Chapter 1

There's Something in the Air – But What?

On Amazon People's Perception of Atmospheric Phenomena

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As a major exception to the public disinterest in scientific advances in general, the issue of climate change has for a number of years been prominent and has engaged many people from all walks of life. However, to Matsigenka people living in the Amazon tropical rainforest, the notion of 'climate change' is only so much gibberish.[1] Yet, when they find the notion of 'climate change' nonsensical, this assessment is not based on the same premises as those of the so-called climate sceptics. It is more elementary than the disbelief in the outcome of meteorological and climatological research. While in the modernist[2] West, most people arguably take 'weather', unreflectively, to be a class of physical phenomena occurring in the atmosphere (a perspective likely also shared by the climate sceptics and produced according to autonomous and universal physical laws), this notion is foreign to Matsigenka people, principally because in their cosmos, these phenomena are produced by other-than-human persons. There are consequently no such things as physical laws that explain the occurrence of atmospheric events without the intervention of subjective agents. In this the Matsigenka are apparently far from unique. As opportunities have presented themselves, I have made a small and unsystematic enquiry as to whether the notion of 'weather' is also absent in other Amerindian languages and in languages spoken in Asia and Africa, with the result that this notion appears to be less common than could be expected from a Western point of view. This absence probably means that the native speakers of these languages do not share the concepts that are fundamental to the comprehension of modernist meteorological assumptions.

The Matsigenka are a group of approximately 16,000 people living along the Urubamba and Upper Madre de Dios River systems in the Amazon region of southeastern Peru. They speak an Arawakan language closely related to the neighbouring Asháninka and other Campa languages, and together with the more distantly related Yine and Yanesha, they are described as pre-Andean Arawak. Until twenty-five to thirty years ago, the vast majority subsisted on an economy based on hunting, fishing, gathering and swidden agriculture, in a fluidly organized society that has been described as a 'family level society' (Johnson 2003). With the introduction of land reserves, so-called *Comunidades Nativas*, settlements have become permanent and more densely settled. An increasing number of people are today integrated into the market economy, which, for instance, may mean that they send their children to school, that they have access to and use modern goods such as clothes and tools, and, in the Upper Urubamba, that people regularly visit local urban centres. Even though they have heard of climate change, few recognize it as something to be taken seriously. When I asked people about their experiences, they frequently responded that they have not noted any significant changes in the weather, though no two years are alike (Rosengren 2018).[3]

On Knowing the World

While Matsigenka people rarely speak about weather, there are people, such as the English, who are renowned for employing weather as a prominent conversation topic as it is considered suited for safe but superficial socialization, since they tend to share a common comprehension of it (Golinski 2003). However, weather is not only understood as a class of physical phenomena in nature, it is also intensely experienced corporeally, sensuously and emotionally: in the rain we all get wet, we hear the thunder and see the lightning; when it is snowing we feel cold; and when the sun is baking we get warm; as the different kinds of weather develop, we also get happy, sad or disappointed, etc. The influence that these phenomena have on everyday life has made people try to explain and predict them. As a consequence, there is an immense corpus of folk knowledge that represents different traditions that go far beyond the concrete experiences of atmospheric events (e.g. Berland 1993; Huber and Pedersen 1997; Strauss 2003).

When these phenomena are described scientifically, they become abstractions, the understanding of which typically depends on models and categorizations produced with the help of instruments that quantify

and measure what takes place in nature. This process leads to explanations becoming universalized; rather than primarily being founded on individual assessments, they are based on abstract models. In being turned into numbers and formulae, these phenomena become 'epistemic hybrids' (Helmreich 2014: 271), that is, they become corporeal experiences cloaked in abstract scientific explanations and thus acquire an aura of detached and objective scientificity.

