Introduction

Remembering the future

How do disasters engage with time? This question, as odd as it may sound, is what this book explores. When dealing with catastrophes, we tend to address their relationship with time in a rather unproblematic way, assuming that disasters are moments or processes taking place, happening, accumulating *over* time – and contained within it. Yet, this conception of time as a fixed dimension containing reality, questioned due to the overly simplistic linear orientation that it portrays (Adam 1998; Bear 2016; Sharma 2014; Jacobsen et al. 2020), impedes exploring the concrete ways in which time and temporalities are arranged amid disasters. Can we conceive of the relationship between them otherwise? What do disasters have to tell us about the articulation of time?

Questions about the temporal rhythms of disasters occur today amidst ever-increasing concern: the projection of an uncertain future, in both its short- and long-term forms. The obsession with the forthcoming nowadays escapes from the modern outlook in which those days to come were a source of inspirational progress – a 'horizon of expectation' (Koselleck 2004) that opened as an undetermined, but present, future of possibilities. Our times respond more to existential questions concerning an uncertain tomorrow defined by existential dread. For authors like Daniel Levy (2016), this lack of hope for the future relates directly to the weakening of the modernisation project based on the idea of progress – completely in line with 'the ontological security once provided by nation-state narratives' (Levy 2016, 5). Similarly to Ulrich Beck (2006), Levy affirms that catastrophism has given rise to a temporal epoch that is overcoming the previous traditional (mythical), religious and political (national) time strands (Gross 1985). The current epoch, which Beck and Levy (2013) define as a cosmopolitan – yes, as in Huaraz – reconfiguration of society, has inaugurated a period of fragmented times lacking a dominant, hegemonic conception of temporality and future prospects. The global trends imposed by the unintended side-effect of modernity are displacing the homogeneous national time and opening space for a cosmopolitan outlook that lacks the guarantees that national projects provided. This movement, Levy affirms, would be behind the disentanglement of

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the temporal constructions sustaining our experienced times: a current past 'whose events have been incorporated and remembered' (Koselleck 2004; in Levy 2016, 4) and a horizon of expectations that enables us to *remember the future* and to anticipate it. It is an epoch in which the past seems to have lost its exemplary utility and the future is shaped by the unknown, Levy concludes.

These temporal redefinitions are particularly relevant for cities in the Callejón de Huaylas and their frustrated urban project emerging from both the ruins of disasters and a failed modernity. Neighbouring the Lima Department to the south, La Libertad to the north, Huánuco to the east and the Pacific Ocean to the west, the department of Ancash covers more than 35,000 square kilometres from the Pacific coast to the Andes, with a total population of more than one million. Two-thirds of the region are located in the Andean *sierra*, divided between the Huaylas and Conchucos valleys. The former, also known as the Callejón de Huaylas – literally 'Huaylas passage' due to its long and thin shape – is an Andean interior basin surrounded by the Cordillera Negra to the west and the Cordillera Blanca to the east. The Santa River runs almost 200 kilometres along El Callejón until reaching the Pacific Ocean further in the coastal areas of the department. More than 350,000 people, around one-third of the department's population, live along this narrow but long valley concentrated in its main cities: Ancash's capital Huaraz, Yungay, Caraz and Carhuaz.

Located in the foothills of the mountain range with the highest concentration of tropical glaciers in the world (Vuille et al. 2008), the region has been experiencing the dramatic consequences of climate change for almost a century. A phenomenon known as glacial lake outburst flood (GLOF), triggered by the collapse of mountain lakes formed after glacial retreat, has occurred in the zone several times in the past decades. The weakening of the ice sheet in the Cordillera might also have been a factor in a massive avalanche, triggered by the 1970 earthquake, that buried entire villages and cities. It is a region that has been forced to coexist with climatic transformation and disruptive events.

Cities like Huaraz, part of a larger constellation of colonial settlements in the region, lament their lost past while aspiring to development that is yet to be realised. Authorities in the Callejón de Huaylas are engaged in massive efforts to develop appropriate strategies for coping with the uncertainties that climate change brings to cities in mountain regions, which are among the most vulnerable areas to the climate crisis worldwide (Messerli et al. 2004; Viviroli et al. 2007; Milner et al. 2017). But in many cases, the promises of modernity that those efforts bring seem to conflict with practices that are not rooted in the scientific realm. In the Callejón, ancient forms of relating with the mountains, unrecognised by modern politics, sometimes clash with authorities' efforts to control nature and its disruptive forces. The aspirations of lowland urban settlements for entering the modern era have supposedly been frustrated by the unwillingness of an allegedly uncivilised highland population

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to move away from archaic lifestyles. While romanticised as belonging to an ancient past that provided the nation with historical depth and tradition, the rural world is also portrayed as stagnant and hindering the progress of the urban world. This tension – a rurality valued as an expression of the past but rejected when it comes to building a modern present – is a crucial element of the cosmopolitan Andean city: places where the past has been lost, and the future seems to be marked by the arrival of rural actors living in a stagnant past.

Huaraz, like other cities in the Callejón de Huaylas, is in this permanent state of tension: willing to preserve a lost past buried by earthquakes and floods, while preparing for an uncertain future jeopardised by the backward lifestyles of their rural counterparts. In this tension, a whole world seems to be relegated to the impossibility of cohabiting in the future. Thus, it becomes fundamental to ask what remains hidden under these new global regimes; those world configurations that, in the words of Marisol de la Cadena (2019), are the not-seen of the Anthropocene. This question does not aim to neglect the existence of the cosmopolitan view amid global risks, but to think about how this new outlook might seem to be contested at different levels and in diverse realities by forces that appear to be excluded from the official history of the past and projections towards the future. It is a question about historical divergences made invisible in time, but also about future constructions neglected by the political arena – all this in a scenario of high uncertainty due to the catastrophic consequences that extreme events can have for the creation of common urban projects.

