The City At the Edge of Forever – Archiving and Digitizing Arabic Sources on the History of Kano, Nigeria

Prof. Dr. Abdalla Uba Adamu (auadamu@yahoo.com)
Department of Mass Communication
Bayero University, Kano, Nigeria

Introduction

More than any of the old Hausa kingdoms, Kano, Nigeria, seemed to have received the literary and intellectual attention of Islamic scholars since the political formation of the city in 1000. Thus perhaps more than any other city in what would become latter day Nigeria, a series of historical accounts (chronicles) exist to construct the social, economic, cultural and political development of Kano for over one thousand years. The main known primary Arabic accounts include *Tarikh Arbab Hadha al-balad al-Musamma Kano* (The Kano Chronicle), *Asl-Wangriyyun* (The Wangara Chronicle), *Taqyidil Akbar* (The Jihad Chronicle), *Al-Eelan Fi Tarikh Kano* and the oral-literature Ajami *Wakar Bagauda* (The Song of Bagauda). All revered as original sources of indigenous ethnographic information, as well as reviled as works of foreigners by various, essentially foreign commentators, nevertheless it became a challenge to preserve these primary source documents. The first challenge was locating the manuscripts, often from "community librarians" and copyists who do not wish to part with their copies. The second was photographing them using standard digital camera on site. The third was to render them readable after passing through CorelDraw and Adobe Photoshop. This paper catalogues these primary sources within their historical context, as well as details some of the strategies taken to digitize them as eCopies and stitching back to their original manuscript forms for distribution. The main objective is to demonstrate the portability of manuscript digitizing processes particularly for field researchers working in African environments.

Digital Preservation

Manuscripts generally refer to unpublished original sources and have the characteristic of being unique. Unlike books, journals and other resources typically collected by libraries, manuscripts typically do not exist in multiple copies, and are often held in private collections. The main task of digitizing manuscripts – the process of converting physical documents into electronic forms – would seem to be the traditional domain of libraries in their efforts to preserve and sustain rare writings. And yet individual efforts, or even small-community efforts would supplement what the mainstream libraries could do with regards to digitization efforts; for not all documents find their way into libraries for preservation, especially in communities where such infrastructures do not exist.

In mainstream libraries, the impetus for the preservation was because of the internal decay of paper collections which leads to the primary state of the preservation process: microfilming. Libraries began using microfilm as a preservation strategy for deteriorating newspaper collection. While microfilming might have seemed like leading edge technology when it was introduced into the manuscript preservation strategies in mid-20th century recent advances in media technologies and the availability of portable digitizing devices have made alternatives to microfilming more viable.

Even within large-scale preservation as in mainstream libraries, Verheul (2006) identifies migration and emulation as the most promising preservation strategies. Migration is the translation of the document from one format to another, while emulation is the process of a software package "mimicking a piece of hardware or software so that other processes think the original equipment/function is still available in its original form" (Verheul 2006, 52). There are therefore two clear stages involved in this—a stage that deals with the actual object itself, and the stage that deals with the environment around which it can be enhanced and greater access facilitated.

When focusing on digitization of manuscripts within African environments, concepts such as authenticity, textual and content analyses suddenly become less significant than the very fabric of the media itself – for even forgeries and fabrications are in themselves objects of cultural heritage. An object's authenticity concerns both the content and the original 'look and feel'. A choice for authenticity means ensuring that five aspects of a digital object remain intact (Verheul 2006). These are: the content, the context, the structure, the appearance and the behavior. At the moment this effort does not focus on these aspects—as it is the task of more specialized experts which requires technologies like carbon dating and so on. This of course reveals the difficulties of digitization—who makes the choice of what to digitize, and who decides on the significance of the object to be digitized.

Challenges of African Digitization

The increasing availability and improved quality of consumer electronics, specifically digital cameras and mobile phones has resulted in potential utilization of such technology in digital conservation of artifacts – from manuscripts, to maps, and performances, particularly in African societies. This is more so because in the absence of large-scale government-organized digitization processes, these consumer electronics, often driven by individual initiatives, serve as the first route towards eventual preservation of cultural heritages in such societies. For as Carlson (2007, 100) noted,

> The technique of using digital cameras as note-taking devices is not new but is becoming more common. Not only is it an economical and potentially very accurate research method but it also limits the exposure of documents to damage because they are handled less.

Despite the ease which this new technique provides for "digital note-taking", Abbey Smith (1999, 4) has cautioned that

> Digital imaging is not preservation, however. Much is gained by digitizing, but permanence and authenticity, at this juncture of technological development, are not among those gains.

This view was dependent on then microfilming as a more permanent means of preservation. Yet a decade into the new millennium, the myth of the microfilm as the ultimate source of preservation has been debunked by consumer imaging electronics. Although the affordability of the technology at individual level could facilitate digitization efforts, it is nevertheless a planned process requiring adherence to careful planning. Thus while digitization generally makes the archivist more effective by improving preservation and access, converting items to digital format can also act as a hindrance to the archivist's mission. For instance, there are myriad costs and concerns that the archivist must confront before, during, and after digitization, many of which are not readily perceptible. Beyond this, there actually are times when digitizing

material impairs preservation and access. Because of these factors, it is essential for the archivist to examine the negative aspects of digitization before embarking on a conversion project.

Digitization has at least three advantages. First was increased use, where it is expected that digitization of manuscripts would increase level of use and interactivity. Obscure, hidden and often unknown local treatises would now become available to a larger audience, creating a more balanced picture of social evolution.

Secondly, digitization would open up avenues for new research, since once information from such manuscripts becomes available, it suddenly opens up new areas of inquiry concerning knowledge of events that were previously thought to have passed. This could lead to new interpretations in the light of new knowledge and either stimulate further scholarship in an area that has been well known, or set up new lines of inquiry.

Finally, availability of digital forms of manuscripts detailing local histories would attract younger generation who are more familiar with the processing mechanism of the manuscripts and thus clearly identify with the electronic form of the literature, rather than its traditional paper-bound copies. In this way, creating sites on the Web as repositories of such manuscripts makes them more available to young elements, in a way traditional libraries might not have succeeded.

There is a need therefore to designate an immense amount of time for planning and preparing. In African environments it is clear that a portable digital technology in the form of digital camera or mobile phones with camera capabilities, are an essential acquisition. This is because lack of electricity in many places where the manuscripts are likely to be found renders document scanners and photocopiers useless. In cases where manuscripts are already part of bound volumes – and no librarian would allow the disassembly of the volume – the digital camera can often be the only source of digitizing valuable content.

Choice of Tools
Once all of the pre-conversion planning is complete, the next step is the capture process. Working on the premise that consumer electronics provide a more affordable way of portable digitization of manuscripts in African environments, a choice has to be made about which specific type of tool to be used.

There are at least three possible routes to the digitization. These are scanning, photocopying and photographing. Scanning requires a scanner which is not practical to move about in field situations, especially if owners or keepers of manuscripts were not willing to part with their manuscripts. Face-down scanners also provide additional challenges to brittle or bound manuscripts, and especially non-professional binding which will further endanger the manuscript. Photocopying, again in field situation in African environments, is not practical due to the need to move about with a portable photocopier often in places where there is no electricity to power the machine. Additionally photocopying poses the same danger to manuscripts as scanning. Photographing would seem a lesser damaging option than photocopying or scanning. Further, the higher resolution of current digital photography, measured commercially

in pixel terms would seem most suited to African challenges of acquiring manuscripts.

The picture element (pixel) of any digital image determines its quality. A "megapixel" is simply a unit of a million pixels. Each pixel contains a series of numbers which describe its color or intensity. The precision to which a pixel can specify color is called its bit or color depth. The more pixels an image contains, the more detail it has the ability to describe. Since a pixel is just a logical unit of information, it is useless for describing real-world prints, unless their sizes are also specified. Thus the terms pixels per inch (PPI) and dots per inch (DPI) were both introduced to relate this theoretical pixel unit to real-world visual resolution. "Pixels per inch" is the more straightforward of the two terms. It describes just that: how many pixels an image contains per inch of distance in the horizontal and vertical directions. "Dots per inch" may seem deceptively simple at first. The complication arises because a device may require multiple dots in order to create a single pixel; therefore a given number of dots per inch does not always lead to the same resolution.

These descriptions all have a distinct impact on the quality of digital images to be made, and which is in turn dependent on the camera. Digital camera manufacturers use the term "megapixels" to describe the resolution at which the cameras are capable of taking pictures. In most computer contexts, resolution is given as two dimensions, such as in a computer display resolution of 1600 x 1200, which represents a width of 1600 pixels and a height of 1200 pixels. Digital camera manufacturers take the sum total of pixels generated by multiplying the two dimensions, so that a camera capable of producing images at 1600 x 1200 would produce a total of 1,920,000 pixels, or 1.9 megapixels. Thus a general rule of thumb sees higher resolution images with larger pixel cameras. This effect is also achieved with scanning – where the DPI of the scanned product would result in high quality – although bigger files – images. In any event, the DPIs and pixels are moot points, essentially because what matters in the final analysis is a high quality readable image – and both the scanner and the digital camera can provide that adequately enough.

In northern Nigerian shopping malls, the Sony Cybershot series of digital cameras, ranging from 6.0 megapixels to 16.0 megapixels are commonly available, if at relatively higher local prices than if purchased in United States. iPhone 4 and iPhone 4s can also utilize the many scanners, e.g. TurboScan, available at Apple App Store, and they can use their cameras to enable the software to scan any document, convert it to PDF file and then send it as an email to an account from which the scanned file can be downloaded.

The manuscripts in this paper were photographed using two cameras: Sony DSC-W55 (released by Sony Corporation in 2007) with 7.2 megapixels, and Sony Cybershot DSC-W210 (released 2009) with 12.1 megapixels, which additionally has 1080i HD (high definition) and can therefore record amateur high quality video.

Once the decision about what type of technology has been made, the next challenge is to process the products. High resolution photographs of the manuscript folios present an additional challenge of processing the images in a such a way that they could be rendered as faithful to the original as possible. In this regard, the use of photo editing

software, such as Adobe Photoshop provides an excellent opportunity to "clean" the photos (which themselves could have been based on dark-toned photocopies)..

The archivist also needs to determine the file type to be created. Paper documents can be converted to portable document format (PDF), an image format like tagged image file format (TIFF), or even a word-processing format. There also are numerous types of digital photograph, audio, and video files. Related to the file type are the hardware and software that will be used to perform the conversion, edit and store the file, and then provide access. The archivist must choose computer equipment and applications that are compatible with the selected file types. All these requires a level of familiarity with the software which further increases the challenge.

One limitation in the current digitization effort is that there is no attempt to create OCR (Optical Character Recognition) readable copies of the manuscripts. The reason for this limitation is that the effort is not targeted at producing digital copies of documents that can be edited – but rather preserving the originality of the documents, no matter their imperfections; for they stand as unique archival artifacts capturing a particular epoch and its intellectual tradition and heritage. It is for this reason that digitization of African manuscripts should focus on truly unpublished documents that have no other recourse to being in the public domain.

Kano and its Manuscripts
Kano is one of the original Hausa kingdoms and part of what later became known as Northern Nigeria. Carbon dating of artifacts found around the hills and valleys of the central area of Kano dated the settlement to about 7th century, although oral records – part of this digitization project – of its establishment indicated that a political community was formed as early as 1000. Islam became the official religion in Kano in about 1380 when a caravan of about 40 Wangara merchant clerics from Mali came to the territory and converted the king of Kano, Yaji 1349-1385) to Islam. The king subsequently ordered Islam to be adopted as the official religion in the kingdom.

Although not the first kingdom to be Islamized in Hausa northern Nigeria (Islam arrived neighboring Katsina about 1320), yet due to its unique position as an ancient terminus of the trans-Saharan Trade route from northern Africa, it acquired a commercial significance that attracted not only merchants, but also scholars and adventurers from about 1450 to 1885 from both sub-Saharan African, and Europe. The accounts of the histories of these journeys and peoples found in Africa was predominantly in European languages and meant for European consumption. There were very few manuscripts that dealt with indigenous histories and accounts, and written by indigenous scholars.

Thus arrival of Islam in about 14th century in the northern Hausa kingdoms enabled local scholars to acquire elements of writing using the Arabic script both in Arabic language as well as domesticate the Arabic script to local languages (creating a newer script called *Ajami* in Hausa) and consequently the ability and opportunity to record and preserve their own local histories – thus providing us with an opportunity to reconstruct the earliest chronicles of the kingdoms before European travelers arrived from 1800.

These chronicles form the basis of understanding local histories. Local history collections focus on local history, and local history focuses on a certain geographic location. Studying history from ground up gives a community perspective to the construction of such narrative – and thus adds to its authenticity as a text, if not its credibility as narrative. As Phillips (1995, 2) pointed out,

> The first great wave of interest in the development of regionally focused collections and the writing of professional local history grew from the celebration of the U.S. Centennial in 1876…in the 1960s, many historians, perhaps as a reaction to changes in society, predicted that an exploration of local history would broaden the concept of national history…Academic historians now use case studies of individual communities for their research, and history teachers on all levels include regional, state, and local history in their classes. Local history collections, organized properly, facilitate research at all levels.

The dearth of primary manuscripts on early local histories in many African communities makes it impractical to create stringent criteria for archival appraisal, beside the simple fact that a manuscript, no matter how poorly written, exists to provides perhaps a unique and only insight into a particular local history. There are of course other factors that might impede this. Content validity, for instance is a serious issue in determining the value of a local manuscript, no matter how unique it is. Thus triangulation of the narrative with other sources would serve the extremely useful function of further validating the manuscript. In this paper, however, the main focus is not on content validity—that has already been addressed by the numerous versions of the manuscripts published—but on specific ways of digitizing local histories through manuscripts on a portable, individual level. Large scale digitization, as undertaken by professional libraries, would naturally require a greater array of equipment and competencies than explored here.

Thus the acquisition of Islam provided the Hausa scholars of Kano with a literary base going back to over 600 years due to the fundamental need to acquire literacy in Arabic. Over the centuries therefore local renderings of Islamic sciences, as well as recordings of local histories of Kano started to become very practical—in Arabic language. Abdullahi (1978), for instance, cataloged over 2,000 Arabic manuscripts belonging to one individual library alone. Similarly, the Nasiru Kabara Library in Kano was briefly catalogued by Roman Loimeier (1991) has almost 200 individual items.

However, a more comprehensive listing of manuscripts from Hausa speaking areas of West Africa and Kano in particular, was fully described on the Melville J. Herskovits Library of African Studies pages of the Northwestern University 'Arabic Manuscripts from West Africa' project. The Herskovits Library contains four major cataloged collections, of which two, the Umar Falke Collection and the John Paden Collection directly refer to Kano.

The Umar Falke Collection consists of 3323 items, approximately 90% of which are original manuscripts, while 10% are market or printed editions. Most of these documents were produced in the 19th and 20th centuries. This collection represents the intact library of a Kano trader who was also a local scholar and author, Malam Umar Falke, who was described by Abdullahi (1978) as a prototypical example of the Hausa scholar-trader—a learned man who dedicated his life to the pursuit and dissemination of Islamic knowledge. The collection contains books and manuscripts

on all aspects of Islamic learning, protective medicine, and the secret arts (asrar). It is strong in works on Sufism and in almost all the branches of Islamic sciences, especially Maliki law, jurisprudence, Prophetic traditions (hadith), theology, literature, and grammar and contains a number of fine examples of handwritten copies of the Qur'an that may have been used by Umar's students. The library also includes earlier works written by West African jihad leaders and many other notable malams (learned men). A special area of the Falke collection is in the field of protective and secret medicine. Falke was a noted healer who wrote several books on the subject.

The Paden collection contains 606 items, approximately 60% of which are original manuscripts, while the remainder are market or printed editions. Most of these documents were produced in the 19th and 20th centuries. Approximately 40 % of the collection consists of copies of works from classical Muslim/Arabic literature. Some are handwritten copies while others are printed editions. Subject matters include basic jurisprudential treatises, classical commentaries on these works, and printed versions of the better-known diwans of pre-Islamic Arabic poetry. The remaining 60% of the collection contains works written by Nigerian authors, predominantly market or printed editions. Subject matters covered include poetry (especially of the madh genre, in praise of the Prophet, of Shaykh Ahmad al-Tijani, or of Shaykh Ibrahim Niasse), Arabic grammar, history, theology, jurisprudence, Qur'anic exegesis, Prophetic Tradition (hadith), biographies of local scholars, and Sufism. There are also over 30 copies of works by the great early 19th century Sokoto writers—Shaykh Uthman b. Fudi (Dan Fodio), his brother Abd Allah, and his son Muhammad Bello.

The contents of these libraries vastly exist as manuscript repositories and provide a huge challenge of access to the general public, particularly in Africa, their source. Even within African collections, there are restrictions. For instance, while the collections in the Northwestern University library are open to international scholarship, the Nasiru Kabara library is more restricted—being available only in the headquarters of the Qadiriyya movement in Kano.[1] Other library collection of manuscripts of less well-exposed, but well-known local scholars also exist. There is therefore a need for an articulated policy that would preserve these manuscripts and make them accessible to the public in order to gain an insight into how local histories and intellectual processes evolved. Digitization would seem to be one practical way of doing this.

I will now attempt to apply these principles to select manuscripts on the local histories of Kano. The choice of Kano is informed by the fact that it is the only northern Hausa kingdom to have fully recorded its chronicles throughout its history – and these chronicles have survived.

The purpose of the digitization project is to demonstrate the effectiveness of a particular digitizing strategy and how it can be used as a portable process in field situations where portability is crucial to acquisition of local manuscripts for larger electronic access. The current manuscript digitization effort focuses on the following documents on the history of Kano, northern Nigeria:

1. Tarikh Arbab Hadha al-balad al-Musamma Kano (18th century)
2. Asl al-Wangariyin (1650)
3. Taqyid al-akbar (1863)

4. Al Eelan fi Tarikh Kano (1933)
5. Song of Bagauda (oral narrative, published in Hausa Ajami Arabized script)

All these are primary first account of local histories and from local perspectives and with the exception of Song of Bagauda, written in Arabic. Their value lies in the insight they provide on the economic, historical, political and cultural evolution of the city and kingdom of Kano through both war and peace.

They are divided into two categories. The first are those documents that exist in manuscript form often in museums (Tarikh, Taqyid Akbar located in National Museum, Jos) or available in individual libraries (Al Eelan). The second are those that are part of bound volumes, but located in libraries (Asl Al-Wangariyin) or simply no longer available (Song of Bagauda). All have been subjected to extensive commentaries by national and international scholars that validated them
(e.g. Hiskett 1957, Smith 1983, Hunwick 1993, 1994) —if not respecting them—as unique markers of intellectualism in the heart of Sub-Saharan Africa.

Tarikh Arbab Hadha al-balad al-Musamma Kano
This manuscript was translated as the Kano Chronicle by Herbert Robert Palmer in 1908. H R Palmer, a colonial officer in northern Nigeria from 1904 to 1930. Kano Chronicle was published as part of his *Sudanese Memoirs* in 1928. The original manuscript was discovered in a village called Sabongari near Katsina, northern Nigeria.[2] Palmer did not describe the circumstances of its discovery or its physical properties in his translation, although he provided a facsimile of the first folio. According to Hunwick (1994, 102-130) at least four known versions of the manuscript exist. These are:

- MS Falke 0704 (Umar Falke Collection in the Melville J. Herskovits Library of Africana, Northwestern University; ends with Alwali, 1781-1807)
- MS Jos 47 (University of Ibadan, and from the collection of Sir Richmond Palmer, ends with the reign of Ibrahim Dabo, 1819-1846)[3]
- MS Jos 53 (University of Ibadan, and from the collection of Sir Richmond Palmer, ends with Usman, 1846-1855)
- MS Paden 399, a manuscript preserved in the Paden Collection of the Melville J. Herskovits Library of Africana, Northwestern University (ends with Muhammad Tukur, 1893 to 1895).

Interestingly, a Hausa version of the Kano Chronicle was published in 1933 by the northern Nigerian Translation Bureau under the guidance of Rupert East, as *Hausawa Da Makwabtansu* (essentially Palmer's Sudanese Memoirs). However, the team that translated Kano Chronicle in the volume extended and stopped the Chronicle to Abdullahi Bayero (1926). There do not seem to be yet efforts to extend further the Chronicle to the current Emir of Kano (Ado Bayero, from 1963).

The published Kano Chronicle by Palmer actually extended the rulers to Mohammed Bello (1853-1892) and is labeled as MS 47 at the National Museum, Jos – giving room to questions of which versions Palmer used to construct the history of Kano. In any event, the penmanship of the facsimile of the folio reproduced in Palmer (1908, 99; Plate IX, Fig. 1) is exactly the same as the MS 47 document.

The Kano Chronicle, which is actually a king list with some commentary, stands so far as the most authoritative account of 48 of the kings who ruled Kano from about 1000 (Bagauda) to 1892 (Mohammed Bello)—and provides a fascinating insight into the history and sociology of the kingdom of Kano. In the original translations, Palmer attempted to provide a series of triangulatory evidences that validated the accuracy of sections of the narrative. Although there was no specific evidence on who actually authored Kano Chronicles, it was deduced by Muhammad Uba Adamu that it was written by Malam Yusuf Shafannoni (Yusuf, the encyclopedia), a well-versed Islamic scholar who was commissioned by the Emir of Kano Muhammad Bello to continue the diary of the king list to include Bello's reign.[4]

In 1972, Muhammad Uba Adamu, then the Mayor of Kano city ('Kantoma') and Arabicist scholar got to know of the "Alwali Librarian." Mohamman Alwali II (1781-1807) was the last ethnic Hausa Emir of Kano before the Fulani conquest in a jihad in 1807 which brought in Suleiman (1807-1819). Although vanquished and later killed by Fulani expeditionary forces, the family of Alwali survived in Kano, and were able to maintain a copy of the Kano Chronicle within one family house or other – the document passing from father to son. In July 2007 I was able to trace the custodian of the manuscript in a section of the old Kano city. Although he was able to show me a photocopy of the original manuscript which, like MS Jos 53 ended with Usman, who ruled Kano from 1846-1855, he insisted that the original manuscript was given on loan to another person who had not returned it. The photocopy itself was poorly made and incomplete, since only few pages were shown to us, with clearly water smudges on them—indicating poor storage. I acquired the 1972 manuscript from Adamu in 2007. I refer to it as Kano MS 1972.

I had wanted to compare the 1972 copy with Adamu with the "original" kept with the custodian—even though the custodian did remember the copyist who did the work (although the copyist had since died). In any event, the 1972 copy was so far the only existing copy of the manuscript available to me; for inquiries even to the Nasiru Kabara Library collection revealed that they do not have it. This digitization effort was therefore on the 1972 manuscript. However, MS Jos 53 was also eventually obtained and digitized, and an extension of this project would be to compare the two manuscripts. To show the differences in style and penmanship of the two manuscripts, I will subsequently illustrated a page from each of the two of them together.

The Kano MS 1972 manuscript is composed of 125 quarto-sized folios with dark ink turning brown on conqueror paper. The narrative of the kings of Kano ended with the 46th Emir, Usman (1846-1855). A quick translation of the one of the pages of the 1972 manuscript with the Palmer translation revealed concurrence in the substance of the narrative. Its form of storage reflects the conditions original manuscripts survive in the African climate. It was initially preserved in a clear transparent plastic bag used to preserve bread, and later stuffed with other papers into a grain sack and left in a dark corner of a room for almost 20 years. The task of digitizing it was undertaken with the acquisition of a Sony DSC-W55 digital camera with 7.2 megapixels in 2006.

So far no efforts have been made to digitize the original manuscript of *Tarikh Arbab* either locally or internationally until the current effort. There are two possible reasons for this. The first was lack of awareness of what exists at the local level with regards to local histories and manuscripts. Often these manuscripts are deposited with noted

local Islamic scholars, and their libraries are not usually open to public access. The second was reluctance on the part of the owners of the manuscripts to part with them. Further, the manuscripts that exist were in museum collections where digitization effort had not started.

In my digitization process, I do not focus on the content of the manuscripts (thus avoiding analysis of writing styles, authenticity, historical accuracy, age etc) for I believe these are processes of conservation. Working with the base assumption that the manuscript is credible enough as local history due to its continuous references in other sources (e.g. Arnett 1919, Hiskett 1964, Last 1980, Hunwick 1993, 1994, and Smith 1997), I set out the task of moving from conservation to preservation in order to make the manuscripts available and accessible to larger audiences. Further, the digitization reduces the handling and use of fragile or heavily used original material and create what is essentially a "back up" copy for a rare material that the owner may not wish to part with.

The first stage was to photograph all the folios on a flat surface—which was made possible by the simple fact that the manuscript was not bound. There was no attempt to control lightening on the individual folios because the image was to be processed. Each folio was photographed at high resolution possible for the camera, leading to individual files sizes of more than 2.3MB each, which ensures a high resolution and dpi.

Photographing, however, spearheads another set of two additional process. The first involved importing the individual images into a photo editing software to remove the dark layers that accompanied the initial photograph. For the photo editing, Photoshop 7.0 by Adobe Systems was used as it was an industry standard package for editing images. For each of the folios, the image manipulation involved a little more than adjusting the brightness and contrasts, as the series of figures that follow show:
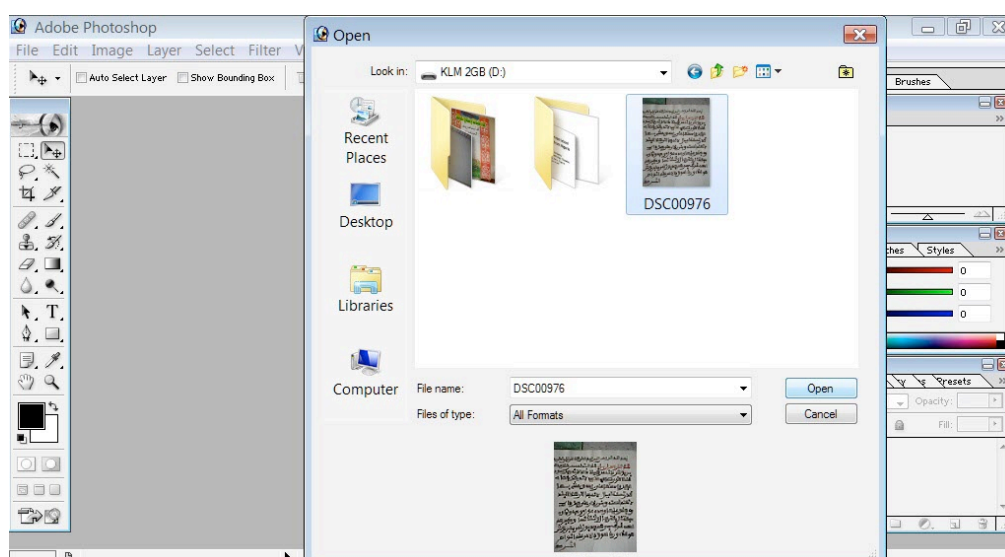
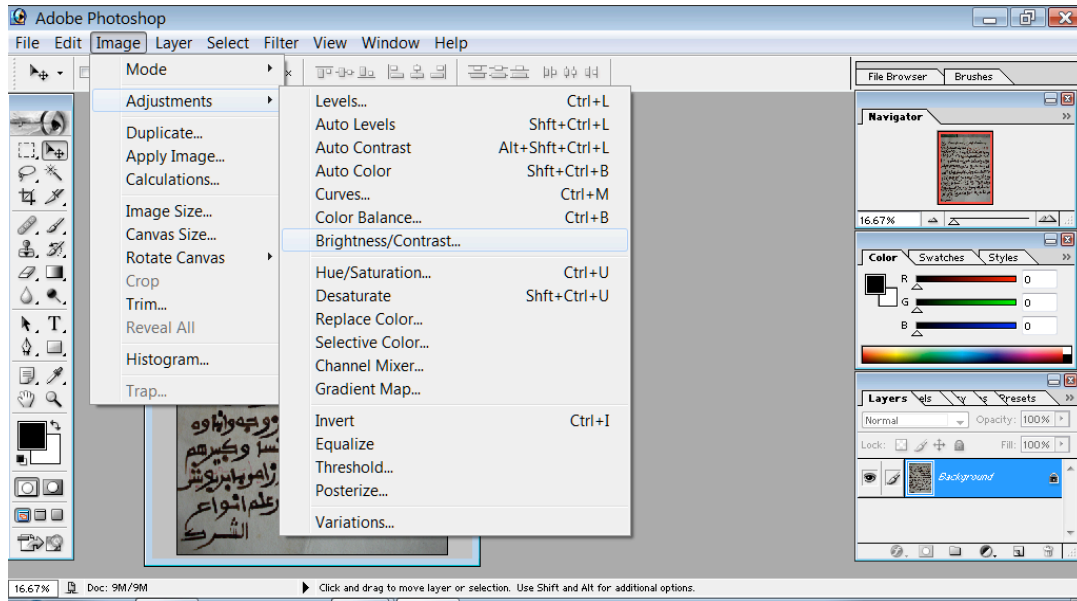*Fig 1a: Importing photographed manuscript into Photoshop*

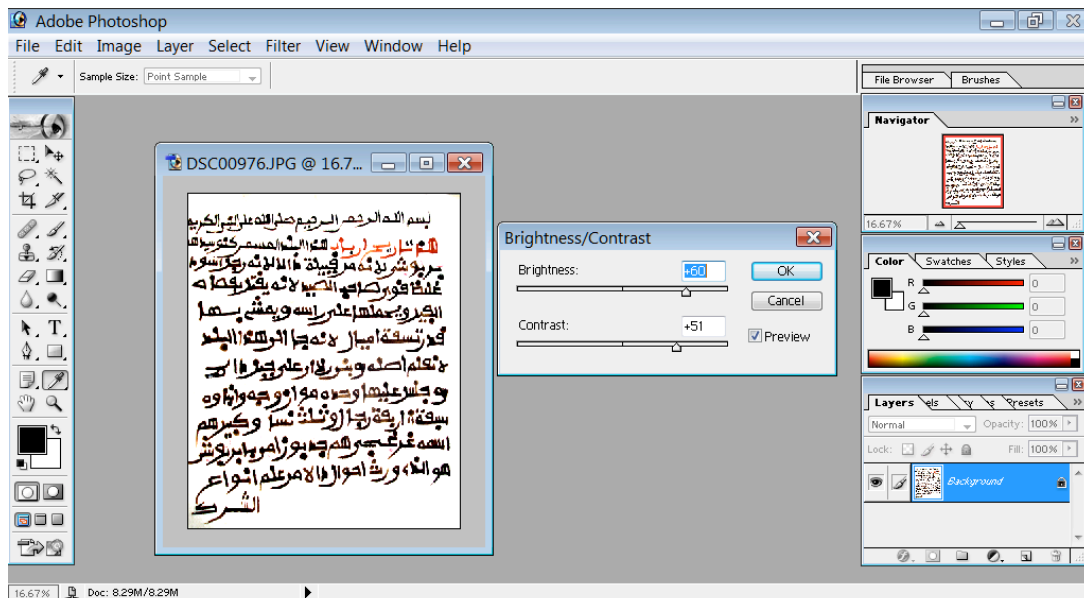*Fig 1b: Making adjustments to the image*

Fig. 1c: Using the brightness and contract slider to remove dark layers

Fig 2a: Tarikh: Before and After – Final Photoshop'd image cleaning

Fig 2b: MS Kano 1972 and fascmile MS Jos 47 versions of Tarikh

The final product is a relatively clean, if imperfect copy of the image, as shown in Fig. 2. It cleaned copy tended to show up with large script when printed – but this was

because it was photographed and edited at high resolution, and the print size can be reduced, without compromising the dpi quality.

This process was repeated for each of the 125 folios in the manuscript collection. From here the output could be stored in various forms: it can be printed directly as individual image files and bound together—which will be useful in ensuring hardcopies are kept in a library. However, for distribution either on the Web or via other electronic means, the images of the pages are further converted into PDF files through Adobe Acrobat (version 9.10 was used for this), creating a large single archive of the manuscript. Various features of the Adobe Acrobat makes it possible to reduce the size of the file. However, because of the initial high megapixel and resolution of the original images, the resultant PDF document has to be necessarily large (at 126 MB) making it too difficult to easily share via email. However, it can be uploaded to any Web server using ftp tools, although it is admitted that downloading, especially in low bandwidth dial-up Internet access situations such as is found in most countries of Sub-Saharan Africa, might restrict access to the document.

Although I do not focus on content analysis, nevertheless I was able to compare the two versions of Kano Chronicle in my possession – MS Kano 1972 and MS Jos 47 which was the one actually used by Palmer in his translation. The two are shown in Fig. 2b. It is clear that the writing styles are different, as well as the scholarship.

Of equal significance is the metadata of the digitized product. Almost every digitized file has its own metadata which provides information about the distinct items, such as means of creation, purpose of the data, time and date of creation, creator or author of data, placement on a network (electronic form) where the data was created, what standards used. For example, the purpose of a digital image created may include metadata that describes how large the picture is, the color depth, the image resolution, when the image was created, and other data. A text document's metadata may contain information about how long the document is, who the author is, when the document was written, and a short summary of the document. Thus it serves the purpose of enabling straight querying for quick access to the repository of titles on the queried subject.

While most digitizing processes include some form of primary metadata, Adobe Acrobat offers opportunities for including more metadata information—which is easily accessible for indexing by portable document readers such as Sony's Reader PRS-600 Touch Edition, or Apple's iPad (through second-party add-ons such as Sort Shots – iPad Edition 2.0, an iPad application that utilizes metadata information from photographs for easy image searching).

The process of digitization described above is applied to the rest of the documents under the current discussion. I will therefore subsequently focus mainly on the actual documents themselves and circumstances of their acquisition, with illustrations of the first pages of the edited manuscript.

Asl al-Wangariyin
The Kano Chronicle records that during the reign of Emir Yaji (1349-1385) a group of Muslim merchant-clerics came from Mali and brought Islam to the kingdom by converting the king to Islam, who subsequently ordered the religion to be the only

religion in the domain—placing him on collision course with a local cult of pagans. The only other record of their arrival and subsequent activity that survives is their journal which was published by Al-Hajj (1968) in *Kano Studies*, (Bayero University, Kano, Nigeria). The journal itself is published epileptically over the years, and the copy in which the Asl appeared is found only in libraries. The major extensive commentary on the manuscript after the initial cataloging by Al-Hajj was by Lovejoy (1978).

This was the only manuscript in a bound volume. To digitize it first requires it to be photocopied, which resulted in the photocopies emerging with bluish tint due to the ageing of the paper in the original journal. However additional editing in Adobe Photoshop soon enough corrected the tints and a clean copy was eventually assembled, as in Fig. 3.

Fig 3 Before and After – Photoshop'd image cleaning of Asl al-Wangariyin

Although *Asl al-Wangariyin* is a critical primary manuscript on the local history of Kano, yet it seems to have been overlooked by researchers. So far only Lovejoy (1978) did any commentary on it after Al-Hajj's original presentation. Asl represents a local history but written from perspectives of internal settlers—perhaps that might explain why it was given less prominence as Kano Chronicle. Further, it details missionary activities, rather than quaint cultural heritages and therefore seemed too didactic to mainly Christian commentators of Kano Chronicle.

Taqyid al-akbar
In 1804 the Fulani under the leadership of Usman Dan Fodio launched a jihad against the Muslim Hausa kingdoms of what later became northern Nigeria. By 1807 they had replaced the Hausa ethnic ruling classes of the Emirs with their own appointed Emirs. The Jihad in Kano was witnessed by many scholars, but it was only during the reign of Abdullahi Maje Karofi (1855-1883) that the Emir commissioned one of his scribes,

Alkali Zangi, to reconstruct the jihad expedition in Kano. The document that emerged was *Taqyid al-akbar* which was completed in 1863, and its cleaned image is shown in Fig. 4.
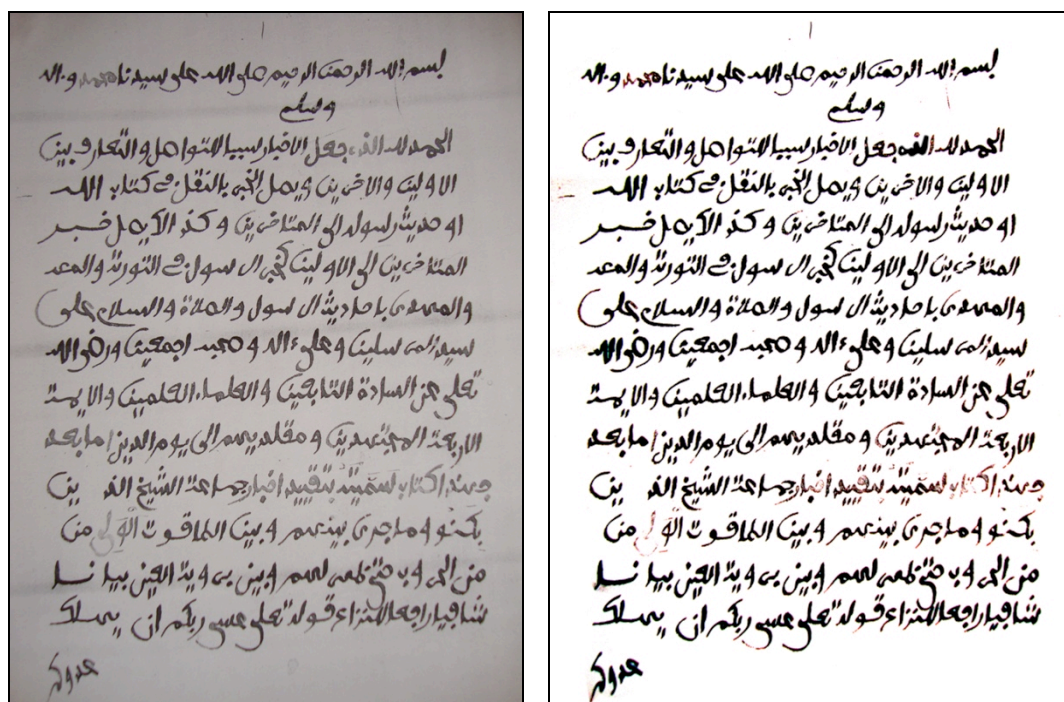

Fig 4: Before and After – Photoshop'd image cleaning of Taqyid al-akbar

Written from the perspective of a conqueror, the document provides insights into the jihad campaigns in Kano—and didactically recorded only its successes, and throws occasional contempt as the intellectual underpinnings of Tarikh (Kano Chronicle). The only known manuscript is in National Museum Jos (MS Jos 97). It was, however, translated with commentary by Ibrahim Ado Kurawa (1989) as The Jihad in Kano, although the English version is no longer in print.

Al Eelan fi Tarikh Kano

This document was written by a local scholar, Adamu Na Ma'aji, in Kano in about 1933. So far there has been no published translation into either Hausa or English. However, portions of the narrative in *Al Eelan* appeared in Abubakar Dokaji's *Kano Ta Dabo Ci Gari* (The Kano of Dabo, Conquer of Cities) and which was acknowledged in Smith (1997).

The copy I had was from a local scholar in the Soron Dinki area of Kano city. Interestingly enough, although Adamu Na Ma'aji's family still thrive in Kano, it proved impossible to obtain a copy of the archive from the family, simply because they do not have it in their libraries. The copy I worked with was obtained from the family of one of Adamu Na Ma'aji's students. Because it was so poorly preserved, it had to be re-transcribed. Fig. 5 shows the initial page of the original manuscript.
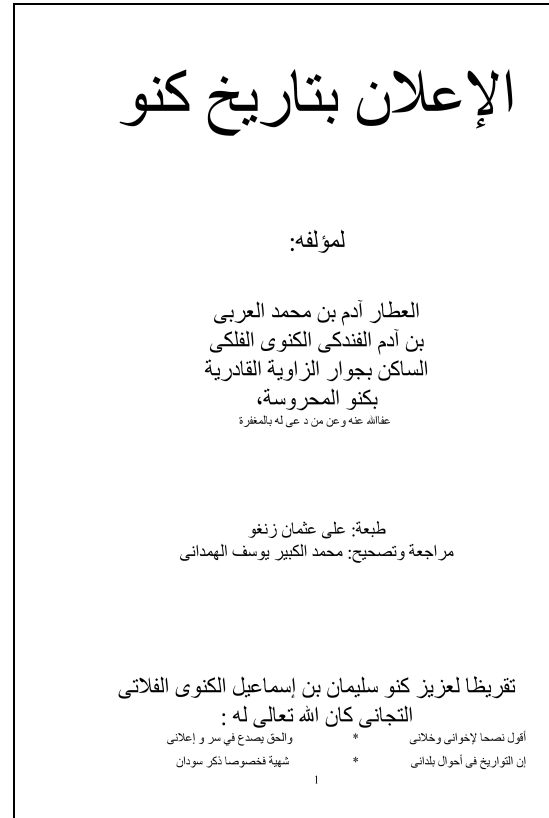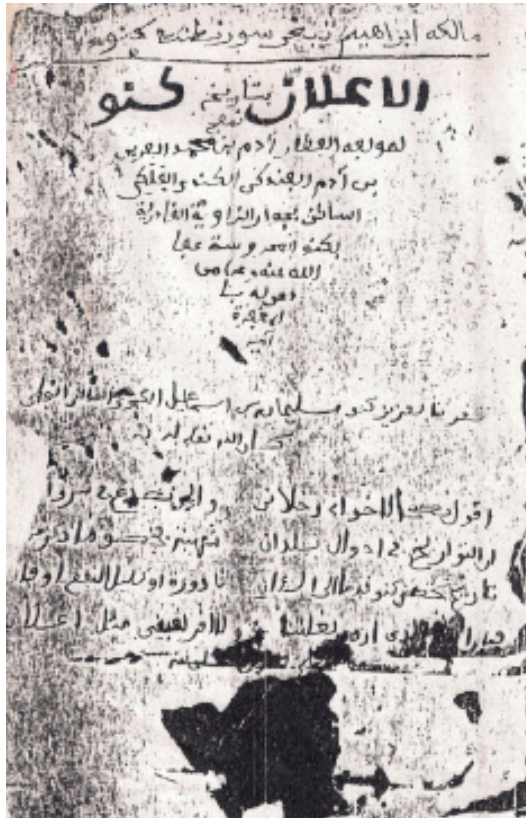
الإعلان بتاريخ كنو