Physical conditions have been assigned the qualities of independence and universality within modern Western science and society, and these features are commonly seen as epistemologically paradigmatic by modernist people. Even among anthropologists, the aim of understanding other peoples' meteorological perspectives on their own premises generally seems to have been overlooked. Though there may be exceptions, usually when anthropologists have paid attention to weather, it has been as a symbolic or metaphoric expression of existential conditions (see, for instance, Evans-Pritchard 1938; Lévi-Strauss 1969; Osborn 2009), or as a general background condition, based on modernist meteorological assumptions, employed in exploring social and cultural effects caused by the process of global warming (see, for instance, Crate 2008; Hastrup 2009; Rudiak-Gould 2013). In contrast, my aim here is to explore Matsigenka people's meteorology – understood in the ancient Greek sense as 'the science of that which is in the air' – as an alternative to modernist perspectives on processes in the atmosphere, and to examine their reactions and attitudes towards the local climate-change discourse.

The absence of a concept of 'weather' in the Matsigenka language does not mean that Matsigenka people are unfamiliar with or lack notions of rain, thunder, sunshine and so forth. On the contrary, the occurrence of these phenomena is recognized as an ordinary element in the everyday, and they influence life in significant ways in terms of subsistence practices and their organization, the design of clothes and houses, notions of comfort and wellbeing, and so on. In saying this, it would be wrong to suggest that there is a concordance between English and Matsigenka concepts regarding events in the atmosphere and their nature. In contrast to the modernist notion of, for instance, rain as the uniform outcome of a process in which drops of water are formed through the build-up of humidity in the air through condensation within clouds that fall to the ground because of their weight, Matsigenka people perceive various forms of precipitation that differ in crucial respects in terms of both origin and effect (for more on this, see below). The issue here is accordingly not primarily one of language and translation, but of distinct systems of knowledge and ontology (see Bird-David 1999; Ingold 2000; Viveiros de Castro 2004).

This focus on knowledge systems indicates a need to enquire about Matsigenka understandings of the environment and its nature. This is a classical philosophical question that has also attracted interest within anthropology, hence the increasing challenges to the nature-culture dualism that was central to modernist conceptions of the world during the 1990s (see Bird-David 1999; Descola and Pálsson 1996; Ingold 2000). Ideas formulated at this time subsequently contributed to the development of what has become known as the ontological turn (see for instance Bertelsen and Bendixen 2016; Blaser 2010; Descola 2013). As part of the challenge to the nature-culture dichotomy, Nurit Bird-David (1999) developed the notion of 'relational epistemologies' to describe systems of knowledge in which the knower and the known are seen as interrelated, something that, she argues, is characteristic of animistic understandings of the world, where human-nature relatedness is perceived as relations between subjects. Epistemologies held by animists have been described as 'a kind of sensory participation, a coupling of the movement of one's attention to the movement of aspects of the world' (Ingold 1999: S82). In contrast to modernist naturalism, animist epistemologies are embedded in the particularities of local life, and knowledge within them depends on the experiences and social contexts of the knowing subjects rather than being the result of detached studies of an autonomous reality. To confuse concepts from one language with those pertaining to another constitutes what Peter Winch (1970: 93) referred to as 'category-mistakes' and what Eduardo Viveiros de Castro more recently (2004) referred to as equivocations, that is, interpretations made according to standards of rationality other than those upon which the significance of the word or phrase was based. It is necessary not only to attend to linguistic problems of translation, but also to any ideological implications that may be involved (Rubel and Rosman 2003: 6). In his seminal essay on partial truths, James Clifford (1986) made clear a number of traps to be overcome in the writing of ethnography in order to avoid such mistakes. Clifford assumes that we all live in the same world and therefore presents differences in understandings of the world as epistemological. After the 'reflexive turn', within which Clifford wrote, came the 'ontological turn' and the notion of the 'universe' was substituted by that of the 'pluriverse' or 'multiverse': it was recognized that people not only interpret and understand the world differently, but also that the worlds they perceive and live in are actually distinct, and the differences in the perceptions of the world are accordingly ontological (see, for instance, Bertelsen and Bendixen 2016; Clammer, Poirer and Schwimmer 2004; Descola 2013). Arguably, there is only one physical world, so when I talk about different worlds, I am referring to 'lived-in-worlds' and the way

they are perceived by variously situated subjects. Since people's perception of the world in which they live is produced in the subjects' engagement with the environment in which they find themselves, subject and object are mutually constituted. Accordingly, it is practically impossible to imagine a conscious subject with a corporeal body that is unrelated to the environment of which it is part (Meløe 1988; Merleau-Ponty 1989).

