



Innovations, Adaptation And Change In The Technology And Technique Of Local Alcohol Production In Urhoboland, C. 1800 – 1950

Ovie Felix Forae

Department of History and International Studies
Delta State University, Abraka – Nigeria

Abstract:

This paper examined the innovations and change in technology and technique of alcohol production in Urhoboland from earliest times to the colonial period. This paper noted that as a product woven into the cultural fabric of the Urhobo dating back to the Atlantic Age, the use of natural equipment and materials in alcohol production was inevitable. The use of organic equipment such as clay pot and vegetal material in alcohol production which defined indigenous technology seriously constrained alcohol production and output and consigned local alcohol to the household level. However, changes and innovations in technology and technique of alcohol production were inevitable and natural owing to internal and external dynamics. Such change and innovations which were primarily in the aspect of equipment and materials – metal equipment, sugar and yeast and in particular, a condenser – introduced to solve the problem of high temperature produced by metal heat conductors – resulted to increases in alcohol production during the colonial period.

1.Introduction

Indigenous technology is one aspect of indigenous knowledge. Rohana (1993) however noted that such knowledge systems are dynamic and they represent a veritable past of a people's heritage. Basic to such knowledge system is the necessity for innovative thinking that generates vectors of change, adaptation and improvement. Indigenous knowledge systems are conveyed through a variety of cultural modes and agencies which include proverbs, material culture, production systems, settlement patterns, value system and institutions. Defined as "local knowledge that is unique to a given culture or society", the dynamism of indigenous knowledge is influenced by internal and external stimulus (Derefaka 1999). The indigenous technology of alcohol production in Urhoboland was not an exception as there were innovations in technology and change in technique of alcohol production which were driven from within and without.

Valued more for its wine than for its oleaginous properties by Urhobo people, the raffia palm is exploited primarily for palm wine which on processing by distillation produces local gin – a culturally significant product which over the years has acquired various epithets and appellations such as ogogoro, kai-kai, agbakara and amvwe-vwearka (udi America) – white man's drink which was believed came from America because of its striking semblance to the English gin.

As a non-profit, small scale activity that served the needs of rural households for consumption and for incipient ritual purposes during the Atlantic Period, the home-made gin was gradually transformed into a commercial product in the post-Atlantic Age. This transition was apparently assisted by economic factors. The gradual monetization of the local economy from the 1870s – characterized by the circulation of British currency in the area and the growing demand for the local gin (long held as an honorific item in spiritual circles above its counterpart – the English gin) were apparent fundamental incentives for the business-for-profit nature of local alcohol as they were for driving changes in the technology of production. Change and innovations in technology and technique of alcohol production were also the result of the shortcomings imposed by the original technology in use. Such constraints to alcohol production included the absorption of some quantity of alcohol (steam) and lengthening of the distillation process by using natural ('traditional') equipment such as vegetal material (bamboo stick) and clay pot. Although unknown to their progenitors, such drawbacks were overcome only much later.

Exactly what were the innovations, adaptation and change in technology and technique of alcohol production? Innovations were primarily in the aspect of equipment used in the distillation of alcohol such as metal equipment – a metal worm, a metal drum and the introduction of a condenser (wooden water trough) which was adapted to facilitate production by assisting to condense the steam (produced by boiling palm wine) into liquid (gin). A change in technique of alcohol production include the use of synthetic materials (input) such as sugar and yeast which resulted to alternative method of brewing alcohol.

Urhoboland is encased in the rainforest belt of the Niger Delta region of Nigeria within latitude $6^{\circ}5^1$ north of the equator and longitude $5^{\circ}40^1$ and $6^{\circ}25^1$ east of the Greenwich meridian. The perimeters of its land are defined by major rivers – the Ethiope, Forcados, Warri and Kiagbodo; with numerous arteries which serve these rivers. Annual rainfall ranging between 2,500mm in the mainland to 3,500mm in the wetter areas account for the overflow of these rivers. The resultant flood water give rise to numerous permanent freshwater swamps – the natural habitat of some locally abundant raffia palm species – *Raphiahookeri* (ogoro) and *Raphiavinifera* (ekian) which exploitation is closely associated with the rise of the local alcohol industry.

