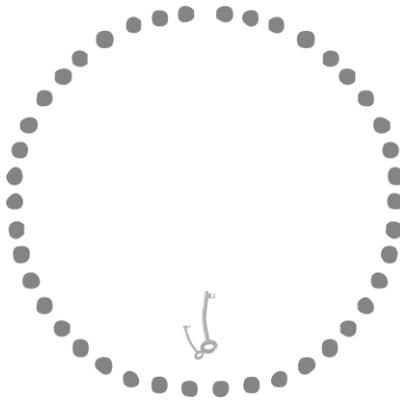


*Transformations of transhumance
in the Aït Arġa Guigou tribe (Morocco's
Middle Atlas): from French colonisation
to present times*



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***Transformations of transhumance in the Aït Arfa Guigou tribe (Morocco's Middle Atlas):
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Abstract: The Aït Arfa Guigou tribe, part of the Berber confederation of the Beni M'guild, is based in Morocco's Middle Atlas mountain range, around the town of Timahdite. The tribe is profoundly tied to sheepherding, and is nomadic, having settled in one of the mountain areas in Morocco most conducive to nomadic, livestock-related activity. In this article, the result of intense anthropological fieldwork, we analyse the tribe's situation at the dawn of the 20th century. We also present how major changes induced by French colonisation prompted them to adapt to their new situation, shifting from nomadism to short-distance transhumance as an adaptation necessary to continue practicing sheepherding in their territory down to the present day.

Keywords: Transhumance, pastoralism, environmental anthropology, French colonialism.

***Transformaciones de la actividad trashumante de la tribu Aït Arfa Guigou (Atlas medio de
Marruecos): desde la colonización francesa hasta hoy***

Resumen: La tribu Aït Arfa de Gigou, parte de la confederación bereber de los Beni M'guild, se sitúa en las montañas del Medio Atlas marroquí, en los alrededores de la población de Timahdite. Se trata de una tribu eminentemente pastoral y nómada, asentada en una de las zonas montañosas de Marruecos más adecuadas para la actividad ganadera nómada. Este artículo, fruto de un intenso trabajo de campo antropológico, analiza la situación de esta tribu desde los albores del siglo XX y cómo los cambios producidos desde la colonización francesa han obligado a profundas adaptaciones, pasando de prácticas nómadas a una trashumancia de corto radio como forma de continuar con la práctica pastoral en su territorio.

Keywords: Trashumancia, pastoralismo, antropología ambiental, colonización francesa.

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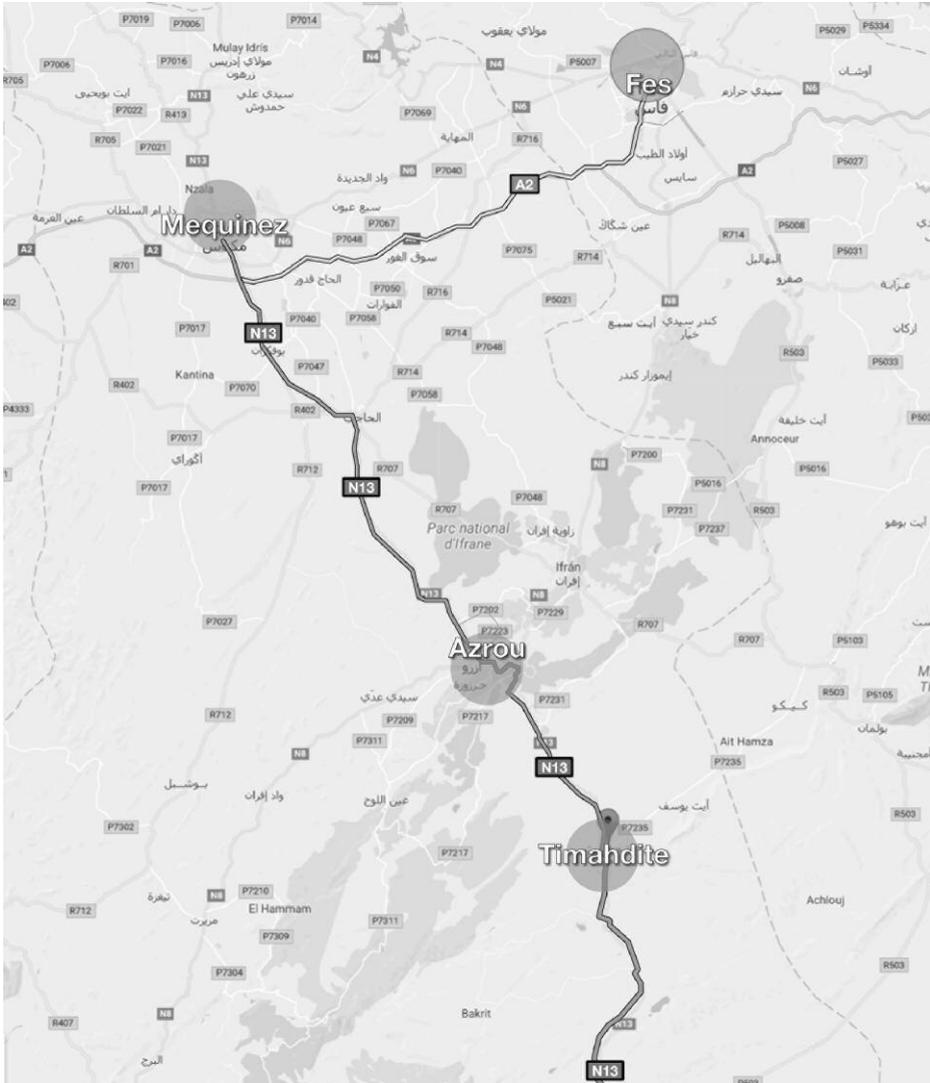
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Introduction