This book examines these tensions through the ecologies that sustain disaster events over time. It seeks to understand how disasters produce forms of past, present and future, by inquiring into the vast set of practices and materialities sustaining those temporal arrangements – as well as the contests they can arouse. By analysing what I later define as temporal ecologies around places and devices of memory and future-making, including memorials, archaeological sites, construction materials and early warning systems, this work explores the plural – and sometimes conflicting – forms in which past, present and future coexist with disasters. With this goal in mind, I seek to analyse how disasters – as both virtual and actual arrangements, as semiotic and material things – are articulated in, for and across time.

Based on my ongoing research in the Callejón de Huaylas that began with my PhD project almost ten years ago, this work seeks to explore how disasters, in their past and future versions, have (re)configured urban environments in the Callejón de Huaylas. It is an effort to analyse what sorts of transformations those temporal exercises have produced in the Andean cities of Ancash, and at what expense. The work takes as a starting point the news about a group of *campesinos* (the Spanish word for farmers, or 'peasants'), or, more specifically, *comuneros* (members of *campesino* communities), that destroyed an early warning system installed close to Mountain Lake

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513 in late 2016 (Cecale 2017; Miroff 2017). Those sources suggested that *comuneros* accused this foreign technology of intentionally 'blocking the rain' and inhibiting its fall, which was claimed to underly a severe drought affecting the region in the previous year. However, stories around this incident left the same central question unresolved: How is it possible that local inhabitants developed such an explanation in the first place? What stories might have related the prolonged period of low rainfall with this newly inaugurated technology for warning the population about GLOFs that had impacted and threatened cities in this region several times in the past? By taking this case as an initial moment of inquiry, this work considers the conflictive encounters – which I further conceptualise with the Quechua word *tinkuy* ('gathering in the difference') – that modernisation impulses have brought to the region, together with the reactions of an urban world feeling threatened by an ungoverned highland rejecting what is regarded as a national civilising project.

Despite the fragmentation inaugurated by the cosmopolitan epoch, and the apparently unentangled way in which past and future seem to operate nowadays, the recall of the past and the construction of the future under uncertain times allow the possibility of exploring how entangled the practices of past and future production may become amid disasters. Unfolding these connections can reveal how arrangements around disasters and time are entwined in ways that are often overlooked. Disasters result from the accumulation of sufficient tension to trigger disruptions that require response and decision making. A myriad of choices and pronouncements are necessary for a return to normality – to how things were. In the past. Towards the future. Decisions about reaction, recovery and adaptation, to avoid similar situations amid further extreme events, requires a massive amount of preparation and response involving several temporal assumptions. This temporal location of disasters is, at the same time, defied by their unbearable scale. Disasters elude any foreseeable attempt to estimate the magnitudes of future events. Once disasters happen, they occupy our minds and thoughts for days, months and years afterwards. They remain there as immutable, unbreakable things, reminding us of former modes of existence that we can no longer recover. All the things we lost. All the victims who perished.

This temporal tension that originates with disasters will be the starting point for my theoretical approach, which I conceptualise in the next section under the notion of temporising assemblages. Based on this concept, I argue that disasters make us think of time because they produce it.

Assembling disasters

Tensions shaping the ambivalent linkage between disasters and time seem to originate from a still-ongoing debate in the field of risk and disaster studies. In their

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already classical definition, disasters have been commonly conceived as events and/or processes (Oliver-Smith and Hoffman 2002) leading to the dysfunction of networked systems (Fortun et al. 2016). As events, they are portrayed as eruptive situations *taking* – or disruptively occupying – place in a specific moment. As processes, moreover, they are commonly defined as the accumulation of environmental and societal tensions during a particular period. The first definition places the occurrence of a triggering event – the hazard – as the primary explanation and cause for disruption, whereas process-based approaches to disasters have focused on the levels of vulnerability that exposed populations can show, emphasising the 'unnatural' and rather socio-political nature of disasters triggered by events such as earthquakes or floods.

Despite how influential event- and process-based approaches, commonly defined as the hazard and vulnerability paradigms (Gaillard and Mercer 2013), have been in developing a rich field of disaster and risk studies, both positions present limitations. Hazardist approaches, such as those promoted by positivist, technocratic positions, run the risk of 'naturalising' disasters (Guggenheim 2014) as objective events that can be avoided, prevented or coped with; situations that take place 'outside' the norm and, thus, external to society. An uncritical approach to disasters obscures the inherently social nature of catastrophes, placing excessive attention on the strategies that can be followed to avoid external forces impacting exposed areas. The focus here is on exposition, rather than the underlying conditions or internal configurations that produce it.

Critical perspectives emerging from the vulnerability paradigm, moreover, risk neglecting the material conditions of disasters when considering them as simple analytical or rhetorical devices. Scholars have increasingly come to emphasise the discursive condition of the notion of disaster, sometimes even neglecting that such a concept has a real material counterpart. 'There are floods and earthquakes, wars and famines, engineering failures and economic collapses, but to describe any of these things as a disaster represents an act of interpretation', suggest Andy Howoritz and Jacob Remes (2021, 1). The idea behind this argument is that notions of disaster would not comprise first-order observations but rather distinctions, forms of classifying reality following a concrete political purpose (Bond 2013; Fortun et al. 2016). Arguments around this idea are certainly justified. Authors have argued against the openly colonialist ethos behind the modern notion of disaster, founded on an explicit and artificial society–nature division (Gaillard 2021). It is a categorical distinction that evidences how our 'epistemological approaches reflect the hegemony of Western, Eurocentric discourses on disaster. So hegemonic that they have become common sense' (Gaillard 2022, 14). Thus, the argument at hand is that disasters are, after all, simple analytical conceits, 'interpretive fictions' (Hagen and Elliott 2021) with a concrete history and genealogy, and that their implementation obeys specific

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political agendas ranging from militarism (Davis 2007; Masco 2014; Orsini 2022) to neoliberal shock doctrines (Klein 2008).

