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Fog in Seven Movements: Connecting Anti-Atlas Mountain Villages to Fog Water

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Abstract: The seven movements of fog in this article take us from (1) the ambiguous apprehension of fog, between the idiom of fascination and rejection of it as a phenomenon in the region of the Aït Baâmrane, Anti-Atlas Mountains of Southwest Morocco, through (2) the women's detailed ethnographic experience of their water-chore, the prevailing and embodied experience of fog as its connotations fluctuate to become their in-household water-source, to (3) how the meteorological science describes and clusters fog, through (4) the imaginary possibilities fog invites, from melancholy to reverie, to (5) the technology used to capture and trap fog to turn it into water, the life-giving vital source for this dry region, to (6) the actual physical building of the largest fog-collection project in the world in what otherwise was still largely isolated mountain-villages prior to the building process where international groups worked alongside villagers, and finally (7) to thinking through the historical and political backdrop to drinking water harvested from fog, the immediate transformations brought by water-availability within the households, and how such a project is interpreted by community members who align the failures of the State to meet their needs with recent historical events alive in the local memory.

Keywords: Fog, Fog-Harvesting, Water, Aït Baâmrane, Imazighen, Women, Social and Gender Transformation.

Introduction

At best, a foggy day is an excellent excuse to cuddle under the covers with a mug of hot chocolate and watch old movies. At worst, fog is an enemy to aviation; the worst recorded accident occurred in 1977 in the Canary Islands when two planes collided head-on as a result of fog. But beyond these two images – as a benign invitation to a comfortable space of warmth and sweetness and a cause of death, destruction, and loss – there is a wide expanse of other connections and potentials. This article is situated exactly within this expanse, and sometimes even embraces the two extremes. Following a decade of applied work in Southwest Morocco, in the heartland of the Anti-Atlas Mountains, on a fog-harvesting project, I have come to live with fog in its multiple faces. There is for me a sort of "haunting" esthetics to fog, as if the tiny floating water particles create an impressionist painting but one that lives and moves, continuously altering the landscape. A towering minaret that appears from afar to loom large with no base, a tree that looks like a pencil –drawn contour in a Chinese painting, or a human silhouette that slowly fades into the vanishing point are some of its potent effects – and which explain the

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use of fog in cinematic montage, used with the intention to create or further enhance mystery, lack of clarity, and sometimes even engender fear.

In this article, however, I address fog between the idioms of culture and science; this article concerns the development and implementation of the world's largest fog-collection project, located in southwestern Morocco, and the resulting impact of the project on communities, particularly the women, the traditional guardians of water, the elixir of life. For over a decade, the NGO Dār Si Ḥmād, supported by a wide range of actors,[1] has developed this project and triggered profound transformations within the fifteen villages serviced with fog water today. Urban residents whose homes are connected to underground piping systems rarely think or ask about the source of the liquid pouring out of their taps. That is, they do not question how this water has become "normalized," to use the expression of philosopher Jeremy Schmidt,[2] but in the Ait Baâmrane community, people are constantly reminded by an unabating curiosity regarding the "odd" source of their water: fog. This salient point among the villagers of the "special, out of the ordinary," almost sacred and awe-inspiring nature of the water drunk stands in clear contrast to normalized water on the one hand, and, on the other, it reminds them of the impotence of the local powers and failure of state structures to meet their water needs, especially during the increasingly hot and long summers or when flash floods, as in 2014, closed the area entirely and barred the road to local wells. The inability to meet a minimum of water needs adds to the already historically tenuous relationship between the Ait Baâmrane and the state, *Makhzen* as locally identified, and to the sense that the people's plight is met with either indifference or empty promises. That the project has been built, commissioned, and managed by an NGO whose leadership traces its roots back to the region is interpreted as confirmation of a political legacy that posits itself in opposition to the powers of the state and endows it with a strong sense of legitimacy. That the project has defied the impermanence of fog and promises consistency or even an abundance of water further feeds this sense of the special in that two antithetical conditions, fog and permanence, in fact do coexist and have indeed created opportunities for this one community to

1. The actors here span the local villagers, the funding parties, other NGOs working in the field of fog collection, local and regional authorities, and the NGO Dār Si Ḥmād with its staff, advisors, affiliated researchers, interns, and visitors spanning over a decade from 2006-2017. I would like to recognize the contribution of the following for having made such an experience possible: in Morocco, Tnine Amellou Rural County, Derhem Holding, and the Dār Si Ḥmād NGO team. In Spain, I give thanks to Dr. Marzol, without whom this project would never have been possible. In Germany, Peter Trautwein and the Wasserstiftung team and the Munich Re Foundation deserve thanks for their tremendous efforts in believing and funding this initiative. In the United States, I credit Leslie Dodson for running with the idea and contributing to obtaining funds from USAID in Morocco.

2. Jeremy J. Schmidt, *Water: Abundance, Scarcity, and Security in the Age of Humanity* (New York: NYU Press, 2017).

thrive in an otherwise general political arena of apathy – and in an economic reality where environmental changes have profoundly affected traditional sources of livelihood.

In this article, the seven movements of fog take us from (1) fascination with fog as a natural phenomenon, through (2) the ethnographic experience of fog among these villagers, to (3) the hard-scientific understanding of the formation of fog, to (4) the imaginary possibilities that fog triggers, to (5) the technology used to capture and trap it, to (6) the actual physical building of the largest fog-collection project in the world, and finally (7) to thinking through the political backdrop of drinking water harvested from fog. I use the number seven here because it is a particularly potent symbol in popular religious practices in Morocco; the number seven is often involved in the telling of miracles, and, in this specific case, it further adds to the symbolic dimension of fog as a mystical force and as a reality that transcends human understanding and grasp. Such is the profound belief that the women and men drinking fog water have today, and they want to share their experience.

1. Fascinating Fog

There is an inherent mystery to the idea that water somehow is systematically taken out of fog. This seems counterintuitive, so strange, and so different from how we order and experience the world.[3] Through this fog-collection project, the villagers' initial skepticism and resistance, the views of hundreds of visitors throughout the decade of its existence and the many news stories about it, all of these have led me to question deeply what lies at the heart of such mystery and fascination.

The harvesting of fog is often presented in media reports as "sensational," as an "out-of-the-ordinary" procedure, and as a process that evokes the suspension of the normal, of the accepted, of the ways we inhabit the world and what is considered common knowledge and practice. Similarly and based on local Amazigh understanding of the natural elements, water, fire, earth, and air, generally considered a gift from God to humans that sustains life, there is little room for fog other than as a prosaic part of God's gift that is largely experienced as a negative natural phenomenon. If the four elements

3. An interesting strand of theoretical studies invites us to question how we view and think about matter and about natural phenomena. I have found particularly inspiring two such studies: Rod Giblett, *Postmodern Wetlands: Culture, History, Ecology* (Edinburgh: Edinburgh U. Press, 1996), in which the author scrutinizes how the production of wetlands as a negative, depressing, and horror-infused space is intimately linked with the monstrous even when they are ecologically vibrant places vital for many life forms. The second is Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), in which the author invites us to dig deep into human and nonhuman interactions, to reconsider the possibility of a vibrant materiality that inhabits what we, as humans, consider inanimate matter, which can lead us to a more ecologically responsible future.

and their interconnections are what give life, the experience of fog by the women and men of the villages is rarely attributed this life-giving quality. Rain yields water, and women describe water as "gold," attributing to the rain the symbolic value of gold: it is highly valued, rare, and expensive, a sign of status and control. Rain nurtures the land, feeds the crops, fills the cisterns, waters the animals, allows villagers to build houses and to keep clean, nourishing and washing the physical body, in addition to washing the soul. It is water that purifies one to face God during prayers. Fog, a mass of gaseous water particles, cannot be seen as fulfilling any of these needs, be they communal or purely personal.