Timahdite is a small town in the mountains of Morocco's Middle Atlas mountain range, in the province of Ifrane, the site of a *caïdat*¹. It is a strategic location, lying 100 km south of Fez and Meknes, on the axis of the N13 highway linking Meknes and Errachidia, the gate to the Sahara by the Guigou River, which is one of the tributaries of the Sebu (figure 1).

1• District main village.

Figure 1.
Situation map



Timahdite, also the name of one of the most famous Moroccan sheep breeds, is home to the Aït Arfa de Guigou tribe, part of the Berber confederation of the Beni M'guild.

The rural municipality lists a growing population with 10,080 inhabitants, according to the 2014 census, in comparison with the 8,685 from the 2004 one (RGPH 1994 and 2004). It is located at an elevation of 1,900 metres and is characterised by a Mediterranean climate with rainy winters and springs. Average rainfall exceeds 900 mm. Winters are harsh, with between 15 to 40 days of snowfall, which generate significant mobility problems. It covers 60,700 ha, of which 31,000 are collective pastures.

Despite being a small mountain town, within its limits it boasts 150,000 sheep, 8,100 goats and 1,540 cows. Every Thursday holds one of the country's largest sheep markets, a manifestation of the backbone of the local economy. It also produces onions, potatoes, fruit, cereals, vegetables, peas, and corn for fodder.

The territory's characteristics made it, historically, highly suitable for livestock operations, as its climate was traditionally exploited to practice double transhumance. This phenomenon, however, was strongly impacted by French intervention after the onset of the colonial period.

Methodology

This work forms part of the results of a research project on transhumance in Morocco's Middle Atlas mountain range, financed by the Valencian regional government and thanks to which two fieldwork campaigns were organised in the area.

The main fieldwork, carried out in two different phases in May and December of 2010 made it possible to gather important information. That was collected through semi-structured open-ended interviews, which were conducted with numerous families from the area, local authorities, and the main agents involved in the area's livestock activity, shepherds, and herders (table 1). Visits were also made to the main sites related to livestock activity in the various settings in which it is practiced, with special reference to the Agdal areas. The dates were carefully selected, as it made it possible to ascertain the seasonal variations associated with the livestock raising and the various activities associated with it. Subsequent, shorter visits made it possible to confirm the hypotheses.

Table 1.
Informants

I1.	Water and Forest Organization coordinator. Azrou
I2.	Little farmer in a hamlet near Timahdite
I3.	Shearer Leader Group. Timahdite
I4.	Local leader. Timahdite
I5.	South of Timahdite Agdal Keeper
I6.	Agdal khaïma owner
I7.	Timahdite semi nomadic family leader
I8.	Timahdite cattle breeder family leader
I9.	Timahdite family leader
I10.	Boulemane origin family leader
I11.	Rural cattle breeder family near Timahdite
I12.	3 Timahdite women
I13.	Timahdite Neiba (tribu representative)
I14.	Water mayor. Hamlet near Timahdite
I15.	Local political representative. Timahdite
I16.	Rural cattle breeder family leader near Timahdite
I17.	Women representative. Local Craft. Timahdite

