Liquid Gold: Berber Women and the Argan Oil Co-operatives in Morocco

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ABSTRACT

The argan tree, endemic to Morocco, is generally regarded as the last barrier against the encroaching Sahara desert. For centuries, argan oil extracted from the fruits has also played a unique role in the diet, rituals and personal care of the Berbers, an ethnic group indigenous to North Africa. In 2014, … *argan, practices and know-how concerning the argan tree* was inscribed on the *Representative List of the Intangible Cultural Heritage of Humanity,* thus making the tree a rare instance of world-wide natural and cultural interest. The aim of this paper is to examine how the Berber women and the co-operatives they form have helped in transmitting the wealth of argan-related skills, knowledge, and material culture. We conclude that several actions are needed to enforce the safeguarding of this ICH element. Firstly, although the use of millstones is integral to traditional oil-making, their use is, by and large, not continued in the co-operatives. Research should be conducted to document the craftsmanship of millstone-making. Secondly, at present, little attention is being directed towards the management side of the co-operatives, but to ensure the widest possible community participation, co-operatives must strive to reach sustainable growth. Thirdly, the rising oil price has caused many Berbers to be sparing in their use of the oil. The government should keep a close watch on the annual production and exports of the oil to further analyse changes in consumption, and they must find a way to bring the oil back into the life of the Berbers.

Keywords

Morocco, argan oil, Berber women, co-operatives, hand mill, millstones, azrg, empowerment, Ajddigue, Amal, Tighanimine.

Introduction

The argan tree (*Argania spinosa* (*L.*) *Skeels*) is a relic of the Tertiary Period and endemic to the arid south-west of Morocco, primarily within the provinces of Agadir, Taroudant, Essaouira and Tiznit. With its deep, extensive root system to stabilise the soil, this tenacious tree functions as an irreplaceable ecological buffer against the desertification of the region, a habitat for thousands of species (UNESCO, 2002). The tree has also proved extremely valuable to the indigenous *Amazigh* people, commonly called the Berbers. A recent excavation indicates that as early as the 11th century, the argan tree was exploited by the Berbers in the Souss Plain as a source of wood for construction, fodder for livestock and edible oil (Ruas et al., 2011, p. 419). The earliest known written record of argan oil by foreign travellers was from approximately the same time (Ruas et al., 2015, p. 122). For centuries, argan oil was a staple in the diet, rituals (Westermarck, 2013, p. 216) and personal care of the Berbers. As the argan tree defies domestication and grows only in this part of the world, it is exclusively and inextricably linked to Berber life both naturally and culturally.

Despite its unique role in environmental sustainability, the size of the argan tree forest shrank significantly between the middle of the 19th century and the Second World War. The demand for firewood, conversion of land to economic crops, over-grazing by livestock and urban encroachment were all to blame for the loss (Lybbert, Magnan, and Aboudrare, 2010, p. 442; Ruas et al., 2015, p. 114). Increasing aridity further caused the density of the forest to decline by 44.5% between 1970 and 2007 (Le Poain de Waroux and Lambin, 2012, p. 777). To step up conservation efforts, in 1998 UNESCO designated 2,560,000 hectares of this area a Biosphere Reserve. The main goal of the designation was to conserve as well as to research the *physical and socio-economic environment* of the tree (UNESCO, 2002). In 2014, an aspect of this environment, *argan, practices and know-how concerning the argan tree,* was nominated by Morocco (file number 00955) for inscription on the UNESCO *Representative List of the Intangible Cultural Heritage of Humanity* and was successfully inscribed, thus making the argan tree a rare instance of world-wide natural and cultural interest. The inscribed practices and know-how specifically refer to *the traditional methods for extracting oil, the use of this oil, the pharmacopoeia, and the crafting of tools used* (UNESCO, 2014, p. 4), and they span four intangible cultural heritage domains: oral traditions and expressions, knowledge and practice concerning nature and the universe, traditional craftsmanship and 'other'. The 'bearers' or practitioners of this ICH element are identified as the Berber women who live in the Biosphere Reserve. The ICH nomination file also points out that the 'argan women' have organised co-operatives and associations to perpetuate the tradition and capitalise on the fame of the oil, the first African product to be granted PGI (Protected Geographical Indication) status. At Expo 2015 Milano, Morocco responded to the theme 'Feeding the Planet' and proudly brought the argan oil products made by the co-operatives to international attention.

With their embedded 'female empowerment' narrative, the co-operatives have become the showcases of a fledgling industry that in 2011 produced 4,000 tonnes of oil over 20 million working hours (Rai Expo Milano, 2015). But as of today, there is no consistent body of literature that extends the argan-related discourse beyond the tree's biochemical or eco-systemic properties to include the co-operatives. Skog's investigation of the co-operatives and the 'argan women' working in them is one of the few works that have attempted to explore the subject from a socio-economic viewpoint (2013). There is even less discussion of it in a cultural context. The aim of the present paper is therefore to examine the argan oil co-operatives from the perspective of ICH: to see how the co-operatives, as the ICH bearers, have helped in transmitting the wealth of argan-related skills, knowledge and material culture. Three co-operatives have been chosen for the study: Ajddigue and Amal, located 25 and 70 kilometers south of Essaouira respectively, were two of the first argan oil co-operatives in Morocco. As the landscape of argan oil sales has changed immensely since 2005 (Charrouf, 2016), Tighanimine, established in 2007 near Agadir and also the first fair-trade argan oil co-operative, has also been selected for this study.[1] Our interview-based fieldwork was conducted in 2013 and 2016 with the assistance of Berber-speaking (Tamazigh) interpreters.