The act of knowing, and the social setting within which the known is practised and communicated, is consequently of central importance. Considering the significance of lived experience for the perception of the world, I am in agreement with Michael Jackson (1989: 3) when he cautions us that conceptual orders should not be taken as 'an inherent orderliness'. We are part of the world in which we dwell, and a vocabulary is therefore not a reflection of an independent physical reality, but an expression of the world as perceived. The meanings of words and other signs are consequently subject-related and derive both from practical engagement with the environment and the social processes in which meaning is negotiated (see, for instance, Bakhtin 1981; Mannheim and Tedlock 1995; Taylor 1985).

Problems of Translation

Given this perspective on knowledge, I have struggled with how best to represent concepts denoting atmospheric phenomena in a way that is both faithful to the way Matsigenka people perceive them and comprehensible to a modernist audience. As already noted, the modernist conception of 'weather' is problematic from a Matsigenka perspective. In the modern West, the various atmospheric phenomena subsumed under this category are supposed to have common physical laws that generate them according to scientific meteorological understandings. Conversely, for Matsigenka people, atmospheric phenomena are the results of agentive forces, other-than-human persons generating these occurrences through the conscious projection of objectives related to elements in the specific context. The consequence is that what modernist meteorology sees as phenomena that share common characteristics that allow us to place them all within the category of weather is understood by Matsigenka people to be a collection of sundry and unrelated phenomena.

Since Matsigenka people do not share the physical notion of 'weather' of modernist meteorology, the challenge consists in finding ways to speak about these atmospheric phenomena without adding or subtracting comprehensions that are central to one perspective but not to the

other. In my initial attempts to find a common denominator from which to depart, I took it as self-evident that both Matsigenka and modernist meteorological perspectives ought to have in common that the phenomena they talk about take place in what we may describe as 'the atmosphere' or 'in the air'. To modern Western people, 'the air' is arguably rarely a problematic category: it is the medium in which we are immersed and that we breathe. When I enquired about how to refer to this seemingly obvious medium in Matsigenka, most of the people I asked thought hard before they responded and I got a few suggestions, such as 'wind' (*tampía*), 'vapour' (*énkatsi*) and 'upwards' or 'high up' (*enoku*). However, my interlocutors all quickly withdrew their various suggestions, as they realized that the concepts they were proposing did not really correspond to what I was asking for.

After making several further attempts to discover their concept of 'the air', I eventually reached the conclusion that no corresponding term exists in the Matsigenka language. Based on the confusion of my interlocutors, I assumed that 'the air' was seen as a void of 'nothingness' and that its lack of tangibility coupled with its ever-presence and nonvisibility made it something that could not be talked of. Subsequently, however, I came to realize that I was looking in the wrong direction, as I had presumed there had to be a 'proper' word for 'air', as it was such an important element in my eyes. But instead of the concept I was looking for, I found the infix *-gite-*, which I have never heard of or seen other than as a complement that forms part of various word constructions. To illustrate the use of *-gite-*, there is, for instance, the word *morekagíteri*, which consists of the combination of the verb stem *moreka-*, meaning 'to burn', in combination with the infix *-gite-* and the suffix *-ri*, which is a nominalizer making the verb into a noun. Thus, *morekagíteri* literally denotes 'something that burns in the air' and in its actual deployment, it corresponds more or less to 'lightning', which is the common translation (Pío Aza 1923: 237; Snell et al. 2011: 286). However, the meaning of the infix *-gite-* is more inclusive than the English word 'air'; what we consider to be the atmosphere is only part of what *-gite-* refers to, as the infix is probably most faithfully translated into something like 'the setting'.[4] From the example of lightning, the association of *-gite-* with 'air' is logical, but when I enquired in the field about this concept, an elderly man compared the air that surrounds us with the perception of sub-aquatic beings, e.g. fish, of the water in which they live. Similarly, even though humans perceive of the air as a gaseous part of the environment, to other beings this medium is perceived as physically different and as constituting a more earth-like landscape. When Matsigenka people travel to visit their spirit friends living 'high up', they rely on the help of psychoactive substances

