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EXPLORING ORIGINS: THE TECHNICAL ANALYSIS OF TWO YORUBA MASQUERADE COSTUMES AT THE NATIONAL MUSEUM OF AFRICAN ART
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1. INTRODUCTION
Egúngún masquerades are traditions in which composite ensembles are worn and danced to commemorate lineage ancestors in West African Yoruba communities. This technical analysis of two 20th century Egúngún in the collection of the Smithsonian’s National Museum of African Art (NMAfA), referred to as 2005-2-1 and 2009-15-1 (fig. 1), investigates materials in these colorful costumes.

Figure 1: Egúngún ensembles at the National Museum of African Art. Photos by Rebecca Summerour.
At left: Masquerade costume (egungun), Yoruba peoples; Nigeria; Mid-20th century; cloth, wood, metal, plastic; H x W: 170.2 x 129.5 cm (67 x 51 in.); Museum purchase, 2005-2-1; National Museum of African Art, Smithsonian Institution
At right: Masquerade costume (egungun), Yoruba peoples; Nigeria, Mid-20th century; cloth, plastic, wood; Flat: 175.3 x 121.9 x 10.2 cm (69 x 48 x 4 in); Gift of Art U. Mbanefo; 2009-15-1; National Museum of African Art, Smithsonian Institution

2. BACKGROUND
2.1 CULTURAL CONTEXT OF EGÚNGÚN
The Yoruba are a cultural group rooted in Southwestern Nigeria, Benin, and Togo with a diaspora in Africa and the Americas. In their traditional belief system, Egúngún are the embodiment of lineage ancestors. Fully concealed maskers incarnate individual or collective spirits, providing opportunity for the deceased or those yet to be born to connect with their communities. Typically brought out during annual Egúngún festivals, they perform various tasks while accompanied by singing, chanting, and drumming. They dance with athletic swirling motions, honoring their ancestral strength and power.\(^1\)

Men usually make the ensembles although women can be involved. Materials, donated by lineage family members, are chosen for their symbolism and availability. Components can predate or postdate assembly, as the ensembles can be performed over many years, with lappets or other items added or subtracted over time.

2.2 PREVIOUS STUDIES OF EGÚNGÚN MATERIALS
Abiodun eloquently describes the great value of cloth in Yoruba society and relates how Egúngún illustrate its timelessness and transformative properties. Akinwumi looks at the use of upo, a “red carpet-like textile” that has been used in Egúngún and funerary textiles. Aremu notes velvet, cotton, kijipa, aso-ifo, and aso oke in Egúngún, and discusses patterns woven into kijipa, as well as the general significance of color. Campbell briefly describes the history of use and value of velvets. Four studies focus on specific ensembles in museum collections. All note the variety of imported and locally made fabrics. Greenfield and Walker describe specific printed fabrics that provide contextual information, while Alig describes a revolutionary exhibition mount designed to present Egúngún as if in motion. This project aims to complement these works by applying a conservator’s perspective through technical study of the NMAfA’s two Egúngún.

3. EGÚNGÚN AT THE NMAfA
The NMAfA Egúngún were acquired by the museum in 2005 and 2009. Both are attributed to Nigeria and date to the mid-20th century, with provenance back to ca. 1980 and ca. 1998, respectively. The two Egúngún are constructed similarly. Each has a horizontal wooden headboard, wrapped with aso oke (handwoven Yoruba fabric) under plain weave factory cloth and pieced velvet on top. Sewn onto this is the body of the ensemble, which is also in three layers, the innermost being pieced aso oke. Next are skirts of pieced plain weave factory print cloth. The ensemble exteriors are adorned with numerous patchwork lappets, made primarily of textiles, but they also include materials like adhesive, plastic films, and aluminum foil. Additional ensemble components are handmade net facemasks. The mask of 2005-2-1 is knotted, and 2009-15-1 is crocheted. Both Egúngún have padded ~1 ½” wide rolls at the bottom back of the headboard and at the front of their waists. Short lappets are stitched in front of the waist rolls. Some of the short lappets have ornamental buttons and pins. On 2005-2-1, a padded, fabric covered ring underneath the headboard would rest on the masker’s head. Stitching in both ensembles is predominantly by hand with whip or running stitches of handspun blue or white multi-S-ply thread, although some manufactured yarns are present. Approximately 300 fabrics were documented on each ensemble. Irene Emery’s book The Primary Structures of Fabrics was