There is a shared knowledge of and familiarity with how water supports life, an understanding of what is considered "normal, natural, and accepted." The chain of water behavior, that which creates and sustains life in these villages, and the "naturalness" attributed to the phenomenon based on observations of the natural world leaves no room for the consideration of possible water sources other than rain feeding the surface and the underground waters. Even when women compared the hardship of their lives to that of their urban dwelling-family members by focusing on the availability of water through a faucet inside their homes, they knew and commented on the fact that this urban water comes from the same source. The difference is simply the delivery system: walking to a well versus turning a tap connected to a pipe somewhere.

For the villagers, fog-collection visitors, and journalists alike, there is a deep sense of normality as to where their water comes from. It may be from rivers stored behind dams, it may be from deep aquifers, pumped by powerful machines, increasingly from desalination plants, or even from active recycling plants, but fog at its source is neither common knowledge nor a shared practice. It is atypical and peculiar, ranging from the uncanny to the marvelous, and it certainly shifts our definition of what "natural and normal" is. For the village women, harvesting fog water could only be a manifestation of otherworldly forms of life. How could such an invisible thing like air hold the solution to their serious water scarcity and the ensuing suffering? For many visitors and journalists, this only further confirms that sophisticated technology holds the future solution to the search for valid water sources. Science on the one hand and mystery on the other are the two dominant idioms that characterize descriptions of fog harvesting. Fog is closer to a gas state, to air, and the fact that this element can be turned into material water is an intriguing puzzle. The fact that tools and equipment exist to extract the liquid from the air continues to fascinate, primarily because the process is unfamiliar. Fog collection is equipment intensive when building

a project, but even when such an "entrapment" system is put in place, the mystery, perhaps even the mystique, imbuing the water itself is powerful. Unlike other processes used to obtain water, such as pumping, catching rain, or storing, fog is fished, harvested, milked,[4] and caught in the air. With wind as the active force, fog droplets are literally trapped in nets to descend to gutters ready to receive them. It is collected drop by drop, starting with one microscopic drop and then building to the much and the mighty. Even when the principle of gathering water applies to other sources, from water droplets to the mighty river, the image of fog as fleeting, damp air does not conjure the notion of an abundant source of water like a mighty river might in our common imagination.

2. "*Tagut*: Just More Hardships for Us, the Women"

In Tamazight,[5] fog is /*tagut*/, and when this dense *tagut* drapes the mountains and valleys for about 135 days of the year, women refer to it as making the daily routines of their lives even harder. During the many exchanges and stories collected prior to connecting the villages to fog water, the women are in awe of and have respect for/'*amān*/(water), but not *tagut*. The women referred to "being trapped," caught in the fog with no ability to protect themselves; the protection they referred to is from what they called "maleficent" entities living and thriving within it. The apprehension surrounding fog as an external object, resulting from its opaqueness and what its silence may hide is not related solely to possible physical danger lurking in the Anti-Atlas Mountains involving wild boars and some rare instances of foxes but possible nonmaterial entities. During a thick fog event, one is *in* a state of blurriness, there is an obvious loss of visual referencing, and it is in part this inescapability from the heaviness, the opaqueness, the dampness that, the women believe, makes them vulnerable to becoming prey as they disturb the living space and tranquility of those entities. The belief is that fog in fact offers cover and protection for other forms of life to move freely and flourish. The belief is that these entities, spirits and djinns will react when disturbed. For the women, fog somehow engenders a need to cower, to retreat for protection. For those 135 days of fog in the region, when the women fetch water, the chore is enveloped in many layers of fear and additional drudgery.

Under the truism that water is what sustains each and every cycle of life, the women devote hours to making sure this "gold," equating water to a

4. Although the technical word is *fog collection* (FogQuest Manual for Fog Collection, 1986), the choice of the word to describe water out of fog spans *harvest, milk,* and *fish*, all of which are rooted in livelihood imaginaries.

5. The Tamazight spoken in the region is still considered "pure" and unaffected by Arabic domination. See Katherine E. Hoffman, *We Share Walls: Language, Land, and Gender in Berber Morocco* (Malden, MA: Blackwell Publishing, 2007).

substance of the highest value. It is always available at home because there cannot be a hearth without water, it is *not* considered a commodity that one purchases, it is at the heart of the household, and it is precious and treated with profound reverence. Walking every day alone or with neighbors or riding a donkey balancing empty pails to take to the well is a ritual that the women as guardians of life have been performing since times immemorial. They drop a bucket into the open month of the well, swinging the rope so the bucket will be filled to the brim, and then they pull it out either via the pulley or by pressing their feet to the side of the protective well wall and pulling hard on the rope. This effort of pulling and bringing to the surface this "liquid gold" from the entrails of the earth is akin to giving birth. Substantial effort goes into the extraction of the water from the innermost parts of the earth. Like a vaginal birth, new life emerging at the extremity of the woman's organ, so does a bucket of water emerge at the open mouth after it has traveled through the long and dark tunnel of the well. Then, almost automatically, the women carefully pour the contents of the bucket into a larger container hanging on the side of the donkey, and then they repeat this effort again and again until the containers are full. Almost like the performance of a dance in which the movement is repeated, the women's bodies perform a dance of communion between the deep, the profound, and the surface, the socialized space in which the water fulfills a variety of needs. With the use of the bucket and the pulley, two basic technological tools, the work is in fact a domestication of the resource.

Then comes the walk back to the village, to the household, to unloading and carefully storing the vital element. There is in the sum total of these actions a powerful metaphor of connection to the element of water. For the women, all the villagers, and the NGO members participating in the initial study in the villages, the stories of bringing water from the wells weaved two essential points in one form or another: hardship and gratitude. Physical hardship is involved in the process itself, the long road, the wait, the pulling, the transporting of the pails, the moving of the heavy loads of the containers, in addition to the moral hardship of anxiety about the quantity and quality of water, about its cleanliness and purity, and about prioritizing who and when one gets water. Then comes gratitude that there is water to drink, to use for cooking, for ritual washing, and for watering livestock, gratitude to God and a recognition of the women's effort in actualizing and maintaining the domestic and protected world through and thanks to this elixir of life. But imagine this walk during thick fog events. For the women, fog dampens clothes and renders walking harder in plastic sandals or traditional *Belgha* shoes; it blurs the field of vision and makes one prone to falling and hurting oneself. For

many of them, it is only their belief in God and the Quran that protects them from what might be living within the dense folds of fog.

