the beneficence of basin irrigation in the Sudan. Willcocks' critiques came too late as the Dam already began to take its toll on the soil quality of much of the Nile River Valley and officials raised it once more and adapted it for energy production.

The history of the Aswan Low Dam is one that is often overlooked in modern scholarship, but deserves further examination. The Orientalist and declensionist narratives that were created by Western Europeans in the nineteenth century led to a number of miscalculations of the effects of the Dam. As Cromer and Willcocks filled their role in this Euro-centric narrative they altered the lives of countless people in the Nile River Valley for generations to come. The same processes that led to the underestimation of the ecological and social impacts of damming the Nile continued with the Aswan High Dam project under Nasser. As modernist rational continued to inform irrigation methods on the Nile through the twentieth century the same

⁵¹ William Willcocks, *The Nile Projects* (Victoria: Provincial Library, 1919), 178.

ecological, social and cultural issues involved with perennial irrigation in the Nile River Valley persisted. The first Aswan Dam provides a case study for understanding the biases that underpin much of the efforts of modernist-minded developers throughout the world well into the twenty-first century and continues to demonstrate the very real impact of cultural prejudice on the supposedly objective aims of scientists and engineers.

Figure 1: Frederick Goodall, *The Rising of the Nile*, 1865. Oil on Canvas.
http://www.magnoliabox.com/art/98686/The_Rising_of_the_Nile_1865.



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