Oil extraction tools and techniques

(Plate 1) The argan fruit is an oval berry, the shape of a large round olive. (Plate 2) Inside the pit of the fruit are between one and three kernels, each about the size of a sunflower seed and containing a white oleaginous endosperm. As the thorny trunk of the tree discourages



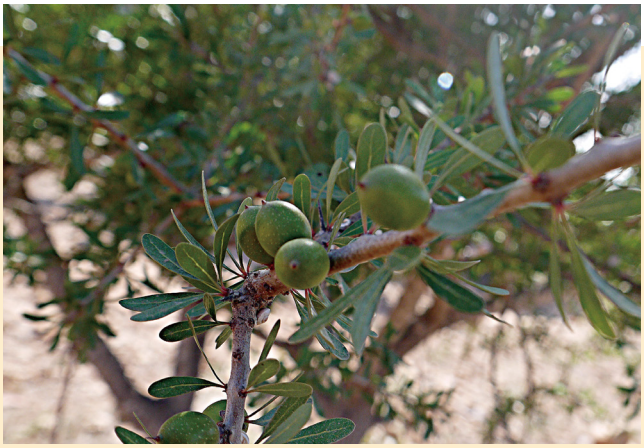


Plate 1
The argan tree grows mostly in Morocco. Its fruit is an oval berry, the shape of a large and round olive.
Photo: Author, January 2016.







Plate 2
From left to right: dried argan fruits, pits and kernels.
Photo: Author, September 2013.

the hand-picking of the fruits, in the past it was goats that climbed up the trees to devour the fruits. Village dwellers then collected the indigestible pits rejected by the animals from their manure and crushed them with stones to recover the kernels. Over time, a more hygienic method was adopted. The ripe fruits which have fallen to the ground are harvested from June to August and sun-dried. The dried casing and pulp, hardened after 7 to 10 days under the scorching sun, is then removed to feed the livestock, while the pits (*akkayn* in Berber) are prepared for cracking open. (Plates 3 and 4) Several stone instruments are needed: a pounder and an anvil for the de-pulping (*affiach*), and a hammer and an anvil for the pit-cracking. Both tasks are understandably labour-intensive; a practitioner has to hold the pounder or the hammer in one hand to smash the fruit or pit which is placed between the thumb and index finger of the other hand. Cracking pits is especially tiring. It is said that the shell of the pit is 16 times harder than that of the hazelnut (Skog, 2013, p. 75), so cracking it requires a degree of force - though bashing the pit too hard may send it skidding away or may squash the kernels, mistakes commonly committed by novices. Once the kernels are retrieved intact, they are ready to be made into either cosmetic or culinary oil, but for the latter the kernels need to be roasted for half-an-hour to eliminate the anti-nutritive argenine, an important characteristic of the argan tree (Cayuela et al., 2008, p. 1159). (Plates 5 and 6) The kernels are next put into a grinding mill (*azrg*) to make a brownish





Plate 3
A pounder and an anvil are needed for de-pulping.
Photo: Author, January 2016.





Plate 4
Pits have to be cracked open with a hammer stone to retrieve the kernels inside.
Photo: Author, January 2016.

paste, which is mixed with lukewarm water and kneaded constantly until the emulsion separates from the solid dough. Lastly, the emulsion is decanted and filtered to obtain purified oil. Dried argan fruits can be kept for a long time. At home, argan oil is produced in small batches, usually by several Berber women singing and sharing the workload together. They may also use their millstones to mix argan oil, honey and almonds to make *amlou*, the quintessential Moroccan bread spread.

As most ICH elements cannot be realised or manifested without the *instruments, objects, artefacts, cultural space* associated therewith, the 2003 *Convention for the Safeguarding of Intangible Cultural Heritage* asks that these tangible forms be considered together with the ICH itself (UNESCO, 2003). In this instance, a French-Moroccan team has compared archaeological discoveries with present-day argan oil material culture (Ruas et al., 2015), and by cross-referencing these with the ancient texts (Ruas et al., 2011), we can conclude that the traditional extraction tools and techniques are still being used in the 21st century.

Most of the artefacts used in the process are everyday objects that do not require further modification or customising. For example, through our fieldwork we found that the pounder, hammer and anvils are all river pebbles or stones which are free for the picking. Although



Plate 5
Berber women milling, pit-cracking and pressing are depicted on a cooperative's wall.
Photo: Author, September 2013.





