ANTI-COLONIAL EDUCATIONAL PERSPECTIVES FOR TRANSFORMATIVE CHANGE

African Indigenous Knowledge and the Disciplines

Gloria Emeagwali and George J. Sefa Dei (Eds.)



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African Indigenous Knowledge and the Disciplines

ANTI-COLONIAL EDUCATIONAL PERSPECTIVES FOR TRANSFORMATIVE CHANGE

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Scope

Informed by an anti-colonial spirit of resistance to injustices, this book series examines the ways and the degree to which the legacy of colonialism continues to influence the content of school curriculum, shape teachers' teaching practices, and impact the outcome of the academic success of students, including students of color. Further, books published in this series illuminate the manner in which the legacy of colonialism remains one of the root causes of educational and socio-economic inequalities. This series also analyzes the ways and the extent to which such legacy has been responsible for many forms of classism that are race- and language-based. By so doing, this series illuminates the manner in which race intersects with class and language affecting the psychological, educational, cultural, and socio-economic conditions of historically and racially disenfranchised communities. All in all, this series highlights the ways and the degree to which the legacy of colonialism along with race-, language-, class- and gender-based discrimination continue to affect the existence of people, particularly people of color.

African Indigenous Knowledge and the Disciplines

Edited by

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and

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In drawing inspiration for this project, one of us recalls two Western-trained Nigerian doctors who testified to the efficacy, brilliance, and even superiority in some cases of Indigenous African medical practice, but who were too terrified of their Western-trained instructors and peers to openly acknowledge their findings. They wanted to remain anonymous. They were afraid of being downgraded by their western-trained colleagues should their identity be known. We knew of the tyranny and viciousness of Eurocentric orthodoxy before coming into contact with these scholars; but that encounter strengthened a determination to pursue our interest in Indigenous Knowledge Systems and to make the case even stronger for the urgent decolonization of the academy – whether in terms of history, art, chemistry, agricultural science, mathematics, or, in this case, medicine. Eurocentric prejudice, intimidation, and disinformation must be challenged for Indigenous Studies and a decolonized academy to grow and blossom.

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Gloria Emeagwali and George Dei

GLORIA EMEAGWALI AND GEORGE J. SEFA DEI

INTRODUCTION

The contribution of Africa to the development of the disciplines, particularly social science, has been well-noted (see Bates, Mudimbe, & O'Barr, 1993). Africa has been a rich source of data for the development of social science theories and paradigms. Academic scholarship has a duty to recognize these local cultural knowings as legitimate sources of knowledge for a number of reasons; foremost, to recognize African peoples as producers and creators of knowledge. Every society has its cultural knowledge system and it is on this basis that what is deemed scholarship rests. Africans have not been merely consumers of knowledge. Ancient African civilizations bore sophisticated knowledge systems deeply embedded in local culture and social politics. Local, indigenous knowledge resides in cultural memories. Through time, such forms of knowledge while transformed have not been abandoned by rural communities. Such knowledge has adapted to the times to serve pressing social issues and challenges. Such knowledge has not remained static, neither has it been confined to the shores of the African continent. Like all knowledge systems, such knowledges have diffused and interacted with other ways of knowing from other communities. In fact, many indigenous communities share knowledge systems in common with each other in terms of the principles, concepts, and ideas behind their knowledge. Unfortunately, rather than western science acknowledging the multiple, collaborative, and accumulative dimensions of knowledge, we see attempts to either dismiss, devalue, or negate indigenous knowledge as being not worthy of scholarly engagement. We have the sad situation where some uninformed, brainwashed African scholars themselves categorize their own indigenous ways of knowing as 'myths,' 'superstition,' and non-science. Rather than interrogate conventional understandings of science, what we have witnessed are attempts to work with narrow definitions of science and scholarship (see Asabere-Ameyaw, Dei, & Raheem, 2012). We need to reclaim Africa's indigenous ways of knowing to highlight her contributions and place in the global space of public knowledge production, and to challenge some of these questionable attitudes and forms of misinformation and prejudice.

Before proceeding any further, we would like to take up the question of whether the knowledge systems of Africa and Africans can be deemed 'Indigenous.' It is easy to quickly dismiss this question as being unworthy of our consideration, but we find it necessary to focus on this 'misguided' question given that the issue surfaces in some academic circles and conversations even today (see also Adefarakan, 2011). The *Indigenous* is contested for various reasons. For example, in North America, African *Indigeneity* is juxtaposed to Aboriginal *Indigeneity* in discourse of hierarchies or legitimacies. Our concern, of course, should not be confused with the legitimate expectation that African scholars who articulate

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African *Indigeneity* must also acknowledge the case of the Indigenous and Aboriginal peoples in the Americas, and their struggle to reclaim land and selfautonomy. We come back to the question of African *Indigeneity* because as Dei (2008) has argued, to articulate an *Indigenous* discursive framework we must be duly informed by a complex knowledge base of the *Indigenous* in multiple and global contexts in Africa, Asia, North America, Europe, the Caribbean, and Latin America.

We must transcend the particular understanding of *Indigenous* informed by very restrictive Eurocentric definitions of Indigeneity. The understanding of the Indigenous and Indigeneity cannot be constructed within Western or Euro-American hegemonic conceptual schemes, and imposed on all groups across time and space. In other words, we assert that we must read the *Indigenous* in terms of an existence prior to European colonization of land in the various continents. However important Christopher Columbus and the *conquistadores* may appear to some, the world existed prior to the exploits of one group of European explorers, bandits, and pirates. Throughout Africa notwithstanding, inspite of ongoing colonizations and the continuing effects of globalization, there are people, particularly in rural communities, who still associate their existence to, and with, the land, and with their immediate socio-physical environments and surroundings. Land has been a source of Indigenous identity for Africans, in that through associations with the land, local cultures, spiritualities, politics, economics, and the relations of society to Nature are defined. There are knowledges associated with the land that continue to guide everyday existence. People continue to negotiate identities, cultures, and spiritualities with particular understandings of the place of the human in their environments. These phenomena constitute important dimensions of the knowledgebase, and such knowledge also informs everyday existence.

African *Indigeneity* must be read as both a process and a form of identity. It is an identity that defines who a people are at a particular point in time. But it is also a recognition that such identities are in a continual process of existence. The lesson here is that a peoples' *Indigeneity* and *Indigenousness* is not simply taken away from them simply because they encounter others on their homeland. The Eurocentric constructions of the Indigenous as primitive, culture-based, and static is a ploy to privilege European identity, and should be distinguished from what the people claim and assert of their own Indigeniety and Indigenousness. The latter is about the affirmation of self, community, history, culture, tradition, heritage, and ancestry. Eurocentric constructions are about establishing cultures of hierarchies as a way to accord privilege and power. This is how racism works and has worked in the past. To deny African peoples' their Indigeneity with the rationale that colonialism disrupted their self-defined and collectively actualized existence and their associations with the Land and their homeland, is itself racist and endorses the misguided and disingenuous insinuations of white supremacist ideology. We must ask why is it difficult to acknowledge African Indigeneity in contrast to the claim and assertion of others about their *Indigenous* existence, especially given the global reach of colonialism? What epistemological claims do we make in such disavowal? If we begin to work seriously with the understanding that knowledge resides in people and in cultural memory, in accumulated techniques, skills, and strategies for survival, in epistemological frameworks and points of reference, in language and oral and written forms of documentation, in value systems and their diverse modes of explanation, in cosmology and various ways of understanding the universe we live in – inspite of European colonialism, we would recognize the meaning and significance of African *Indigeneity*.