It is clear that any of these critical positions aim to relativise the consequences of disaster-alike contexts. They are not putting into question the pain and suffering of victims or neglecting the practices articulated around the concept. As Horowitz and Remes (2021, 4) suggest, 'we do not claim that how disaster is constructed or defined does not matter. On the contrary. The consequences of "disaster" as a belief are made real in the distribution of sympathy, material resources, and state power'. However, there is a clear analytical risk when proposing that disasters are conceits or beliefs, simple products of colonial history; and, as such, a concept that we could – or should – ultimately get rid of. Giving up on the notion of disaster and its real, ontological existence is to relinquish the analysis of how such a fundamental concept is enacted and articulated in practice; how the existential threat it aims to portray is embodied in institutions and risk plans but also in survivors and the exposed population. Disaster can be a concept, but its ontological condition transcends the combination of letters the words offer. Moreover, statements aiming to denaturalise disasters, emphasising the societal conditions creating them, can lead to another big question: 'If disasters in X location are not natural, then what are they?' (McGowran and Donovan 2021, 4).

Recognising the tension between the material and semiotic nature of disasters opens up an interesting perspective by which to explore not only how disasters as a concept are constructed – or, in its other variant, how disasters as external forces affect a pre-established social regime – but mostly how they lead to (re)configuring the social. Here, the notion of assemblage, specially referred to its urban application (Amin and Thrift 2002; Farías and Bender 2009; Farías 2011a; McFarlane 2011), becomes particularly helpful in exploring the mutual influence that disasters have on the configuration of settlements such as cities, and the ways in which cities also shape and reshape our understandings of disasters. Conceived as the meshwork of multiple and heterogeneous urban projects (Farías and Blok 2016), cities as assemblages emphasise the open-ended entanglements among materials, relations, knowledges and engagements configuring urban articulations. It includes large-scale geological and climatic forces within extensive urban assemblages as elements that facilitate – and restrict – their constant expansions and transformations. Disasters, from this perspective, operate as concrete arrangements within the vast entanglement of versions composing the urban as a project, emphasising the permanent processes of destruction and reconstruction that urban environments experience throughout their history. As Elizabeth Angell (2014, 676–77) suggests, 'cities are always falling apart, burning down, flooding, crumbling; they must be continually shored up, repaired, stabilised, renewed. It is partly through the material politics of such processes that the city is assembled anew'. As disruptions, disasters are part, not an exception to, the urban composition – 'an actualisation of one of many pos-

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sible futures of an assemblage of expressive and material components' (McGowran and Donovan 2021, 8). And a very important one.

As assemblages, disaster reveals both the actual conditions leading to a specific disruption – the here-and-now at a given spatiotemporal scale – and the enunciations making sense of that disorder and extrapolating it to future scenarios of political control and management. This distinction between the material and expressive nature of disasters strongly resonates with what Gilles Deleuze and Felix Guattari (1987) differentiate between machinic and enunciative assemblages – not as ideal types but as elements composing them. For the authors, the machinic assemblage denotes the actual conditions of a socio-material arrangement. It refers to the mechanical entanglement 'of bodies, of actions and passions, an intermingling of bodies reacting to one another' (Deleuze and Guattari 1987, 88). Enunciative assemblages, moreover, are defined as diagrams: a set of relations defining and structuring the space of possibilities of an assemblage – i.e., 'incorporeal transformations attributed to bodies' (Deleuze and Guattari 1987, 88). Both machinic and enunciative roles respond to two different limits of assemblages: 'The system of strata and the plane of consistency' (Deleuze and Guattari 1987, 337). Enunciative diagrams control their machinic counterparts; societal control and order could not occur without them. But such a diagrammatic – or cartographic – effort requires a socio-material counterpart – its strata – to operate. Without it, concepts like disaster are simple empty formulations.

This equation between mechanical and enunciative operations ultimately allows disasters to be actual stages and interpretations. As events and processes operating simultaneously, disasters can be described as becoming: an event in-the-making that leads to processes of identity destabilisation and (re)stabilisation – known by Deleuze and Guattari as de- and re-territorialisation (DeLanda 2006, 12). As soon as disaster risk is named and defined, it is turned into a diagram, a virtual possibility. As soon as it is accepted – i.e. observed or determined – as such, it is turned into a machine, an actual singularity. In other words, what the distinction between the machinic and the enunciation allows is to set the analytical and normative nature of disasters: what disasters (apparently) *are* – based on the socio-material arrangements leading to a specific situation to be considered disastrous; and what disasters potentially *could* or *should* be – based on the tacit impulses of political control aiming to turn disasters into a source of progress, crisis normalisation or stagnation.

Considering disasters as assemblages – an event in-the-making – leaves, however, a central question unresolved: How to deal with time and the temporalities making sense of it in the first place? Mostly, what role do disasters play in understanding time as an ontological dimension and a historical event? Disasters, as Cécile Stehrenberger and I suggest elsewhere (Usón and Stehrenberger 2021; 2025), are temporising arrangements that help us configure what we understand by events and processes across time. Time, based on an assemblage perspective, is neither a pri-

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mary phenomenon, a given abstract dimension nor a measuring unit. It is instead an emergent property of assemblages produced by their shifting and changing nature (Crellin 2020) – the consequence of the re-alignment between entities and the displacements that those alignments elicit. Whether as a lived experience or as a measurement of instruments like clocks and calendars, 'bodies that have the strange peculiarity of remaining fixed through motion' (Latour 1997, 180), time as difference enables us to reflect on the entanglements that diverse materialities and practices marking the passing of time may elicit. Disasters, from this perspective, are moments in which time emerges as a property and category, an intrinsic component of their operations that, at the same time, allows us to make sense of the massiveness that disasters entail. In line with their machinic condition, disasters are arranged in time, massive arrangements situated within the flows of history, following their mechanical condition of complex entanglements. But they are also temporising devices, something that we invoke to make sense of their consequences: the lost past; the frustrated future; the temporal suspensions; waiting and accelerations.