Some of the women referred to the Quranic story of Hajar,[6] running back and forth in search of water to save the life of her son Ismael; Hajar's movement is a foundational moment in the ritual of *aṣ-Ṣafā-wa-l-Marwā,* later systematized in the *Ḥajj*, pilgrimage. For the last fourteen centuries, billions of Muslims have performed this ritual where prayer and supplication for water is about survival and continuity. For many of the women, this story is dear to their hearts; it encapsulates and speaks to a large extent to what they experience, especially during the peak of the summers when both heat and demand are high and water is scarce if not absent altogether. Hajar runs back and forth, distraught and in fear, wanting to protect her son, but no water is to be had. Through bursting deep waters through fountains, the Almighty brings life and allows the mother to save her son and herself. This is a story of "re-source," the etymology of the word itself being the source of water, not the contemporary understanding of water as a supply or asset, a classification borne out of the nineteenth-century schema of bringing water to the service of a liberal form of life. Here, the water is for salvation and a clear, evident connection to the water source, springing deep from the earth, not a commodity but life itself. It is accepted and shared knowledge that this water saves us, maintains us and sustains life around us. It is wedded to the earth and deeply grounded in it. That the rain descends from the sky is the end of the cycle, the one that recharges the earth, fills the wells, makes the rivers flow, and allows the earth to drink and live and allows us to also live through its bounty. When rain falls, it descends on the earth; the actual action is a vertical movement of the gravitational fall of water dropping into the passive recipient, akin to a recipient, that earth is.

Walking to the well is certainly a simple action, one in which and through which the women fulfill their ascribed social and "maternal" role (the unmarried ones are preparing themselves) as the purveyors and protectors of life within their households, bringing back to their homes the water to meet the needs of their family as well as those of their livestock, especially during the dry months. A strong sense of agency is expressed and embodied in such an action. During the initial surveys for the fog-collection project, two older women clearly voiced their discontent with the pending project: "It will take away from us the control over what happens in our households," was one of the strong objections recorded during this time. The second, more indignant, had to do with how "our daughters and daughters-in-law *will not* do what we have done in the past?!" breaking a long line of generational practices

6. *Quran*, "Surat al-Baqara," verse 158.

and handed-down knowledge passed from mothers to girls during the trips to the well. Breaking a socializing process and altering hierarchical structures within the household were the two powerful messages of this older generation of women. It is about renouncing that agency, about delegating that which sustains and letting a different party control it. But the young women were clear and incisive in their responses: there is no romance in walking every day, up to five times a day, to a well; there is no social support when a woman has to argue with or fight her neighbor or cousin for meager amounts of water at the well, and there is no nostalgia for a past when controlling the water also meant physical hardship and moral suffering. Yes, the younger women and mothers argued that they "willingly delegate" their power to be simply at the receiving end of a spigot, a tap, or a faucet; this is for them the "new" agency, the new "empowerment" (*tamkīn*) they hear about on television and from the women already participating in the local cooperatives. According to this younger generation, their mothers and mothers-in-law mistook hard work for power and control, and the most articulate said that they clearly and willingly forsake the knowledge and even falter in the all-female support system of neighbors and cousins. They do this to avoid having to worry about water availability in times of extreme water scarcity and the anxiety of rationing who gets water first in the household – with the women, more often than not going thirsty. When recalling these conditions of dispossession, the women then began describing fog otherwise, with positive notes here and there. Fog significantly cools the heat and dampens vegetation with its gentle touch. Subtle, fog cannot be spectacularly destructive the way a torrential rain or an extremely mighty windstorm can; there is intrinsically a "gentleness" and calm attributed to fog. In a landscape of extremes and rough conditions, fog emerges as a soothing and comforting element. This characteristic of "gentleness" may be the only positive quality attributed to fog prior to its becoming a water source among the villages of the Ait Baâmrane.

The connection between embedded local knowledge and identities, as Veronica Strang[7] portrays, has been the means of producing and reproducing culture in this case as elsewhere. For the older generation of women, connecting water to the household means a rupture in the transmission of knowledge and practices, a breaking that takes the youth further away from the emotive connection to the place and its environmental reality. But, as the younger women responded, the circle of transmission has already been ruptured by the local schools teaching in Arabic and by the men migrating to cities and sending money to buy what they used to produce in their own gardens, so why should their own water chore be *the* connection to the continuity of the

7. Veronica Strang, *Gardening the World: Agency, Identity, and the Ownership of Water* (London: Bergham Book, 2009).

Amazigh lifeworld and culture? Such a question leads us to the heart of the social structure in the Amazigh life of gendered roles, realities, and horizons. In her study of the question, Katherine Hoffman[8] sums up this inherent tension within the Berber world in which the women's fundamental human rights are compromised at the expense of language and cultural preservation. That water flows into the households and saves labor, time, and anxiety is undoubtedly rising to some human rights provisions (be they the Convention on the Elimination of all Forms of Discrimination Against Women or the 2010 UN Resolution), but this should not mean, as those of the older generation have claimed, the death of Amazigh language and culture.

3. The Science of Fog

The World Meteorological Organization (WMO) defines fog as a suspension of water droplets in the air with their base touching the ground; we speak of fog when one of its effects is the reduction of human visibility to a maximum of one kilometer (1,000 m). Fog is generally known to form under specific conditions of high humidity, with two different body masses, usually but not exclusively a body of water and the earth. When fog events occur, they are the actual result of deep-sea cold current movements bringing humidity to the surface, producing fog with the difference in air temperature. Fog often appears in the early morning and in the evenings, as well as in cases of high thermal inversion, both during specific seasons and even outside of those seasons. The appearance and disappearance of fog is determined by tiny weather variations; with even a slight rise in temperature or strong wind movement, fog dissipates quickly. For meteorologists, not all fog is the same, and though, in principle, fog is a cloud that touches the ground and envelops the observer, there are different types of fog. These distinct definitions group different manifestations and define fog according to the conditions of its appearance, to the geographical location, and to the content of water in its gaseous form.[9]

Radiation fog forms where cold air accumulates during the night or for longer periods in the winter season; it is the deepest around sunrise and dissipates with the sun as the air warms up. *Sea fog* and *steam fog* are both produced over the open oceans. Sea fog is the result of the cooling of humid air over the cold surface of the ocean, whereas steam fog arises when cold air flows over a warm surface that evaporates water at a higher rate than the cold air can contain, forming the tiny droplets of steam fog.[10]

8. Hoffman, *We Share Walls*.

9. Along with the publications of the WMO, the following are major publications in this field: W. Eugster, "Fog Research," *Die Erde* 138 (2008): 1-10; Otto Klemm, et al., "Fog as a Fresh-Water Resource: Overview and Perspectives," *Ambio* 41, 3 (2012): 221-34.

10. T. S. Glickman, *Glossary of Meteorology* (Boston: American Meteorological Society, 2000).

For *advection fog* to occur, a steady wind is needed to push the fog upward at the site in question; the WMO speaks of a breeze of five knots or less. *Coastal fog* is generally considered an advection fog transported to the coasts, as observed in many regions of the planet, of which the most spectacular are the Atacama coastal desert[11] and the Namib coastal desert.[12] *Valley fog* is considered a radiation fog that forms in mountain valleys, whereas *mountain fog* is a cloud that moves over the land surface at a given height, as in southwestern Morocco and the Canary Islands.[13]

These different fogs are very much products of the specific physical environment and interplay between the natural elements, and distinguishing between them is vital to any collection initiative because the type of fog and its potential water content will determine future water yields. For fog-water practitioners, determining the type of fog is the first and most essential step for any fog-water initiative.