that enable them to tune into reality on a different 'frequency' than the everyday one (Rosengren 2006). In the beginning of séances, as the drug is taking effect, the shaman climbs a 'ladder' that reaches the top of the roof of the house in which he and his fellow travellers have gathered, and from where they sally forth on foot through a landscape that earlier they saw as 'air', but that now forms a continuation of the earthly setting, to the abode of their spirit friends.

Worlds Apart

To comprehend the setting in which we live in the way that Matsigenka people do would mean conceiving of the various weather phenomena in very different ways from the way in which they are seen according to modernist comprehensions. Although many Matsigenka today speak Spanish and thus employ modernist notions of weather phenomena, these concepts are frequently incorporated into pre-existing ontological frameworks. Thus, the parts of the year when it rains a lot, and when it rains much less and sometimes not for two or three weeks in a row, are today talked about in Spanish as the 'rainy' and the 'dry' seasons (*tiempo de lluvia* and *de seco*). However, the use of these foreign terms has not necessarily affected people's understandings of the seasonal variations as based on hydrological characteristics rather than on the frequency of rain. Accordingly, in Matsigenka, the 'year' is divided into a season when there is much water in the rivers and brooks (*kimoárini*) and another when there is little or no water in them (*shiriagárini*).

From a modernist Western perspective, the Matsigenka terminological focus on the shifts of the water level in the rivers can be seen as analogous to the variation in precipitation between the rainy and the dry seasons: when it rains, the rivers swell and when it does not, they dwindle. In this case, the difference derives from alternative interpretations – that is, it is a matter of epistemological variation. Accordingly, to Matsigenka people, the regular recurrence of periods when there is much water in the rivers alternating with periods when there is much less is explained by changes in the cosmic river. In its upper, celestial parts, this river is visible from Earth as the Milky Way, Meshiáreni, which after leaving Earth continues downwards in the cosmic tier of worlds. On Earth, the river is known as Eni, 'The River', which on present-day maps is given as the Urubamba River, along which the majority of Matsigenka people live. When this river continues down into the underworlds, carrying the souls of the deceased, it becomes Kamavenía, the River of the Dead. On a cosmic scale, the different sections of the river are connected in such

a way that when there is much water in Meshiáreni, there is little water in the lower parts, that is, in Eni (the Urubamba) and Kamavenía, and vice versa. Consequently, it is not rainfall that causes the water level in the rivers to rise, but the movement of water between the two opposite ends of the cosmic river. The frequency of rain is consequently not seen to affect the water level. The connection between the intensification of rainfall and high water levels in the rivers lies in the conception that it is easier for demons living in the subterranean worlds to enter Earth through the gates located in the riverbeds when the rivers are swollen than when the water level is low. Since many demons are associated with raining, their increased presence during the season of high flows explains the temporal overlap of heavy rain and high water levels. One interlocutor stressed that even during the so-called 'dry season', it would rain now and then and, thus, he asked, how could it be a dry season? Similarly, he continued, during the rainy season it did not rain every day, but still the rivers were swollen! To him, the logical distinction had to do with the water level, and the presence of demons was the explanation for the rain during the period of the year when there was much water in the rivers. This made much more sense to him than the notion of regular variations produced without the intervention of subjective agents.