This study is justified by the apparent gaps in the literatures on locally produced alcohol with particular reference to the technology of its production in Urhoboland. The literatures seem to gloss over some fundamental aspects of alcohol production: the creativity of producers of alcohol in sustaining an indigenous effort over time, the innovations in technology and change in technique of alcohol production over time and the factors driving those change and innovations. This study attempts to fill the gap.

2.Environmental and Cultural Stirring of Local Alcohol

The general climatic conditions of Urhoboland have strong implications for the wateriness and vegetation of its environment as was the influence of its physical environment on the peoples' culture (Ekeh 2005). Its forests, believed to be the residence of spirit beings with both benign and malevolent disposition also hold valuable hardwoods such as Mahogany (*Khayaivorensis*), the Iroko tree (*Miliciaexelsa*) and the broad-leaved Oil Bean tree (*Pentaclethramacrophylla*) among others. These hard woods and clay were the major provenances of diverse statuary that reflect and reinforce the various aspects of spiritual belief of the Urhobo (Foss 2001). Hard woods also provided the media for canoe and other wood carving activity. The "Indian bamboo"

(Bambussaspp) also proliferate in the environment and was an important vegetal material in alcohol distillation. The bark of the tree *Saccoglottisgabonensis*urbanwas also an important input in alcohol production. Ubrurhe (2003) traced the provenance of indigenous medicine to biodiversity of plants, as the Urhobo ingesta concoction of herbs and local gin for the treatment of a variety of ailments such as pneumonia, flatulence, small pox, yaws, fevers among others.

The hydromorphic, acidic and alluvial nature of the soil of the swamp belt apart from aiding the growth of the raffia palms, also provided swamp dwellers with clay material for pot production. Clay pots were a necessity for the collection of the sap (palm wine) produced by the palm tree during tapping, for storage and as oven for boiling palm wine, while canoe was necessary for transporting the palm wine from the forest to production site. The water bodies, like the forestsare also believed to be the abode of the more benign water goddess – worshipped only with sweet wine.

Apart from providing the materials and equipment for the production of alcohol, the environment also influenced its consumption. The great majority of riverine dwellers are accustomed to drinking the local gin due to the foggy nature and wateriness of the environment, particularly fishermen who drank to counteract chills and pneumonia; while others indulged in drinking during the long period of the rainy season and the cold harmattan spell in most parts of Urhoboland.

Culturally, the Urhobo also deploy the home-made gin in diverse ways especially in rituals connected with religious observances. The Urhobo are a deeply religious people and like other Africans, do not view the physical world (akpo) and the ethereal (erivwin) realms to be mutually exclusive. This perception derives from their conception of the cosmos as essentially religious. The gods and ancestors (usually dead relatives of the living) are believed to be involved in the affairs of the living members of the community and this was the rationale for regular worship of the spirits through the images with a libation of the home-made gin. Such rituals were undertaken to either attract the benevolence or to avert the wrath of the gods following misdemeanour considered a taboo against the gods and mortals. Common sins and taboos included theft, incest, murder, adultery and dereliction of duty to the spirits by a progeny, i.e., failure to accord regular worship (Erivwo 2005).

As in other areas of cultural life, the spiritual significance of a libation of local gin in the traditional age-long rituals of female circumcision (clitoridectomy) of young maidens (epha) of the Urhobo is underscored by the belief that an appeasement of the spirits was

required to avert their wrath and to assist recuperation of the young maiden following circumcision, otherwise it is believed that recovery might be difficult, complicated or prolonged (Okarudjeren, Okpurhe 2009). The home-made gin was also consumed at social and ritual occasions. It was an essential requirement at the ceremony of dowry payment, the gin being used to propitiate the spirit of an ancestor in order to attract divine blessing and protection for the newly married (Otedoh 1978; Nabofa 2003). Expectant mothers also indulged in drinking which they believed eased the pains of pregnancy.