Here I would like to address what Marzol describes as the phenomenon of "fog seas,"[14] which occur when stratocumulus clouds, trapped between dry air above and humid air below, cannot move vertically but begin to spread horizontally, responding to and interacting with the wind's movement. This is easily observed because of the high density of the clouds. In the known regions where this phenomenon occurs, mountain ranges act as barriers, stopping the spread of the fog and containing it. In the swelling of a fog-sea event, fog waves roll and fold, similar to ocean waves. In the regions of the planet where they are known to occur, there is contemporary interest in fog-collection initiatives.

These various cloud formation phenomena remained a matter of experience until the beginning of the eighteenth century when Luke Howard, an amateur natural philosopher, published his now renowned essay "Of the Modifications of Clouds." Luke Howard has influenced generations of scientists as well as poets and writers in thinking about the formation and aggregation of clouds. Out of his observation of the sky, he came up with a taxonomy still largely in use today: cumulus, cirrus, and stratus, the basic three cloud types that Howard identified and described. Cirrus clouds are the high, fibrous wisps and are the first formed in a serene sky, cumulus clouds

11. P. H. Cereceda et al., "The Climate of the Coast and Fog Zone in the Tarapacà Region, Atacama Desert, Chile," *Atmospheric Research* 87, 3-4 (2008): 301-11.

12. O. L. Lange et al., "Photosynthesis and Water Relations in Lichen Soil Crusts: Field Measurements in the Coastal Fog Zone of the Namib Desert," *Functional Ecology* 8, 2 (1994): 253-64.

13. M. J. Marzol, J. Sanchez, A. Yanes, A. Derhem, and J. Bargach, "Meteorological Patterns and Fog Water in Morocco and the Canary Islands," in *Proceedings of the 5th International Conference on Fog, Fog Collection and Dew,* 25-30 July 2010, Munster, 56-59.

14. Marzol, "Historical Background of Fog Water Collection Studies in the Canary Islands."

are the conical and dense heaps of the middle ground, and stratus clouds are the horizontal sheets of mist that hug the earth. There is a peculiar beauty to Howard's description of the clouds, one that has given the face of the sky a changing configuration, one that is alive and throbbing with the movements of a variety of shapes and forms as the clouds traverse regions, morph one into another, change identities, or announce the weather for those observing it.

From the initial coining of the term "stratocumulus clouds" to the WMO definition of different types of fog, dew, or haze, there was an almost two-century span during which human activity profoundly affected the weather, the movement of the clouds, and the humidity thresholds. The global environmental crisis[15] currently playing itself out around the planet was well underway in the eighteenth century; some historians connect its onset to the first invention of the steam machine. Because the frequency and intensity of droughts in North Africa and the Middle East continue to increase, projections are that this place will have turned into a desert in fifty years,[16] a direct effect of global warming to which the region, much like the larger global south, did not contribute to creating. With the amount of rain decreasing and the resulting effect of desiccated wells, increasing patterns of drought, flash floods, and general water scarcity have legitimized the construction of dams locally, and these water-management schemas not only further exacerbate the problem down the line but do not benefit enclaved mountainous communities. In terms of state-driven solutions to meet the water needs of the population, the villagers of the Anti-Atlas Mountains are certainly at the bottom of the list, given that, on the one hand, towns and cities have a higher scale of demand, and, on the other, the economic sector, particularly agriculture, is prioritized, and neither of these characteristics are found among mountain-dwelling communities. Adapted and locally grounded solutions are the most adequate response, as proven by this one fog-collection initiative through which 122 households have water access. Inasmuch as this small-scale project is heralded as a success in the world of NGOs, it also propounds that alternative forms of development are possible and desirable because the current systems of water management have shown their structural limits. The approach to water management that is primarily technical, gathering, channeling, and measuring, as Veronica Strang has demonstrated,[17] depletes it of its highly significant symbolic and emotive charge.

15. C. Bonneuil and J. B. Fressoz, *The Shock of the Anthropocene: The Earth, History and Us*, trans. David Fernbach (New York: Verso Books, 2016).

16. "The UN World Water Report," WWDR, 2015.

17. Veronica Strang, *The Meaning of Water* (London: Berg Publishing, 2004).

4. Fog: The Material and the Imagination

In this section, I invite you to witness what I identify as a "Bachelard moment," a moment in which the objective, scientific understanding of the physical phenomenon of fog as an "object of study" is also the moment in which this element inspires an emotive connection, reverie, and triggers the imagination. It is an invitation to relate to fog as a substance within the empirical world with an interpretative turn but within the dream realm as well. It is a collective story of how we engage with our natural world and how we interact with the various forms of materiality of this planet on which we breathe, live, move, affect, die, and become memories and fade away. Of all the natural phenomena, fog emerges as particularly fertile ground for imagination and a potent metaphor for conveying a generally melancholic state.

And like the dualism and at times tension in Bachelard's later work between the scientist and the literary-critic-philosopher, in giving the scientific explanation precedence regarding the fog phenomenon, as I have done above, I do not mean to privilege one method of knowing or relating to reality over another but rather to unpack how such a material entity comes to life and what natural laws preside over the appearance of fog. Fog is, in fact, a culmination of a long series of atmospheric events that endow the fog, which is here the nonmaterial entity, with more symbolic depth and give its poetic association more resonance. The sensory reaction to the thick fog I will refer to later is often experienced as moments of "caesura" from the "ordinary," and my intention here is to evoke the mystery and the mystical connections that experiencing thick, dense fog can generate. In this movement between the empirical and the imaginary is a conciliation between the "material" and the "dynamic imagination," to use Bachelard terminology[18] – that is, from the material manifestation of what fog is to the more inward-looking perception that feeds imagination and reverie. For many of the women drinking fog water, such conciliation had to take place as a necessary step in accepting the water source because the fog phenomenon is often experienced as a fear-inducing suspension of the normal, that which provides the perfect habitat for spirits and djinns. The conciliation between the physical reality of the fog and the mental construction of and about fog nurtures an ethics of care and brings into sharp relief the excessive technical instrumentalization of nature that, in technocratic and human-centered societies, continues to be reproduced as the dominant model.

18. Gaston Bachelard, *From Air and Dreams: An Essay on the Imagination of Movement*, trans. Edith R. Farrell (Dallas: The Dallas Institute of Humanities and Culture, 1988).