The authors interviewed numerous people, from various villages and towns, from different jobs and occupations, and from men and women, along with different subfractions. When it came to choosing the informants they followed the snowball sampling technique. This technique is used with good results especially when it is not easy to access the informants or the questions could be controversial. (Atkinson and Flint 2001). The first interviewees introduce you to the next ones until the last informants don't add anything new. It is the point of saturation. For all these reasons they consider that what was exposed in the different interviews corresponds faithfully with the real situation in the territory. These affirmations have crossed each other and could confront each other in the successive stays on the ground.

Objectives and state of the art

The nomadic populations of the Moroccan Middle Atlas have undergone major territorial, political and economic transformations since the beginning of the twentieth century. These alterations, very much present in the collective memory of our informants, reflect a transition from a fully nomadic society, prior to French colonisation, to another one, very close to the neoliberal principles of postmodern society. We will study how great resilience in the face of these difficulties has allowed this population to maintain its livestock-based activity in spite of the dramatic changes that have come about.

The modern state faced the situation as a struggle between civilised agriculture, as a sign of progress, and obsolete livestock-raising practices. In 1797 Cavanilles (1797, II: 89) pointed out, when speaking of the confrontations between the groups: "The livestock raisers place their cattle and oxen on the dry lands, and they proceed to cross cultivated fields, stop in the vineyards, and eat the tender olive trees, gnawing at them when they sprout". In Spain, Fontavella (1951: 783) already pointed out in the case of Valencia, that "the colonisation and transformation of large dry areas into irrigated land repelled livestock", to the point that herders had to find other wintering areas, such as the Espadán mountain range (Vidal González and Antón 2006).

The Moroccan case soon drew the attention of researchers, as Célerier (1927) and Guennoun ([1940] 2001-2) pointed out, although the text was published in 2002. Other lands witnessed similar dynamics, such as the Tunisian colonial process, with effects very similar to the Moroccan case, in which, in Clarke's words (1955: 162): "transhumance is barred" in response to the advance of modern crops.

The profound changes in nomadic societies due to their confrontations with national states, especially in Africa, have been studied extensively, even constituting the focus of a monographic issue of *Nomadic Peoples* in 1990, although we also find examples of resilient nomadic activity in pastures in Mongolia in the face of changes in the post-Communist market economy (Szykiewicz 1993). Other examples of examinations of these dichotomies in other geographical areas include the works of Paine (1996) on the unequal relationship, in the European case, between the Saami and the Norwegian state, and also those by Chatty (1994) on the displacements of the nomadic Harasiis tribe in Oran, prompted by the increasing exploitation of oil fields.

We believe that a good summary of the situation is found in the words of Klute (1996: 3): "It seems impossible that nomads and state will ever harmonize".

Historical situation

The confederation of the Beni M'guild settled in the Middle Atlas region between the seventeenth and nineteenth centuries, occupying the territories of Timahdite and Azrou in the nineteenth (Baudet 1969: 8). Since then they have maintained exclusive access rights to the pastures in this important area, based on traditional prerogatives established by custom, according to which a group had to arrive before others and defend its lands with arms, at a time (before 1912) when communities were able to define their own imperatives (Tozy and Mahdi 1990: 224). This bellicose, Berber-speaking confederation escaped the control of the Makhzen, the sultan's central power, which had to settle for settling in the *ksars*² of Azrou, Aïn Leuh and Agurai, established in the seventeenth century to thwart their belligerent advances into the valley. The Beni M'guild controlled the caravan way to Errachidia, the gate to the desert, thereby profiting from the right-of-passage fees generated by this rich commercial activity.

Traditionally the Aït Arfa Guigou, like the rest of the Beni M'guild, practiced double transhumance to take full advantage of the climatic variations typical of the Mediterranean climate. During the spring and autumn they settled on the Timahdite plateau, establishing their base camp there and taking advantage of it to cultivate along the fertile banks of the Guigou River. During the warmest months of the summer they migrated to the nearby mountains known as the *jbel*, which are located just 20 km south of this point. They would then return with their *khaimas*³ to the *lahrouch*, the plains of the Timahdite plateau, in the middle of September. Before the harsh winter conditions made mobility impossible and covered the grazing areas with snow, they began a longer transhumance route (about 90 km) to the *azaghar*, a Berber toponym designating the plains of the valley, in this case the Saïs of Meknes. This migration to the valley allowed them to enjoy a mild winter, "in a place where it does

2• Fortified cities.