A broad segment of the population viewed the local gin as a stimulant, as it is believed the gin assisted to dilate the blood vessels and relax the body. The Urhobo also believed in the medicinal value of alcohol as it provided relief from general debility of the body, while it increased appetite for food. It was usually drunk first thing in the morning before breakfast as an appetiser. The manifold utility of the home-made gin in the traditional socio-cultural and environmental setting of the Urhobo would also seem to suggest that the local gin industry was considerably large as thousands of people took to the business of distillation of fermented palm wine into the local gin.

Apart from the spiritual significance of the home-made gin in the cultural spaces of the Urhobo, its secular uses were no less significant as they were ultimately bound up with the necessity to keep the people healthy particularly the labour force in agriculture and enterprise.

3.The Technology and Technique of Alcohol Production from Earliest Times to c. 1920

As already indicated, natural equipment were utilised by Urhobo distillers for the production of alcohol during the Atlantic Period and these were: clay pot, Indian bamboo stick, native soap, the bark of the tree, *Saccoglottisgabonensis* urbanand tobacco leaves. The pot held liquid of approximately 20 – 25 litres and suitable hole was inserted at the top of the pot close to the opening. A bamboo stick was permanently attached to the hole to capture the steam produced by boiling palm wine in the pot and conduct it to receptacles. The stick was cut to suitable length of 5ft. with an opening at both ends. The pithy inner substance of the bamboo was removed before it was utilized as distillation or delivery pipe as it was known in the local parlance. An important input in the distillation process was the native soap which was produced from a concoction of ash (obtained from the burnt oil palm nut bunch) and palm oil.

Unlike the local pot industry, Ryder (1959) noted the existence of a considerable level of specialty in palm oil and kernels production in the Urhobo area – a specialty dating back to the Atlantic period and possibly earlier, as palm oil constituted part of the cargoes the Portuguese imported from the area during the 16th century. The fresh bark was added to the distillate – the gin in order to add pungency and to colour the gin light pink, perhaps to make it look like the imported brand – and to the palm wine to aid fermentation. However, Dalziel (1937) suggested that the addition of the bark often had harmful effects not attributable to the alcohol content of the gin. Like the bark, dried tobacco leaves were also added to the wine to aid fermentation and for a stronger drink. Palm wine, the major raw material was obtained by cutting a hole at the base of either the male inflorescence or the young terminal bud of the raffia palm tree.

The traditional clay pot or pot-still method of distilling alcohol was as simple as the equipment used (see diagram below). The fermented wine was processed by filtering with a traditional sieve (umi) to eliminate impurities such as dead bees and vegetal fibre. The wine was poured into a clay pot (oven) to a level just below the stick and placed on a clay mound over fire. Some of these traditional clay mounds still served as veritable heirlooms in some gin distillation camps. Some quantity of native soap was added to the potentially fizzy brew before distillation in order to suppress the wine and prevent it from boiling over and mixing with steam. The steam produced by the boiling wine percolated through the stick and continued to drip out gradually as gin into smaller receptacles. Fermented wine was poured into the pot at regular intervals in the course of distillation. The wine was emptied from the pot after about 8 hours and the continual distilling operation must be repeated by distilling the non-fizzy primary distillate twice to obtain a higher but often varying alcohol volume of between 40 – 50 per cent. The first round of distillation yielded a fairly higher quantity (about 3 litres) of low strength alcohol, while about half litre of strong alcohol was obtained at the terminal stage of distillation.