This brings us again to Matsigenka people's comprehensions of the nature of that which modern meteorology terms 'rain'. In contrast to uniformly constituted raindrops, precipitation is produced by a variety of different agents and consists of different substances. The liquid that most closely corresponds to meteorologists' 'rain' is ínkani. It is produced by a group of spirits who are commonly known as the *inkanipiriegi* and who live in the world above Earth, from where we see it as the clouds in the sky. However, what is rain to modern meteorology can also be produced by the *impókiro* spirits, who live in the world above the cloud world and who are visible from Earth as the stars because of their brilliantly shining dresses. When these spirits urinate, they go out into the forest to relieve themselves, just like humans, and their urine falls to Earth as a light drizzle known as *itsini impókiro*, 'the urine of the stars'. As noted above, demons are also associated with rainfall – when they move on Earth, their presence can be noted by showers together with strong winds that follow them and that are known as *mararoenka*. All these kinds of precipitation are either benign or harmless. By contrast, the precipitation sent by the demon Ináenka, the mother of disease, causes severe rashes that are particularly dangerous to small children, who are hurriedly ushered indoors when it falls. Ináenka's 'rain' originates underground and is seen first as mist rising towards the sky that

subsequently falls back on Earth in the form of light drizzle, characteristically at the same time as the sun is shining. The precipitation that Ináenka sends is distinguished as *parienkatagantsi*, literally meaning 'falling vapour' (the name of the demon, Ináenka, literally means 'mother of vapour'). *Parienkatagantsi* can be translated into English both as 'to drizzle' and 'to cause an epidemic', and to Matsigenka people, the two meanings stand more or less for the same thing.

The danger that is perceived when it rains at the same time as the sun shines neatly fits Douglas' (1991) notion of pollution being produced by 'matter out of place'. Yet 'matter out of place' is not how Matsigenka people conceive of this coincidence of rain and sunshine; rather, simultaneous precipitation and sunshine (not all that rare in the tropical lowlands) is a sign of the distinctiveness of *parienkatagantsi* from noninfective rain and, consequently, proof of the intention behind its appearance.

Even though the ways in which Matsigenka people perceive forms of precipitation differ from modernist Western notions of rain, it is still watery liquid falling from the sky. Explanations of other atmospheric phenomena overlap less with modernist scientific explanations of reality, in some cases being outright incommensurable with them. Consider the following expression: '*otonkaveigarira kareti*', found in the collection of Matsigenka stories told by H. and J. Vargas Pereira (2013: 348).

The sentence in which the expression appears is translated into English by the compilers Michael, Beier and O'Hagan (2013: 348) as: 'They told stories of what they were going to hunt, when they saw jaguars, when the thunder fired (as with a gun), when they heard the demons.' To a native English speaker, the translation of *otonkaveigarira kareti* as 'when the thunder fired (as with a gun)' probably seems odd, as thunder does not fire guns. However, when I checked the translation with interlocutors, they also rendered the expression in the same way. The word *kareti* is a noun that denotes 'thunder that is just above or close by', that is, when the sound of thunder is heard loud and clear. In the construction *otonkaveigarira*, *-tonk-* is associated with the verb *tonkagantsi*, which Snell et al. (2011: 511) give several meanings for, two of which are 'to thunder' and 'to sound "boom" (from e.g. the explosion of dynamite, thunder or the firing of a shotgun)'. Considering these various possible translations, one might ask why the translators chose to use the gun-firing alternative when, from a modernist perspective, 'to sound boom' might be considered the more obvious choice. One possible answer is that the use of metaphor was aesthetically pleasing to the translators. Another answer, which arguably is the more likely, is that talking of the firing of a weapon in this context is no metaphor to native speakers of

Matsigenka. 'Shotgun' is *tonkaméntontsi* in Matsigenka, a word that can be deconstructed as *tonk-a-mento-ntsi*: *tonk* is the verb stem signifying 'sounding loudly' (as, for instance, an explosion, thunder or the firing of a shotgun); *-a-* is an epenthetic segment introduced here to facilitate pronunciation; *-mento-* is an instrumental nominalizer that turns a verb into a noun; and *-ntsi* marks an unnamed possessor.[5] However, the expression *tonkaméntontsi* also refers to a kind of weapon used by the *saankaríite* spirits and that people describe as being like a mirror. When fired, this weapon produces a loud bang and a strong flash that is similar to when a mirror reflects light. As a consequence, what at first may seem to be a figure of speech may in the end turn out to be a description of an object in a world that is radically different from the one known by modernist Westerners.