Plate 6
Pressing is consistently kneading the dough until the emulsion separates from the solid dough. The emulsion is then decanted and filtered.
Photo: Author, January 2016.

experienced women know what weight or shape of stone is best, there is no difference between home and professional tools. The baskets and bottles are also everyday ones, and no alteration is needed to make them fit for purpose. The only exception is the grinding millstone. Morocco's ICH nomination file addresses the issue of material culture only briefly, but when it mentions *the crafting of the tools used* (UNESCO, 2014, p. 4), it almost certainly means the making of millstones.

The millstone is a common Berber household item used for grinding wheat, barley or cumin. (Plates 7 and 8) It comprises a runner stone and a bed stone. The runner stone, with a handle on the side and a hole through the centre, is lodged on top of the bed stone, which has a short narrow wooden spindle that can be inserted into the hole. The bed stone remains stationary when the runner stone rotates, and through the 'eye' (the open entry of the hole) in the runner stone, the grains or spices are funneled down

and ground. Usually stonemasons who make millstones for dried goods also make millstones for argan oil. But in the case of the argan oil millstone, because the rotary motion turns the pulverised kernels into a thick viscous fluid, a shallow groove around the rim and a spout are added to the bed stone to facilitate flowing and pouring. Moroccan authorities acknowledge that in this female-dominated oil story, *men play an exclusive part in the manufacture of the hand mills … It is a fairly rare trade that also requires particular know-how and skill* (UNESCO, 2014, p. 4). Indeed, the manufacture of millstones is itself within an ICH domain: traditional craftsmanship, and it is also a little-documented craft.

Fifteen argan oil millstones were found in an 11th-12th century Moroccan ruin (Ruas et al., 2015, p. 124), evidence of the age of the millstone-making craft. But very scant information on the production or producers survives. Like most traditional crafts, there is no manual or handbook to follow. Given that educational opportunities are scarce in the rural areas of Morocco (Islam and Azam, 1996, p. ix) where stonemasons are based, learning through practice is all the more important for the passing of skills and know-how from generation to generation. Nonetheless, the dwindling number of stonemasons may already be threatening the existence of the craft. A millstone can be found in most of the houses here, yet there are no stonemasons still working in any of the villages that we visited, or in their catchment areas; even *souks* (market stores) rarely stock millstones nowadays. The closest person to a stonemason we could find was a deceased stonemason's grandson who had watched his grandfather working. According to this interviewee, his grandfather was apprenticed in Ait El Farsi and learned his craft in a Jewish settlement, but any village with access to a good quarry, for example, those near the Jebel Sahro (or Saghro) Mountains, has the potential to thrive on stonemasonry. Stonemasons are usually not equipped with any formal geological knowledge and have only a handful of mallets and chisels at their disposal. Therefore the first thing they have to learn is how to choose the right sort of stone. Only a certain type of stone lends itself to millstone-making: it has to be tough enough to withstand the wear and tear, but not too hard to be cut and shaped without industrial equipment. When the stonemasons relocate, this empirical knowledge is all they can rely on to find suitable stones in unfamiliar terrains. It may take a veteran stonemason several weeks to fashion the open-textured stone into a perfectly balanced



Plate 7
A millstone comprises a runner stone lodged on top of a bed stone, but millstones for dried goods (first from the left) or for argan oil are shaped slightly different.
Photo: Author, January 2016.



Plate 8
The bed stone remains stationary when the runner stone rotates, and through the 'eye' in the runner stone, the kernels are funneled down and ground.
Photo: Author, January 2016.

	Tools	Ingredient added	Operations	Products
1	None (hand picking)		Harvesting	Ripe fresh fruits
2	None (air drying)		Drying	Dried fruits
3	Stone pounder*, stone anvil		De-pulping	Cleaned pits
4	Stone hammer*, stone anvil		Cracking	Kernels
5	Brazier or stove, pan, sheep scapula as spatula		Roasting	Roasted kernels with thin skins
6	Wicker sieve		Winnowing	Cool and cleaned roasted kernels
7	Millstone*, basin with a spout		Milling	Brown slurry
8	Basin with a spout, water jar or bucket	Boiled lukewarm water	Mixing and hand pressing	Oil, pressed cake (dough)
9	Funnel, container such as plastic bottle		Oil filtration	Cleared edible oil

Table 1
Contemporary tools for extracting argan oil step-by-step (adapted from Ruas et al., 2015, p. 120). Artefacts like those marked with an asterisk have been found in an 11th-12th century settlements in the Anti-Atlas Mountains, Morocco (ibid., 124).

wheat or oil hand mill weighing 20 to 25 kg, but the toil pays off. Millstones are costly and can last for years, and they are generally regarded as family investments or gifts for newly-weds. A lady who showed us her millstone said it was bought some 20 years ago from the grandfather of our interviewee at the price of MAD 400 or 500 (Moroccan Dirham. MAD 11 was about EUR 1 as of early 2016); it could easily fetch MAD 1,000 these days. As the need for replacement is low, the businesses depends very much on a steady stream of first-time buyers, but industrially-ground flour and similar products are now readily available in small packs and this has inevitably reduced the consumers' demand for millstones. Although argan oil millstones are only sold in southwestern Morocco, and selling those alone cannot sustain the stonemasonry trade, if being inscribed on the UNESCO's *ICH Representative List* can strengthen the visibility of argan oil, it may also help raise public awareness of the declining crafts of millstone-making, a fundamental part of this heritage.