As temporal articulations, disasters are semiotic and material arrangements (Law 2008) that, albeit chaotic, lead to certain forms of order. The idea that disasters are not only an anti-stage but arrangements that participate in the constant reassembling of the cosmos – whether in its urban (Angell 2014) or other versions – is strongly supported by the assemblage thinking promoted from diverse disciplines and perspectives related to this field of study (Donovan 2017; McGowran and Donovan 2021). As assemblages, disasters are conceived as one among many cosmopolitical arrangements (Latour 2004; Stengers 2010) – a politics of world-making that does not just challenge the idea of a common world of value orientations but also the idea of a common natural physical world. This perspective defines politics as an always precarious, incomplete and conflictive process of bringing together, arranging and articulating entities and relations in common worlds of cohabitation (Farías and Blok 2016). When conceived as assemblages, disasters are a form of collective social experience by which the agency of the material world gains a particular relevance – 'for it is especially "when things strike back" (Latour 2000) that we are abruptly confronted by the force of those things … as active participants in the making and the unmaking of social worlds' (Angell 2014, 668). The disruption that accompanies a collapsing material world allows us to reflect more than ever on how politics is not only about discourses but mainly concerns the complex entanglement sustaining those material orders. It is in the collapse of those arrangements that new versions of the world emerge – an interregnum that, paraphrasing Antonio Gramsci, can also be the time for 'new monsters' to appear.

Whether as ruptures or exaggerated continuations of the normal, 'the disaster itself is noteworthy for its capacity to produce a particular kind of politics', affirms Michael Guggenheim (2014, 6). In tune with this argument, I suggest that one of the pivotal forms of political arrangements that disaster arouses is that related to

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the temporal ordering of the world. The machinic and enunciative characteristic of disasters positions them as temporal singularities located in and for time, but also temporising agents producing those times. However, the types of temporal configurations that disasters entail are strongly defined by the component and relations making sense of disasters in the first place. Dealing with disasters as temporising assemblages is mostly a methodological and analytical tool that enables us to explore in better ways places where disaster – as a state and concept, as a material arrangement but also as a semiotic construct – fulfils a pivotal role in the articulation of societies across time. Thus, if previous works have expended effort in thinking through the Anthropocene (Clark and Szerszynski 2020) and like a climate (Knox 2020) to explore how we can revise the ways in which we reconceive the social amid planetary change, this book is an invitation to explore how can we think with and through disasters over and about time; how such an elusive concept allows us to think about the ways the world is recomposed in multiple levels; and who is considered as a legitimate actor for those recompositions.

A cracked Andean region

Disasters have marked the past, present and future of the Callejón de Huaylas in multiple and heterogenous forms. The extreme events that the region has endured have produced a profound sense of permanent disruption that its inhabitants have experienced over generations.

Callejón de Huaylas is characterised by its rugged, mountainous landscape and idyllic beauty. Cordillera Blanca's astonishing *nevados* (*rajus* in Quechua: snowed peaks), attract thousands of tourists annually – mainly during the dry season between May and October. The Huascarán, Peru's highest mountain with almost 7,000 metres above sea level, has been a key destination for mountaineers and scientists from all over the world since the first Andinist expeditions at the beginning of the twentieth century (Carey 2012; Carey, Jackson, et al. 2016). Exploratory missions over the Cordillera's main peaks gave Ancash a world-renowned reputation, turning the Cordillera Blanca into 'the country's leading site for mountaineering, a playground for European and North American climbers' (Carey 2012, 109) in the following decades. Its exceptional scenery, unique mountain ecosystems and massive ice bodies led the Peruvian government to declare the Cordillera Blanca one of Peru's first protected areas, creating the Huascarán National Park in 1975. Representing almost two-thirds of the Callejón's de Huaylas extension, since its creation the park has sought to balance natural conservation with local production and rural development (Barker 1980).

Despite its astonishing beauty, the Cordillera Blanca' geomorphology is also the region's main threat. Callejón de Huaylas' irregular topography makes the region

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highly exposed to extreme events, including flooding, landslides and avalanches. The most lethal of these hazards have been GLOFs, a phenomenon directly related to the dramatic consequences of climate change in the region over the last century. Studies have shown that the glacial area of the Cordillera Blanca has shrunk by nearly 40 per cent in the past 60 years (INAIGEM 2018) – an accelerating trend in tune with the massive glacial loss that the country has experienced in recent decades (UGRH 2014). Besides the expected critical consequences for water storage (Baraer et al. 2012), glacial retreat has also led to the formation of hundreds of mountain lakes over the glacial beds, in many cases sustained by unstable moraines left by the same glaciers feeding these new water bodies. The combination of large volumes of water accumulated over the years and a weak morainic dam can lead to catastrophic flooding, triggered by calving – in which large pieces of ice or debris break into the water, producing massive waves that can lead to the collapse and further outburst of the lake (Emmer and Vilímek 2014).