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2 Babayemi, Egungun among the Oyo Yoruba, 4; Drewal, consultation.
3 Drewal et al. Yoruba: Nine Centuries of African Art and Thought, 177; Drewal, consultation; Lawal, consultation.
5 Tunde Maurice Akinwumi, “Diffusion of Upo Funerary and Egungun Textiles in the Niger-Benue Confluence Area.”
6 Aremu, “Socio-Religious Realities of Yoruba Egungun Costumes”.
7 Campbell, “Eegun Ogun: War Masquerades in Ibadan in the Era of Modernization”.
consulted to classify the fabrics, though time constraints limited structural descriptions to general types. The most prominent are described below.

3.1. ASO OKE INNER LAYER

The innermost layers are primarily *aso oke* (fig. 2), a Yoruba fabric traditionally woven by men on horizontal double heddle looms in approximately 4 inch wide strips that are sewn together selvage to selvage to create cloth. There are at least eighteen *aso oke* patterns on 2005-2-1 and sixteen on 2009-15-1. All are made with handspun single Z-twist yarn, and were woven in ~4-4.5” widths. Most are slightly warp faced, although some are balanced weaves. They are stitched in one layer on each ensemble, beginning at the headboard and widening at the bottom to create a skirt large enough to accommodate the masker’s movement in dance. The bottom edges are raw on both ensembles. In consultation, Egúngún scholars Henry Drewal and Babatunde Lawal respectively suggested that legging components may have been lost or they may not have been permanent parts of the ensembles and could even have been store bought trousers.

Two fabrics in these inner layers, on the back proper right sides, do not appear to be *aso oke*. On 2005-2-1, a 7” x 4½” area of blue and white striped knotted fabric (similar to the face mask) is stitched to the *aso oke*. On 2009-15-1, a ~12” wide blue striped fabric appears as if it might be a *kijipa*, which Aremu indicates are present in some Egúngún under layers. *Kijipa* are 12-18” wide Yoruba cloths, traditionally woven by women on upright looms. Made from handspun single Z-twist yarn, this fabric has a selvage on one side, but the other side is cut suggesting it could originally have been wider than 12”.

3.2 RED SKIRT INNER LAYER

Atop the *aso oke* are skirts pieced from factory printed plain weave cotton fabrics with red as the dominant color (fig. 3). Most are slightly sheer, though some are flannel. A few are stamped, such as “John Radcliffe; Lagos; Limited” (fig. 3 left) and “7 yards” (fig. 3 right).

3.3 LAPPETS

Each lappet on the exterior is constructed with different fabrics on the front and back and ~¼” wide fabric binding the edges. Most also have serrated fabrics stitched around the perimeter (fig. 4). Some lappets feel stiff, as if the front and backing fabrics were adhered together during assembly. The exterior, or front, fabrics are showiest and include factory made velvet, satin, printed plain weave, and red flannel. The backing fabrics are primarily printed or solid plain weave, woven striped and plaid fabrics, and cotton fabrics with small repeating woven designs. Yoruba *aso oke* and *adire* (resist dyed fabric) are used in a few instances. The binding fabrics are typically solid, striped, or printed plain weave, twill, or sateen. The serrated edgings are mostly printed or solid plain weave on 2005-2-1 and wool felt, fulled wool, or plastic films on 2009-15-1. The serrated edgings are typically, but not always, red. A few lappets have raw bottom edges, which Drewal suggested may be from alterations.

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10 Drewal, consultation; Lawal, consultation.
12 Clarke, “Aso Oke, Ceremonial Cloth of the Yoruba”.
13 Drewal, consultation.
3.3.1 Velvets

Velvets (fig. 5) are the most commonly noted fabric in Egúngún literature. Originally worn only by royalty, “the fabric continues to be used and celebrated in contemporary Yoruba society not merely as a status symbol but also as an index of luxury truly fitting for the worship of the departed ancestors and their earthly representative, the Yoruba ruler (oba)”\(^{14}\). Velvet, velveteen, and plush as described by Emery\(^{15}\) are all likely in the Egúngún; these are collectively considered “velvet” here. At least eighteen were observed on 2005-2-1 and fifty on 2009-15-1, distinguished by their colors, fiber content, and selvages, which are used as decorative stripes. Silk, cotton, regenerated cellulose (viscose), and cellulose acetate pile fibers were identified through visual examination and analysis (see below). All appear to have cotton non-pile warps and wefts, although outliers could be present. Velvets could potentially originate from France, Italy, Spain, Germany, Switzerland, England, America, or India, which all had velvet factories in the 20\(^{th}\) century,\(^{16}\) when materials for these ensembles were likely sourced.

3.3.2 Satins

Satins (fig. 6) are another dominant fabric. At least eight types were identified on 2005-2-1 and seven on 2009-15-1. While a relatively small number is on each ensemble, their prominence indicates importance. It seems likely that many fit the “damask” descriptor used in literature on Yoruba textiles.\(^{17}\) These have figured patterns created with contrasting warps and wefts (fig. 6).

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\(^{15}\) Irene Emery, *The Primary Structures of Fabrics: An Illustrated Classification*, 175.

\(^{16}\) Aurora Fiorentini Capitani and Stefania Ricci, “Velvet in Fashion: From the Thirties to the Present;” Roberta Orsi Landini, “From the Throne to the Middle-Class Parlor: Velvets in Furnishing and Interior Decoration;” Joanne B. Eicher and Barbara Sumberg, “India and West Africa: Transformation of Velvets”.

left and right). Their structures differ from damask as described by Emery, which is fabric patterned by the dissimilar faces of satin or uneven twill weave,\(^\text{18}\) suggesting that damask may have a different meaning in a Yoruba context. In addition to the figured satins, some are striped and others printed (fig. 6 center). The fiber content is a mixture of silk, cotton, and viscose.

3.3.4 Printed Cottons and African Wax and Fancy Prints

The ensembles have many factory printed plain weave cotton fabrics. Some designs have generic repeating geometric or floral motifs. Others have stylized designs, possibly Art Deco, Russian paisley, or Indian inspired (fig. 7), but it is difficult to guess origins without documented sources. A sub-group of printed cloths are African wax and fancy prints (fig. 8), which are factory made fabrics produced for the African market. Wax prints are produced by printing both sides of a cloth with a resist material and immersion dyeing, with subsequent printing. They have a characteristic cracking pattern where veins of dye seep through cracks in the resist material during dyeing. Fancy prints are produced by printing one side of a cloth. The cracking pattern is not inherent in fancy prints, but it can be imitated in their designs making distinction challenging.\(^\text{19}\) The African Wax and Fancy Prints might originate from Holland, England, France, Switzerland, or Japan. China and a number of West African countries are also possibilities from the later part of the 20\(^{\text{th}}\) century.\(^\text{20}\)

Wax and fancy prints in the Egúngún were characterized by their motifs, many of which resemble published examples. One fabric, clearly designed for a Yoruba audience, has a mother and child with the text “ABIAMO,” a Yoruba word for “Mothers,” “Mothering,” or “Maternal Care” depending on context\(^\text{21}\) (fig. 8 center). Another puts Africa at the center of the world and


\(^{19}\) Helen Elands, personal communication.


\(^{21}\) Lawal, personal communication.
outlines Nigeria (fig. 8 left). Dr. Philip Sykas and Helen Elands\textsuperscript{22} were consulted to link prints to archival examples in Europe. Both scholars observed similarities between some of the fabrics and archival examples but emphasized difficulties in making definitive connections. Manufacturers imitated one another, many designs have endured for generations, the pieces in Egúngún are often fragments of larger designs, and it is difficult to understand these fabrics with access to only one side.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure7.png}
\caption{Printed fabrics that appear to have Art Deco (left), Russian paisley (center), or Indian (right) inspired designs. (Left and center from 2005-2-1, right from 2009-15-1)}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure8.png}
\caption{Examples of African wax and fancy prints. Print with Africa at the center of the globe, print with a mother and child that contains the word “ABIAMO” elsewhere on the ensemble, and a print that might be a wax print or an imitation wax print. (All from 2005-2-1).}
\end{figure}

3.3.5 Other materials
Egúngún 2005-2-1 has an assortment of 23 ornaments secured to two of the front center lappets (fig 9. left and center). Among sixteen gold-colored attachments, two include the text “Federal House.” Another contains “NPC,” which might refer to the “Northern People’s Congress”,\textsuperscript{23} a Nigerian political party from 1949 until 1966.\textsuperscript{24} There are also two copper alloy buttons, a Guinness medallion, a medallion with the Madonna and child, and three pin-back buttons. One is an “L & K Mineral Waters” advertisement with 1950s world champion Nigerian boxer Hogan Bassey.\textsuperscript{25} Another advertises “Quaker White Oats” “The Family Food.” The third has Yoruba text “Ominira Iwo Orun Nigeria Soju Emi 1957,” which translates to "Self-government in Western Nigeria happened in my lifetime 1957”\textsuperscript{26}

On Egúngún 2009-15-1 two red plastic films are used as serrated edging (fig. 9 right). One film is printed with white text that appears to be the logo of Coca-Cola\textsuperscript{®}, which was introduced to Nigeria in 1951.\textsuperscript{27} A white metal foil laminated paper also is used in the interior of a lappet, visible through a hole.

\textsuperscript{22} Dr. Philip Sykas is Research Associate at the Manchester School of Art and has worked with the A. Brunnschweiler and Co. (ABC) Archives. ABC was a major English producer of wax and fancy prints from the early 20\textsuperscript{th} century to early 2000s. Helen Elands is an independent textile researcher who has studied archival resources of African wax and fancy prints and written about these fabrics.

\textsuperscript{23} Lawal, consultation.

\textsuperscript{24} “Northern People’s Congress (NPC),” The Oxford Dictionary of Islam.

\textsuperscript{25} Bob Mee, “Obituary: Hogan Bassey.”

\textsuperscript{26} Lawal, personal communication.

\textsuperscript{27} Nigerian Bottling Company Ltd, a member of Coca-Cola Hellenic group.
4. MATERIALS ANALYSIS

Three analytical techniques were used to characterize materials in the Egúngún and establish a chronology for the ensembles.

4.1 POLARIZED LIGHT MICROSCOPY (PLM)

Yarns from approximately sixty fabrics, about 10% of those documented on the two ensembles, were examined with transmitted polarized light at 100X magnification while mounted in water with Zeiss Axioplan and Nikon Eclipse E600 microscopes. Fibers from 1-3 yarns were observed for each fabric analyzed, e.g. warp, weft, and pile. Cotton, wool, silk, and two types of extruded fibers were identified. It quickly became clear that cotton, wool, and silk fibers were relatively easy to identify by the feel of the fabrics, but extruded fibers required PLM. A total of 27 extruded fibers appeared similar to published examples of viscose, while two pile fibers from one velvet resembled cellulose acetate. The Smithsonian Museum Conservation Institute (MCI) confirmed these identifications analytically.

4.2 FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR)

Eleven fibers were analyzed with a Thermo Nicolet 6700 FTIR spectrometer and an attenuated total reflectance accessory. FTIR confirmed that the fibers that visually resemble viscose are cellulosic, supporting their identification as regenerated cellulose fibers. FTIR also confirmed identification for the fibers that resemble cellulose acetate.

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28 Textile Institute, Identification of Textile Materials, 7th ed., 95, 133.
4.3 RAMAN SPECTROSCOPY
A Rigaku Progeny handheld 1064 nm Raman spectrometer identified both red plastic films on 2009-15-1 as plasticized poly(vinyl) chloride (PVC), and the transparent plastic film on the Hogan Bassey pin-back button on 2005-2-1 as cellulose acetate. Additionally, a Thermo Almega XR dispersive Raman spectrometer with 780 nm laser excitation confirmed that an extruded yellow fiber from the “mermaid” patterned satin on 2005-2-1 (fig. 6 left) is regenerated cellulose.

5. EGÚNGÚN IN OTHER COLLECTIONS
The NMAfA Egúngún materials and construction were compared with twelve ensembles in three other collections: the Virginia Museum of Fine Arts (2 Egúngún), the North Carolina Museum of Art (3), and the Indianapolis Museum of Art (7). Seven ensembles share materials and construction techniques that, based on visual examination, suggest they may be from the same 20th century era as the NMAfA Egúngún. Lurex® components that appear integral to the other five suggest they may have been assembled later. Lurex® was developed in 1946,29 but gained popularity in Africa in the 1970s.30 Some ensembles also include machine embroidered fabric called “African lace,” which became popular in Nigeria in the 1960s and remains so.31 Additionally, stamps or printed text on some of the fabrics indicate origins for those fabrics. In three instances, this information is on selvages used as decorative elements. A silk velvet was made in Germany, while three printed cottons (at least one is likely a wax or fancy print) were made in France, Ivory Coast, and the People’s Republic of China.

6. MATERIALS TIMELINE
Materials and their relationship to the costumes can advise historical timelines for Egúngún. While components could be saved for years before assembly or added during years of use, their technology can establish a terminus post quem of their addition. For the NMAfA Egúngún, regenerated cellulose (viscose) and cellulose acetate fibers are informative. Both were discovered in the 19th century, but became commercially available in the first two decades of the 20th century. Industrial manufacture increased in the 1930s and 40s and was further refined in the 1950s.32 Cellulose acetate and PVC films were commercially available before 1930.33 The thorough integration of these materials suggests the ensembles were likely made no earlier than the 1930s-1950s, although components could be older. The Coca-Cola® plastic on 2009-15-1 and Hogan Bassey and Yoruba buttons on 2005-2-1, are 1950s materials that support mid-century attributions. The absence of newer materials, such as acrylic, polyester, and Lurex®, could be meaningful as Yoruba arts are ever evolving and incorporating new materials.34 Egúngún in other collections contain newer materials. Of the Yoruba fabrics, the aso oke is woven with handspun yarns without incorporation of novelties like viscose, Lurex®, and machine made yarn,

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29 The Lurex Company Limited, “Since 1946.”
which weavers embraced as the 20th century progressed. The handspun yarns do not by themselves suggest a date, but it seems possible that *aso oke* in newer Egúngún might reflect 20th century innovations.

7. CONCLUSIONS

Egúngún are complex assemblages that hold clues to their technology and history as well as broader perceptions of culture, trade relationships, status, and meaning. Previous Yoruba studies included descriptions of the constituent textiles, but until now no published technical study has focused on Egúngún. Challenges include the large number of fabrics that are fragmentary and often partially obscured by incorporation into lappets. Direct study is also complicated by the size, weight, and fragility of Egúngún, and the small number of ensembles available for study in museums. Here, hundreds of fabrics in two Egúngún were physically documented from a conservator’s perspective and scientific analysis helped identify materials and establish a timeline for the ensembles. Elements of the ensembles have origins across a broad range of time and geography. However, the prominence of regenerated cellulose (viscose) and cellulose acetate fibers, and to a lesser extent the PVC film, Coca Cola® banner, and political buttons, support attributions to the mid-20th century. Future research could include more detailed structural analysis of fabrics as well as comparison to manufacturers’ fabric swatch books and trade catalogues. Interviews with today’s African market vendors could share knowledge of fabric origins. Lastly, analysis of other 20th century materials, such as faux leather and braided trim, in Egúngún in other collections could be an instructive line of research. It is hard to overstate the importance of textiles in Yoruba culture, making this a compelling area for further work.

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———. In-person consultation, September 8, 2015.