My focus on knowledge has hitherto led me to treat the differing notions of atmospheric phenomena principally as a conceptual issue. Since I understand 'knowledge' to mean 'the certainty that phenomena are real and that they possess specific characteristics' (Berger and Luckmann 1971: 13), it is constituted by the subject as that which makes sense and is in accordance with how the world is perceived and experienced. With this also comes the development of practices and insights learned from parents and mates that have resulted from their previous experiences of practically engaging with the environment, understood in its widest sense as including physical, social and sensory dimensions. Thus, I take knowledge to be engendered through the physical, social and sensory engagement with the overall environment, and consequently it is not just a mental product, but also a sensual and practical one.

Knowledge is, as a result, not evenly distributed; there are people whose reputation for being experienced and knowledgeable make others listen to them, heed their advice and follow their example (see, for example, Barth 2002; Sillitoe 1998). However, although there are persons who are considered to be knowledgeable in various fields, that knowledge never becomes generalized and depersonalized. Even allegedly esoteric knowledge, referring to, for instance, cosmic conditions is considered to be relayed by people who have acquired the information from persons who have made the observations, or have been in contact with someone who knows it from proper experience. Those who are reputed to be knowledgeable are commonly older people, irrespective of gender and social position, as they are considered to be more experienced and wise than their younger peers. Being basically an egalitarian society (Baer 1984; Johnson 2003; Rosengren 1987, 2004), there are no formal hierarchies that are significant in terms of how knowledge of the world is constructed and deployed.

Myth and Meteorology

To Matsigenka people, the acquisition of knowledge follows not only from personal experiences, but also from relations with subjective forces in the cosmos, who teach people essential skills. In common with many peoples around the world, the Matsigenka have 'culture heroes' who in primordial times lifted them up from ignorance and introduced them to civilized life. These heroes usually appear in cosmogonic myths in which atmospheric phenomena frequently play a crucial role. Moreover, stories of this kind often explain why atmospheric events occur and, at the same time, reveal the associative patterns that lie behind the meaning and appreciation of particular phenomena.

One such cosmogonic myth tells about the near-extinction of humankind, an event that took place during primordial times when they walked around naked and lacked most of the knowledge and skills they have today. At the time, people were constantly threatened by attacks from demons and other malign beings, who came close to exterminating them. While telling the story, the narrator[6] stressed that, as the sun did not shine, the days were always gloomy and it was frequently raining – conditions that Matsigenka people commonly associate with dangers produced by demons. In the tier of worlds that forms the Matsigenka universe, the cloud world immediately above Earth is populated by a variety of beings: bright clouds are inhabited by benign spirits (such as the *inkanipiriegi*), while dark clouds are occupied by demons. The reference to the low-hanging dark clouds is consequently a hint of the closeness of demons to Earth.

One day, the myth says, a man and a woman appeared at the house of a shaman, who invited the couple to stay. Eventually, the visitors turned out to be *saankaríite* spirits who had taken pity on the suffering humans and therefore had come to help them defend and take care of themselves, and, at the same time, to introduce them to civilization.[7] The couple taught people to hunt, to fish and to cultivate a number of plants, and, most importantly, they taught the shaman how to defend people from the threat of demons. When humans mastered these skills, and the spirit couple prepared to return from whence they came, the clouds over Earth rose and cracked open, the sun appeared, the days became bright, and variable weather conditions were experienced for the first time in this new and better world.