Glacial-based events, which include GLOFs and avalanches, have occurred several times in the Cordillera Blanca with severe consequences. According to Mark Carey (2010), at least 30 extreme events have been recorded in the region's history. The list includes a GLOF that impacted and buried a considerable part of Huaraz in 1941, and an avalanche from Huascarán, triggered by the 1970 earthquake, that buried cities such as Yungay. Nowadays, 40 lakes located in the Cordillera Blanca have been identified as susceptible to possible outburst floods (Emmer et al. 2016), including Lake Palcacocha and Lake 513 that could overflow onto the cities of Huaraz and Carhuaz respectively, putting at high-risk the inhabitants of several towns and villages, together with livelihoods and infrastructure. Outburst floods and avalanches are expected to increase as glaciers keep retreating, and more than 200 sites with overdeepened glacier beds have been identified, where new lakes could form (Colonia et al. 2017).

The consequences of these extreme events have marked Ancash as a catastrophic region, defining perceptions of the region throughout Peru. Added to the several thousand victims of GLOFs (Carey 2010) are the nearly 70,000 deaths and almost a million victims of the 1970 earthquake and avalanche – numbers that are constantly repeated among *Ancashinos* and people from other regions. *El terremoto de Ancash* (Ancash's earthquake) is a moment that marked a before and after in the country's history – especially for developing a robust nationwide system for disaster risk reduction and preparedness. It is an event taught in history classes at schools, and its anniversary on 31 May is commemorated as Peru's Disaster Prevention Day – with a minute's silence observed in memory of the victims, and earthquake drills taking place nationwide. As in any other cases of massive violence and tragedy, such as instances of genocide and human rights' violations (Bernasconi et al. 2022), numbers operate as a seductive means of mobilising public concern around this event. I found myself several times giving estimates of the 1970 victims as a form of quantifying

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the magnitude of the disasters in the region – and hence justifying the relevance of my research. It is a strange way of honouring those lost lives – with numbers, functioning paradoxically as something 'necessary and complicated, reparative and dehumanizing' (Nelson 2015; in Bernasconi et al. 2022, 3). But it is also a form of developing what Sharon Macdonald (2013, 40) defines as 'number sickness' – magnitudes that can produce a dizzying effect while validating suffering only because of its superlativeness.

The destruction caused by these events has left deep feelings of loss and dispossession among the region's population, driven not only by the loss of homes and human lives but also due to subsequent radical transformation fostered by diverse political reforms. Both the 1941 flood over Huaraz and the 1970 earthquake were moments that led to deep urban and institutional changes aiming to modify the relationship of Ancash's Andean cities with geological and climatic forces. They were also conceived as perfect moments to instigate radical transformation of the old Andean order. Particularly relevant in this regard were the reforms pushed forward after the earthquake in 1970 by the revolutionary government of Juan Velasco Alvarado, a left-wing military regime that aimed to radically transform Peruvian society by eliminating social injustice and redistributing wealth. Velasco Alvarado's regime saw the disaster as the perfect scenario through which to implement an ambitious recovery plan seeking to make Ancash a model region for the whole country. Policies included the modernisation of main urban settlements and the redistribution of urban lands that, at hand with an ambitious agrarian reform, aimed to provide marginalised groups, including *indígenas* and *campesinos*, with land titles to halt centuries of exclusion and precarity.

The radical transformations brought about by both extreme events and Velasco Alvarado's reformist efforts led to the emergence of new urban realities that challenged the rigid urban–rural divide that was established by the colonial project and rooted in a territorial system of racialisation and exclusion. The dramatic consequences of the earthquake, combined with the promises of building a new society from the ruins it left behind, triggered an important migration movement of people from rural areas willing to rebuild their lives in the cities. Nowadays, almost 50 per cent of the population in cities like Huaraz self-identify as Quechua[1] – compared to 40 per cent that consider themselves *mestiza* and only three per cent white (Branca and Haller 2021). These transformations, however, were highly contested by urban residents, who saw in the changes of the old colonial cities a dramatic loss of their

1 In the strict sense, Quechua is not an ethnic group in Peru but a language family, one of the most widespread throughout the Andes and South America. Quechua presents significant differences across its areas of influence, with diverse regional variations. In Ancash, specifically in the Callejón de Huaylas, the spoken variety is Ancashino or Huaylas Quechua, which belongs to the Central Quechua family.

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traditions and heritage. The Quechua population is still considered as outsiders, a foreign group that arrived only after 1970 and changed the city's identity forever. Migrants of rural origin, together with groups that arrived from other parts of the country, are considered responsible for the new urban constructions of concrete and brick that end the traditional order rooted in centuries of colonial rule. These new urban inhabitants will inaugurate, under the eyes of old residents of cities like Huaraz, what we at the beginning presented as *la ciudad cosmopolita*: urban settlements comprised of migratory groups that came after the event, and employed a multitude of construction materials and architectonical techniques.

Besides urban transformations, many scientific studies and engineering works have been conducted to evaluate and reduce the risk of glacial events in the region in recent decades. The combined efforts of scientists, engineers and mountaineers, together with the creation of state offices and corporations, have led to the development of diverse projects to mitigate the possible consequences of outburst floods from unstable lakes, including dams, flood barriers and drainage systems (Carey 2010). Moreover, different types of devices have been placed close to the sources of danger to assess anomalous events at glacial lakes. Instruments such as early warning systems, meteorological stations, video cameras and communication systems have been installed to warn of extreme events and give downstream populations enough sufficient time to evacuate exposed areas. As we will see in this book, the politics and programmes developed as a consequence of these events will have significant resonance for the creation of Peru's current disaster risk reduction system, and international significance on many levels. Research conducted in the Andean region, which has experienced disasters throughout its history, has led the development of direct interventions for emergency response worldwide, and theoretical approaches to studying disasters that remain relevant today.