Dynamic Imagination or the Other Fog

The fog I want to talk about is this kind of fog, dense, powerful, a sea of whiteness, wet, humid, and mighty. Witnessing a thick fog sea rolling while standing on top of the mountain *Boutmezguida* does not leave one indifferent. Somehow, the spectacle of this massive "suspended" white ocean, swelling, spreading, moving, folding, and creating incredibly diverse shapes and forms, touches the viewer. That very specific moment of fog rolling toward one, is awe inspiring, and many who have lived through it often describe it as a return to the state of the amazed and fascinated child one once was, a moment that arrests attention, bringing a "transformation" in its aftermath. This mass of mighty fog rolls with organic grace, a moment that embodies the concept of nonviolence because fog never manifests itself in a violent form, like a pouring rain or hail, like a harsh sun or a destructive gush of wind. Fog is just gentle, like a moving sea of white mirrors, of white velvet, with grace and beauty, rolling seamlessly, swelling and descending, gaining momentum and spreading horizontally with confidence and calm, with beautiful strength and utter elegance. Looping back here to Bachelard, such contemplation of the fog phenomenon leads to the contemplation of infinity and expanse opening up; it triggers the feeling and realization of an altered state of being. Through the collection of the women's stories on fog, exchanges with many of the visitors who happened to experience these fog-sea events, and my own connection to this phenomenon, it has become necessary to question what the experience of "transformation" is made of and the ways in which this wonder, so formative of our lives as children, should be kept alive.

Following the witnessing, seeing the advent of a fog event from afar, comes the spreading and being enveloped, engulfed by fog that is the experience of being *within* fog. Metaphorically in English, as in Darija and in Tamazigh, when we say "fog" or "fogginess," we refer to a state of blurriness, of lack of clarity, and yet beyond this common understanding, the experience of fog and its transformative effect are tangible. As a natural element, fog represents a state of in-betweenness; it occupies and straddles worlds, endowing it with haziness. It is not dark but not clear either, and it blocks light; it is not rain, but it is damp and causes wetness, its drizzle being pervasive. Fog is a play between hot and cold temperatures, between dry and wet air. It comes at sunset or sunrise, and, as ecological anthropology teaches, fog stands out as a category of its own because it occupies an undefined position between the dichotomies ascribed to natural elements (night-day or rain-sun of structuralist binaries).

Then there is the tempo and silence of fog moving toward the mountain. At 1300 m of altitude, with a bird's eye view of the Atlantic Ocean for eight

kilometers and three kilometers of the Sahara Desert, the fog forms like a whole body, similarly to a massive body of water that very slowly rolls in, advancing with wave-like movements, filling the empty space and spreading. As each wave rolls in, the process becomes larger, spreads, disappears by folding in, and leaves space for a new wave, and it does so ever so gently, so gracefully. To the eye, the clouds advance at an extremely slow pace and fill the empty expanse of space below the top of the mountain. Then, in a sudden moment, as the fog waves abate, this once moving, throbbing art form erases its own work, an evanescent canvas that then transforms into a uniform color. One becomes part of this living tableau. Then, as all of this slow, artful expansion of humid shapes and forms is occurring, and unlike the ocean where the sea waves break on the shores with sound, sometimes roaring and at others lulling, here all is shrouded in complete silence. Fog events are silent, and the quality of the silence is profound. Where for some this is reverential, it is for others an element that engenders apprehension and fear. Now to be physically in fog is to be in total silence, in a space where there is a loss of visibility and the ability to use the visual cues and references that determine, for those of us who rely on vision, where we are. Unlike in air, there is a heaviness to moving within thick fog events. It can certainly be attributed to the water dampening our clothes, but such heaviness not only is a functional explanation of needing to wade through the waves of gaseous air but it also has a symbolic dimension. Inasmuch as it slows one down, it creates a different corporeality, one in which one is aware of one's movement. Advancing into a fog event demands more effort than a usual walk, demanding that we be careful about where our feet take us and connecting us back to the body in more profound ways.

Fog is temperamental; it comes at odd hours and then leaves, dissipating into "thin" air. Fog swells and rises at "thresholds," moments that are potently symbolic of the human quest to understand cycles of life and death, arriving at the crack of dawn and with the setting sun, moments when ends and beginnings are blurred. The coming of fog is always a surprise, bringing a sense of the "unexpected," calling attention just to *the* moment. And finally, I want to invite you to think about the smell and memory of fog. Fog carries with it the traces of its origin. The smell and memory are subtle, but they impregnate it heavily. For the case of the fog rolling into *Boutmezguida*, fog travels slowly through a corridor between the southern coast of Morocco and the Canary Islands,[19] especially in the northern part of Tenerife and the famous Gomera Island, where there are tropical-like forests with the virgin

19. Marzol, "Meteorological Patterns and Fog Water in Morocco and the Canary Islands," in *Proceedings of the 5th International Conference on Fog, Fog Collection and Dew,* 25-30 July 2010, Munster, 56-59.

laurel forests (today a UNESCO heritage site). I invite you to think about this endless movement of fog that reaches back to the geological memory of this planet and the dance of the primary elements.

The play between the immense is rendered invisible because of the opaqueness of fog and the intimation for an inward movement because intimacy is where the transformative engagement with fog is most surely felt. Similarly to how Bachelard speaks about the immensity of daydreaming, we are here ushered to an internal immensity trigged by the being in fog. Being caught in fog is a way of being alone, of crossing the bridge from the world to the self. It is for this reason that I have come to think of fog as a powerful fog-mystique paradigm in that it creates moment and conjuncture that engage the human senses in heightened ways, in ways that bring the "familiar" into sharp relief. *Boutmezguida* is an Amazigh word for "the place of prayer," the sacred place, filled with reverence and mystery. It is in such places that connections with the mighty powers that create this immense and awe-inspiring universe play out and where questioning of the human quest takes on a particularly poignant resonance. Past this mystical connection, however, the human body cannot survive without water as a physical life form, and fog, mysterious or not, is and has been exploited as a source to meet the survival needs for communities; the following section will survey techniques, projects, and results.

5. Fog-Collection Technology

In light of the continuing struggles for water accessibility, among many mountain-dwelling communities in arid and semiarid regions of the world, fog is used as a major or supplemental source of water. In this section, I focus on presenting some contemporary experiences with a closer analysis of the ramifications these projects have beyond the strictly technical. Although the technical scopes and implementation processes are absolute key to implementing a project, the social process is considered the most important element for determining the long-term fate of such endeavors. Like any shared water source, claims about access and maintenance responsibilities in the collective use of water create competing claims and strife among community members.

Fog collection is constructed primarily as a technical challenge, decreasing the importance of its end result of connecting communities to a fresh water source, be it for drinking, hygiene, agriculture, or other purposes (such as firefighting). Community involvement as the guarantee for project sustainability is emphasized repeatedly in the normative, how-to body of technical literature I will introduce later, but it is often a final resolution, an end result and not an integrated and culturally coherent process. A wealth of

historical and cultural instances provide evidence of how water regimes have always been integral to and embedded in communities' cultural processes[20] and overall traditions, be they material from irrigation to symbolic as rituals or celebrations. Because fog water is introduced as an external solution, when those embedded water regimes falter or stop functioning, it is a process that has neither the cultural legitimacy nor the historical depth, making fog-collection projects, more often than not an extraneous process, almost as a simple functional solution. According to the fog-collection initiative literature, the rate of success is modest, and the reason often lies with reluctant and noncommitted communities. Although this continues to be a weakness that plagues many development initiatives, because of its scale, fog-collection cases present a unique opportunity for understanding how to devise more coherent water adaptation mechanisms as water sources are compromised.