Figure 1: Traditional Pot-Still Distillation Apparatus

Lacking the scientific knowledge and technique of determining the alcohol strength of their product, differing alcohol strength of local gin was the rule rather than the exception and as Olorunfemi (1984) pointed out, this was a source of concern in colonial circles from 1910 particularly the potentially intoxicating effect of alcohol and its health indications. For instance, the colonial authorities claimed through laboratory tests by its Analyst (later, Chemistry) Department that highly volatile acids and esters were found in local gin; the majority of which contained 40 – 50 per cent of alcohol by volume, while one sample recorded an alcohol volume of 66 percent (NAI 1931). The potential abuse of spirituous liquor and the continued importation of alcohol provided the bases for protestation by European temperance societies which helped shape colonial policy towards local alcohol and its eventual prohibition in 1912 (Olorunfemi 240 – 241).

Apparently unknown to their forebears, the natural equipment used for alcohol production such as the bamboo stick and clay pot were critical drawbacks to production and output. The stick as a vegetal material absorbed some quantity of alcohol during distillation thus reducing output both at individual and aggregate levels, while clay pot took longer period of time to heat up, thereby lengthening the distillation operation which usually lasted from sunrise to sunset. Although these telling limitations (to production and output) imposed by such crude stills seemed to necessitate the imperative for change in technology and technique of alcohol production, however, change and innovations introduced to alcohol distilling could not have been possible without the economic factor – namely increase in demand for the home-made gin and the emerging business-for-profit nature of local alcohol enterprise following the emerging cash economy. These and other changes such as the introduction of yeast and sugar and the

economic factors proved to be veritable incentives to prospective gin distillers whose rank burgeoned following colonial intrusion.

4. Innovations, Adaptation and Change in the Technology and Technique of Alcohol Production

The introduction of metal equipment (a metal pipe and metal drum) and a wooden water trough were important innovations in the technology of alcohol production. The water trough was adapted to facilitate alcohol production in response to the inadequacy of metal heat conductors. The introduction of yeast and sugar led to alternative technique of alcohol production, i.e., yeast and sugar distilled gin. The original metal pipes were fashioned by the local smith and adapted to gin production, until the introduction of copper pipes during the colonial period. The metal drum held approximately 125 litres of liquid, while the wooden trough locally called *okpokowa* was similar to the dugout canoe used by palm oil producers to mash palm berries in order to extract the oleaginous contents of the nuts. It measured about 7 – 8 ft. long and 3 – 4 ft. wide and about 2 ft. high. The trough is durable and could be used for periods ranging between 10 – 15 years. The trough was suspended on a clay mound to roughly correspond with the height of the drum. At the top of the drum, one or two long metal pipes were permanently attached to capture the steam and conduct it through the hollowed out log to receptacles. The log must be kept filled with cool water at regular intervals throughout the duration of distillation (see diagram below).

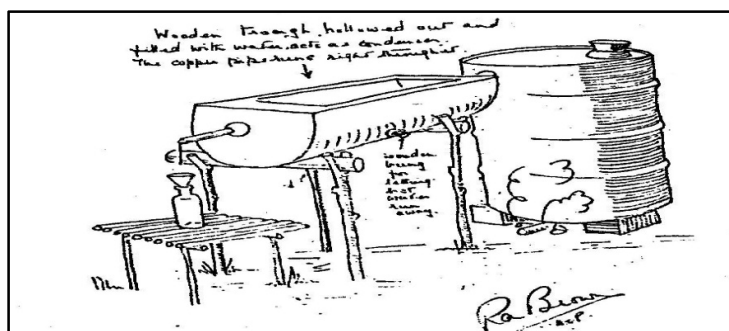


Figure 2: Local Gin Distillation Apparatus

Source: Korieh CJ 2003. *Alcohol and Empire: "Illicit" Gin Prohibition and Control in Colonial Eastern Nigeria*. *African Economic History* 31:119.