Despite their relevance for preparedness plans amid outburst floods, technological devices have also been a source of disputes and controversies. The destruction of the early warning system installed close to Lake 513, a lake so newly formed that its only name references the number of the melting glacier that feeds it, is not an isolated event. Over the decades, local communities from the upper lands of the Callejón de Huaylas have attacked and destroyed scientific equipment in different areas and installed for diverse purposes, including meteorological monitoring and risk assessment. Groups of inhabitants from the highlands have even intercepted and expelled scientific excursions working in the Cordillera Blanca while accusing them of being behind the installation of those instruments. As we will see in Chapter Five, there are various reasons behind these attacks, including allegations that some devices were blocking the rain, but also associating instruments with unwelcome mining projects seeking to explore and exploit new deposits close to highland villages. Others have linked the assaults to efforts by local leaders to position themselves within their communities by creating a common narrative against an exter-

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nal enemy. Irrespective of their motives, all these stories have ultimately reinforced a division shaping the social configuration of regions like the Callejón de Huaylas: a rural Quechua population living in the highlands, repeatedly accused of being uneducated and driven by superstitions and primitive beliefs, versus an urban *mestiza* population from the lowlands, associated with a modern, civilising project.

Extreme geoclimatic events and the conflictive relationship between the highlands and lowlands are processes that have brought changes not only in the composition of groups inhabiting those lands but also entirely new forms of relationship with the territory. As Mathias Rasmussen (2015) suggests, previous relations with earth entities such as mountains and lakes, fundamental for the cosmopolitical arrangements in the Andes, will slowly be replaced by government territorial structures and resource management entities, 'a complex institutional and bureaucratic reality in which *comuneros* must navigate' (Rasmussen et al. 2019, 6). But instead of eliminating the historical categories that shaped the relationship between highland inhabitants and the lowland population, those transformations came, as we will see, to reinforce them by installing the idea of a social group incapable – and unwilling – to deal appropriately with those political changes.

Encountering difference: tinku of figurations

As with any other region shaped by colonialism, the history of the Callejón de Huaylas is one of encounters and conflicts. It is a history marked by violent clashes, exclusion and discrimination – by dispossession, forced religious conversion and genocide. The region's past entails stories of struggles between social groups that, with the passing of time, create new forms of distinctions – new figurations – while retaining the old ones as sediment accumulating over the years, like the debris dragged by floods over the Andean valleys across time. The dramatic encounters experienced in the region – both extreme geological and climatic forces erasing entire villages, as well as the instauration of colonial rule over native lands – will also be followed by other forms of synergies, tensions, discrepancies and resistances. The reconstruction of cities after extreme events will be the scent of strong disputes between progressist governments aiming to push forward modernisation plans, and a local urban population opposing what is conceived as the cosmopolitan impulse – the opening of the old colonial cities to foreign migratory groups. Strategies for anticipating the possible consequences of climate change in the region will also be contested by local inhabitants who view the installation of foreign infrastructure as a direct threat to their environments. The notions of progress and tradition, modernisation and preservation, change and continuity will be constant sources of tension in these encounters.

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The encounter as a historical moment has certainly shaped the identity of Peru as a nation – the encounter of worlds, traditions and cultures. It is an attitude towards history that, although problematic due to the inextricable essentialisation it commonly creates, has been pivotal for the articulation of a national identity based on a hybrid synthesis – 'a plain result of the biological or cultural "mixture" of two (formerly discrete) entities' (De la Cadena 2005, 262): the *indio* and the *criollo*. Whereas in some cases the expression of these encounters has been related to a syncretic harmony, embodied ultimately in the figure of the *mestizo*, authors such as Antonio Cornejo Polar (2003, 89) instead suggest that these encounters have inaugurated a transcultural existence based on precarity and exclusion – a 'forced, difficult, painful and traumatic cohabitation'. This view of the encounter as a moment that highlights the conflict – rather than the union – relates to what Mary Louise Pratt (1991, 34) defines as contact zones: 'Social spaces where cultures meet, clash, and grapple with each other, often in contexts of highly asymmetrical relations of power, such as colonialism, slavery, or their aftermaths'. Encounters as contact zones are, in the words of Anna Tsing (2004, 4), forms of friction: 'The awkward, unequal, unstable, and creative qualities of interconnection across difference'. They are moments of strict domination, but from where new political arrangements emerge – sometimes as a form of subordinated resistance against the dominant culture.

The disputes between the different groups in the Callejón de Huaylas, which have shaped efforts to manage and reduce the risk of outburst floods in the region for decades, exemplify the diverse figures endowing the stories behind disasters, as moments of encounters, with historical thickness. An exploration of the ecologies shaping the semiotic and material composition of disasters in relation to time, in this sense, necessarily requires analysing those figurational practices behind the efforts of disaster recovery and risk management in the region – the notions of lowlands, highlands, of *mestizo*, *criollo*, *indio* and *campesino*, to name a few. A historical approach to the entanglements of time and disasters, in this sense, invites exploration of how these figures have come to characterise the local constructions and expressions of the disaster; how the disaster, as a semiotic-material arrangement, is also *configured* by figurations: practices that, by giving form to certain figures, sketch the contours of society. The figures emerging from such exercises may convene but also divide: figures of victims and heroes, as we will see in Chapter One, together with the figures of an urban population feeling itself *invaded* by a rural mass.

Calling upon the history of concepts, categories and figures around disasters through specific places and objects, this book explores the actual condition of historical figurations (Haraway 2018): how current circumstances can be explained by the histories and futures they contain. Following Anna Tsing's (2010) suggestion, it is an effort to incorporate both the figurations that the ecologies of practices and materialities enact around disaster temporalities – in line with the Latourian project of actor-networks – but also the incommensurable worlds in their past and future ver-

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sions in which those figurations take part – in tune with Marilyn Strathern's anthropology of juxtapositions. In the words of Tsing (2010, 20), 'we cannot understand the figurations of our actors without engaging with parts and wholes. Even where they do not include each other as significant figures, the worlds they spin are revealing for what they leave out'. Juxtaposing wholes and parts, thus, enables us to explore the connections – 'the proximities in space and time' (Strathern 2005, 54) – between the heterogeneous pasts and futures to be found in El Callejón; the continuities that the figurations present as well as the ruptures they portray.

Here, I return to the story that operates as a starting point for this work: the destruction of the early warning system installed close to Lake 513. Rather than a simple anecdote, this initial conflict offers a methodological opportunity to inquire into the controversies emerging from the history of disasters and risk management in the region. It is an encounter between positions that unveils – or better articulates – differences with a historical thickness and based on figurational practices configuring past and future. As a controversy, the destruction of the early warning system can problematise objectual, epistemic and institutional arrangements, making visible the vast network of materialities and practices that configure what is assumed as normal and what is not (Tironi 2014). It is a moment where, paraphrasing Rebecca Jarman (2023b), the dominance of a single, universalising explanation of the problem is refuted, opening the floor for an ontological dispute that, eventually, can lead to new forms of negotiation and diplomacy (Latour 2004).

Although the destruction of the early warning system is indeed a central ethnographic moment through which to study controversies around past and future disasters, during my fieldwork I also came across many other situations in which those historical tensions emerge. Places and things enabling encounters where past and future disasters were evoked with their enunciative power, but also cases where the material consequences of past events were dramatically exposed. Inspired by that first conflictive encounter revealed by the destruction of the early warning system, I came to depict other moments in which disasters emerge as a matter of temporal concern but eliciting different sorts of cosmopolitical disputes: the encounter of historical figures shaping the practices of memory around the 1970 earthquake and avalanche; a memorial built over the buried city of Yungay to commemorate its victims while excluding other *unwelcome* actors; an archaeological site in Huaraz and the citizen efforts to protect it against foreign invaders; the construction materials constituting cities in the Callejón, and the changes and endurances they elicit; and the protection against flooding provided by other types of entities, including guardian crosses located over the Cordillera Blanca's heights. All these things and places operate as controversial gatherings at which historical figurations emerge, where memory is produced, contained and protected, but also devices used to face an uncertain future. Situations in which heterogeneous positions about the fate of the Callejón clash. Arrangements that produce certain forms of temporal stages,

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defining who can join those different versions of past and future and who cannot. By analysing all these places and devices, in this book I inquire into the controversies that different versions of the past and future can elucidate in concrete situations when facing the dramatic consequences of disasters over time.

Interestingly, there is a very accurate concept in Quechua to define what I am trying to express here – that 'violent harmony' (Stobart 2006) characterising the rugged encounters shaping the Andean worlds: the notion of *tinkuy*, roughly translated as 'to encounter in the difference'. A *tinku* (as a noun) can refer to festive fights and choreopolitical dances (Stobart 2006; Van Vleet 2010; Cortés Rojas 2019) but also to concrete encounters, applied nowadays as a synonym for gathering. In some regions, the concept is used to name meetings between children with different cultural backgrounds – a space that embraces cultural exchanges in a country with extremely diverse traditions (Valiente Catter 2016). According to Catherine Allen (2002), it can also refer to concrete things and sites, such as places where roads join or where rivers converge into a single, larger stream. '*Tinku*s are powerful, dangerous places full of liberated and uncontrollable forces, … where antagonists meet in a violent union', argues the author (Allen 2002, 176). Due to its particular meaning, it is a concept that eludes precise translation. Allen suggests that *tinkuy* can be associated with the notion of dialectic; however, she immediately affirms that this concept is far too abstract. More than a form of reasoning, *tinkuy* refers to the concrete act of gathering in the difference, and *tinku* to a specific place or thing resulting from that encounter.

The interesting characteristic of *tinkuy* is that these encounters are not only spatial but also temporal. The semiotic and material articulations to be found in the gatherings of *tinkus* enables exploring how the encounter of heterogeneous world productions – or *worlding*, as different authors have defined the process of making and claiming our modes of existence (Haraway 2007; Tsing 2010; De la Cadena 2015) – are also moments of temporal configuration. The destruction of the early warning system, as we will see later, shows us how explanations of that moment are sustained through practices of figuration sedimented in time – the figure of barbaric *campesinos*, elsewhere *indios*, from the highlands putting at risk the safety of urban residents (once the Spanish settlers) in the lowlands. It also involves the threatening figure of *gringos*, the mining industry and the environmental destruction of extractivism that emerges as a response to foreign devices putting mountain territories at risk. This configuration of the *tinku* as a place of conflictive encounters shows how 'the practice of creating relations of life in a place and the place itself' (De la Cadena 2015, 291) is not only a spatial endeavour but also highly temporal. Emphasis is placed on those past and future worlds destroyed, endured and threatened by disasters that we come to locate and inhabit – sometimes in peaceful terms, sometimes in conflictive ways.

Understanding past, present and future sheds light on how *tinkuy*, the act of gathering in places and things where difference prevails, are moments of tempo-

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ral convergence that allow making sense of time in the first place. Memorials and archaeological sites, specific devices such as the early warning system close to lakes, and building materials – all of them operate as things through which temporal constructions emerge in conflictive but also complementary ways. They are situations of temporal encounters in the difference, cosmopolitical moments in which different forms of inhabiting time coexist.

An ethnography of temporal ecologies

By considering the cracked condition of the Callejón de Huaylas, in its geoclimatic and historically figurative sense, this work explores how disasters, as assemblages, produce different forms of time – times of disruptions, suffering, recovery and planning; times that are suspended but also accelerated. It is a work about the temporising capacity of disasters as past disruptions and future threats – the temporal realities that disasters as mechanic and enunciative arrangements elicit.

