PRESERVATION AND CONSERVATION OF INFORMATION MATERIALS IN SPECIAL LIBRARIES IN NIGERIA

Adeleke, O.
Serial Librarian, Fatiu Ademola Akesode Library
Lagos State University, Ojo, Lagos, Nigeria. Email: tejfadipe@yahoo.com

Aina, A. J.
System Librarian, Lagos State University (LASU)
Ojo, Lagos, Nigeria. Email: adebowale.aina@yahoo.com

Lateef, E. B.
Librarian 11, Crawford University
Ogun State Nigeria. Email: bukkiwealth@yahoo.com

ABSTRACT

This study was carried out to investigate as its major aim the conservation and preservation practices at Chevron Texaco Nigeria Limited, and the Nigerian Conservation Foundation (NCF), Lagos. A descriptive research design was used for the study. A total population of 60 was considered for the study. Questionnaire, interview and personal observations were the major instruments used for data collection. Data were analyzed using frequency tables and percentages. The study established that the major factor responsible for the deterioration of information materials in these organizations is the poor handling of information materials. Space was observed to be the major problem confronting effective preservation and conservation of information materials. Although this problem was partially solved by transferring documents awaiting retention to the archive. It was therefore recommended among others that there should be training programmes for information handlers/users, and improvement in the storage environment should also be given to priority paramount.

Keywords: *Preservation. Conservation, Deterioration, Information Materials*

INTRODUCTION

The holdings of the libraries are the priceless heritage of mankind as they preserve facts, ideas, thoughts, accomplishments and evidences of human development in multifarious areas, ages and directions. The past records constitute a natural resource and are indispensable to the present generation as well as the generations to come. Any loss to such materials is simply irreplaceable. Therefore, preserving this intellectual cultural heritage becomes not only the academic commitment but also the moral responsibility of the librarians/information scientists, who are in charge of these repositories. Besides, proper dissemination of information materials is possible if the documents are in good and usable condition. This demands for proper preservation and conservation of these materials. Any librarian responsible for the preservation of this documentary heritage should know the various causes of deterioration of information materials and the possible methods for their preservation.

Importance of Preservation and Conservation of Information Materials

Preservation and conservation of information materials ensure continued supply of information essential for documenting the history of a nation and also aiding research. It is the view of many librarians in Nigeria and other countries that we owe as much responsibility to the future generation as we owe to our present clientele. In view of limited financial resources, much emphasis should be placed on the preservation of collections to the same extent as we are concerned with acquisition and service to clients. Okegbola, (1997) writing on the importance of preservation noted that aside from the historical and artistic values, the global economy is on the downward trend and developing countries such as Nigeria is adversely affected. Thus, replacement of destroyed materials becomes extremely difficult.

Furthermore, Okegbola (1997) categorizes that certain materials and information contents as 'rare' and 'unique.' Such materials are hard to come by even when finances are available hence the need to guard them carefully and jealously. Information materials are sources of reference, research, illustrations, effects etc. Their re-recording may be impossible as certain actions and events cannot be re-enacted; the dramatic personnel involved may die; particular material may be the only one available in a given geographical area and the cost of preservation may be "peanuts" compared to the cost of replacement. Man, the creator of recorded information is mortal. Similarly, the deterioration of information materials is inevitable. All that is intended in conservation is to delay the inevitable so as to satisfy the information needs of users.

Preservation and Conservation Problems in Libraries and Archives

The problem of preservation and conservation has been an issue of discussion since time immemorial. Nzotta (1982) rightly observed that the problem of deterioration and preservation of information materials is not a recent phenomenon. He asserted that it has been in existence since books were invented and libraries were first established. Igbinoba (1993) in a study on the practice of conservation of information materials concluded that there was a lack of technical expertise; that librarians were not well informed about preservation and repair of these materials and, for any programme to succeed, there is need to have trained manpower. Conservation and preservation is a specialized field that requires staff that understands the chemical nature of the materials in their custody.

Inappropriate Building: Information materials are prone to deterioration if not kept within an environment that is stabilized. The problem of inappropriate building is common. A number of archival institutions adapted premises to house their collections. Information materials housed in such premises will not receive adequate protection against loss, decay and destruction through humidity, light, insects, fire and theft.

The Economy: The economic throes which Nigeria has been passing through for the past two decades or more affect libraries and their operations. The government would, for example, be more comfortable resuscitating her ailing industries than to engage in the "frivolity" of buying air-conditioners and other inputs for information processing, conservation and preservation.

Lack of Disaster Control Plan and Documented Conservation Policy: A disaster plan is an important tool in any organization. The absence of such a plan implies that in the event of a disaster occurring, an information centre would not be in a position to respond to the disaster with the urgency that is required. Alegbeleye (1993) argues that libraries are prone to disasters that can be classified broadly as natural and man made and they include fire, flooding, vandalism, civil unrest, earthquakes, volcanic eruptions, war, lightening and to some extent rodents and pests.