4• Traditional tents.

not snow, nor are there rough winters" (Guennoun [1940] 2001-2: 139), with abundant pasturelands, typical of a well-irrigated area. For the Beni M'guild it was an extraordinary place, "easy and pleasant, without any better remedy against boredom and worries than a periodic stay of some months in this paradise" (Guennoun [1940] 2001-2: 139).

However, the use of these pasturelands on the plains was not without problems, as they were occupied by other tribes, with which a temporary cession agreement was reached for their use each winter, at the assembly of the *djemâa*⁴. This was then used to lay claim to old usage rights, combined with threats and an unequal relationship between herders from the mountains and the traditional users of the valley (Guennoun [1940] 2001-2: 140).

In fact, the tribes of the azaghar insisted that the Beni M'guild only had usage rights (Baudet 1969: 8). Thereby averting any consolidation of that claim, and their space was rapidly occupied by the Beni M'tir, when, in early March, the former returned to the mountains of the Middle Atlas, as both Harris (1897: 639) and Célerier (1927: 57) have indicated. The Beni M'tir were livestock herders who moved to the Middle Atlas every summer.

In both their descending and ascending transhumance, they stopped in Azrou to make the apposite purchases at the *souk*⁵. Azrou was the only fortified *ksar* in the Beni M'guild territory and a place of residence of the *caïd* (Harris 1897: 643), who wielded a purely theoretical authority over this tribe.

The Beni M'guild, in general, and the Aït Arfa Guigou, in particular, lived in *khaimas* (Harris 1897: 639), large tents that they set up and took down during their frequent travels. However, they used the Timahdite lands as the base for their activity, where they cultivated crops- mainly winter and summer cereals (Beaudet 1969: 5), complementing their livestock production. Drawing upon the waters of the Guigou River to irrigate the fields is a practice dating back to ancient times, although crops of corn, wheat and barley were always ancillary to pastoral activity (Jennan 1986: 55).

The only constructions found on the landscape of the Timahdite plateau are fortified granaries (Célerier 1927: 63), used to store the tribesmen's harvests and pro-

4• Assembly of local notables.

5• Weekly market.

visions, indicating that this was a central site, the hub from which they organised their summer and winter sojourns.

The Beni M'guild, due to their warlike and rebellious tradition, had the upper hand over the tribes that controlled the territories of the plain, the Saïs de Meknes. They also defied the central authority of the *Makhzen*,⁶ eluding the payment of taxes and obligatory levies, and charging travellers crossing their territory passage fees.

The beginning of the French Protectorate

This situation changed dramatically for the Beni M'guild with the beginning of the French Protectorate under the Cherifien Empire. As is well known, in 1912 the Treaty of Fez was signed between the French government and the Moroccan sultan Moulay Hafid, by which France was ensured administration of the Moroccan territory, with the sultan retaining nominal power.

France extended its power into Morocco, with plans for colonisation and development of the territory, which included bolstering agriculture as a means of advancement and modernity, to the detriment of pastoral practices, which were seen as a sign of the past, through a lens coloured by Enlightenment ideals. In the same vein, nomadism was considered a sign of antiquated backwardness; in the words of Célerier (1927: 59), a key agent in this incipient colonial period: "considering the sedentary life as the ideal, we can hardly conceive of nomadic man dominating the sedentary".

The conflict arose quickly, as the French supported the farmers under the authority of the Makhzen; "peaceful workers of the valley" in the words of Célerier (1927: 59), versus the "the poor and belligerent populations of the mountains", thereby spawning a duality between the "gentle" farmers of the valleys and the indomitable Berber warriors of the mountains. This broke the status quo, preventing the Beni M'guild from carrying out their winter transhumance and initiating a direct confrontation between the French troops and this tribe, a development that would have important consequences.

6• The king's power and authority.

This strategic change in the use of the fertile plains of the Saïis led to "a massive and irreversible destruction of collective lands in the name of building the modern State" (Bouderbala 1996: 146), generating a rapid sedentarisation process of the tribes of those lands, the colonisation of the common grazing lands, and their transformation into agrarian land, such as by the Bni M'tir, as well as intensive agricultural exploitation by the colonists for new export-oriented crops.