For centuries, people in arid and semiarid regions, even in the Atacama and Kalahari deserts have collected water from trees or built mounds of rock during fog events and dew formation to obtain water for themselves and their livestock. Commonly found also on the slopes and summits of mountainous regions, where onshore maritime air is transformed, fog is an important source of water for vegetation. In many high-altitude regions, the contribution of fog to the ecosystem can be much greater than that of rainfall. Large drops of water coalesce on foliage and eventually drop to the ground. The example of the famous Garoé (*Ocotea foetens*) Tree of Life or Fountain of Life, as the legend has it, described by the famous Bartholomew de Las Casas, biographer of Columbus, who travelled to the Americas and stopped in El Hierro in the Canary Islands,[21] produced significant amounts of water and was, according to his report, the major drinking source for the indigenous Guanches community. Other instances are also noted; in the case of Oman, cisterns are constructed under trees so that fog droplets fall from the vegetation to fill the vessel.

The technology used today, even though more sophisticated, still mimics and reproduces the same principle found in nature: intercepting and catching fog droplets when they impact the mesh. Because of the frailty of the fog droplet, its microscopic size, and its lightness, the force of the impact on a surface is determined by the force and orientation of the wind. In a fog-collection unit, as a fog drop condenses, other drops join it, and, trembling, they hang on to the aperture of the mesh, and only when the droplet becomes heavier, like a transparent pearl, does it glide gracefully toward the gutter.

20. I am particularly thinking here of the acequia system; see for instance Sylvia Rodriguez, *Acequia: Water Sharing, Sanctity, and Place* (Santa Fe, NM: SAR Publication, 2006).

21. A. Gioda et al. "Fountain Trees in the Canary Islands: Legend and Reality," *Advances in Horticultural Science* 9, 3 (1995): 112-18; Victoria Marzol, "Historical Background of Fog Water Collection Studies in the Canary Islands," *International Hydrology Series*, 2001.

The larger the net surfaces are, the more water will be collected. Generally, such a process is described as a largely passive system in which the mesh is more of a structure of opportunity than an active agent. Fog is composed of millions of droplets of water, and unlike rain, in which water droplets may reach diameters of five millimeters and fall at speeds between two and nine meters per second, the water droplets in fog rarely exceed forty microns in diameter. As such, fog falls at an extraordinarily slow rate and, in a breeze, travels horizontally. The movement of fog in fact comes primarily from wind, and the role of wind in such a process is key, given the negligible fall velocity of the fog water droplets ranging from one to five microns in size. The trajectories of these frail, trembling fog droplets are then determined by the speed and direction of the wind. The active element in this process is the wind. The wind moves this mass of air toward all the cardinal directions, up and down, and with varying velocities and is often presented as the active element, with almost phallic undertones of the impregnation of trees and of mesh.

Subsequent literature on fog projects[22] describes 1980 to 2010 as the thirty-year time frame in which the process of fog collection became an established and standardized process following the success of previous instances in Chile and South Africa – legitimated by science and with strong application potential in a world needing to think about and experiment with alternative water sources. After the 1980 foundational Chile fog-collection project, subsequent initiatives then spread throughout the world, thanks in large part to the efforts of the nonprofit organization FogQuest. Based on its extensive field experience, FogQuest has designed and shared a fog-building manual that, as all manuals are meant to do, explains and illustrates the necessary steps for the construction of such a project.

Programmatically, the manual lists the following steps for building a fog project (based on a flow diagram):[23]

• Identify a project site.

• Raise funds and analyze climatic conditions and in-situ freshwater supply.

• Conduct an evaluation study.

• Raise funds, invite experts, and organize logistics for the fog collectors.

• Set up the collectors, define the success factors, and determine a time frame.

22. Otto Klemm, Robert Schemenauer, et al. "Fog as a Fresh-Water Resource: Overview and Perspectives," *Ambio* 41, 3 (2012): 221-34.

23. Ibid.

• Operate the collectors and monitor the project.

To set up a fog-collection project, understanding the topology and climate and determining the physical environment is *the* essential and vital first step. Project success depends to a large extent on the geology and topology of the site. On a macro scale, the presence of mountains and their orientation are important considerations, as observed in Nepal, in Peru, and in Morocco, because they prevent the continuing travel and potential dissipation of fog. The altitude range should be between 1200 m and 3500 m meters because these physical features are needed to intercept the clouds. Wind speed and movement are the second important determinant; often, community members share their intimate knowledge of their ecosystem and the ways the wind moves. Determining indicators of fog presence play a decisive role as well, the best indicator being obviously witnessing a fog occurrence in a given area, but aside from the physical confirmation, typical indicators of water richness include lichens and mosses on rocks and trees. When the responses to these concrete questions (fog, mountains, and winds) fall within an acceptable range, then an evaluation of the local water resources follows. Because of the difficulties of accessibility in mountain areas, with villages located at various elevation gradients from the valleys, on top of hills, at times on ridgelines, and even on top of the mountains, connecting the villages to the location of fog collection is an extraordinarily difficult process. Raising funds and organizing logistics are the next serious challenge.

Because of the logistics component, the manual writers argue, a feasibility study should follow these primary steps of environmental evaluation and observation. The feasibility study must determine the following:

a. They must first identify the ideal location from which the highest water yield will be possible.

b. Determining yield and demand: The yield is calculated to determine water availability, and demand is based on the population and its consumption patterns.

c. Calculation of mesh area and collecting units: the total mesh area required is a product of the daily use of the community members; the calculation of the mesh area is required to meet the daily demands of the potential beneficiaries.

d. Storage capacity: this is a necessary step for the provision of water storage once harvested from fog; in many instances, building a reservoir or purchasing and delivering industrial-size containers (circa six cubic meters or and more) can itself be a challenge to completing the project.

e. The expense of implementing a fog-water project: as in any endeavor, the expense is a crucial determinant of viability both institutionally and at the community level.

The odds of success in building a fog-collection project are low because the locations are usually in "out-of-the-way" places with limited accessibility and largely poor mountainous populations, with extreme environmental conditions that threaten the structural integrity of the first-generation fog collectors. Solid anchors are needed to ground and maintain the rigidity of the nets, but strong sudden gusts have often uprooted anchor blocks, and incessant gales have caused friction at a number of points in the mesh, resulting in cables snapping and the unit falling. However, despite all these logistical challenges, projects have been built and fog water made available to the communities. The famous El Tofo, Chungago, example in Chile functioned from 1987 to 2002, a fifteen-year period during which this fishing community had sufficient water to meet its needs, but the project ultimately failed because of political reasons.[24] Few other projects are still functional, such as one in the Andes Mountains in Colombia, one in Eritrea, one in Nepal, and one in Morocco, to which I turn now.

6. Fog Project: The Building

The journey from idea to reality, from concept to concrete application, is obviously a very complicated, lengthy, and messy endeavor. When the president of the association Dār Si Ḥmād launched an observation cycle on top of Mount *Boutmezguida*, one of the highest peaks at 1,225 m in altitude, located at the sloping end of the Anti-Atlas Mountains, in 1996, the region was experiencing yet another drought. The frequency and intensity of the droughts had increased alarmingly since 1980, which brought an extremely dry and merciless summer. Following every drought, major migration waves would occur, leaving villages sparsely populated and some even abandoned. The correlation between water scarcity and migration had become quite evident, and for one active NGO in the region, abating the hemorrhage of out-migration from the countryside was firmly premised on fog as a potential source of water, and claims of building stability on fog are, to say the least, on very shaky ground. Following validation of the observation with ten liters of water from nets of one square meter, the next steps consisted of completing a feasibility study, locating funds, conducting a base study, and especially facing the daunting task of convincing the community members that such an eerie idea is positive and could eventually be the solution to water shortages and cycles of poverty resulting, in part, from water scarcity.