The 'lesson' that can be drawn from such myths[8] is corroborated by experience. The association of sunshine and bright days with positive forces, and rainy and gloomy days with negative forces is, accordingly, no simple coincidence, but has to do with lived experience. In the Upper

Urubamba and the rest of the tropical lowlands of eastern Peru, overcast skies and rain are not infrequent events. More importantly, precipitation often produces a number of problems with regard to, for instance, communication and movement. Trails in the forest become muddy and slippery, while rivers swell and become rapid-flowing and dangerous. This means that most subsistence activities are negatively affected, and feelings of discomfort heighten with the increased humidity, bringing the fear that health may be affected. In contrast, dry and sunny weather is comfortable and produces no obstacles for everyday life; it is a safe time. It is also a prosperous time, as fishing is easier and more productive when the water level in the rivers is low. Also, many game animals are at their fattest at the beginning of the dry season.

The Perception of Meteorological Conditions, Notions of Climate Change and Environmental Relations

That the modernist meteorological notion of 'climate change' does not make much sense to Matsigenka people does not mean that they see the world as static. On the contrary, like other Amazonian people, they entertain notions of a highly unstable and transformative world (see, for example, Gow 2001; Londoño Sulkin 2012; Vilaça 2005; Viveiros de Castro 1998). Given the experiential basis of Matsigenka people's view on knowledge, to them the urgent problem is not the abstract notion of 'climate change', but the obvious and rampant process of deforestation, as this influences living conditions in an immediate and concrete way, negatively affecting access to game and the fertility of the lands, as well as their relations to animals, plants, spirits and demons.

As noted above, Matsigenka people's understandings of the nature of atmospheric events emphasize the concrete, local and experiential, and thus they do not produce meteorological abstractions of the sort generated by modernist science.[9] The significance of experience and the understanding of local settings come out clearly when Matsigenka perceptions of meteorological conditions are compared to the way in which migrants from the neighbouring highlands perceive the same circumstances. In the last fifty to sixty years, a great number of small-scale Andean farmers have come to the Upper Urubamba in search of land and economic gain. Many of the localities from which these migrants originate have suffered the consequences of global warming, as melting glaciers create problems as the availability of water declines in the dry season, affecting local agriculture negatively. In conversations I have had with migrants, many stated that global warming is one of the most urgent problems of our

time. This opinion is probably associated with the highlanders' experience of deglaciation in their communities of origin, a condition that has meant that they have been introduced both to the notion of global warming and modernist meteorology. Even though they are most likely unfamiliar with the theoretical models and calculations that meteorological experts use when forecasting the weather, they acknowledge as a rule the climate-change discourse. This acceptance of scientific expertise is arguably associated with their integration into the market economy, which, among other things, has produced an ambition to advance socially. In their relation to the indigenous Matsigenka, this aspiration is commonly expressed in terms of being modern, as, for instance, manifested in the attention paid to the climate-change discourse. This is used to distinguish them from the Matsigenka, who do not recognize the process of global warming and who therefore are described as backward and uncivilized (Rosengren 2018). A few years ago, the time of the transition from the dry to the rainy season was spoken of by many of the local Andean migrants as an exceptionally warm period, and they frequently exclaimed that 'never ever has it been so hot'. Most likely this was an expression of exasperation caused by the heat of the day, as the mercury in the thermometers often reached 40ºC and above. In some instances, though, explicit reference was made to global warming. By contrast, Matsigenka people seemed rather unperturbed by the heat. They generally noted that it was not equally hot everywhere, pointing to the highland migrants' preference to live and work in places where most of the vegetation had been cleared, which are warmer than in the forest, where the overwhelming majority of Matsigenka people dwell. Many Matsigenka also observed that while their houses commonly have thatched roofs and walls made of palm slats, allowing air to circulate, Andean migrants prefer houses constructed by adobe bricks with roofs of corrugated iron. The different ways in which highland and Matsigenka people relate to and experience weather are thus influenced by social practices and dwelling habits. The distinct practices of the two groups are at the same time also associated with values emerging from their differing ontological perspectives: one animist and the other modernist. While the animist Matsigenka embrace what Bird-David (1999) describes as a 'relational epistemology', stressing the subject-subject character of their relationships with the environment, migrant farmers tend to objectify and commoditize the environment in accordance with modernist naturalism. To Matsigenka people, the forest is not only a prominent part of their dwelling, but is also a subject that needs to be respected and treated with care. In contrast, to the modernist migrants, the forest is a mere material element that can be cleared away in order to make their production more efficient and facilitate their social

advancement. Paradoxically, those who are most aware of the climate-change discourse are in this area the agents that promote climate-change processes, while those who have no understanding of it contribute the least to these developments.