We have written this book to contest knowledge, and particularly hegemonic knowledges that tend to masquerade as universal knowledges. Our learning objective has been to situate African Indigenous Knowledges in critical discussions about knowledge production in the academy. We examine the processes of interrogating, validating, and disseminating Indigenous African Knowledge Systems internally and globally and the various ways of knowing. This is no easy task. While we recognize the relevance of local and Indigenous African knowledges, we are also under no illusion as to the discriminatory tendencies discernible in the academy. Not all knowledges are given the same amount of capital in the academy. While some bodies of knowledge have been privileged and made dominant, other forms of knowledge are still being contested and are in the process of being delegitimized. Consequently, for us, this intellectual foray into African Indigenous Knowledge System has been a way to both politically and intellectually contest the denial of African ways of knowing, in science and scholarship. This book is thus a call for a paradigmatic shift in how we come to learn, teach, and study Africa in terms of content, subject matter, and overall curriculum. It is about an epistemic shift in Indigenous Knowledge Studies on Africa and the African Diaspora. African Indigenous Knowledge does not sit well with some scholars who feel threatened because of its critique of knowledge production in the academy and its challenge to the claims and assumptions of the exclusivity of western science. The anti-Indigenousness of the Western academy can be traced to the denial of African humanity dating back to the era of conquest, human trafficking, settler colonialism, and occupation. It is also linked to an obstinate reluctance to decolonize the academy. Because of the Eurocentric dismissal of Africa-centered knowledge systems, African scholars have been confronted with the task of arguing for their acceptability in the academy, on terms established by hegemonic forces. We must challenge this. African knowledge systems must be evaluated and taught on the principles established in local communities which serve to regulate knowledge production, validation, use and dissemination.

There are some questions that must be dealt with upfront as we embark on this intellectual journey to highlight, endorse, legitimize, validate and produce cultural knowledge systems on Africa's own terms. We need to follow and comprehend the epistemological, ontological, methodological, and axiological basis of Africa's Indigenous Knowledge Systems. What epistemological claims do we make in the various branches of knowledge? How can African scholars and Africanists posit and present African Indigenous Knowledge, and liberate, empower, and decolonize the field from Western domination in the process? We need to identify the

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epistemological foundations of indigenous knowledge and discover, evaluate, and understand how knowledge is created and disseminated in local communities. We need to understand and recognize the holistic, organic, and multidimensional interconnections of body, mind, soul, and spirit, as well as the interface of society, culture, and Nature. We need to establish the methodologies of studying African Indigenous Knowledges, including knowledge as co-created between producers, learners and users, and a methodological approach to knowledge inquiry that emphasizes principles of circularity, association with the Land and environments, and the integrative nature of social facts. There is also a need to deal with the political and ethical questions of African Indigenous Knowledges, as these relate to human survival and the pursuit of the causes of collectivity, community, and the common good.

This book sets out to identify aspects of Indigenous Knowledges that can be relevant to how we speak, teach, and learn about the academic disciplines. The various chapters have identified Indigenous Knowledges that can inform the teachings of these disciplines in our schools, colleges, and universities.

Gloria Emeagwali's opening chapter conceptualizes issues related to modernization, triumphalism, and neo-liberalism, to reconfirm the importance of Indigenous Knowledge Systems. She emphasizes the role of the historian in the retrieval and transmission of the corpus of strategies, practices, techniques, tools, intellectual resources, explanations, beliefs, and values that we associate with IKS. The point is made that history and the historian are crucial for the regeneration of Indigenous Knowledge Systems.

One of the under-researched areas of African Indigenous Knowledge Systems is chemistry. In the second, third, and fourth chapters of this text, Zaruwa, Barminas, Apampa, Ibok, and Kwaghe, scholars and professors at Adamawa State University, Nigeria, fill this gap and provide us with expert analyses of some of the underlying chemical processes historically generated by local indigenous scientists, in their brewing and tanning activities, with reference to Northeast Nigeria.

Samuel Barde Gwimbe follows with a scholarly discussion of ancient and contemporary terraces and the environmental and ecological techniques utilized in two Nigeria regions. His focus is on the Gwoza terraces, extended more than 40, 000 miles over mountainous terrain, in the Nigerian-Cameroonian area in the northeast, and the agricultural terraces of the Central Nigerian area. These five chapters highlight the ingenuity and skill of indigenous practitioners in the area of indigenous agricultural engineering and chemistry.

Professor Paulus Gerdes, President of the Commission for African Mathematics, AMUCHMA (Comissão da União Matemática Africana para a História da Matemática em África), 1986 to 2013, takes the discussion of IKS into the realm of Mathematics with a focus on endogenous experimentation and invention in southern Africa, more specifically, Mozambique. In his chapter, he explains that 'the richness of geometric ideas embedded and developed in a particular cultural practice' is illustrated through the example of Tonga basket weavers. He concludes by pointing out that the mastery of mathematical calculation in practical terms, as manifested in basketry, is unprecedented. One of the core areas of African Knowledge Systems is Traditional Medicine. There are two chapters related to this subject, namely, chapters 8 & 9. Sarfo Nimoh and R.O Olaoye complement each other. Nimoh compares mainstream medicine with the Indigenous Medical Tradition, highlighting strengths and weaknesses, while Olaoye gives a glimpse into the training of practitioners, and the networking engaged in by practitioners, in terms of trade fairs and interpersonal contact.

The last four chapters are preoccupied with the curriculum. Obiokor reflects on art education: Fredua-Kwarteng and Ahia on Mathematics education: and Shizha on the curriculum in general. Obiokor, in chapter 10, discusses the relevance of Nigerian education to traditional society, and outlines the legacy of British colonial education in Nigeria. He explores the importance of local context in education and offers some insights on developing art programs that better serve indigenous and traditional value systems in the Nigerian case. Edward Shizha, in the chapter that follows, chapter eleven, discusses the benefits of indigenizing school curriculum in Africa and the role of indigenous knowledge or traditional ecological knowledge, in the indigenization process. Professor Shizha reminds us that 'pedagogy is crucial in determining success or failure in the schools' and that students learn best 'when the curriculum or knowledge is mediated' in a manner consistent with the methodologies they are used to. In the course of the chapter, he uses postcolonial discourse to analyze school curriculum in African schools. In chapter 12, Fredua-Kwarteng and Ahia draw mainly from their experiences as mathematics educators with a focus on the development of mathematical proficiency. Their underlying proposition is that in order to indigenize the curriculum, an appropriate local language of instruction must be used, and that there are unsavoury implications should one be denied one's mother tongue in the learning process.