Co-operatives and the 'argan women'

The argan tree is praised as 'the tree of life' by the Berbers. In the 1990s, research by Professor Zoubida Charrouf of Mohammed V University, Rabat, verified scientifically for the first time that argan oil is rich in tocopherols, anti-oxidants and unsaturated fatty acids which can reduce the risk of cancer and cardiovascular diseases. The obscure oil was catapulted into the spotlight and its cosmetic, culinary and medicinal virtues were soon extolled by multi-national companies which advertised the oil as the most expensive edible oil in the world and as an *elixir du jour* for skin and hair ailments (Lybbert, Barrett, and Narjisse: 2004, p. 418). A lucrative market for this 'liquid gold' was emerging, and under Professor Charrouf's guidance, the first women's argan oil co-operative, Amal, was founded in 1996.

Many ICH elements - dancing or performing, for example - do not have identical outcomes. Within a given framework, different practitioners may give individualised interpretations of the element, and even the same practitioner may create different versions. But there is no 'gifted' or 'creative' practitioner in argan oil extraction. Some practitioners may have greater dexterity and work faster, yet almost all of them can deliver the same results in de-pulping, pit-cracking or paste-kneading. Moreover, since *almost all of the women in the region own the necessary tools for argan oil extraction and practise these skills already* (UNESCO, 2014, p. 2), the jobs provided by the co-operatives for the local women can be said to have minimum entry requirements. Similar organisations spring

up and the word 'co-operative' has become synonymous with oil sales. These women buy dried fruit from farmers and sell extracted oil to Europe, America, Asia and the Middle East; they also give tours of the oil extraction process for curious holiday-makers who like to take home 'authentic Moroccan' souvenirs. (Plate 9) Taking pictures of goats feasting on the fruits on the argan trees, and shopping at the co-operatives where the thud, thud, thud of the pounders and hammers fills the room are a 'must-do' for today's visitors to Morocco. Even in big cities outside of the argan zone, businessmen have set up 'fake' co-operatives to lure customers in (Skog, 2013, p. 46).

Since Berber culture has a rather conservative view towards women in the workforce (Maher, 1974, p. 83), at first only divorcees and widows joined Professor Charrouf's project. But the all-female workplace is gradually being seen as acceptable by fathers and husbands. At least, co-operatives today seem to meet less resistance from Berber men, and more and more of them are inclined to permit their daughters or wives to seek employment there as long as the housekeeping and child-rearing are still taken care of. The co-operatives are strictly for local village women over the age of 18 (H-2) or 20 (B-2). In Tighanimine, anyone who meets the eligibility criteria can have a trial, yet since by definition co-operatives are partnership-based and involve members in decision-making, the new recruit must be voted in by the existing members and pay MAD 500 (MAD 5,000 since 2016) to officially become a member. The membership fee varies among the co-operatives. One co-operative asks just MAD 200, or 100 upfront and 100 to be deducted from the wages afterwards. Although most co-operatives no longer accept sacks of argan fruits as a payment option, in Tilila, a tourist destination outside Essaouira, the MAD 3,000 membership fee is waived for any newcomer who brings her own millstone to be used in the co-operative. The number of members ranges from 20 to 60 per co-operative, and in the majority of cases, the membership fee is paid out of the family's savings or the proceeds from selling goats.

Being a co-operative member entitles the woman to have a wage and an end-of-the-year bonus if the business is good. Some co-operatives have regular working hours from 8 to 5, five or six days a week, and some allow their members to have a flexible lunch break to go home to do the cooking or cleaning. Nonetheless, the pay structure is uniform for all the co-operatives: 'argan women' are paid in proportion to their production, while technicians, secretaries, managers and directors have fixed salaries. The so-called 'argan women', who make up about 85-95% of the co-operative members, are the ones who do the back-breaking jobs of de-pulping and pit-cracking. In 2002, for every kilogram of pits or kernels she produced, an argan woman received MAD 25 (Lybbert, Barrett, and Narjisse, 2002, p. 140); in 2013 it was MAD 30-35, and in 2016, the figure went up to MAD 40-45 in response to the rising oil price. An argan woman may produce between 0.8 to 1 kg of kernels per day, though some are capable of producing 1.5 kg (B-2). We have heard of members earning as much as MAD 1,600 or as little as MAD 500 a month (H-3, R-2), but the average monthly pay is between MAD 1,000 to 1,200.

The year-end bonus fluctuates, subject to the profits the co-operatives make. One interviewee said she once received MAD 600, but in 2013, a bonus of EUR 600 was shared by all the members, including those at management level. In the past few years, due to the ferocious competition, many co-operatives have struggled to stay in the black and have not distributed bonuses (B-1, H-2, R-2). Admittedly, even with the bonus, what the argan women earn is still quite low by Moroccan standards, but it is a welcome supplementary, and often the sole income for the families.