Inadequate Resources: Inadequate or absence of equipment, materials as well as financial resources contributes significantly to the problem of preservation and conservation of records and information materials.

CAUSES AND AGENTS OF DETERIORATION

Acid is the arch enemy of librarians because it is a direct cause for hydrolysis. Hydrolysis is a chemical product. As time goes by, acid contaminated paper loses its strength and becomes increasingly brown stained, and is eventually embrittled to the extent that it cannot be handled without crumbling. The pH value is a very reliable measure of acid content. pH is a measure of the hydrogen ion concentration of a substance. Acid has pH below 7, (1-6) while alkaline has pH value above 7 (8-14). According to Walker (1985), pH establishes a direct correlation between paper acidity and longevity. The more acidic the paper, the more short-lived it is. While expressing the difficulty in specifying an exact limit of pH value below which rapid acidic deterioration may take place, Alegbeleye (1996) agrees with other investigators that for permanence, pH should not be below 5.4. In other words, pH of 5.4 and below is considered as being very acidic.

Brittleness of Documents: Brittled paper documents are very difficult to repair or bind and most often cannot withstand photocopying and heavy use. Brittleness may result from desiccation caused by high temperature among others. According to (Walker, 1985), the test for brittleness is fairly simple and objective. Alegbeleye (1996) refers to it as the fold endurance test which considers the number of double folding as a measure of brittleness.

Humidity: Relative humidity is defined as the amount of water vapor in a volume of air expressed as a percentage of maximum amounts that the air could hold at the same temperature. The warmer the air, the more water vapor it is capable of holding. Thus, the relative humidity decreases. Humidity causes problems if it is either too high or too low. High humidity speeds up deteriorative chemical reactions. Under conditions of extremely high humidity, water-soluble ink can offset and coated papers

can stick together. Low relative humidity causes materials to become dry and brittle. Paper that is dried out can break and crumble as it is handled and flexed and covering materials on books such as vellum and shrink, causing boards to warp (Harvey, 1993). Relative humidity below 45% endangers paper, on the contrary, relative humidity above 65% will lead to an abnormal increase in biological activity, since fungi starts growing above the 65% level and insects flourish at higher humidity. Furthermore, excessive humidity also acts upon the fiber of papers, softening them and diluting certain inks used to write documents.

Temperature: Paper deteriorates as a result of complex chemical reactions. It is a fact in the physical sciences that most, if not all chemical reactions vary directly with temperature. They are speeded up at higher temperature and slowed down at a lower temperature. For every increase of 10 degree centigrade in temperature, the rate of chemical activity greatly doubles and thus the rate at which paper deteriorates also doubles (Thomas, 1981). This presupposes that if paper materials are stored at low temperature, their life expectancy will be significantly lengthened.

Corrosive Ink: According to Alegbeleye (1996), ink is one of the key ingredients of paper documents. Earlier inks made from carbon were more permanent than contemporary inks made of iron gall and dyes. These are very volatile. Some of them are water soluble; some are light sensitive, whilst others can be corrosive, burning images out of paper documents.

Light: Light is very vital in the provision of services in libraries and archives. As much as possible, materials have to be identified and read. On the other hand, it is one of the greatest enemies of materials especially, paper. In any library or archive, there will be both artificial light (controllable) and natural light (less controllable). Both types of light contribute in a way to cellulose degradation and fading of pigments and dyes. It speeds up the oxidation of paper and thus its chemical breakdown. It causes paper to be yellow or brown. The higher the intensity, the greater the damage

Atmospheric Pollutants: Pollutants in the air adversely affect information materials. Gaseous pollutants include sulphur dioxide, nitrogen dioxide and hydrogen sulfide which are products of combustion and other chemical actions; they are thus most prevalent in industrial and urban areas where there are factories and high concentration of automobile exhaust, and is thus generally more of a problem in urban areas. Ozone also may be produced by electrostatic filtering systems used in some air conditioners, as well as electrostatic photocopy machines.

Dust and Dirt's: Dirt, dust and other solid particles damage materials through abrasive action (Harvey, 1993). Fine dry particles of any matter present in the air are known as dust. Dust, which is highly dangerous for the library and archival collections, composed of soil, metallic substances, fungus spores and moisture among other things. Since dust is air borne, it settles down on any surface of the object. Dust is hydroscopic in nature and when it is mixed with high humidity, it is transformed into dirt. If this dirt sticks to the surface of the books, it becomes difficult to remove.