The final chapter, authored by George Dei, is about infusing Indigenous Knowledges into the curricula of schools, colleges, and university. Dei sees this as a major obligatory challenge and so, too, the democratization and decolonization of the academy through an African-centred interpretation that would help local communities engage in meaningful problem-solving development and social change. Without such a process of indigenization, the curriculum would continue to be a source of alienation and dependency.

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GLORIA EMEAGWALI

1. INTERSECTIONS BETWEEN AFRICA'S INDIGENOUS KNOWLEDGE SYSTEMS AND HISTORY

INTRODUCTION

In this chapter, we identify some of the issues related to the production, utilization, validation, transmission, and preservation of Indigenous Knowledge Systems (IK), in general, and Africa's Indigenous Knowledge Systems (AIK), in particular. We explore the rationale for research in this multidisciplinary field. In the course of discussion we make reference to selected primary sources that are of significance to historians in particular, and scholars of IK in general. Modernization, triumphalism, and neo-liberalism are also discussed in the course of the chapter to reconfirm the importance of alternative methodologies and local knowledge. The role of the historian in the retrieval, regeneration, and transmission of IK is explored and we conclude with recommendations for the enhancement of our professional capabilities as historians with respect to Indigenous Studies.

INDIGENOUS KNOWLEDGE AND ITS CRITICS

Indigenous Knowledge (IK) may be defined as the cumulative body of strategies, practices, techniques, tools, intellectual resources, explanations, beliefs, and values accumulated over time in a particular locality, without the interference and impositions of external hegemonic forces. Indigenous Knowledge Systems are not confined to the material sphere, but often interconnect with spiritual and nonmaterial realms of existence. As pointed out by George Sefa Dei, however, Indigenous Knowledge is not static nor are we engaged in an exercise of romanticization (Dei, 2008). Nor is absolute insularity the objective. We simply refuse to devalue, ignore, underestimate, and marginalize indigenous forms of knowing, and alternative modes of discourse. We are also committed to highlighting African indigenous inventiveness for the awareness of ungrateful recipients and beneficiaries around the world. Edward Shizha has pointed out that the academy was 'the epicenter of colonial hegemony, indoctrination, and mental colonization,' and that the decolonization process entails a process of 'reclaiming, rethinking, reconstituting, rewriting, and validating' indigenous knowledge, and by implication, Africa's history (Shizha, 2010). Given the multi-layered structure of the Academy, the process is valid for primary, secondary, and tertiary education, and for students as well as educators, for whom education and knowledge meant the 'assimilation of eurocentric middle class habitus' (Shizha, 2010). A focus on

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African cultural resource knowledge is a means of 'epistemological recuperation' and is 'counter-hegemonic' (Dei, 2008). The decolonization of the African Academy remains one of the biggest challenges not only in terms of the curriculum, teaching strategies, and textbooks, but also in terms of the democratization of knowledge and the regeneration, evaluation, and adaptation of old epistemologies to suit new post-colonial realities. Indigenous Knowledge provides a beacon of light within the tunnel of eurocentric dogma, misinformation, and untruths.

There are numerous critics of Indigenous Knowledge, among them exponents of the modernization school, and the neo-conservative ideologues associated with neoliberal thought and practice (Emeagwali, 2011, 2006). Modernization theorists and advocates are prone to view society with a rather simplistic Rostovian unilinearity, whereby positive societal change is conceived as a unidirectional movement toward a fixed and abstract goal called 'modernity:' a haven where, supposedly, all cultural and religious sensibilities are either numbed, or totally eradicated, and, where eurocentric values and norms reign supreme. The modernization theorists and advocates do not appreciate technological, cultural, and ethnic diversity, and define success in terms of slavish conformity and subordination to western norms and values. They differ slightly from their neoclassical and neoconservative counterparts, for whom the price mechanism and the market reign supreme, and over whom individualistic profit-seeking idols such as the bull and the bear preside. Whilst the bull, the bear, and self-interest are among the conceptual underpinnings of neoclassical and neoconservative thought, for the modernization theorists, narrow eurocentric-defined concepts labeled as rationality and science are seen as engines of progress and success. It is useful to note that philosophers of science, such as the late Feyerabend, cautioned against single-minded, simplistic definitions of what science was, and what it was not, since, for him, science and scientific methodology were as pluralistic, and diverse, as they were multidimensional (Feyerabend, 2010). Modernization theorists and their neo-liberal counterparts differ from scholars and practitioners of Indigenous Knowledge Systems in their views on equity, fairness, and access. For modernization advocates, rationality leads to progress, and progress to capacitybuilding and 'modernity.' But there is little discussion of the kinds of economic systems and distributive mechanisms inherent in the newly emerging 'modern' society envisioned by them. Not only do they fail to make a theoretical distinction between 'westernization' and the process they pontificate about, namely, 'modernity,' they also fail to confront the possibility that the society they try to construct may be considerably more dysfunctional and exploitative than the society they are at pains to replace. Very little attention is paid by modernization theorists to the nature of the distributive system they seek to create. In this mode, they differ from their neo-classical/neo-conservative ideologues who claim, from the start, that self-interest and greed are 'good' incentives to growth, and that wealth necessarily trickles down from the entrepreneurial and financial elite to the lower rungs of society, in a process that they acknowledge to be unfair. Greed is good, argue the neo-liberals, and profit-making, the price mechanism, individualism, privatization,

and the commodification of everything on the planet, necessary pathways towards the promised land. Communitarianism and social benefit-sharing are anathemas to this mode of thinking. Modernization theorists, and those who envisage 'modernity' as the final destination, very often leave the issue of distribution hanging in the balance, and undefined. What is clear, though, is that for both schools of thought, Indigenous Knowledge is seen as being somewhat atavistic, primordial, and backward, and the quest for equity, dignity, respect, and accessibility, superfluous. In defense, scholars of IK have argued that no society or segment should be ostracized and relegated to a status of inferiority. They challenge arrogant, paternalistic, and overbearing ideologues, some of whom are complicit in marginalizing and devaluing systems of thought that do not fit within supremacist and racial exclusivity. They argue that IK must be part and parcel of the decolonization process and a challenge to modernization and neoconservative triumphalism, as well as to Western attempts at epistemological disenfranchisement of millions of people around the globe (Chilisa, 2012).

During the colonial era and in the post-colony, not only were the majority of scholars, at various levels, afraid to challenge the dominant eurocentered and eurocentric knowledge system and its values, they were also reluctant to admit, both to themselves and publicly, that their 'non-lettered' compatriots, shoved to the lower rungs of society, were indeed repositories of valuable primary knowledge. Some Western-trained doctors admitted privately the superiority of indigenous medical techniques in certain areas, but were too terrified to expand on this for fear of being ridiculed, and possibly 'demoted,' by their Western peers. Although they recognized the value of indigenous knowledge, they were forced to privilege only one epistemological and methodological tradition at the expense of all others. We must note also the tyranny of some religious systems in creating this atmosphere of fear, denial, and exclusion.

South Asian researchers of the defense laboratory in Assam, India, recently announced their intention to use the local chili pepper, 'bhut jolokia,' in the creation of non-toxic, environmentally friendly, aerosol sprays inspired by local knowledge. Meanwhile, researchers have identified frogs as useful earthquake predictors, given their ability to detect pre-seismic activity such as the release of gases and charged particles. Indigenous communities in several regions around the world have invariably proposed a connection between the behavior of animals and environmental activity such as earthquakes or tornadoes – additional testimony that local knowledge very often has a scientific basis.

Dei suggests in his discourse on the decolonization of knowledge, that there is indeed a direct relationship between Indigenous Knowledge and development. In his view, development relates to how people use 'their own creativity and resourcefulness' to respond 'to major economic and ecological stressors' (Dei, 2009). The suggestion is that development is more likely to be sustainable and sustained if driven by indigenous knowledge, growing as it were from local specificities.

AFRICAN INDIGENOUS KNOWLEDGE SYSTEMS

Africa's AIK includes a corpus of ideas and practices in various sectors such as medicine, agronomy, food processing, chemistry, textiles, architecture, biology, geography, and engineering, as well as history and literature. It is by definition multidisciplinary. For Sipho Seepe, AIK is also about 'reopening crucial files that were closed in the chaos and violence of colonialism' (Seepe, 2001). This accumulated knowledge is of relevance to self-esteem, sustained indigenous inventiveness, endogenous technological growth, and employment generation. Research into various endogenous resources of Africa is vital for decolonizing existing academies and research programs within and across institutions. Some questions remain. Should AIK blend old and new knowledge systems or should it integrate into the mainstream? Should it be dominated by a single scientific framework or should it move towards methodological pluralism rather than a single unified theory, so to speak? Should some of the interdisciplinary barriers be removed and if so how? These are issues vet to be resolved. But there is no doubt that historians, given their broad understanding of human society over time and space, and given their significant roles as custodians, narrators, documenters, and interpreters of the past, have a prominent role to play in AIK Studies.

Five waves of nationalists and liberators freed Africans from colonial and political domination, in what Onimode once referred to as 'flag independence.' The revolution took place in the 1950s and 1960s in several African countries, but the Portuguese colonies of Angola, Mozambique, and Guinea Bissau would follow a decade and a half later, in the mid-1970s. The hegemonic colonial edifice crumbled politically with the independence of Zimbabwe, in 1980, and Namibia and South Africa by the early 1990s (Falola, 2012; Khapoya, 2013; Gilbert et al., 2012). However, the decolonization of the African Academy remains one of the biggest challenges, not only in terms of the curriculum, teaching strategies, and textbooks, but also in terms of the democratization of knowledge, and the regeneration and adaptation of old epistemologies to suit new post-colonial realities. The Academy is indeed a site of struggle (Kovach, 2012).

Indigenous Knowledge Studies is crucial in this exercise, and history and the historian play vital roles. The African informal sector constituted at least 50% of economic activity in several of Africa's 53 nation states two decades ago (Baratt Brown). Soap makers, textile manufacturers, brewers of alcoholic beverages, producers of local pharmacological products, and manufacturers of a variety of tuber and cereal based flour, generated multiplier effects in the economy in the context of techniques and skills associated with indigenous knowledge. Actors within the informal sector also generated principles about business management and finance, and business etiquette was taken into consideration and improved upon in efforts to restructure and advance society in the context of self-reliance and sustainability.

The global financial meltdown of 2008 was a sober reminder to scholars, that, in the final analysis, unbridled free markets were not a panacea (Emeagwali, 2006, 2011; Stiglitz, 2010; Lewis, 2010; Skene, 2010; Roubini, 2010; Johnson & Kwak,

2010). Neither is overdependence on external financing and technical resources. The correct pathway to success apparently lies with the self-reliance of countries on their local primary resources and human capital, and the relentless, pragmatic, and judicious utilization of their indigenous and endogenous knowledge in people-centered structures that are inclusive, non-elitist and open to innovations and adaptations – a goal that would not be fully realized without historical memory and the historian's craft.

Ironically enough, transnational corporations are actively appropriating local knowledge simultaneous with contemporary attempts at erasing historical knowledge within local educational systems (Dei, 2009). That history is no longer taught at Nigerian primary and secondary schools, and is taught only at the tertiary level, is a case in point – even though this process is not irreversible – and the Historical Society of Nigeria must continue to challenge this policy.

SELECTED SOURCES RELEVANT TO AIK AND HISTORY IN VARIOUS REGIONS OF AFRICA

Among Africa's material artifacts and repositories are stone and bone tools; bronze, iron, copper, silver, and gold sculpture and jewelry; terracotta figurines; engineered structures such as pyramids, underground tombs, stelae, obelisks, temples, mosques, dams, and granaries; rock carvings, drawings, inscriptions and paintings; and agricultural terraces, fortifications and navigational devices. The sculptured temples of Lalibela and the 500 stelae and obelisks of Aksum, in Northern Ethiopia, are legendary – although more of the ancient sculptured churches lie a few miles from Axum in Mekelle, Northern Ethiopia, according to Professor Ayele Bekerie (Bekerie, 2010).

In terms of South African history, within the last decade, there have been several new additions to the historical record, among these, the artifacts found at Blombos Cave, South Africa, now dated approximately 100,000 years. The South African artifacts imply the making of jewelry and cosmetics. Most of all they imply inventiveness and creativity, logical thinking, and confirm that the ancient occupants of this region developed abstract symbols in the form of straight lines, intersected by the same number of diagonal and parallel lines and right angles (Henshilwood, 2009). The inhabitants of Blombos made good use of ochre as body paint, and fashioned perforated beads for decorative purposes (Henshilwood, D'errico, & Watts, 2009). Based on findings in 2011, we also know that the ancient South Africans also engaged in elementary chemistry and put together what is widely discerned as a paint factory (Henshilwood et al., 2011; Berna et al., 2011). Collectively, these findings point to a fascinating precocity on the part of the early Africans, in inventiveness and creative thinking. About 300 enclosures of Southern Africa, in countries such as Zimbabwe, Botswana, Mozambique, and South Africa, also constitute major resources for understanding Africa's past (Garlake, 2003; Asante, 2007).

Findings in West Africa have also been significant. In 2007, at Ounjougou, Mali, close to the Bandiagara Cliffs, Huysecom and his team excavated a ceramic

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assemblage dated from around 9400 BCE (Huysecom et al., 2009). These finds were no less important than those of Blombos, given the fact that they were among the oldest pots to be found in the continent, and were probably used to facilitate the use of wild cereal as food, given the grinding implements found in the vicinity. Huysecom points out that dozens of archeological sites, spread over 16 meters, have been associated with the region where these pots were found. The much celebrated Benin earthworks, ten thousand miles in length, are relatively more recent and go back to the 8th century AD – consisting of fortifications associated with Edo culture and the Benin Kingdom (Darling, 2009). Further west, in the Senegambian region, outside the village of Sine Ngayene, the largest group of megalithic complexes yet recorded anywhere, consisting of about 30,000 megaliths, obelisks and tumuli, have been located, leading to interesting but unanswered questions about their purpose (Fage, 1979). The above references are selected references of Africa's monumental architecture. This constitutes but a fraction of the collective legacy from the past, but should be of interest not only to researchers of AIK in general, but also to archeologists and historians. The raw materials used in these various constructions and structures; the timeframe and stylistic features embedded in them: the labor codes and work ethic associated with them; and issues related to urbanization, empire-building, elitism, labor mobilization, and the centralization of power - fall within the range of historical research. What epistemological and methodological frameworks informed these accomplishments, and how were these intellectual ideas reproduced regionally? What processes were crucial in the development of such creativity? Given the fundamental objectives of IK, namely, psychological discovery, restoration, retrieval of heritage, sustainability, respect and epistemological decolonization, these issues are of great significance as well. Indigenous Knowledge is about memory, culture, and various forms of knowledge-production and dissemination, and also includes the skills and expertise that communities developed to sustain their city states, kingdoms, empires, and general communities.

IK, HISTORY, AND THE MISAPPROPRIATED ARTIFACTS

The Battle of Magdala of 1868, led to a widespread confiscation of Ethiopian treasures, and set the stage for massive plunder of material artifacts from other parts of the continent. Carted off from the imperial Ethiopian treasury and the Ethiopian Church of the Saviour of the World, to the British Museum, were numerous items (Marcus, 1995). These included the following:

- 350 Ethiopian manuscripts, written in Amharic;
- 80 objects;
- A gold crown and gold chalice;
- 6 ecclesiastical manuscripts, deposited in Windsor castle, in the Victoria and Albert Museum, London;
- Nine engraved wooden tablets or tabots, representing the Ark of the Covenant.

In the case of Nubia and Egypt, while these regions were British colonies and protectorates, archaeologists such as Reisner, were given unprecedented access to

precious artifacts. From the Aksumite-Nubian-Egyptian complex of northeast Africa, numerous items were appropriated. A few were bought, illegally in some cases, and now constitute the basis of exhibits in various museums around the world.

Description of	Country of	Present Location	Date of plunder
Artifact	Origin		and appropriation
Asante gold and silver jewelry, royal regalia, golden head of 20 cm, golden death mask	Ghana	Museum of Mankind; Wallace Collection; Pitt Rivers Museum, Oxford; Glasgow Museum and Art Gallery; Victoria and Albert Museum, London	1874 – Military expedition by the British against the Asante.
Manuscripts, royal regalia, engraved tablets and manuscripts	Ethiopia	Victoria and Albert Museum, London	1868 – Battle of Magdala
Benin Bronzes; ivory mask of Queen Mother Idia; Olokun bronze Head	Nigeria	British Museum, Museum of Mankind, Frankfurt Museum	1897 – Military Expedition and Conquest of Benin
Rosetta Stone, Bust of Nefertiti; Statue of Ramesses II	Egypt	British Museum, Museum of Turin	
Marble Statue of Apollo, Cyrene	Libya	British Museum	
Library of Umar Tall with countless manuscripts		Bibliotheque National, France	1890 – Conquest by the French

Selected List of Plundered African Artifacts

The various colonial powers carted away thousands of artifacts from Nigeria, Benin, Mali, Congo, and elsewhere in West and Central Africa, to their respective home countries. Twenty thousand Benin bronzes were among the numerous artifacts plundered from West Africa's Benin Empire. French colonial forces plundered and transferred the entire library of Umar Tall to the Bibliotheque National, in Paris, in 1890. Some Africans had to bury their manuscripts in the desert sand to avoid persecution and pillage. No compensation has been given so far for these stolen valuables. The loss of these valuable artifacts is particularly painful for researchers of all affiliations, including scholars working within the paradigm of Indigenous Knowledge Studies. Scholars of IK tend to pay a great

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deal of attention to oral sources of information to redress inherited imbalances (Kovach, 2012). It would be misguided and counter-productive, however, to completely ignore historical documents and other evidence of knowledge-production by indigenous thinkers.

REVISITING WRITTEN AND ORAL SOURCES

Documents written on papyrus and parchment, inscriptions on tombs, tombstones, walls and doorways, and graphic representations, show up in many parts of Africa. Some are in the form of pictographic or ideographic writing systems (Kreamer et al., 2007) and constitute part of the conventional sources. Ironically, though, not all writing systems were treated equally, and some were prioritized above others, for political purposes, and not necessarily for sound intellectual reasons. For example, the abstract Adinkra symbols of the Asante should be considered ideographic writing but the bulk of western scholars cast doubt on this classification. About a million Malian manuscripts became available over the last decades. Unfortunately, many of these were probably destroyed by Afghan and Pakistani invaders and refugees into Northern Mali a few years ago (Hunwick & Boye, 2008). We note the numerous documents written in Arabic in public and private libraries, in other parts of West Africa, such as Nigeria, Ghana, Niger, Senegal, Mauretania, and Cote d'Ivoire. African manuscripts, in museums such as the Ashmolean Museum, the British Museum, Oxford's Bodleian Library, and museums in other parts of Europe such as France, Germany, and Belgium, continue to be repositories of African primary sources of knowledge. So, too, the Vatican. Scrutiny of some of the documents strewn across European libraries and museums, is important for historical research and no less so for IK research, despite its emphasis on oral resources, as earlier mentioned. Many of these documents recount indigenous modes of existence in various dimensions even in cases where the scripts were externally derived. We make the point here that our preoccupation with orality and 'orature' should not lead to the exclusion of indigenous knowledge that has been documented in those writing systems that were externally derived.

Vital for IK are recollections of the past, inherited from earlier generations, and contemporaries, and transmitted in diverse forms of verbal testimonies – including oral narratives poetry, songs, legends, proverbs, interviews, and so on. The transmission process may have involved public performances (Johnson, 1997) or may have been embedded in popular culture. These orally transmitted recollections continue to supplement other historical sources of information. In some cases they have been more useful than written documents. The goal of these narrations may be the celebration of success and conquest of doubts, fears, and uncertainties; testimony about trials, tribulations and heroic deeds in the past, as well as the search for the ultimate truth. A major goal may be to provide answers about the historic role of various groups and personalities; develop pride in the nation; and assist in various forms of reconstruction. In the case of West Africa, the Oral Epics of Sundiata, Askia Mohammed, Son Jara, Bamana Segu, Almami Samori Toure, Wagadu, Lat Dior, and Njaajaan Njaay constitute a core of orally transmitted

poetic histories, parallel to the central African narratives, such as the Mwindo Epic and the Epics of Kahindo and Myet Moneblum (Belcher, 1999). These are among the classical models. Embedded within them are various values and historical truths. They embody common themes on human origins and the evolution of the world, virgin birth, journeys to the underworld, resurrection, life and death cycles, journeys from the land of the living to the world of the ancestors, the triumph of good over evil, and the saga of historic and fictional heroes of various identities in the context of indigenous explanations. Protagonists include Murile, the resurrected hero-god of Tanzania; Mwindo, the miracle child and later warrior king of Nyanga in the Congo; Lituolone, of virgin birth; Kwasi Benefo's grief and trauma over the death of his wives; and Uncama's journey into Mosima, the Underworld of the Dead, in the case of South Africa. Nobel Laureate Wangari Muta Maathai recounted an interesting tale of survival and naivete, Konveki Na Ithe, in her memorable memoir, Unbowed (2006). In the final analysis, these fictional identities reveal a quest for the ultimate truth or destiny; give a blueprint for empowerment and survival over trials, tribulations, and uncertain challenges; and reveal profiles in courage and resistance relevant to the understanding of indigenous African values and philosophies.

Oral Epics and Narratives may collectively reveal local or family accounts or the past history of lineages; family privileges and inheritances; migration of specific extended families and closely related communities; inspirational tales to guide generations; popular cultural belief system; or local fauna, flora, and ecology. There are numerous gaps in the sources, and diverse cautionary strategies to be employed by researchers with respect to the specific names and detailed background information on many of the protagonists. What inspired the protagonists? How were they able to achieve their goals, and, precisely when? What instigated the moment of discovery, in the case of inventors? What specific changes and innovations occurred within the specific time period? These are some of the questions that we sometimes have difficulty with but proceed to grapple with.

There are numerous points of interaction and interconnection between the historian of Africa and the AIK researcher coming from various disciplines. Oral history, whether through formalized epics or through less structured orally transmitted narratives, is central to AIK in general and historians in particular. In the context of indigenous research, however, there seems to be greater emphasis on the spiritual and the ceremonial, and portals of knowing inclusive of ceremonies, visions and dreams. IK tends to be more holistic in its epistemology, with a greater tendency towards a holistic understanding. (Kapoor & Shiza, 2010). With IK there is also greater reliance on narrative and a recognition that ' story as methodology is decolonizing research' (Kovach, 2012). Kovach also implies that IK research is relational and built on collective responsibility with greater sensitivity to intellectual property rights, benefit sharing, and non-exploitative methods of research. We shall now reflect briefly on aspects of African Indigenous Knowledge that underscores its intellectual viability. We focus on biotherapy, cupping, and the intellectual knowledge and efficacy surrounding natural products.

AFRICAN INDIGENOUS KNOWLEDGE: BIOTHERAPY, CUPPING, AND AFRICAN TRADITIONAL MEDICINE (ATM)

We define ATM as an accumulated corpus of diagnostic procedure, preventive and curative techniques and interventions, associated with healing and wellness. As observed from various sources, diagnostic procedure includes observation, case history, observation of urine, and clinical examination of body temperature as well as divination. Preventive and curative methodologies over time have included a wide range of techniques, including biotherapy and cupping, spinal manipulation, bone setting, inoculation, quarantine, fumigation and steam inhalation. Surgery, inclusive of scarification, circumcision, the removal of inflamed tonsils, the incision of abscesses and guinea worm extraction is also central to medical intervention in the case of ATM (Sofowora, 1984; Emeagwali, 2007). Although biotherapy and cupping are not the only interventions by traditional medical practitioners, we focus on the latter in this discussion, to highlight the current transformation taking place in medical institutions, most of which fifteen years ago were hostile, not only to live medical techniques, but also to many of the underlying principles utilized by indigenous practitioners of ATM.

Over the last decade, the large-scale adoption of 'live medical techniques' associated with maggots and leeches, in German, British, and Australian medical institutions, has revolutionized medical practice. Biotherapy is a field that has been known in Africa, in the ancient Aksumite-Nubian-Egyptian complex, since around 1500 BCE, although not necessarily by that name (Allen, 2007). We now have numerous recent narratives of the successful usage of leeches and maggots in treating infected wounds, and in post-surgical blood removal. It is now openly admitted that maggots successfully remove dead tissue, kill harmful bacteria in various wounds, and are of particular significance in reconstructive surgery. In the case of the leech, its saliva apparently contains an anti-coagulant, a blood thinner that prevents blood clots, and restores blood flow (Thearle, 2008). The FDA of the United States classified maggots and leeches as 'medical devices' in 2004, approving an application from Ricarimpex SAS to market leeches for medical purposes. One of the more celebrated cases is that of a diabetic patient in the United States who chose to experiment with the use of maggots rather than undergo amputation to cure a post surgical infected wound that resisted antibiotics and every other form of therapy. Maggot therapy ultimately preempted amputation by liquefying dead tissue, killing bacteria, and stimulating healing. Until a decade ago, the methodology was viewed with unbridled scepticism, and even scorn, by western-trained practitioners and patients.

Other techniques utilized by African traditional practitioners in addition to biotherapy, include cupping, heat therapy, hydrotherapy, and spinal manipulation. Unlike leech and maggot therapy, which have proven to be effective in dead tissue removal, and the healing of wounds, cupping therapy involves the creation of a vacuum and localized pressure that ultimately facilitates suction. Some practitioners propose that cupping also leads to the release of harmful toxins. In 2009, Andreas Michalsen and co-researchers, supported by a grant from the Karl

and Veronica Carstens Foundation, Germany, concluded that cupping therapy was effective in the treatment of Carpal Tunnel Syndrome (CTS), after a random trial (Michalsen et al., 2009). They noted that the severity of symptoms in patients was substantially reduced after cupping, and that the treatment was 'safe and well-tolerated.' Their conclusions correlate with the view of African traditional medical practitioners, who for generations have used this technique of cupping largely for pain relief, although not exclusively so.

INDIGENOUS KNOWLEDGE AND AFRICAN NATURAL PRODUCTS

In African Traditional Medicine (ATM), plants are at the center of therapeutic healing, being used as anesthetics, antidotes, and antibiotics. Medicinal plants have been associated with dermatological preparations and gastrointestinal care. Plants have also been used in hypertensive care and to control spasms and fevers. Pharmaceutical companies have been known to tap into the knowledge of indigenous practitioners to identify plants of therapeutic value. Having copied the molecular structure of the various plants identified, they synthesize them in the laboratory and make huge profits from the final product. The compensation for the knowledge acquired from local practitioners continues to be inadequate, as discussed by Paul Kipkosgei Tarus in a recent interview (2012). A major handicap for laboratory research and the isolation of active medicinal ingredients is the high cost of instrumentation; but even so, tremendous gains have been made in various laboratories around the world in identifying useful products. This is a clear example of how laboratory expertise can be used to evaluate the medicinal composition of plants traditionally held in high esteem by local experts. This enhances the verification processes. Traditional practitioners have relied exclusively on popular collective testimony on the efficacy of natural products; given the excessively high cost of the various types of spectrometers used in laboratory research, traditional methodologies would continue to prevail.

Laboratory analysis has endorsed much of the traditional medicinal claims for the baobab, *Andansonia digitata*, a plant cherished by generations of Africans. De Caluwe et al. pointed out that the fruit pulp of a baobab has ten times the Vitamic C (ascorbic acid) content of an orange, and one of the highest levels of ascorbic acid to be found in a fruit. The leaves contain high quantities of Vitamin A and all the essential amino acids, and high quantities of iron and calcium. The bark is high in calcium, copper, iron, and zinc, as well as anti-malarial ingredients and antioxidants useful for coping with cardiovascular disease, cancer, and age-related illnesses (De Caluwe et al., 2009).

P. O. Ogunyale's herbal medication for sickle cell disease, *Nicosan*, consisting of *Piper guineense* (Black pepper), *Pterocarpus osun* (camwood), *Eugenia caryophyllum* (clove), and *Sorghum bicolor* (sorghum), traditionally used to cure anemia, is now recognized as an effective treatment for sickle cell disease (Patent 5800819) (Nathan, Tripathi, Wu, & Belanger, 2009). It is heartening to note that the National Institute for Pharmaceutical Research and Development (NIPRD), in Abuja, Nigeria, was instrumental in the evaluation of the efficacy of the product.

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In their discussion of Nigerian plants with anti-diabetic properties, Steve Ogbonnia and Chimezie Anyakora identified about 75 different plants used by Nigerian traditional doctors (2009), including *aloe vera*, another promising plant for the treatment of diabetes. A similar endeavor has been undertaken by Mohammed Sayed Aly Mohammed in terms of malaria (2009). Oluwole Amusan, at the Swaziland Institute for Research in Traditional Medicine, identified *Euclea natalensis*, *Clausena anisata*, and *Aloe marlothii* as effective plants in the treatment of diseases of the cardiovascular system. *Cheilanthus calomendos*, *Dioscorea dregeana*, and *Pellaea calomelanos* have been recognized as useful in mental disorder (Rodolfo Juliani et al., 2009). (That we have apparently lost the taxonomic battle with respect to the naming of these plants is indeed regrettable.) ATM practitioners in these regions concur and claim that this information is not new to them. They knew this all along, having discovered this from ancestral and community research.

African medical traditions are holistic. The mind and body are viewed as interconnected. Supernatural-centered explanations coexist with naturalistic, empirical, behavioral accounts. African traditional medical practitioners have been accused of undue secrecy and a general reluctance to fully disclose the active ingredients in their elixirs, infusions, and poultices, as well as a tendency to individualize rather than standardize their prescriptions. One may counter these accusations by pointing to the elaborate veil of secrecy that envelops most contemporary inventions and processes elsewhere; one could argue that African traditional medical practitioners have been shrewd in attempting to safeguard their intellectual property rights, an issue that is central to any discourse on local knowledge systems (Mazonde & Thomas, 2007). The one-size-fits-all prescriptive tendencies in western medical institutions may not necessarily be the best way of treatment, and a more personalized way of dispensation takes into consideration age, weight, dietary, genetic, and other differentials, according to interviewees. It is interesting to note that the most recent trend in Western medicine is to use genetic data with the aim of the personalization of medicaments and treatment.

INDIGENOUS CHEMISTRY

Two recent discoveries have revolutionized our thinking about indigenous chemistry in Ancient Africa. The first is the discovery in Wonderwerk Cave, South Africa, in April 2012, that ancient Africans made fire about a million years ago. Inhabitants at Zhoukoudian, about fifty kilometers off Beijing, did so about 800,000 years ago and were previously thought to be the earliest documented group to do so. The use of fire meant that elementary forms of matter, including raw meat, would now be transformed into a new state.

The second significant discovery was the discovery of an ancient paint factory, in the vicinity of Blombos cave, about two hundred miles from Cape Town, South Africa. There ancient Africans created ochre by grinding iron oxide to a powder, and blending this with animal fat and charcoal that they then stirred with a bone spatula. The mixture was then poured into shells. The paint factory and processing workshop, found in 2008 by Henshilwood and a multinational team of researchers, was 100,000 years old. As explained by Professor Henshilwood, "a liquefied ochre-rich mixture was produced and stored in two Haliotis midae (abalone) shells" and charcoal, grindstones, hammerstones, bone and ochre were among the artifacts utilized to make the paint. This action has been described as 'a benchmark in the evolution of human cognition.' It is also the earliest and best-documented evidence we have of early chemistry.

Traditional knowledge about the tanning of leather reflected a high degree of knowledge about chemistry. According to Zaruwa and Kwaghe, in parts of Northeast Nigeria, the tanning of leather from animal hides and skins involved the addition of calcium powder obtained from incinerated cattle bones and also potash, followed by bird droppings, to soaked skin, in a process that had proven scientific credentials, namely, 'the denaturation of proteinous materials' (Zaruwa et al.). By adding bird droppings to the hides, they were actually adding uric acid, made of carbon, nitrogen, oxygen, and hydrogen and set in motion an endothermic reaction with water molecules. The tanners usually concluded the process by applying vegetable oil from the seeds of *Kaya senegalensis*, a preservative, also known to possess antimicrobial properties.

Zaruwa points out that in the production of *Argi*, a local gin, several scientific principles are utilized. *Argi* is essentially a distillate, a purified liquid, vaporized and collected in the form of condensed alcohol. In the first instance, the practitioners use fermented sorghum, in a locally constructed steamer pot, placed below another vessel, the condenser, filled with cold water. The condensate cooler is usually located within the steamer pot. The process involves the fermentation of sorghum in the first instance. Fermentation occurs with the introduction of microbial contaminants into the mash, and this helps in the breakdown of carbohydrates from larger particles into smaller ones (Zaruwa et al.). At the heart of the process is experimentation with local grain, in this case sorghum, and the creation of devices that facilitated the scientific process of distillation.

CONCLUDING REMARKS AND RECOMMENDATIONS

It has been suggested that the decolonization process has five phases, namely, the process of recovery of identity, artifacts, language, and cultural information; a process of mourning for what is being lost; dreaming, reformulation, and invocation of other possibilities for research; commitment to including silenced voices; and action that includes strategies for social transformation (Poka Laenui, 2000). Transformation at the level of the academy and in the context of IK implies change, not only in the curriculum, but also in instructional strategies, so that a more interactive mode of teaching and learning complements the teacher-centered approach.