Although the production of alcohol with metal equipment was similar to the pot-still method, the former differed in three important respects from the latter: time, output and the role of the condenser. Thus unlike the traditional method, the distilling operation must be repeated by distilling the primary distillate once in order to obtain differing alcohol volume of between 50 – 60 percent. About fifty litres of low strength alcohol was obtained after the first round of distillation (after four hours), while about ten litres of strong alcohol was obtained after an approximately aggregate distillation period of six to seven hours.

The vital role of the water trough in the continual distilling operation apart from assisting to condense the steam to liquid is also underlined by the fact that its absence resulted in the gin being “burnt”, i.e., the gin acquires a burnt aroma due to the high temperature produced by metal heat conductors. This usually had far-reaching implications, particularly for the market value of the gin as it under cut gin price (Fieleghe 2009).

Alcohol producers still relied on old traditional methods of determining the alcohol strength of their product such as pouring some quantity of gin on fire. The alcohol is believed to be strong when the fire kindled on contact with the gin, while the alcohol strength is believed to be low with a slake of the fire on contact with the gin.

The innovations in technology led to a proliferation of gin distilleries in the rural areas and in the mainland as acknowledged by officials of the colonial government particularly with the introduction of synthetic substitutes – yeast and sugar. One colonial official indicated that stills were “as common in the kitchen as the cooking pot” (NAICSO 1936). The dearth of raffia palm trees in the mainland led distillers to embrace sugar and yeast in the distillation process. Sugar and yeast gin is believed to be of a lesser quality in comparison to palm wine gin. Apart from commanding little value in the market, it also tastes differently from palm wine gin. However, the technique of its distillation differed slightly from wine gin. A solution of yeast and sugar was emptied into the oven after fermentation and was distilled once because of the high alcohol volume of the solution (15 – 20 per cent). Some of the qualities of a good gin include its alcohol strength, clarity, taste and aroma.

Apparent proliferation of alcohol alarmed the colonialists who launched official onslaught of attack on distillers of illicit alcohol. As the evidence indicates, attacks on local alcohol were informed more by fiscal considerations than on the moral and health implications of excessive drinking. As one colonial official noted:

- Personally I should be sorry to see the spirits traffic abolished because I happen to be charged with the duty of finding the necessary funds to carry on the machinery of government in one of the West African colonies, and I know of no more satisfactory means of obtaining money than by a duty on spirits (Lagos Standard 1895).

Nevertheless, colonial attacks were a catalyst to the mass migration of gin distillers away from the towns to the rural areas in the 1930s, thus contributing to increase in bootlegging in the countryside (Forae 2010).

5. Conclusion

This paper has attempted from the foregoing to discuss the environmental and cultural stirring of local gin and their influence in shaping both the indigenous technology of alcohol production and alcohol's emergence in the cultural spaces of the Urhoboduring the Atlantic Era.

As a non-profit, small-scale activity that served the needs of rural households for consumption and use in incipient ritual purposes during the Atlantic Period, local alcohol was gradually transformed over time to a commercial product. More importantly, this study has revealed that the commercial transition of local gin in the post-Atlantic Age was assisted by internal and external economic stimulus, i.e., the growth of a cash economy marked by the introduction of British currency and the increasing demand by large sectors of the population for the home-made gin for secular and spiritual purposes. Change and innovations in technology and technique of alcohol production were also driven by the limitations to production and output of gin imposed by the use of natural equipment. Such drawbacks include the absorption of alcohol by vegetal material and the lengthening of the distillation process by the use of clay pot. These limitations were overcome by the use of synthetic equipment – such as a metal drum and a metal worm and, in particular the introduction and adaptation of a condenser (water trough) to facilitate the continual distilling operation by assisting to condense the steam produced by the distillation process to liquid (alcohol). These innovations in technology resulted to increase output of alcohol as was the introduction and use of sugar and yeast in the distillation process which led to alternative method (technique) of distilling alcohol in Urhoboland.

6.Reference

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