Water: Water occurs in all the normal state of matter, solid, liquid and gas. It acts as a physical agent of deterioration by causing hydroscopic materials to undergo dimensional changes. Water, which is harmful to information materials may come from sources like natural calamities, human negligence, from leaking roofs, defective plumbing and through open windows during rainy season. Excessive water brings about biological attack on paper, which is usually manifested as the growth of fungus or mildew. The effects of water are stained paper, rooted leather, smeared ink, weaken adhesive, sustained fungi etc. Water also does injury to steel furniture due to rusting.

Disasters: Disasters whether brought about by human error or natural events, pose the ultimate threat to collections. The results are immediate, calamitous and dramatic; unlike the slow and insidious process and deterioration that takes place in boxes and filing cabinets. Disasters, which can result from fire, flooding, storms, earthquakes or broken steam pipes, can damage or destroy a few items or entire collections. Vigilance, preparedness and recovery plans are the best guards against loss from disaster (Alegbeleye, 1993).

Biological Agents/Factors: Maravilla (1994) states that where there is condensation or moisture due to high humidity, there is always the presence of biological growth such as contain proteins and carbohydrates in the form of sizing, paste or starch and other organic substances attractive to insects. The nature and extent of the damage depends not only on the insect and material but also on how promptly the infestation is discovered and controlled. Damage may vary from a few holes to complete destruction. The most common types of insects that attack paper are: termites, silverfish, cockroaches and booklice.

The Human Factor: The greatest enemy of information materials is the librarian or archivist who neglects his collections in the quest for ever more efficient management systems, (Adams, 1973). People pose the most constant threats to archival collections, (Harvey, 1992). Abuse, whether imposed by archival staff or users, intentional or not, results in the same damage and loss of materials. Actions that may be considered abusive include careless or rough handling of brittle paper and fragile bindings, destructive photocopy practices, disfiguring manuscripts with notation or marks, and spilling coffee or ashes on materials. The list of abusive action is endless. While much damage results from carelessness, abuse also includes such blatant actions as mutilation, vandalism and theft.

PREVENTIVE MEASURES AGAINST DETERIORATION

Over the years, following the cries of information professionals, certain measures have been taken to conserve and restore information materials while a lot of suggestions abound as to what to do to preserve materials in good condition. Some of such measures include:

Reformatting: In attempts to preserve content of writings, librarians and archivists are transferring text to media such as microfilm or various magnetic media in a

process called reformatting. Reformatting also includes the digitization of information that consists of transfer of content to optical discs or other electronic storage systems. Many librarians and archivists have resigned themselves to this expensive alternative based on the following rationale. Reformatting remains the only viable long-term strategy for dealing with the preservation problems posed by brittle paper. Although there may be strong incentives to retain the original volumes for as long as possible, they should be copied to ensure that knowledge they contain will survive (Chapman, Conway and Kenney, 1999).

Deacidification: The post treatment of large number of books and papers to neutralize the acidity is known as "Mass Deacidification" (Kundrot, 2001). Early methods used relied on aqueous deacidification. In this procedure, single pages were sprayed or submerged in a water based alkaline buffer solution. After treatment, the sheet was held flat and dried. Materials, especially ink and dyes, must be pretested to avoid damage. If a bound volume needed treatment, the book must be unbound, and then each sheet treated individually, dried carefully and the paper rebound. This process was extremely lengthy and labour intensive.

METHODOLOGY

The purpose of the study was to assess the preservation and conservation practices in two special libraries, namely, Chevron Texaco Nigeria Limited and the Nigerian Conservation Foundation Libraries in Lagos. A descriptive survey research design was used for this study. The population of this study comprises all the staff of the institutions understudy. Through stratified random sampling, 5 staff each were drawn from the technical library, finance records section, the technical records section, human resources, business services section, Audiovisuals, law library and archives of Chevron Texaco Nigeria limited and 20 staff of Nigerian Conservation Foundation. In carrying out this study, questionnaire, interviews and observations were used. The researcher distributed and retrieved all the 60 copies of questionnaire because of close monitoring/follow up. The lead information technicians and the most senior librarians were interviewed in both organizations. Subsequent upon the collection, collation, and arrangement and sorting of the views and opinions expressed by the various respondents, the results were organized and analyzed accordingly. Descriptive statistics such as frequency tables were used to analyze data.