24. Mussie Fessehaye et al. "Fog Water Collection for Community Use," *Renewable and Sustainable Energy Reviews* 29 (2014): 52-62.

In summer 2011, the NGO launched the project; the ambition was to finish the pilot part by building fifteen fog collectors. Prior to June 2011, the administration of the NGO had mobilized community members and volunteers, organized a competition to interest a filmmaker in joining the team, and ordered the needed Raschel mesh from Chile, along with a person, courtesy of the Canadian NGO FogQuest, to teach the construction of the fog collectors and to oversee the entire process. Another expert joined from Tenerife, in the Canary Islands. The equipment list included pillars, cement, mortar, shovels, wrenches, and so on. The major hardship lay in the delivery of materials to the top of the mountain. The road is a very narrow, curvy, single-lane dirt road that had been flattened only a few years back. It is located on a ridge line with dangerous rock shards that can easily tear through overheated tires and steep ravines on the edge of the road.

Although this period of six intensive weeks of work in June and July 2011 posed moments in which the nonlocal participants were pushed out of their comfort zone, it was equally a time of great solidarity in that everyone believed and participated in a worthy cause. I would like to give a sense here of the physical, active process of building in the field for one major reason: in the years following this initial phase and through my ongoing engagement with the women, it has become clear that their witnessing the amount of physical labor invested in building the project was what started chipping away at their resistance that what the organization proposed might not be impossible if so many people from Morocco and overseas were joining the efforts to do it. This facilitated, in many ways, the momentous, persuasion campaign for the community and the complex mediation deployed, which was religious and kinship based, to reach just the first level of consideration that there was truth and feasibility potential in the organization's proposal because this was not an embedded water regime that the organization was reviving, nor did it employ the common modern installation of water pumps or a water tower but opened up an entirely unfamiliar concept and process.

Various skills were needed among the professionals that are hard to come by in this remote region of the country, along with administrative authorizations and apprehension among granting officials, the need to overcome logistical barriers to material delivery, land-tenure clearance for the installation of the equipment, funds to cover all the expenses of volunteers and other participants, the need to deal with the scorching summer heat nearing forty-eight degrees Celsius during the day and dropping to thirty-four degrees Celsius at night, and the need to facilitate communication between all those involved, straddling at least five languages: Tamazight, Arabic, French, Spanish, and English. And beyond this language wealth, the expectations of

what work was needed and how to conduct it proved as demanding for the management team as delivering the needed material in the extreme conditions.

Steel pillars six meters in length were ordered in the city of Agadir; this first step took about a month, and the pillars were then brought some seventeen kilometers up the dirt road toward the top of the mountain. The driver, named Buih, an older man from the Guelmim region, pushed his old 1980 Renault truck to the breaking point. At the first elevated turn, we had to come together, eight volunteers and some youth from the community, and empty the truck so that it would make it up a few more kilometers. After repeating this loading and reloading three times, we had to stop and think of other solutions. We chose donkeys, but this solution was not to the liking of the many nonlocal volunteers who considered it exploitative. Because we failed to carry the pillars on foot, we had to mobilize donkeys from all the neighboring villages, for a total of six. Each pair of donkeys had the ends of two pillars attached to each side, forming a rail. As they climbed, they seemed to be two moving blots at the opposite ends of a rail. It took about four days for the pillars to reach their final destination, a mere seventeen kilometers that would otherwise have taken about four hours walk, but balancing the rail through the twists and turns needed special orientation skills on the part of the donkey drivers.

Every little utensil had to be delivered, but water was the hardest to move and the most vital for the building process, and it was also needed for mixing cement and mortar, to fix the anchors, and to meet the team's overall needs. Twelve young village men in total joined the technical team on the mountain, and, on June 12, 2011, the building was launched. Digging the holes demanded extreme physical labor, and hauling water from the closest well demanded equally intensive labor (we were using almost two cubic meters a day in total), including excessive use of a four-wheel-drive vehicle. The coordination of these activities was at times barred by the many languages spoken. But the cohesion of the group of some twenty-seven people proved the most important resource, one that made it possible to persist despite the material hardships encountered. Despite all the challenges, we finalized the building of the first nets in mid-July 2011. The nets were then sewn by the village women, and we hung them on the pillars. Our partners from Chile, the United States, Spain, Germany, Argentina, and Morocco left after having erected an initial 225 square meters of nets, turning our hopes into reality. But the work had to continue because this was just the component for the top of the mountain, and for the following three years, funds and expertise were needed to lay the pipes, to build the water storage facilities, to connect the households to the fog shed, and to tend to a staggering number of details to make the project

happen. It was only on March 21, 2015, that all the components were finally completed and water began flowing to the pilot homes. It took an additional three years of committed work and additional partners to upgrade from the fog collectors to the more efficient and less maintenance-intensive CloudFishers. At the time of this article, the *Boutmezguida* Project of Southwest Morocco has 16 villages connected so that 122 households have their water needs met, along with the local schools and a small didactic agroecological farm for dry and semi-dry regions.

7. Politics of Sincerity or Fog Collection

Fog collection is often considered an "unconventional" (UN) water source, and such a description underlies the ephemerality, seasonable quality, and even temperamental nature of fog. Unlike the beetles of Namibia, the laurel Silva trees of Gomera Island, or the redwoods of California, where, for millennia, fog has sustained these life forms that have adapted to its rhythm, when we, as humans, actively and willfully exploit fog as a resource, its inherent condition of impermanence forces us to move within what I call the politics of sincerity. By this I mean that exploiting fog as a water source cannot be disassociated from its primary condition of being a season-bound phenomenon that yields limited amounts of water. For any initiator of a fog-collection project, the very awareness of the principle of finitude shifts our attention to a more responsible attitude toward water and water governance: toward connectivity, care, and frugality and away from the productivist and consumerist ideologies that have informed the capitalist system for the past century and a half. This experience of fog has moved all of us involved in this project toward recognizing and acting within the politics of sincerity regarding the grand but false narrative of unlimited normalized water.

Even when this narrative continues today to manifest in the form of technological and scientific solutions, be they in more sophisticated fog-collector mesh or active systems syphoning humidity from the air, the impossibility of continuous water abundance from fog as a category is an inherent premise of the very idea of harvesting fog.

Thanks to this inherent reality, the organization planned the systematic storage of water when fog is in season. Since water started flowing to the homes, the mean average consumption has remained close to 26l/d/p, a quantity deemed reasonable when we consider that during the base study of 2011, the consumption was 71/d/p. The people remain in essence frugal in their water consumption in comparison to the WHO threshold of 50l/p/d as the recommended amount to meet all human water needs. Even when the operating mind-set is that of conservation and care for water, the transformation of village life has been profound. The most important change has to do with the

women and young women gaining back three-and-a-half hours of their day; this is the time they used to devote to fetching water. Although the project goal was initially to have the women invest this saved time in money-generating activities, the women did not share the same vision. In an evaluation study conducted in December 2018, the women spoke at length about the qualitative change in their lives: not being overwhelmed by anxiety during the dry season when water is scarce and the need to prioritize and minimize use is at its highest. They no longer need to leave everyone behind (especially babies and young children) and go to the well at four o'clock in the morning to take their turn at the well. They commented at length about the change in the domestic space of the household and how, prior to having flowing water, they swept the floors, only rarely washing them for special occasions, but now the washing has been incorporated as an important indication of social status. Of the total 122 households connected to fog water, 87 are traditional adobe constructions with sit-down kitchens, *'anwāl,* with ground-level built-in hearths for bread-making, and for those inhabited throughout the year, 24 households have built stand-up kitchens and acquired modern appliances such as washing machines,[25] stoves, and especially water heaters for showers and baths. According to many of the women, having water flowing allowed them to access the ease and facilities available to their urban-based kin; as one commented, "The only difference between them and us was water, and now we have it," and "we are better than the city, no pollution and no noise." The women also commented on how special occasions, such as holidays, weddings, births, and funerals, are now unfolding in a different context and are appreciated in that they are no longer associated with immense labor and efforts in securing water for all the guests. Children's hygiene has notably improved; the majority of the village's young girls are attending local schools, and the elderly (about eight households), who often depended on their neighbors' generosity to meet their water needs, now have all their needs met, and the social solidarity continues in other forms.

The prevailing sentiment is a genuine appreciation for the water and the ways in which it has allowed for positive personal and communal transformation. But the people often comment on the inability of the Moroccan state to provide much-needed infrastructure, and they explain how the situation is a continuing punitive measure imposed because of the important role the Ait Baâmrane confederation tribe played in the Army of Liberation. In 1958 under Opération Ecouvillon,[26] the newly independent Moroccan state allied

25. These are not fully automated machines; the women must fill them with water and then rinse and wring out the clothes. Despite this, the women feel their laundry burden has been seriously diminished.

26. Ali Omar Yara, *L'insurection sahraouie, de la guerre à l'État 1973-2003* (Paris: Éditions L'Harmattan, 2003) and the strategic war presentation of Grégory Cattaneo, ed., *Guerre, mémoire, identité* (Paris: Nuvis Publication, 2012).

with colonial Spain and France and defeated the army to strengthen the royal legitimacy and nation building, but this event has left a deep scar in the living memory of the people of this region. All questions about the political failures in this poor, rural, and remote area (in terms of central and official seats of power) are interpreted as a continuation of this foundational moment, even among the younger generation. Having flowing water from such a strange source as fog is experienced as restoring some of the lost dignity, and the organization has always been keen on sharing its politics of sincerity, which make for strong and productive relationships.

Conclusion

Recognizing the limited nature of fog as a water source and the extreme local embeddedness of a fog-collection initiative, the *Boutmezguida* project has created renewed hope for communities experiencing conditions of acute water scarcity. The shift in the community's belief system from viewing fog as a negative natural entity to one regarded with gratitude marks a profound change in the cultural definitions of natural systems. Reverence and profound respect toward water continues to shape the community's relationship with water because, as the women insist again and again, "water *is* the basis of life." The seven movements of fog described in this article were intended to convey the historical and ethnographic depth of fog in one community and how building on and with fog is considered the embodiment of a miracle that continues and sustains humans, livestock, and the local environment.

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الضباب في سبع حركات: ربط قرى جبال الأطلس بمياه الضباب

ملخص: تأخذنا حركات الضباب السبع في هذا المقال من (1) التخوف الغامض تجاه الضباب، بين مصطلح الانبهار ورفضه كظاهرة في منطقة آيت بعمران، الواقعة بجبال الأطلس الصغير جنوب غرب المغرب، من خلال (2) التجربة الإثنوغرافية التفصيلية للمرأة في علاقة مع مجهوداتها للحصول على الماء، والتجربة السائدة والمتجسدة للضباب حيث تتقلب دلالاته لتصبح مصدرا للمياه في المنزل، إلى (3) كيف يصف علم الأرصاد الجوية الضباب ويجمعه، من خلال (4) دعوة الضباب عبر احتمالات خيالية، تنتقل من الكآبة إلى الخيال، ثم إلى (5) التكنولوجيا المستخدمة لالتقاط الضباب وحبسه لتحويله إلى ماء، باعتباره المصدر الحيوي الواهب للحياة في هذه المنطقة الجافة، إلى (6) المبادرة الفعلية الرامية إلى إقامة أكبر مشروع لجمع الضباب في العالم وسط قرى جبلية معزولة إلى حد كبير، حيث عملت المجموعات الدولية جنبًا إلى جنب مع القرويين قبل انطلاق عملية البناء، وأخيراً (7) للتفكير في الخلفية التخزينية والسياسية لمياه الشرب التي يتم الحصول عليها من الضباب، والتحولات الفورية التي أحدثها توافر المياه داخل المنازل، وكيف يتم تفسير هذا المشروع من قبل أفراد المجتمع الذين ينسقون بين إخفاقات الدولة وعجزها المستمر عن تلبية احتياجاتهم وربطها بجملة من الأحداث التاريخية الأخيرة التي لا زالت حاضرة في الذاكرة المحلية.

الكلمات المفتاحية: الضباب، حصيلة الضباب، الماء، آيت بعمران، الأمازيغ، النساء، التحول الاجتماعي والجنساني.

Brouillard en sept mouvements: Connecter les villages de montagne de l'Anti-Atlas à l'eau de brouillard

Résumé: Les sept mouvements du brouillard dans cet article nous tirent (1) de l'appréhension ambiguë du brouillard, entre l'idiome de la fascination et son rejet comme phénomène dans la région des Aït Baâmrane, situé dans l'Anti-Atlas au Sud-Ouest marocain, à travers (2) l'expérience ethnographique détaillée des femmes se propose de leur corvée d'eau, de l'expérience dominante et incarnée du brouillard alors que ses connotations fluctuent pour devenir leur source d'eau domestique, à (3) comment la science météorologique décrit et regroupe le brouillard, à travers (4) les possibilités imaginaires que le brouillard invite, de la mélancolie à la rêverie, à (5) la technologie utilisée pour capturer et piéger le brouillard afin de le transformer en eau, source vitale vivifiante de cette région sèche, au (6) physique réel pour la construction du plus grand projet de collecte du brouillard au monde dans ce qui était par ailleurs encore largement isolé des villages de montagne avant le processus de construction où des groupes internationaux travaillaient aux côtés des villageois, et enfin (7) pour réfléchir dans le contexte historique et politique de l'eau potable récoltée à partir du brouillard, ainsi que les transformations immédiates apportées par la disponibilité de l'eau au sein des ménages, et comment un tel projet est interprété par les membres de la communauté qui assistent aux échecs de l'État incapable de répondre à leurs besoins en relation directe avec les événements historiques récents qui sont encore vivants dans la mémoire locale.

Mots-clés: Brouillard, récolte du brouillard, eau, Aït Baâmrane, Imazighen, femmes, transformation sociale et de genre.