In addition to the pecuniary gains, a co-operative member is also empowered socially: she can attend the reading classes organised by the co-operatives, sit in on annual meetings and run for a position on the board. These much-vaunted privileges have, however, met with mixed



Plate 9
Argan trees are frequently climbed on by goats.
Photo: Author, January 2016.

responses. Given that the literacy rate of women in rural Morocco was just 10% in 1996 (Islam and Azam, 1996, p. 19), it was Professor Charrouf's idea to nurture the argan women's self-confidence with literacy training. The anticipation was high and other co-operatives followed suit. But these classes have slowly dropped off and some interviewees said they have already forgotten what they learned (H-3, H-4). Out of the few co-operatives that we went to, only one still provides an hour of free mathematics and literacy classes every day. Skog's findings reveal that the argan women feel the standard Arabic they are taught is too high-brow, though it is used by government and schools, and if the classes could be taught in Moroccan Arabic they would be keener on participating in the educational programmes (Skog, 2013, pp. 51-52). Our research supports those findings, with many interviewees expressing an interest in learning the Quran as well (B-4, H-3, H-4), but we also encountered members who felt the time spent in classes is time not spent making money (R-2). Likewise, the democratic nature of the co-operatives, albeit well-intended, is not always appreciated or understood. Acutely aware of their inability to articulate themselves, many argan women act more like hired employees than full members, and do not always exercise their right to have their voices heard (B-3, B-4, H-3, H-4 R-2). But all in all, most of the argan women, while constantly yearning for a pay rise, are content with what the co-operatives offer, a sentiment enhanced by their freedom to walk un-chaperoned to and from work (B-4, B-5, H-3, H-4, R-2 R-3). Usually an argan woman terminates her membership only when moving away, getting married, or falling sick, and the vacancy is swiftly filled by some member's relative or friend before it can be advertised (B-4, H-3, H-4, R-2). The number of argan women that a co-operative can take is contingent on its sales. Unless a co-operative can shift more oil, it will not contemplate expanding its kernel production line.

This does not mean that the women consider working in the co-operatives desirable for their daughters. One interviewee said only uneducated women like her who have no other job options would be willing to withstand the hardship, and she wanted her two daughters to be doctors or civil servants (B-3). The youngest interviewee in our study was 29 years old and waited for several years for the co-operative to have a vacancy, but as soon as she had accompanied the manager to a trade show she found herself preferring the more glamorous job of marketing to tedious hammering (B-4). In fact, women under 30 are under-represented in all the co-operatives. This could partly be due to the fact that the first generation of co-operative argan women are still active, and except for newly-founded co-operatives, the membership openings are few and far between, and partly to the general disinterest of young women in taking on a wearisome job (B-4, H-3, H-4, R-3) or juggling motherhood and work (B-1, H-2, H-4).

In the wider scheme of things, co-operatives have transformed the dynamics between the private and the public spheres in Berber culture. The value system which reserves the 'public sphere' for men and excludes women from it (Maher, 1974, p. 73) is challenged, and the domestic routine which was previously confined to the private quarters of the house is now thrust forward to be part of the public image of Berber life. We were repeatedly advised by Professor Charrouf not to take pictures of the women's faces and post them online, a procedure they deem offensive, but there is little doubt that the existence of female bread-winners represents a huge stride forward from the old times. Culturally, the co-operatives bridge the gap between the traditional and the modern, and this 'hybrid' trait is also observed in their safeguarding of the ICH. Argan women's work concentrates on pit-cracking, a task that so far no machines can perform satisfactorily. Only at the co-operatives located on well-trodden paths, where tourists flock to video the time-honoured process of oil extraction on their smartphones, would argan women take turns to work on grinding, mixing and filtering. In other words, the two extraction phases that Morocco's nomination file singles out to best illustrate this ICH element, *the milling of the kernels using a specific hand mill and the mixing, which involves gradually adding warm water in quantities that only an 'argan woman' can master* (UNESCO, 2014, p. 4), are largely not practised by the co-operatives except in demonstrations, and the millstone and its maker are left out of any ICH safeguarding to which the co-operatives may contribute.

Grinding and mixing are time-consuming; it takes 3 hours of intense work to make 2 litres of oil. To cope with large-scale commercial operations, co-operatives would have to recruit a greater number of argan women or sell the oil at a higher price. It is true that many luxurious hand-made goods do have a long waiting list while commanding a premium price, but if time or price is not a concern to the co-operatives, sanitary conditions and





Plate 10
Oil extraction machines produce argan oil efficiently.
Photo: Author, January 2016.