As the Bni M'tir were dispossessed of two fifths of their grazing lands, the equilibrium between the Beni M'Guild and them was broken. As the first couldn't use the winter lands, they refused to facilitate access to the Bni M'tir in summer (Pascon 1980: 63).

As Mahdi (2005: 94) said: "Urban landowners' property has been developed on the ruins of tribal structures". A rapid process involving the privatisation of collective lands began, to the point that "from 1930 to 1955 cultivated area increased by 71 per cent, while there was a 14 per cent decline in livestock raising" (Beaudet 1969: 35).

The nomadic tribes of the Middle and High Atlas fell outside the limits controlled by the new colonial authorities, so the military strategy to subdue them was to prevent them from moving towards the fertile valleys, isolating them in the mountains and stifling their livestock-based economy. This strategy was supported by the tribes traditionally established on the plains, which embraced the new French colonial policy with open arms. As early as 1913 the Beni M'guild were crushed for the first time during their attempt to descend to the Saïis.

A second step in the confrontation began when the French entered the mountains of the Middle Atlas to control defiant tribes in their own territory. Thus, in 1914 the French troops occupied the strategic population of Khenifra, establishing there an important centre controlling the entire Middle Atlas. However, their grasp over the territory was very tenuous, as demonstrated by the Battle of El Herri at the end of that year.

In 1915, as part of the process to control the route between Meknes and Khenifra, a detachment of the 4th Moroccan Sharpshooters was assigned to Timahdit until 1917, although total control over the territory was not achieved until 1934.

This confrontation "sparked the disintegration of the pastoral system, the cornerstone of the economy of these mountains" (Jennan 1986: 49), since the French strategy was to prevent the herds from reaching traditional wintering sites on the plain. This practice, in Célerier's (1927: 68) words "was quite rapid, but, in the long run, proved terrible".

Once the nomadic tribes of the mountains had been "pacified," a major problem arose: since the valley lands were already occupied by colonists and sedentary tribes, there was no way to go back, in terms of plans for the territory's usage. The privatisation of the Saï's had been realised, closing the circle of a strategy that rendered the prohibition against taking flocks down the mountains in the winter irreversible.

A crisis took root amongst the mountain livestock, which, upon losing their milder winter spaces, were forced to remain in the mountains during this period, with the consequent damage inflicted upon them by the cold and the absence of pastureland. This in turn brought about important losses and drastic decreases in the numbers of flocks, affecting mainly "the smallest, most vulnerable to the shortage of food, the cold, and disease" (Jennan 1986: 60).

Adjustment process

The many people interviewed recalled the previous state of affairs, addressed in the foregoing historical references, as they had witnessed a radical change in the tribe's way of life whose consequences they continue to suffer. Informants 1, 4 and 7 reported that the tribe, like the rest of the tribes in the Middle Atlas, had to desist from winter migration to the pastures of the Saï's plain. They had no choice but to substantially modify their strategies in order to continue to function as a predominantly livestock-based society.

The process of adaptation to the new circumstances entailed remaining on the plains of the plateau during the cold winter months. Let us recall that Timahdite lies at an elevation of 1,900 m, and suffers the rigours of the winter season, with regular frosts and heavy snow. The snow not only covers the pastureland, but also precludes mobility on roads and tracks. As noted before, this change was initially dramatic and was followed by a long period of adaptation to the new situation. This included the construction of barns in which to shelter the flocks during the cold winter months. "In the period the Ait Arfa Guigou had built 260 folds on the collective pastures" (Venema 1994). Indeed, "the families began by building shelters of dry stone, progressively transforming them into solid and permanent constructions (...), following the principle of *Louqar*: respecting the exclusive use of the space that one occupies for his habitat,

his family and his flock" (Mahdi 2012: 6). All this occurred despite the strong opposition of the local authorities to the occupation of the *Lahrouch* as communal lands.

In the absence of the most crucial migration, during the winter to the lands of the valley, nomadism's whole *raison d'être* began to crumble. The banks of the Guigou River, which until that time featured only a limited quantity of crops and only a few granaries, became the foundation for the tribe's new movements. Arable lands were expanded to provide more fodder, which was now essential for the herds to spend the winter there. The new lands that were capable of being rendered cultivable saw the start of a privatisation process, as their previous use for collective pastures was abandoned. An attempt was also made to balance, as far as possible, the domestic economy through the introduction of new agricultural products. This given that "an increase in agriculture was the only way to offset the decline in livestock" (Beaudet 1969: 36). Thus in the 1940's there began an incipient process of sedentarisation in the area. The interviewees recalled the abandonment of the large tents or *khaimas*. They were gradually supplanted by stable buildings next to the private area, the *Melk*, which now was even more important than before. An urban centre, *Timahdite*, thus began to expand near the river. Favoured by its auspicious location by a main road and at a crossroads.