Colonial and neo-colonial strategies of disinformation, systematically aimed at belittling and marginalizing Africa and Africans, both within and outside of the academy, should be constantly challenged and replaced by a narrative which properly situates Africa's history at the center of the learning process, in the

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context of sound, intellectual activity, and activist community-based research (Emeagwali, 1992a, 1992b, 1993, 2003, 2006). Dynamic, participatory praxiological encounters with the community could facilitate the rediscovery of indigenous epistemologies, and undermine discriminatory allocations of teaching and learning resources. Democratic forms of knowledge production could also enhance the process of political democratization by empowering participants, and negating processes of 'inferiorization' initiated during the period of colonial occupation (Dei, 2008). This in turn has the positive role of deepening the appreciation of local natural products for contemporary usage in all relevant spheres of activity.

In the past, Africans formulated hypotheses about their environment, made use of local resources and created innumerable inventions using what was locally available, whether 100,000 years ago at Blombos, 9,000 years ago in Mali, in the case of pottery, or 6,000 years ago at Dufuna, Nigeria.

There is no room for arrogance, paternalism, and condescension in capacitybuilding and innovation, nor should individualism and self-interest be necessarily placed on a pedestal, above a communitarian mode, and a more holistic cosmology. In the journey towards Africa-centered research, methodological clarity, and a truly decolonized academy, the historian should play a significant role – preferably within the paradigm of Indigenous Knowledge, given its explicit adoption, so far, of a transformative paradigm.

There is urgent need for digital libraries comprising databases of indigenous knowledge, in various fields, along the lines of the Indian Digital Library of Traditional Knowledge, and following the guidelines of the World Intellectual Property Organization. With the passage of time, we are losing not only human resources but a great deal of fauna and flora. Monsanto, and other U.S.-based companies engaged in genetic engineering, are accelerating the process of ecological and environmental degradation on a daily basis. To recoup the losses, we also need multiple Green Belt Movements and seed banks throughout the continent, all guided by multidisciplinary teams of Indigenous Knowledge specialists devoted to the retrieval, preservation, and dissemination of indigenous knowledge across the continent. History and historians have a crucial role to play in the creation of epistemological and methodological options, a movement that Professor Dike initiated in 1959 with his revolutionary work on Trade and Politics in the Niger Delta and in whose honor we humbly give this lecture.

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2. INDIGENOUS DISTILLATION IN NORTHEASTERN NIGERIA AND THE PRODUCTION OF *ARGI*

INTRODUCTION

The production of various beverages differs in methodology depending on what is desired, and this varies from one community to the other. The production of alcoholic beverages may vary slightly, but the principle is similar if well investigated. In Midwestern and Southeastern Nigeria, the production of the so-called African whisky, *ogogoro*, is widely spread and the gin itself has become one of the peoples' cultural beverages. Today *ogogoro* is produced in grades depending on its alcoholic content. It is used as beverage and in the manufacture of other beverages, in traditional medicine and in cosmetics and sprays.

The nearest equivalent to *ogogoro* that is found in the northeastern part of Nigeria amazes many beholders because of the simplicity of its production and the principle behind it.

ARGI AN AFRICAN DISTILLATE

Argi pronounced "arrghi" is a distillate (condensed steam) from a fermented mash, mainly from a carbohydrate source. The word Argi is believed to be of Higgi/Marghi language, language of the descendant of the Sukur kingdom of old. Some individuals spoken to, especially the aged, responded that the word itself could have originated from their Chadian or Cameroonian cousins meaning the Higgi on the Cameroonian side of the border or the so called Godogodo community on the Chadian side. Irrespective of where Argi comes from, the liquor is consumed widely among the various communities in northeastern Nigeria. Preliminary studies on Argi showed that it contains between 10 to 35% alcohol depending on the maker and the constituents of the primary raw material. The amazing thing about Argi is the method employed in its production. In basic sciences, the term distillation is simply defined as the purification of liquid by vaporizing it with heat, condensing it within a cold environment, and then collecting the purified liquid called the distillate. Ordinarily, distillation is the method employed in the production of gin (whisky) and spirits that are consumed as beverages, or used industrially in the production of other substances, such as petrol and kerosene.

THE PRODUCTION OF ARGI

The raw materials for the production of Argi are mainly leftovers of prepared sorghum flour (tuwon dawa) and a traditional brew (burukutu) that is also consumed as beer. The former is normally crushed into bits and mixed with water to form a liquid mash. This is allowed to stand for three or more days during which time a fermentation process would have occurred. The earliest documented similarity to Argi is from ancient China. The methods of production of both the Chinese alcohol and Argi are very similar. The creation process involves the following:

- 1. A container used to produce steam by heating water in it.
- 2. A steamer in which fermented grain mash is placed at the bottom of the screen.
- 3. The condenser which was named "top pot" in ancient times, and was placed on the top of the steamer and filled with cold water in such a way that spirit vapor reached to its wall at the bottom, then condensed.
- 4. A condensate collector usually inside the steamer, at the bottom of the cooler.

The process of fermentation occurs as a result of the presence of microbial contaminants within the mash, or those introduced into it from the environment. In fermentation, microbes secrete proteinous substances called enzymes, which help in the breakdown of carbohydrates from larger particles into smaller particles; in the process, alcohol is formed. This process occurs very well in closed or airtight containers. The production of Argi follows a similar pattern in ancient and modern distilleries. The central concept and principle is that a fermented mash is heated and the vaporized alcoholic content is condensed and collected as alcohol (spirit).

Traditionally, earthen wares and bamboo sticks were used. The bamboo sticks were perforated at the joints to make a pipe. At present, however, modern metallic pipes have replaced the bamboo sticks. The earthen ware is used as a traditional condenser. This is normally filled with cold water so that the pipe that passes through it can be cooled to effect condensation of the vaporized alcohol. The pipe is made to pass through the condensing earthen ware, after which it is sealed with mud at any possible outlet. The fermenting and heating chamber are all made up of earthen wares. The cover is made up of similar material. When in use the fermenting chamber is sealed with freshly prepared mud. When the broth is poured into the fermenting chamber, care is taken to ensure that the maximum level does not exceed the three-quarter limit of the pot, so that when it boils, it would have no contact with the pipe, which serves as a delivery tube (within the condenser). Naturally, the vapor emanating from the boiling broth would go through the only available opening, the delivery tube. It is when it finds itself within the pipe that the vapor condenses as a result of the cooling effect of the water within the condenser.

During the collection of the condensed alcohol, it comes in drops and the entire distillate appears milky or whitish. This, however, changes with time, probably as a result of maturity.

INDIGENOUS DISTILLATION IN NORTHEASTERN NIGERIA

CONCLUSION

The production of Argi points to the ingenuity of the ancestors of the communities that have since settled within this region, northeastern Nigeria. Many questions remain unanswered. but we can only conclude that, Argi belongs to the people of the old Sukur kingdom, namely, the Higgi, Marghi and others within that axis. There was no evidence whatsoever that it had any foreign contribution in the ingenuity of its production.