A Plea for the Future

In order to properly integrate Matsigenka people into national Peruvian society, local authorities and various nongovernmental organizations (NGOs) launch development projects to teach them new and modernist ways to organize and procure their living. These entail, among other things, turning nature into a resource and ignoring or turning certain agentive subjects into objects. Thus, in contrast to the educational project of the *saankaríite* spirits in the myth referred to above, these modernizing agents destroy Matsigenka people's ways of life, motivated by their belief that they know better and their ambition to do good. However, given that modernist society is the main cause of global warming, instead of teaching nonmodernist people such as the Matsigenka new ways of life, modernist people should probably try to learn from the kind of relational epistemologies that have allowed and enabled nonmodernist people to engage in sustainable practices.

Since indigenous voices provide an alternative discourse to modernist assumptions about the world's constitution, they defy modernist understandings not only of meteorology but also of environmental relations in general. Disregarding these alternative voices become increasingly difficult as concepts embedded in the dominant global discourse, such as modernity, development and Western ways of knowing, are further problematized. Accordingly, the homogenizing denomination of the current geological era as the Anthropocene – emphasizing humanity's impact on the climate – is increasingly challenged, as it obscures the primary cause of climate change, namely the modernist ideology of growth and consumerism. Not all of humanity can be blamed for the climate-change crisis (see, for instance, Blaser 2016; Haraway 2015; Malm and Hornborg 2014).

This plea is not that modernist people should convert and become animists; rather, it is to realize that modernist naturalism is not the answer to all problems. A more humble position in relation to other perspectives is consequently sought, as it hopefully will mean that encounters between different ontologies can function as openings, allowing perspectives and insights to emerge from subaltern positions to inform and influence modernist ways of life and thinking.

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Notes

1. I started carrying out ethnographic fieldwork among Matsigenka people in 1979 and I have since then visited them, intermittently, for both long and short periods. Currently, I have spent between five and six years in the field. My interest in Matsigenka people's perception of atmospheric phenomena goes back to 2010.
2. I make a distinction between 'modern' and 'modernist'. All people who live now are modern, while only those who espouse an ideology of development with its roots in the Enlightenment and industrialization of eighteenth-century Europe are modernist.
3. For more general ethnographic information on Matsigenka people and society, see Baer (1984); Johnson (2003); and Rosengren (1987 and 2004).
4. The infix *-gite-* is also used when referring to qualities of the setting and is then found in words such as *kutagiteri* ('day' and 'morning', from *kutari*, 'white' or 'bright') and *mamerigitema* ('an empty space', from *mameri*, 'not here' or 'inexistent').
5. This denomination I owe to Betty Snell and Mary Ruth Wise (personal communication, 14 October 2016).
6. Mrs Mirian Piñareal of Koribeni told me this myth.
7. This is an alternative version to the most well-known (or at least best-documented) account of how humankind acquired knowledge and material culture, in which it is Moon who is the bringer of civilization (see Baer 1984: 423–25; Chineri Pinedo 2016: 10–21; García 1942: 230–33; Johnson 2003: 208–9; Vargas Pereira and Vargas Pereira 2013: 96–98).
8. When I say that 'lessons' can be drawn from myths, I refer to the insights that non-Matsigenka people can acquire into aspects well known to, and taken for granted by, Matsigenka people.
9. Even in the modern West, attempts at generalizations emerged only with the development of the means for rapid communication over large distances during the nineteenth

century (Miller 2004). Through the development of the telegraph, data could be gathered from many places, and upon these models of weather development were elaborated. The modern notions of 'climate' and 'climate change' thus require a globalized view of weather systems together with detailed information on weather conditions for at least the last thirty years which is the period of time commonly used for defining 'normal weather'.

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