In order to make sense of those times from a historical point of view, a study of the figurational practices around disasters is also required. By analysing the figurations around disasters and the ecologies of practices and materialities sustaining them, this book aims to explore how people in the Callejón de Huaylas position themselves in those times that disasters inaugurate, and the concrete forms – or figures – those historical positionalities create. To do so, it takes into consideration specific places and things through which encounters in difference are enacted, which we previously defined as *tinkuy*. By exploring those places and things eliciting controversies, my work explores how historical figures around disasters, rather than essential categories based on biological or cultural characteristics, are enacted by the same conflictive encounters from which they emerge.

Assemblages and figurations operate, under these terms, as complementary analytical concepts – similar to the notions of the actual and virtual (Bergson 1911; Deleuze 1990). The semiotic-material condition of assemblages provides a concrete realm in which figurations are enacted. The virtual condition of figurations, moreover, grants assemblages with the historical thickness – and, thus, the ideal representations that figurations offer. The continuum that those virtual images create is, in the words of Elizabeth Grosz (1994, 167), the strata that provide forms of organising the hierarchical divisions that we find in regions like the Callejón de Huaylas – lowlands and highlands, *indios* and *criollos*, modernity and tradition. Figurations help us to explore the relations of people in the Callejón historically with the times that disasters inaugurate – 'historically, that is, moving across several times at once, putting into play the present and the past, or rather pasts in the plural, however far apart they may be in space and time' (Hartog 2015, 16). In combination, assemblage and figuration allow us to explore the temporal configurations that the

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material irruption of disasters elicit and the historical sense that those disastrous arrangements arouse.

In order to explore the entangled ways in which assemblages and figurations operate, this book offers an ethnographic work on the temporal ecologies shaping disasters in the Peruvian Andes. Similar to what other scholars have defined as timescapes (Adam 1998; Bear 2016; Lord et al. 2020), geographies of temporality (May and Thrift 2001) or temporal regimes (Torres 2021), temporal ecologies as an analytical concept aims to reflect on the praxis-oriented condition of time[2]. It draws attention to the delicate balance (or lack of it) of language, practices and materialities across communities and organisations (Bateson 1978; Star and Ruhleder 1996, 117). Rather than falling into the common dichotomy of time as a physical, objective dimension (something we are 'immersed in') or a subjective experience (something we 'live on'), the notion of temporal ecologies calls upon Latour's (1997, 173) understanding of time as a reflexive difference 'rooted in a long material and technical practice of record-keeping'. Temporal ecologies, in this sense, aim to emphasise that, when building past, present and future, we are not only thinking them upon – but also placing and inhabiting them in – diverse forms and with different purposes. Exploring those heterogeneous forms of cohabiting temporal stages amid disasters, and the figurations those cohabitations generate, is a crucial goal of this book.

My approach follows the tradition of ethnographic accounts in the Andes exploring moments of encounters – the *tinku*, where difference gathers. Yet, my interest in the idea of the encounter refers more to an 'epistemic gesture' (Ballestero 2019, xiii) than a moment when biological and cultural distinctions between social groups are replicated and essentialised. My interest here is concerned less with the *contact* and more with the *zone;* focused less on the apparently inextricable worlds that gather and more on the place or thing propitiating that encounter. This distinction, which might seem trivial, marks my differentiation from previous works dealing with the idea of encounter – whether as a syncretic harmony or a conflictive cohabitation –

2 The advantage of an ecological understanding of worldly temporal arrangements over notions of landscape or geographies of temporalities, I would suggest, is its capacity to take some distance from an all-too spatial metaphor of temporal relations. The idea of landscape (Ingold 1993; Hirsch and O'Hanlon 1995) and its derivatives – including timescapes, but also waterscapes (Swyngedouw 1999; Sultana 2013), hydroscapes (Nüsser 2013; Lord 2014) and memoryscapes (Edensor 1997; Butler 2007; Ullberg 2013), to name a few – presents a common dilemma: they are still subordinated to a spatial distribution of their elements. Even in its temporal application, the 'scape refers to the spatial arrangement of objects in time. When dealing with temporal ecologies, we are not referring to the position of objects but their copresence and coexistence – their relations and consequences for articulating specific world projects.

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and the problematic forms of time created by the anthropological endeavour studying those divisions[3]. What I seek here is to explore the concrete materialities, practices and relationships making possible the idea of encounter in the first place. I am interested in analysing how concrete settings or things can lead to articulating figures that gather in peaceful or conflictive ways. With this methodological orientation, I hope to explore how the apparently indissoluble divisions that categories such as highlands and lowlands, rural and urban, indigenous and *criollo* are historically configured and entangled. I am less interested in dealing with those categories as essential differences, and more as historically condensed arrangements that, although virtual, have strong repercussions for the articulation of reality.

Combining figurational and assemblage approaches to disasters and time, I must admit, has not been an easy task. At times, the emphasis falls more on the material arrangements of disasters and their temporalities; at others, it leans more towards figuration as an immanent practice of historical sense-making; and occasionally, there is a more balanced consideration of both. These uneven emphases may reflect the disparate fields of research in which this work is situated – particularly, new materialist approaches (in connection with assemblage thinking) and historical approaches to disasters (in relation to figuration theory), all intersected by decolonial and feminist-oriented perspectives as key sources of inspiration. While I have attempted, as a *tinku* in itself, to bring these perspectives together as evenly as possible, opening a dialogue between these traditions has been a significant challenge. This may have resulted in varying weights given to each perspective at different points within the book. Far from being a limitation, I view these imbalances as resonant with the very nature of this work and its structure: an open exploration of a myriad of entities, devices, figures, materialities and the encounters they generate around disasters and time.

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This book is the result of an ethnographic research process in the Callejón de Huaylas that started with the beginning of my PhD research in 2018. The most important fieldworks for this work were conducted between November 2019 and March 2020 –

3 As Johannes Fabian (1983) notably argues, anthropology as a discipline has been an active field in creating borders, positions and cultural differences between societal groups. