Conservation of sub-Saharan African Manuscripts

Michaelle L. Biddle, Wesleyan University
Sub-Saharan African manuscripts are cultural materials, the physical constituents of a group or a society’s heritage, recording hopes, concerns, aspirations and creativity of the people who created them. As long as these manuscripts exist they can reveal, through their words and materiality, individual biographies with multiple, simultaneous interpretations. Manuscripts are physical objects and as such contain historical and technological information beyond their words and, like all objects, manuscripts can be most useful when compared with other, similar ones.

If an object cannot be used or is not used – for research, exhibition, or any other physical or intellectual use – it provides no benefit. Trophies locked away provide little benefit to anyone. It might show respect to lock them away but if there is no benefit to society as a whole, then using scarce resources on ‘conservation’ is a waste of treasure, expertise and time.

Conservation is not restoration. The aim of restoration is to return an object to its ‘original’ appearance, often without regard for the long-term preservation of materials, or the integrity of authentic components, or the benign effects of aging and wear. Conservators are also concerned with aesthetic appearance, but this is only one of many criteria to be considered when examining and treating cultural materials. We must be willing to accept manuscripts, documents and artifacts as we receive them from past generations. To a certain extent, damage and wear reflect their history. The task of con-
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Condition of the documents;
Future use;
Aesthetic importance;
What the documents will allow;
Realistic assessment of environmental conditions;
Emergency preparedness;
How much money can be allotted.

Extensive conservation of individual works should be secondary to collections’ care procedures such as maintaining proper storage, display and usage environments. All materials will age and deteriorate with the passage of time but cleanliness, humidity-temperature-light control, and properly enforced storage-handling-maintenance procedures will have the greatest positive impact on the long-term preservation of manuscripts.

Phased Conservation
A focused conservation strategy whereby collections, or even single manuscript items, are treated in stages, or phases, over a period of time according to a planned and logical sequence of procedures that adheres to accepted international standards, will achieve economies of scale and utilize resources most effectively.

With Sub-Saharan manuscripts there are numerous but specific issues that should always be kept in mind:

Paper: The paper was made using European methods and until the late 19th century was made of rags, ropes and assorted vegetable matter, all of which were relatively stable material. By the late 19th century ground wood pulp and chemical wood pulp was added to the mix. Paper was increasingly made by machine rather than by hand and was not as durable as earlier papers. These papers were not always white or cream colored, even when new, and most are soft and thin. Due to their unbound structure, frequent handling and traditional storage methods, edge-wear and

Figure 1: An untreated, unorganized collection. (Yola, Nigeria 2009 – all photographs except figure 8 are by the author)

Figure 2: A well-organized, clean work station for foldering manuscripts. (Yola, Nigeria, 2009)
Tear are common. Tunneling in the edges of manuscript sheets provided an open door to insect infestation and mold growth.

**Inks**: Most of the inks are highly water soluble and therefore use of moisture in conservation treatments should be kept to an absolute minimum. This means that highly aggressive treatments such as using a leaf-caster are inappropriate. Leaf-casters can also change paper characteristics and obscure or erase codicological information such as paper polishing and ruling board use. Inks can be thick and in larger manuscripts this creates a domed structure with uneven weight distribution across the paper sheets, leading to cracking and tearing in the center of the sheet.

**Leather**: Leather wrappers and bags were often oiled as a last step in tanning and direct contact between leather and paper is damaging to the paper. Direct contact with leather is usually the reason why so many first and last manuscript pages are missing. Hence the paper will always need to be protected or separated from leather wrappers and bags.

**Storage**: These manuscripts were designed to be stored flat and even when placed in folders, wrapped or boxed they should never be stored upright like a bound book in a modern library.

**Modern Issues**: African urban pollution from industrial activity, construction, cars and motorcycles has increased enormously in the past fifty years and this has increased the likelihood of aggressive and destructive acid precipitation. In the case of buildings made from cement blocks there will be greater daily temperature and humidity fluctuation than in buildings constructed with solid walls. Tin roofs increase interior heat load.

**Environment**: Sub-Saharan temperatures and humidity fluctuate to extremes. Dust, mold, insects and rodents are pervasive and aggressive enemies of manuscripts.

**Culture**: Owners, custodians and staff rarely
have either program management experience or knowledge of international conservation and collections’ care standards. It is very rare to find written policies and procedures, or clearly defined job descriptions that are followed consistently. Regular, systematic, quality maintenance is scarce. Owners and custodians of manuscript collections have a wide range of agendas. Many staff in manuscript repositories feel powerless due to lack of knowledge and inadequate training.

Surveys of several hundred thousand manuscripts held in the United States, England, northern Nigeria, Mali, Morocco and Egypt, together with decades of experience gained during countless preservation and conservation projects, have all shown that the following sequence of phased steps, will have the greatest impact on the long term preservation of collections. This applies regardless of whether the collection contains hundreds of thousands of objects or just a few.

At all times workers must have clean and dry hands. Therefore, wash basins, soap, pitchers of clean rinse water and towels must be nearby.

At all times, work surfaces and floors must be organized and clean. Dirty work, such as surface cleaning and box making, must be separated from clean work, such as placing manuscripts in folders (foldering) or item conservation.

Step 1 – Surface Cleaning
Manuscripts should be removed from wrappers and bags but all parts must be kept together. Although it is neither necessary nor desirable to remove discoloration from old paper, surface brush cleaning using soft bristle or sheep hair brushes removes substances, such as dust, mold, insect and rodent remnants, that might eventually damage paper sheets or could be transferred to other papers during handling. African dust is particularly abrasive as it typically contains bristly prehistoric diatoms. Dust must be removed as it is as destructive as glass (sand) paper rubbing against manuscript sheets. Dust is a major enemy as it provides nesting material for insects, an incubator for mold spores and a focus for acid precipitation. Motorcycles and cars spew nitrous and sulfurous oxides which precipitate onto dust as corrosive acid dots.

Surface cleaning is repetitive work and therefore finished work must be periodically checked for quality and thoroughness.

Step 2 – Storage Foldering
After surface cleaning of both sides of each

![Figure 5: Manuscripts brush cleaned, placed in photocopy paper folders and organized into manuscript number order prior to boxing. The boxes are on the shelf above the manuscripts. The boxes were labeled in pencil with the manuscript catalogue numbers. (Jos Museum Library, Nigeria, 2012)](image)

![Figure 6: Option A: One piece box made of lightweight corrugated, or fluted, acid-free cardboard. The jigs (measurement tools) in the foreground are used to minimize the handling of the manuscripts. (Wesleyan University Library Conservation Laboratory, 2014).](image)
individual manuscript sheet, individual manuscripts should be placed in folders. There are many folder options. For several decades all photocopier paper has been made acid-free, and it is readily and cheaply available in every town and city in Africa. A3 (ledger) size is optimal, although folio (legal) size is acceptable at 80 gsm (20 lb) weight. It is an inexpensive option. Folder card stock at 100 gsm (10 point) weight would be more substantial and provide greater protection but takes more room than other options, is more expensive and might need to be imported. It is important when making folders of heavy-weight stock that edges of the folder completely cover the entire surface of the manuscript sheets; this is because folder edges can, over time, cause destructive depressions, ridges or even cut into fragile manuscript sheets if the edge falls in the middle of a manuscript sheet.

Manuscripts accompanied by leather wrappers should be placed in double-layer photocopier paper folders before placing the manuscript back in its wrapper. This is to protect the manuscript sheets from the leather. If a manuscript has a bag, then the bag and the manuscript should be boxed separately as pushing manuscripts into bags is destructive.

During brush cleaning or foldering, notes can be taken of individual items needing conservation. These notes can be a simple list of manuscript catalogue numbers or a more comprehensive analysis. Alternatively, this evaluation can wait until after all items have been brush cleaned, foldered and boxed.

**Step 3 – Storage Boxing**

Manuscripts consisting of less than fifty sheets can be grouped into bundles no more than 4” deep. 1” deep boxes are optimal while 2” deep boxes are a pragmatic compromise. Larger manuscripts should be boxed separately.

Each of the three box types, as illustrated in Figures 6, 7 and 8, take no more than twenty minutes to make when custom-sized to the foldered manuscripts. They require a minimal amount of material and are therefore very cost effective. These boxes should only be stored flat. If they are stored upright manuscripts sheets contained inside can distort and warp.

It is accepted that, over time, all temperature and humidity control systems will eventually fail. When this happens in sub-Saharan Africa, humidity levels can soar very rapidly. When humidity increases rapidly paper is stressed as it responds to the spike in humidity. If boxes are so tight that a curator feels that boxes can be stored upright then this is a sign that manuscript sheets are being unnaturally constrained. For centuries the paper sheets have been expanding and contracting seasonally. However, when paper sheets are constrained in a tight box then they can create multiple microclimate tunnels, causing paper buckling and warping, which in turn can lead to inks flaking, paper tearing and molds blooming.
Double-wall drop-spine boxes are not recommended for use during initial conservation phases because they take six times as long and considerably more material to make than the three options illustrated. As a result, double-wall drop-spine boxes are much more expensive. Unless there are redundantly controlled temperature and humidity environmental systems, double-wall boxes should never be used. Under no circumstances should metal cartridge boxes be used for storage for more than a few weeks. Many have rusted and rust is a powerful corrosive. Both double-wall boxes and metal cartridge boxes can create a tight microclimate in which moisture is retained, leading within a very short time to explosive mold growth on manuscript sheets and leather.

If there has been an emergency move and metal cartridge boxes have been used to move an unboxed collection then ‘Step 1- Cleaning’ and ‘Step 2- Storage Foldering’ should be dispensed with. The manuscripts should be boxed immediately using a temporary-type storage box like Option A, B or C. One can always go back and, at a later time, clean and folder the manuscripts.

Step 4 – Storage Rooms and Shelving
Storage rooms should be uncarpeted. Windows should be glassed-in, and it should be possible to open the windows in an emergency. Windows should be screened and curtained with simple white, washable cotton to reduce heat-load in storage rooms.

Powder-coated metal shelves with open backs are optimal when placed 30 cm (12 inches) away from exterior walls. This spacing is needed because temperature and humidity adjacent to exterior walls can fluctuate dramatically within a 24-hour period. This is especially true for walls made of cement block, the most common form of contemporary wall-construction in Africa. If powder coating is not available for the shelving then the second choice is clean, painted metal shelving without rust but the paint must be thoroughly aged for several weeks to avoid off-gassing of harmful solvents in closed storage rooms. Wood shelving should be avoided but if there is really no other option then the shelves and sides should be lined with heavy acid-free card stock as a buffer from potential acid-migration from the wood.

Open backed shelving promotes better air flow. Placement away from walls also helps as it is easier to clean behind them and this reduces the incidence of rodents and insects as these are fond of nesting under and behind dark and dusty shelves. Manuscripts should only be stored flat with generous amounts of space around the boxes to permit and encourage air flow, which in turn will reduce the likelihood of mold blooms and insect infestation.

Step 5 – Storage Temperature/Humidity Control and Cleanliness
Temperature under 21 degrees centigrade (70 degrees F) and relative humidity under 55% are optimal. Daily fluctuations in temperature and humidity can be more harmful than seasonal fluctuation. If the humidity cannot be controlled then fans that circulate the air during times when the humidity approaches 55% should be installed.

Manuscripts accompanied by leather wrappers should be placed in double-layer photocopier paper folders before placing the manuscript back in its wrapper. This is to protect the manuscript sheets from the leather.
and kept running twenty-four hours a day, seven days a week. Neither mold nor insects flourish in the presence of moving air. Nor do they like cleanliness. Slightly damp mops rather than whisks or brooms, dust cloths rather than cow tails or feather dusters, should be used regularly. The cleaning schedule should be in tune with seasonal variation; the dry season requiring more frequent cleaning.

**Step 6 – Staff and Researcher Training**

Within libraries, members of staff are an important part of the preservation process. One of the first things affecting the care of manuscripts is the motivation of the staff to look after the collections. This motivation can be enhanced by the presence of a well-defined duty chart, avenues for further education and promotion, a cheerful work environment where their contributions are acknowledged by owners or curators, and an interest in the job.

It is vital for manuscripts to be available for research but when researchers are looking for specific facts they often are only dimly aware of the physical weaknesses of the materials they handle. An important task for staff is to raise researchers’ awareness of proper handling techniques of these manuscripts. Staff and researchers must have clean dry hands when handling manuscripts. Two hands must be used to support manuscripts with care being taken not to bend, crease or tear them. Nothing should ever be dragged over the surface of a manuscript, and this includes items of clothing such as a caftan sleeve or a veil. No food, drink or smoking should be allowed in research areas.

The paper sheet might be fragile but the inks used in sub-Saharan manuscripts are stable and robust enough for photography without a flash. After a researcher has finished using a manuscript, the folder should be checked to see that everything is there and in order. Likewise, storage box contents should be organized and straightened as necessary, before being re-shelved in manuscript number order.

*These six steps are the foundation for any serious preservation program for paper based materials. If these steps are not followed meticulously, then any further activity is little more than window-dressing.*

**Step 7 – Emergency Preparedness**

In many parts of Africa, political and climatic instability are common and crises may be expected. Therefore, planning for the worst is only prudent. To give two examples: floods destroyed manuscript libraries in Tishit, Mauritania and armed conflict destroyed the libraries of Birni N’gazargamu, Borno. If manuscripts have been foldered and boxed they can be moved safely and quickly to a predetermined safer location. Metal cartridge boxes make good although very heavy moving containers, take a great deal of space to store but they usually are water-tight. Cardboard cartons can be stored flat, reconstructed quickly but are not water tight. Curators and owners need to plan ahead and decide in advance how they would handle an emergency.

**Step 8 – Item Conservation**

Ideally item conservation would take place in the context of a robust collections’ care program – as described in steps 1-7. The treatment of manuscripts can be described as falling into one of two categories: necessary and possible. The category “necessary treatment” includes the following: folds are flattened, tears and lacunae (losses) are repaired to improve the stability of the manuscript sheet and prevent a tear from lengthening, or to keep fragments from separating, and to make a document safer to handle. “Possible treatments” are categorized as those that improve appearance. For details of item conservation procedures consult either of these primers:
• Conservation of Nigerian Manuscripts in Arabic Script http://works.bepress.com/mbiddle/4/;
• Conservation in a Box: A Primer of Basic Paper Conservation Procedures and Treatments http://works.bepress.com/mbiddle/2/.

In addition to methods described in these two primers, low moisture mending methods using remoistenable tissue are often appropriate when rapid or low moisture techniques are desirable.

**Step 9 – Digitization**

Even a relatively small digital project demands a significant investment of time and money. Each step must be planned well in advance and difficult choices have to be made at every step. Some of those choices will revolve around the selection of appropriate technologies for the task; specifically, photographic equipment and associated hardware and software. If manuscripts are to be digitized in a production environment then every sheet must first undergo necessary item conservation treatment, even if this only entails doing enough repair to allow a technician safely to remove the sheets from their folders, photograph them and then return them without damage to the folder. Flat-bed scanners should not be used for digitization as these can place stress on any fragile paper sheets having a high sensitivity to physical damage. Digital-camera-on-a-stand takes more time but will offer greater flexibility when dealing with fragile items.

Ownership of these Sub-Saharan manuscripts is a privilege that can create a sense of identity based on an exclusive membership in local, and increasingly world-wide, communities of elites. Manuscript custodians contribute significantly to shaping a landscape that resonates with memories of a glorious past, collapsing both time and space. The populations of the present African nation states are ethnically and linguistically diverse, reflecting a multi-layered past of migration, empires, displacement and warring polities, yet the valorization of these manuscripts emphasize shared cultural achievements enmeshed in the greater cultural world, proxies for a past that is continually reinvented in the present.

The way in which people view their past will affect how they treat its remains. In other words this will determine what people preserve, what they destroy and what they discard. Our perceptions of the past can impact the way we view these scarce survivors of time’s scythe. Sub-Saharan manuscript libraries are a repository of past learning and wisdom, powerful knowledge, and potential sites of history and memory. However, if the contents of these libraries are not made available to scholars and to the public then they might as well not exist. Use and preservation are not enemies. By slowing an object’s deterioration we show respect and increase an object’s utility, defining utility as being the total benefits that people obtain from objects multiplied by the time span over which such benefits accumulate. Simply put, the purpose of conservation treatment and collections’ care is to maximize an object’s utility with the overall goal being to maximize usability and longevity. These manuscripts transmit knowledge from times past and provide a link in the human story. Every person has a duty to value and preserve the rich heritage of our composite human culture and we should not let these links break because of lack of effective and informed effort.