efficiency are. Oil extracted by artisan methods, though more stable and usually preserving a higher tocopherol content (Cayuela et al., 2008, p. 1164), carries the risk of bacterial infection from the added water (Matthaus et al., 2010, p. 426), whereas oil extracted by semi-automatic mechanical means is sterile and the extraction method increases the yield substantially (Lybbert, Barrett, and Narjisse, 2002, p. 132). The roasting machine also gets more oil out of the kernels. (Plate 10) Since extraction by pressing does not necessarily alter the chemical composition of the oil (Hilali et al., 2005), almost all co-operatives employ machines to do the roasting, pressing, decanting and sometimes de-pulping. The only exceptions are the dozens of GTZ-assisted (Gesellschaft für Technische Zusammenarbeit, or German Technical Co-operation) co-operatives united under the umbrella body of the UCFA (Union des Co-operatives des Femmes de l'Arganeraie), though they too cold-press their cosmetic oil mechanically (Nill and Böhnert, 2006, p. 45). Because of the expense of acquiring equipment, Professor Charrouf estimates that the start-up cost for a co-operative is no less than EUR 40,000-50,000. Funding help is available domestically and internationally, however. Professor Charrouf and her non-profit organisation, Ibn Al Baytar, have helped many co-operatives secure funding from Oxfam-Quebec, IDRC (International Development Research Centre), the European Union and the Moroccan Agence de Developpement Social's *Projet Arganier*, the embassies of Japan and Canada, etc. (Charrouf, 2016). Artisanally extracted oil, as rustic and charming as it may be, is not really sold in bulk from the co-operatives.

Co-operatives and sales

The machines need to be operated by technicians. We have seen professionally-trained technicians (B-6) or young argan women who land the job of technician after spending some time helping out with the machines (R-2), but there are also co-operatives that choose to have their sales managers run the machines at off-peak times. Like typical white-collar workers, technicians and people at management level draw fixed salaries and abstain from the more physically demanding chores. If argan women are the heart of the co-operatives, the managerial women are the brains that give directions. These women, many with diplomas or university degrees and in their 30s (B-1, B-2, H-1, H-2, R-1), come to the co-operatives for different reasons; some are mission-driven and some are practically-minded. One interviewee, a treasurer and sales manager, said she could have been a secondary school history teacher which is a better-paid job than her MAD 1,400-a-month job in the co-operative, but she feels responsible for the argan women and has a vision for the co-operative (B-2). Another sales manager said this is one of the few decent places for women to work, although as a law graduate, she would rather practise at a law firm (H-2). Both of them live in cities and have never cracked argan pits before, but they are fluent in Arabic and French, an essential skill in sales. Together with the co-operative directors, they source argan fruits, process orders and develop strategies for the co-operative's future. This is not an easy feat as the susceptibility of the argan trees to climate complicates advance planning. In 2007, a poor harvest caused by a prolonged drought doubled the price of

dried argan fruit. Amal, which had just spent its accumulated profits and governmental subsidies on buying land and premises, was unable to weather the financial storm. It was closed for six months and the members went home without knowing whether the co-operative would ever reopen. This is an extreme case but it illustrates just how much the co-operatives are at the mercy of unpredictable nature.

Even on a good day, the co-operatives are dogged by intense competition. Cayuela et al's research suggests that kernels from the coastal area have better nutritional value than kernels from the interior (2008), but the public seem indifferent to this distinction. The market may not be a perfectly competitive market as defined in economics, yet as far as the consumers are concerned, the two prerequisites for such a market – having a large number of firms, and all the firms producing identical units of output and each unit of input also being identical - were met when the rush to set up co-operatives or private argan oil production companies reached its peak between 2005 and 2010 (H-1). There are rumours of imposter co-operatives selling argan oil diluted with vegetable oil (Charrouf, 2016, B-1), but other things being equal, no co-operative has any trade secrets which would enable them to make better oil than their competitors. All firms in a perfectly competitive market sell at the same price. Similarly, on the argan oil wholesale market, no co-operative can set its own price and in principle, the oil is priced more or less the same no matter which co-operative it comes from. In 2016, this price was between MAD 240 to 260 per litre of oil, although overseas traders could later sell the oil on at over EUR 350 per litre (Le Poain de Waroux and Lambin, 2013, p. 589).

To make one litre of oil, a co-operative needs 32 to 36 kilograms of dried argan fruits to produce 2 to 2.5 kilograms of kernels. One kilogram of dried fruits costs MAD 4, up from MAD 3 a few years ago, and the labour cost for producing 1 kilogram of kernels is MAD 40 to 45. The crippling costs leave the co-operatives with a tight profit margin and put them at a disadvantage when competing with private argan oil production companies whose hired employees earn less than MAD 20 per kilogram of kernels. The supply of argan fruit is inelastic owing to the low survival rate of the tree seedlings. If the global appetite for argan oil products does not wane, the pursuit of argan fruit will continue and the cost is unlikely to drop. In a market as competitive as argan oil wholesale, the only way for a co-operative to increase their profit is to increase sales, even though that means more sourcing of the already hard-to-procure argan fruits.

Not all the co-operatives in our study have done well in the wholesale market. To a certain extent, all three of them are in the position of producing more than they can sell, and they are not alone. Increasing sales is always hard, especially since none of these co-operatives, or perhaps none of the hundreds of co-operatives in Morocco, is savvy in marketing or in building customer-relationships. Some of the co-operative directors partake in government-





Plate 11
Argan oil soaps and moisturisers are popular souvenirs for tourists.
Photo: Author, January 2016.

sponsored promotional tours to attend trade shows in foreign countries; this is an affordable and morally respectable way for Moroccan women to travel overseas to do business (H-1, R-1). Some of the co-operatives have blogs and websites, which are inexpensive to maintain and no immediate face-to-face interaction with clients is required. Yet in general, the concept of branding is sketchily implemented. It is tempting to simply pin the reason for the primitive marketing strategies on to Morocco's cultural restrictions on women, though in truth, the severe lack of a marketing budget or expertise may be a more substantial factor in the co-operatives' lukewarm performance. Old co-operatives might have enjoyed media coverage when the world first 'discovered' the miraculous oil, but to stand out, all co-operatives must display more business acumen. Tighanimine, therefore, decided to take the plunge and spend an initial EUR 2,000, and then EUR 500 every year, to obtain a fair-trade certificate. It is still too early to tell how the certificate will enhance Tighanimine's brand, but it is a well-calculated move to encourage socially-conscious potential customers.

The argan oil retail market is, on the other hand, a totally different matter. (Plate 11) The merchandise on sale includes beauty products, ranging from soaps that contain only a few drops of argan oil to a serum made of 100% argan oil, as well as the oil itself. One of the co-operatives we visited has technicians who, in addition to operating the oil-extracting machines, make basic soaps on site, but like the rest of the co-operatives, it commissions independent factories to produce body lotions and moisturisers with the oil they provide. The merchandise is then sold out of the co-operatives' stores, at trade shows and sometimes on websites. A bottle of 50 ml pure argan oil for salad dressing, or a head-to-toe nourishing serum can be priced between MAD 60 and 160, and a jar of revitalising moisturiser whose ingredients are never clearly listed also carries a similar price tag. From a financial point of view, this retail market is what the co-operatives should focus on to maximise revenue. The reasons are as follows: firstly, consumers view beauty products made by different brands as heterogeneous items, each made to the brand's specific formula, and this heterogeneity permits the co-operatives to set their own prices. Secondly, most of the customers for these retail products are tourists with limited time at their disposal. Even though occasionally they are aware of certain reputable co-operatives that have been featured in TV programmes or magazines, their choices of where to shop are dictated by their itineraries. Some co-operatives are fortunate enough to be situated near main roads, yet for the co-operatives in remote villages, unless they have cultivated relationships with tour operators, they can expect only infrequent passing-trade tourists or Moroccan customers from non-argan producing areas. Moreover, although the co-operatives have in-house stores, very few of them have permanent concessions or branches elsewhere in Morocco. The under-developed distribution network again allows individual co-operatives to be price-setters as the number of accessible firms is insufficient to make up a perfectly competitive market.

Setting its own prices gives the co-operative the market power to manipulate prices to suit its own requirements, and it is evident that for every millilitre of oil a co-operative sells, the profit from retail is several times that from wholesale. Nonetheless, retailing has not always been as valuable a source of income as one would have hoped, even for the accessible co-operatives. This is because most of the Moroccan retail products come in crude packaging, and it is impracticable to set the prices of them on a par with the prices of 'sophisticated' branded products seen in the west. Moreover, although tourists are happy to snatch up argan oil products as part of the *de rigueur* Moroccan experience, their shopping sprees are limited by the logistical problem of lugging home cumbersome jars and bottles. All this results in a situation where prices and volumes of sales stay stagnant. More importantly, since the beauty products have never been rigorously tested, they fail to comply with the EU Cosmetics Regulations or the USA's Food, Drug and Cosmetic Act, and cannot be distributed in those territories. Consumers who like what they bought in Morocco may also have difficulty repeating their purchases online as, except for a few cases like Ajddigue, most co-operatives still lag behind in e-commerce. Instead, shoppers have to turn to argan oil products produced by multi-national companies which bought the oil at the price of MAD 240-260 a litre from the co-operatives in the first place.

Why does keeping the co-operatives' accounts healthy merit discussion? A prosperous co-operative creates and sustains jobs. But how are these job prospects affecting the transmission of the practices and know-how concerning the argan tree?

Several argan women in our interview have argan trees on their own lands or have usufruct rights to harvest fruits on communal lands (B-5, H-3, H-4). On their days off, they

work in tandem with female relatives at home to make oil for family consumption. Were this tradition to be carried forward uninterrupted, the ICH element would not be at risk. However, when the price of surplus home-made oil sold around the neighbourhood sky-rocketed from MAD 90 to over MAD 200 per litre in the space of 15 years, even affluent Berbers began to feel the pinch. It has been noted that the use of argan oil in home cooking has taken a downturn (Ruas et al 2015, p.133). If the tendency to substitute argan oil with cheap olive or sunflower oil persists, and the sale of home-made oil declines, fruit-harvesters may be prompted to sell the fruit to the commercial sector for easy cash.

Furthermore, the labour needed for the menial work of oil-making is becoming less available. Rural exodus has seen men heading to the cities to pursue economic opportunities, and women working in the fields whenever they can (Ruas et al., 2015, p.133). This chronic shortage of domestic help is exacerbated, ironically, by the booming argan market. The windfall enables better-off argan farmers to send their daughters to secondary schools and that takes away more potential helpers from households (Lybbert et al, 2011). But even for home-bound girls, the possession of oil-making skill is no longer seen as a defining quality of being a Berber woman. Both Skog's investigation (2013, p.76) and our study have noted the cavalier attitude of some young Berber women to bearing or handing down this physically taxing legacy.

The decreasing number of home practitioners puts the commercial sector, i.e., co-operatives and private argan oil production companies, in a pivotal position to transmit the related skill and knowledge. Were the financially-strapped co-operatives to be driven out of the sector, the hired employees in private argan oil production companies would become the dominant group of 'argan women'. This dominance may not reduce the total of on-the-job practitioners as the kernel production lines of the companies would still need to be properly staffed, but the low rate of pay the companies offer would probably only attract workers from the lowest income strata.

The job prospects offered by the co-operatives are consequently not only critical in the Berber women's empowerment movement, but also instrumental in safeguarding the ICH. Professor Charrouf once remarked that the co-operatives are more about social work than about profit-making, yet she also agreed that only a co-operative that is able to stand on its own feet financially can cater for the wellbeing of its members (Charrouf, 2016). If a co-operative can expand its business, improve its profitability and raise its pay, it will surely increase the likelihood of recruitment from a range of social strata. Educated women may be attracted by the new types of work, say, design or IT or product development or international trade, and others are also more likely to find manual work acceptable if it is well-paid. Governmental interventions such as subsidies, management training or crack-downs on fake co-operatives may be required to make this happen soon, as quite a few interviewees stated that the number of ill-managed co-operatives is already on the rise (Charrouf, 2016, B-1, R-1). To promote 'the sense of identity and continuity' among the Berbers, and to *ensure the widest possible participation from community* (UNESCO, 2003), Morocco must take more measures to help co-operatives reach sustainable growth for the long-term future.

Conclusion

Built on the personal collection of fashion legend Yves Saint Laurent, and tucked away in a corner of the serene Jardin Majorelle in Marrakech, is the world's first Berber Museum. Simply yet poignantly, the museum depicts Berber life through Room 2's twelve display cases, of which, case 8 is dedicated to argan, millstones and barley. The argan tree and the Berbers have lived in North Africa for millennia. The present oil craze is emblematic of the strong link that the Berbers have to the land and the vicissitudes that the Berbers have endured, but it also reminds us how the symbiotic relationship between tree and people should be vigilantly monitored: while the bonanza seems to give the Berbers extra incentives to conserve the trees, the ruthless harvesting has left nearly no fruit on the ground and this may jeopardise their natural regeneration in years to come (Lybbert, Barrett, and Narjisse, 2004, p. 424). Only when the argan tree is flourishing will the practices and know-how concerning the tree have a legitimate reason to survive.

At the forefront of the current argan oil fad are the argan women and their co-operatives. By focusing on those co-operatives, this paper hopes to fill in the research gap about the practices and know-how concerning the argan tree as an ICH element, its skills, objects, spaces, community and transmission, and pinpoint what actions are needed to ensure its safeguarding. We conclude that

one of the top priorities is the documentation of millstone-crafting. Although stonemasonry is an all-male profession, the use of millstones is integral to traditional oil-making. In a time when oil is machine-pressed and *amlou* can be made in a food processer, lest the craftsmanship should collapse under the weight of technology, a separate avenue of research should be conducted to record it. Secondly, co-operatives have shown great promise in terms of the promotion and transmission of this ICH, but there is no denying that to provide job security for argan women, the co-operatives have to be financially self-supporting. At present, little attention is being directed towards the management side of the co-operatives, and this oversight needs to be addressed. Since the endgame for all in commerce is to make sales, co-operatives must strive to overhaul their management. Last but not least, a dance is what it is because of the performers and the audiences, and the same goes for the argan oil: its producers are the performers and its consumers are the audience. Even though the oil has gone global, it is considered Berber because of its Berber makers and its ubiquitous use in Berber cuisine. Argan oil consumption is a precious part of the Berbers' collective memory, yet the rising price of the oil has driven many to be sparing in its use. Given how sensitive our senses are to food, to be deprived of the oil and the dishes it creates, de-stabilises the memory and causes irreversible changes to the identity-formation of the Berbers. The Moroccan authorities should keep a close watch on the annual production and exports of the oil to analyse whether there are any further changes in consumer behaviour, and they must find a way to put the oil back on the dining table. Above all, if Proust's 'madeleine moment' could give birth to such a masterpiece, what journey of memory would the Berbers' 'argan oil moment' unlock?

ENDNOTE

1. Prior informed consent was obtained before all the interviews. To achieve data saturation, altogether 13 'argan women' and managerial women were interviewed, and the cooperatives they are from, in no specific order, are represented by 3 randomly generated characters, B, H, and R, to respect the interviewees' wishes to remain anonymous.

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