RESULTS AND DISCUSSION

Table 1: Factors responsible for deterioration of information materials

		Chevron		NCF	
Factors of deterioration		Number of respondents	%	Number of respondents	%
A-	Temperature	2	5	1	5
B-	Humidity	4	10	0	0
C-	Sunlight/light	0	0	0	0
D-	Atmosphere pollutant	1	2.5	1	5

E-	Insects	0	0	0	0
F-	Rodents	0	0	0	0
G-	Poor handling of information materials	33	82.5	18	90
	Total	40	100	20	100

Table 2: Method of preservation of information material

Method of preservation		Chevron frequency	%	NCF frequency	%
A-	Lamination	0	0	0	0
B-	Deacidification	0	0	0	0
C-	Re-binding	3	7.5	2	10
D-	Regular dusting of shelves/books	2	5	2	10
E-	Fumigation of storage area	12	30	6	30
F-	Use of window blinds	0	0	0	0
G-	Re-formatting	0	0	0	0
H-	Use of Air conditioners	4	10	2	10
I-	Proper handling	19	47.5	8	40
	Total	40	100	20	100

Table 3: Preservation Equipment

Equipment	Chevron No of respondents	%	NCF No of respondents	%
Binding machine	3	7.5	0	0
Lamination machine	3	7.5	0	0
Air-conditioners	34	85	17	85
Fan	0	0	3	15
Total	40	100	20	100

Table 4: Disaster plan

Existence of disaster plan	Chevron No of respondents	%	NCF No of respondents	%
Disaster plan exists	60		100	
Disaster plan does not exist	0		0	
Total	60		100	

Table 5: Disaster Facilities

Disaster facilities	Chevron No of respondents	%	NCF No of respondents	%
Fire/smoke detector	0	0	2	10
Fire alarm	0	0	4	20
Water sprinkler	0	0	0	0
Fire extinguisher	0	0	14	70
All of the above	40	100	0	0
Total	40	100	20	100

Table 6: Preservation problems

Factors	Chevron No of respondents	%	NCF No of respondents	%
Insufficient fund	0	0	0	0
Inadequate equipment	0	0	0	0
Lack of skilled manpower	8	20	3	15
Others -space	32	80	17	85
Total	40	100	40	100

Table 1 above revealed that the major factor responsible for deterioration of information materials is poor handling. Table 2 examined the methods of preservation adopted by Chevron and NCF. It was observed that proper handling of information material got the highest percentage. Hence, there is need for users of these materials to be more careful when handling all sorts of information carrying materials. It is obvious that from table 3 above that Air conditioners were the major equipments used in both organizations for preservation and conservation of information materials. Table 4 above shows that 100% of the respondents affirmed the existence of a disaster plan. This indicates that all the respondents are aware of the existence of a disaster plan. This was also confirmed from the interview. Table 5 revealed that Chevron is prepared for any form of disaster with a 100% response of availability of all the disaster facilities. However NCF also had a positive response and it shows that they are disaster conscious. Table six above revealed that most of the respondents in both organization asserted that Space was the major problem they encountered in preservation and conservation of information materials.

From the analysis of the questionnaire, it was discovered that space is the major problem confronting both organization in the preservation and conservation of information materials; materials are said to be kept in inappropriate places. In Chevron, this problem is solved partially by transferring information materials to the archive bi-monthly. The organization is also trying to construct a building in order to create more space. It was also discovered from the interview that the source of power supply in the archive was quite different from the rest of the organization. The power supply is quite erratic and it is expensive to run the generator for 24 hours. Hence, it is difficult to regulate temperature in the storage area.

The study also revealed that the major factor responsible for deterioration of information material is the poor handling of information materials. The study further revealed that the organizations do not have a professional in preservation and conservation of information materials. Whenever the need arose,the service is out-sourced. Another major finding is that the organizations are disaster conscious. Various facilities are available in case of any eventuality. There exist an ever-ready disaster management team and a disaster plan. Backup is also available for every material in the organization to crown it all, it could be deduced from the study that both organizations are conservation conscious but more efforts is needed if an hundred percent result is to be arrived at.

CONCLUSION AND RECOMMENDATIONS

Going by the findings above, it can be concluded that conservation of information materials in the organizations is partially adequate. If the organization will meet its objectives in the performance of its obligations it must take further steps to conserve and preserve information materials for posterity. In addition, it is evident from the findings above that the longevity of information materials depends upon the quality of management, handling and the storage conditions of the organization. This calls

for an integrated policy involving the creators, users and custodians. Preservation should be seen as a thread running through the total life of the record and a responsibility of all not only the conservator or the archivist. Some feasible recommendations proffered by the researcher in the course of the study are outlined:

i There should be training programme for information handlers/users such as librarians, archivist, information technicians etc on preservation and conservation management. Such training programs should include environmental control, storage and handling of information materials.

ii An improvement in the storage environment should be paramount. This involves the storage of information materials in an environment in which the storage temperature and humidity levels are controlled. Air conditioning is perhaps the most efficient method of bringing about this. Also recommended is that there should be fundamental changes in the present staff structure of the organizations. It is about time that positions for conservators exist. The following staff positions should be made available.

(a) Preservation officer
(b) Preservation librarian
(c) Book conservator
(d) Collection conservation librarian

The field of conservation and preservation has become so technical that whoever takes charge of the function in this field would need specialized training. The offsite should be adequately funded so that using a generator would solve the problem of erratic power supply.

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