Post-colonial situation

The independence of the country in 1956 only consolidated the privatisation of formerly communal lands in the plain of Saïs, rendering impossible the continuation of old nomadic practices by the Beni M'guild. These rich and fertile lands were awarded to the rich landowning bourgeoisie, composed of merchants, notables, religious families, as well as the nation's nascent bourgeoisie (Bessaoud 2016: 121). In fact, the subsequent agrarian reforms did not modify this process, but rather protected the interests of the large Moroccan landowners to the point that 0.1 per cent of registered owners own 10 per cent of the land (Bessaoud 2016: 121).

This practice only exacerbated the State's abandonment of traditional Berber populations in the mountains, which made it necessary to consolidate the withdrawal carried out during colonial times and the change in the livestock model of livestock practices.

One of the adaptations that has made the survival of livestock activity possible has been a combination of sheep with lambs so that the latter gain weight. This system requires a greater investment to acquire the necessary feed. Since the 1980s entities such as the ANOC⁷ have played an essential role in promoting and supporting the different livestock systems. This is a business management system, but one very much connected to the work of the shepherds as reported by informants 7 and 8. The managers have the shepherds' to compete for the job of caring for the herds on the pasturelands. As has been pointed out, this radical change triggered a major crisis, especially among smallholders, due to the high cost of obtaining the feed to necessary to nourish their sheep during this long period of confinement on the high, cold plains.

The second action, carried out by the Moroccan State in the 1980s, was the construction of wells to supply all these flocks in the winter. This was introduced within the framework of the Middle Atlas project⁸. The premonitory words of Guennoun ([1940] 2001-2: 146), who participated actively in the colonial campaigns, were: "Transhumance, born of Berber ignorance and imprudence, will surely disappear one day, but it will yield only to material progress, and only when things are organised in such a way that they can spend the winter in the mountains without risk to their flocks". These were urgent actions to remedy the precarious situation of the herders, in the face of the loss of their winter pasture spaces and the new need to settle in the highlands. Thirty-two wells were built in these lowland areas where the flocks had to settle for the winter season. Eight for each of the four divisions of the tribe, as the water from the springs froze in the winter.

Another of the measures, complementing the previous one, was the construction of numerous tracks linking the main road, the N13, with the recently built barns. This was done in order to be able to deliver supplies to the livestock during the months when the animals were to remain inside these constructions.

All these actions were undertaken given the impossibility of the flocks grazing in the cold winter months on the plateau, when they are entirely covered by snow.

This also forced people to store provisions to survive these tough months. In the absence of pasturelands during this period, the herders were forced to provide their animals with feed for at least three months. They prepared the fodder mixture themselves, but this entailed an important increase in the cost of their operations. Along

7• Association Nationale des Ovins/caprins.

8• Moyen Atlas Central project financed by the World Bank in the 80s.

with the lack of pasturelands, it was also necessary to provide the entire group with food, as they remained in the mountains during a period when the fields were unproductive, and with wood for the stoves necessary during the frigid winter.

The region has been consolidating as an important pole of extensive livestock farming, thanks to the aforementioned adaptations and the support of an increasing auxiliary agriculture. Good examples of this are the flourishing weekly market and the increase in the number of homes built in the town

This process has accelerated over the last ten years. Agriculture is developing very fast, thanks to State grants through the Plan Maroc Vert (Green Morocco Plan, 2008). This change affects private investors, but also local people traditionally dependent on livestock. We were able to appreciate during our last visit, in July of 2017.

Livestock mobility today

The necessary adaptations to new requirements have led to the abandonment of nomadism, in the strictest sense, in order to maintain classic livestock raising activity. Thus, those who would have formerly been nomads have taken up residence in the town of Timahdite. They continue migrating to the Jbel, the mountain, in the summer, as informants 4, 6, 9, 13 and 16 reported (figure 2). However, the whole family does not make the journey with the *khaima*, which has disappeared, but rather only a small part of it; usually one of the children of the flock's owner is charged with moving it. He takes the flock to the summer pastures with his nuclear family, setting up a *khaima* on the border between the pastureland and the forest, in order to be able to observe and control the flock's movements while accessing firewood for the kitchen and fireplace. Small children stay at the family home, cared for by uncles or cousins.

Figure 2.
Land division among tribe fractions



There are a variety of collaborative strategies employed for this transhumance. There are at least three different options (Mahdi 2012): (a) the whole family can travel, or the family can split up, sending only some of its members; (b) the family may not move at all, entrusting its flock to a shepherd and (c) families can cooperate, with either one of them handling the other's flock, or two flocks being grouped together and entrusted to a paid shepherd.

Travel to this mountain area is conducted respecting the tribe's traditional ways, which reserved this pastureland, or Agdal⁹ (Auclair and Alifriqui 2012) until late in the season so that it would serve as a reserve of fresh grass when the pastures of the Lahrouch had wilted. The start and end dates are agreed to by the local authority "nouabs", by consensus, and publicly announced on the market day. This is followed a sacrificial opening ritual that is performed along with group meal, as informants 4, 5 and 13 told us.

⁹ Traditional system to protect grassland to be used only in summer.

In this area the journey to the mountains is usually made, depending on how hot and dry the year has been, around May and until July. In August they return home to participate in the harvest, and remain in the inhabited area by the Guigou River in September and October. This allows them to benefit from the help of their extended family as they face the arduous task of assisting in the lambs' births.

Today only a few small tents are set up every summer in the area of the *Jbel*, or mountain. These few tents are being replaced, as we have seen, by permanent constructions and new inhabitants. These outsiders not within the tribe, who contravening the traditional prohibition, break with the rules of the Agdal and the exclusive access once granted the members of the tribe. They assert that traditional norms are no longer valid, as all the citizens of the Kingdom of Morocco are equal under the law, as we were able to tell from our visit and our interviews to informants 5, 7, 13, 15 and 16. These new settlers of the collective lands have begun their own process of sedentarisation in an even more inhospitable area, facing the harsh conditions of the winter, which in these places is even colder and brings more snow. Just as an example, during winter period shepherds feed their animals through a massive removal of branches, causing major deforestation, which will only aggravate the serious problem of sedentarisation and the increasingly extreme climate conditions in these areas.

The herders have also developed a new strategy to replace the winter pastures, as they told us (informants 2, 7, 8, 9 and 11). At the end of October they go to another, closer mountain until the start of December. Then they return home until March. At the end of this month they return to the nearby mountain, and so on, until the summer arrives. In short, they have replaced winter transhumance with two short transhumances to the mountains.

Changes in advanced modernity

Unsurprisingly, processes of change have continued to occur in this area, just as they have throughout the rest of rural Morocco. One of the main phenomena has been the privatisation or "*melkisation*" of communal lands that were once managed by the cooperatives. These are mainly by private investors many from the city, as previously indicated by Gammerof and Pommier (2012: 121) in the Saïs Valley. In parallel to this phenomenon, there has been the leasing out of collective lands to private

investors, "urban farmers," as termed by Mahdi (2005). They have started to plant fruit trees and vegetables and employ drip irrigation systems, encouraged by the Moroccan State's Maroc Vert programme.

An increasingly fierce individualism is invading these lands, and there has been a failure to respect the traditions of the community, or the access dates to the *agdals*, or the community status of the pasturelands. These are increasingly affected by illegal settlements, as well as by agricultural plantations for private use which are causing a significant decrease in the land that can be dedicated to grazing. With this comes the consequent overcrowding in the remaining areas, as informants 4, 5, 11 and 15 reported. The degradation of the pastures is directly related to the demographic increase, as well as the major increase in sheep herds in the territory, as observed by out Chergaoui and Boulanouar (1994: 124). We must not forget that Morocco went from having 13 million heads of sheep in 1961 to 16.7 million in 2003, an increase of 28 per cent (Alary and Boutonnet 2006: 41).

We have even been able to observe fruit plantations featuring drip irrigation in the *agdal* areas, which probably constitutes the greatest possible attack on this institution of collective reserve and use. The increase in pressure on pastures, together with a decrease in the communal lands dedicated to grazing, is forcing livestock farmers to increasingly complement the nourishment of their livestock with feed and fodder. This increases production costs and impoverishes the humblest herders. Following El Amiri (1994: 148), the livestock farmer's instinct is to make the most of free grazing lands, without worrying about the future of this resource.

The main threats in the area are the misappropriation of common grazing lands for private agriculture use, the sedentarisation of the protected summer grazing lands (*agdals*), the undervaluing and neglect of this institution and the assignment of common lands to national private investors and also to foreigners who are mainly from Middle Eastern Gulf countries, and the local strategy to react to them which is dividing common grazing lands between people in the community.

Conclusions

As we have been able to see, based on the information provided by our informants, the nomadic tribe in question engaged in double transhumance: in the winter,

to the plains of Meknès, the Azaghar, and in summer to the mountain areas, the *Jbel*, having as the centre of its activity the area in between, the Melk, where they planted cereals. This was the key site where they would stay for longer periods of time, with their large tents, moving with them well to the north, in the winter; or to the south, to the mountains, from May to October, returning in time for the harvest.

French colonisation, however, introduced important changes into this livestock management system. These changes are on-going, and new individual and collective strategies have appeared, with new hybrid livestock systems. The impact of colonisation has been very important, but the nomadic system has survived all these menaces, until now, when other mutations in the livestock system are emerging.

"One of the greatest impacts of French colonial administration in North Africa was the transformation of subsistence production by the local population to commodity production, primarily by European colonists and companies" (Davis 2007: 68). In this way an important shift began in the management of the communal lands, whose process of privatisation continues even today, giving rise to strong tensions between the State and the herders. This has caused Chiche (2007: 57) to state that "In all of Morocco, pastoralists have lost their power as independent actors".

With the prohibition against descending to the plain of Meknes, mainly due to the significant agrarian transformation that took place in the area and the major settlement of French colonists who exploited those lands with a view to maximising their productivity, the people had to reduce their nomadic activity who made the necessary modifications to keep their flocks alive and fed without the mild winters and green pastures of the valley, exchanging them for the rigours of the winter in the Lahrouch. This change would greatly affect the herds' productivity, as Célérier (1927) initially indicated.

The convergence of the winter and summer areas in the Melk area, in the town of Timahdite, gave rise to another phenomenon: the gradual abandonment of nomadism, as this stable settlement flourished, beginning in the 1940s according to our informants. This was not the only reason for the abandonment of nomadism, but the prohibition against going down to the Azaghar made it unnecessary to set up and dismantle the tents for each of the transhumant periods.

At present, and assuming that each family modifies its strategy annually in response to the climate and its own interests, we can indicate that at the beginning of May families ascend into the mountains, where they remain until the end of July even if this process is now questioned. In August they return to the Melk area for the harvest, and stay there during the months of September and October. At the end of October they go to another, closer mountain area until the beginning of December. In

this month, when it starts to snow, they go home, staying there until March. Finally, at the end of this month they return to the nearby mountain.

Despite all the changes, the combination of the enterprising character of the Ait Arfa and the rusticity of the Timahdite sheep breed has meant that this radical change has not drastically affected the key to their subsistence: their livestock. Pastoralism is a profitable activity and the Ait Arfa, following in the footsteps of their grandparents, as they repeatedly indicate, have been able to maintain their way of life, adapting it to a changing reality. The Timahdite area is currently one of the country's main livestock-raising areas, and its population does not migrate to the large cities, or Europe. In fact, it welcomes an increasing number of "foreigners", attracted by the area's strong economic pull. As Chiche (2007: 50) indicates: "the vitality of this mode of livestock production that has succeeded in acquiring a place on the modern market is reflected in the fact that the region belongs to those attracting permanent migrants".

However, one of the great risks is the privatisation of these collective lands, so indispensable for livestock use. This is due to the increasing globalisation and liberalisation promoted by national authorities, seeking the development of tourism, housing and modern agriculture in the interest of progress and efficiency. But that may shatter this mountain ecosystem's already fragile balance. There is major pressure to offer these collective grazing lands to private investors, or even to divide them between individuals in the local communities.

In short, transhumance is a living and therefore changing phenomenon which adapts, struggles and resists to new conditions and as we have seen, is capable of overcoming the most complex challenges and the direst predictions. Timahdite, in the Middle Atlas, has witnessed major changes in its model of pastoral mobility, but man has adapted to new conditions. It is demonstrating that animals and people can react to new situations and that even when difficult, such as the drastic end put to winter transhumance towards the plains, the process is still alive, dynamic and thriving. We hope that the threats cited will not upset the ecological and human balance, preserved thanks to the use of these environmentally sustainable livestock practices.

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