لمؤلفه:

العطار آدم بن محمد العربى
بن آدم الفندكى الكنوى الفلكى
الساكن بجوار الزاوية القادرية
بكنو المحروسة،
عفاالله عنه وعن من د عى له بالمغفرة

طبعة: على عثمان زنغو
مراجعة وتصحيح: محمد الكبير يوسف الهمدانى

تقريظا لعزيز كنو سليمان بن إسماعيل الكنوى الفلاتى
التجانى كان الله تعالى له :

	*	أول نصحا لإخوانى وخلانى
والحق يصدع فى سر و إعلانى		
	*	إن التواريخ فى أحوال بلدانى
شهية فخصوصا ذكر سودان		
		١

Fig. 5. Adamu Na Ma'aji's Al Eelan in original and re-transcribed stages

This process introduces another stage of the digitization process—re-transcription. When it became clear that that the original of Al Eelan could not be digitized using any imaging device, a team of Arabicists was gathered together and given the manuscript. The first task for them was to reproduce the manuscript in as near original narrative as possible by filling in gaps created by smudgy ink (which was attacked by fungal elements). This process took many months, and the finished manuscript was then given to noted Arabic scholars in the city of Kano to validate. Once this was done, the manuscript was then typed into an Arabic processor and later converted to PDF via Adobe Acrobat. The end product was a document that was 25 pages.

Song of Bagauda

This document is unusual in the sense of being an *intermedial*—occupying two different media environments. It was not a published text, but a recited poem usually by beggar minstrels in the city of Kano. Hiskett (1964) provides a detailed description of the epic and how he made it possible for it to be transcribed from the poems, although the form he actually used was transcribed in Ajami in Kano. It was eventually published in Nigeria by Gaskiya Corporation, Zaria. It was also a king list of Kano, and in fact fills in gaps left by the Kano Chronicle. In its intermedial shift from orality to textuality, it retained its basic structure. However, it was later re-transcribed from Roman textuality to Ajami, using Arabic alphabet adapted to the Hausa language—a process which made it accessible to large swathe of Hausa populace who could not read the Roman version.

The Ajami version itself was eventually deleted. The digitization of the original Ajami script would therefore make it possible to create copies of the king list for a

much larger audience. The opening pages of the commercially available copy is shown in Fig. 6.
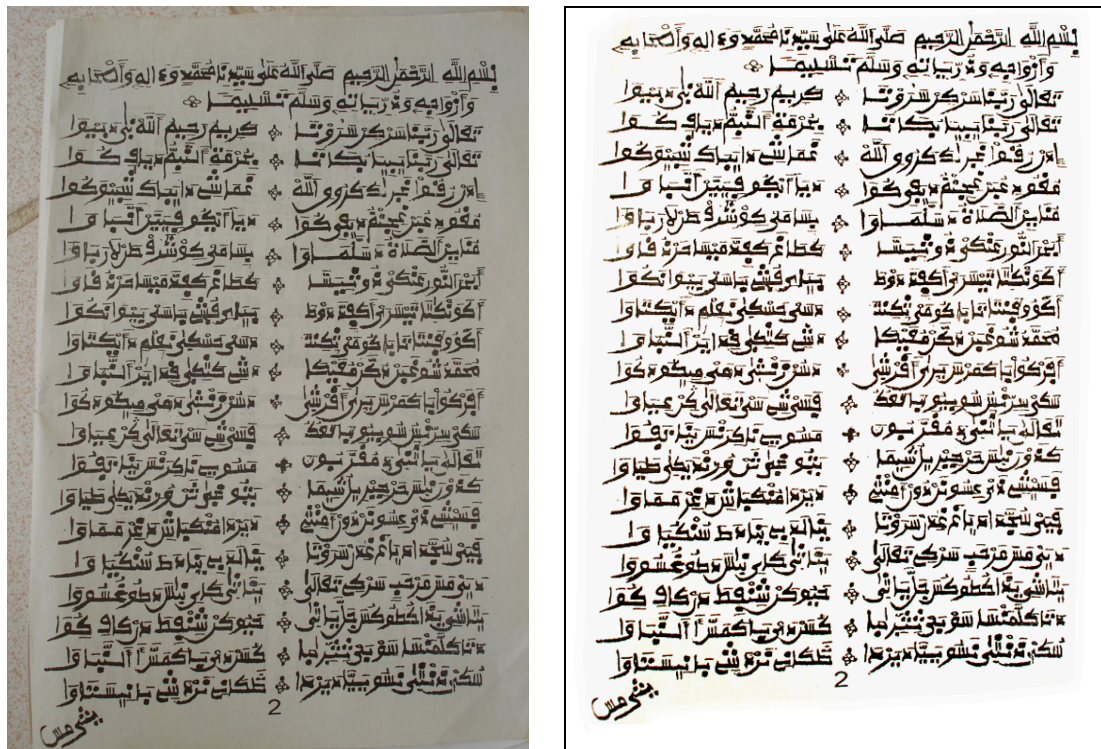

Fig. 6. Intermedial textuality of Song of Bagauda

Like Kano Chronicle, the Song of Bagauda also evolved, with additions being made after the death of every king. However, unlike the Kano Chronicle which had the organizational structure of the Emir's palace and was supervised by the Emir, the Song of Bagauda became a people's diary (perhaps more natural) of the Emir and his lineage, since it was added when a new Emir was appointed.

This document– which is volume 1 of a three volume production – differs from other others in the sense that it was commercially printed in Kano and available at the Ajamawa Section of the old Kano Kurmi market. The Ajamawa Section is where books, pamphlets and manuscripts in Ajami are traded.

Of the manuscripts discussed in this paper, the Song of Bagauda seemed to have received less attention from Hausaist scholars than Kano Chronicle. The reason was simple. Song of Bagauda had a more modest origins—it was sung in streets of Kano by beggars who memorized it themselves from an unknown teacher. It provides little room for the triangulatory accuracy as by Palmer and subsequent scholars such as John Hunwick, Murray Last and M. G. Smith as on the Kano Chronicle. Yet at the same time it provides a vital slice of local history, from local, "unlettered" diarists.

Conclusion
Digitization of manuscripts, particularly in African settings can revolutionize the way the libraries store, preserve, disseminate and most importantly allow efficient access to users. Most fundamentally, it can also provide a framework for the recording and preservation of local histories by individuals operating on an independent level.

The main danger associated with this electronic freedom is unrestricted documentation of almost every manuscript that becomes available. This would mean therefore there is a need for caution as to what constitutes worthwhile enough to be digitization – for as we have seen, the digitization process is labor-intensive; often beyond the administrative capabilities of individuals. Unfortunately, the technology has developed so rapidly that its potential has caught the established librarians unawares – at least in northern Nigeria. There is thus a need for librarians, archivists and documentarians to come up with common guidelines for independent and individual researchers with an amateur interest in digitizing local histories recorded in locally available manuscripts.

These guidelines would not only facilitate proper cataloging of local manuscripts, but also assist local scholars who own the manuscripts to record them; or at least pass the primary hurdle of rescuing the manuscripts from mold, termite, damp, fungus and other hazardous elements. Once they convert their manuscripts into digital format, a secondary process of cleaning can then be undertaken at an administrative level so that the manuscripts now become part of larger community heritage. For both owners of users, the Internet serves as a perfect storage space.

Making such collections available could also be part of a commercial process whose proceeds can fund subsequent digitization processes – for instance by charging small fees for copies on CD or on flash drives; although on the whole, a funding initiative to make the resultant digital manuscripts freely available would have been preferable. Of course this throws up the questions of copyright and what constitutes documents in the public domain – a further challenge that needs to be tackled with regards to distribution of digitized manuscripts.

One area that may need further exploration is another aspect of digitization – *audio* digitization of the manuscripts. With MP3 technology now becoming a common feature of urban as well rural Africa, there is a large user-base for archival historical audio materials, especially in situations where availability of printed or web-based digital collections may be inaccessible to a vast number of people. In urban northern Nigeria, for instance, songs, preaching's, sermons and other audio artifacts are common passed virally via Bluetooth technology available especially in the cheap Chinese-made mobile phones that have flooded the markets. With this user-based, and increasing sophistication of recording studios in northern Nigeria, it might be possible to get professional readers to recite the manuscripts and have them professionally recorded for distribution. This again could be another source of revenue, either by culture custodians or by NGOs or other private initiatives.

The main objective of this chapter was to illustrate the viability of portable digitization of manuscripts obtained in the field. It would be premature to say that the technique described in the chapter can provide rock-hard conclusions about the kinds of digitization projects for manuscript materials that can be undertaken on a larger scale, based on this single foray into manuscripts digitization. Technologies associated with digital conversion, storage and retrieval, and delivery to remote users are subject to rapid change.

Thus like a city at the edge of digital forever, the prospect of digitization provides endless opportunities for sharing of rare local manuscripts that provide significant insights into local events, and pave way for the reconstruction of local histories.

Notes
1. However, in 2010 the Qadiriyya movement launched an appeal fund to build a Sheikh Nasiru Labara Research Center whose library would include all of the Sheikh's manuscript collection.
2. All attempts to trace this village now proved futile, and it was suggested by Katsina main town residents that it was a temporary name for a more established village which had since reverted to its original name.
3. The actual MS 47 in National Museum Jos, and photocopied in February 2010 showed the king list up to Muhammad Bello (1853-1892).
4. Muhammad Uba Adamu (b. 1935), interview 25th July 2007, MP3 digital recording, 18.047 mins., Kano, Nigeria. Earlier writers of the chronicle usually of course stop at the then current emir.

References
Al-Hajj, 1968. M. "A Seventeenth Century Chronicle on the Origins and Missionary Activities of the Wangarawa, being a translation of *Waraqa maktuba fiha asl al-Wangariyin al-muntasibin lil-shaikh Abd al-Rahman b. Muhammad b. Ibrahim b. Muhammad Qithima*. *Kano Studies*." 1: (4): 7-16.
Arnett, E. J. 1910. "A Hausa Chronicle." *Journal of the Royal African Society*, 9: (34):161-167.
Carlson, Scott. 2007. "Advanced Photo Shop". In Diane Kresh, *The Whole Digital Library Handbook*, Chicago: American Library Association,100-102.
Dokaji, Abubakar. 1958. *Kano Ta Dabo Ci Gari*. Zaria (Nigeria): Gaskiya Corporation.
Hiskett, Mervyn. 1964. "The 'Song of Bagauda': A Hausa King List and Homily in Verse." *Bulletin of the School of Oriental and African Studies*, University of London, 27: (3):540-567.
Hiskett, Mervyn. 1957. "The Kano Chronicle." *Journal of the Royal Asiatic Society of Great Britain and Ireland*, No. 1/2: 79-81.
Hunwick, John O. 1993. "Not yet *the* Kano Chronicle: King-lists with and without narrative elaboration from Nineteenth-century Kano." *Sudanic Africa*, IV: 95-130.
Hunwick, John O. 1994. "A Historical Whodunit: The So-Called "Kano Chronicle" and Its Place in the Historiography of Kano." *History in Africa*, 21: 127-146.
Last, Murray. 1980. "Historical Metaphors in the Kano Chronicle." *History in Africa*, 7: 161-178.
Loimeier, Roman. 1991. "The Writings of Nasiru Kabara (Muhammad Al-Nasir Al-Kabari)." *Sudanic Africa*, II: 165-174.
Lovejoy, Paul E. 1978. "Notes on the Asl al-Wangariyin." *Kano Studies* (Kano), 1/3: 46-52.
Mohammed, Abdullahi. 1978. "A Hausa Scholar-Trader and His Library Collection: The Case Study of Umar Falke of Kano, Nigeria." PhD diss. Northwestern University.
Palmer, Herbert Richmond. 1980. "The Kano Chronicle**."** *The Journal of the Royal Anthropological Institute of Great Britain and Ireland*, 38: 58-98.
Phillips, Virginia Faye. 1995. *Local History Collections in Libraries*. Englewood, CO: Libraries Unlimited, Inc.
Smith, Abbey. 1999. *Why Digitize?* Washington, DC: Council on Library and Information Resources.
Smith, Michael Garfield. 1983 "The Kano Chronicle as History". In *Studies in the History of Kano* edited by B. M. Barkindo (ed*).* Ibadan: Heinman Nigeria Limited, 31-56.
_____. 1997. *Government in Kano 1350-1950*. Boulder, Co.: Westview Press.
Verheul, Ingeborg. 2006. *Networking for Digital Preservation: Current Practice in 15 National Libraries*. [International Federation of Library Associations and Institutions]. München: K·G· Saur.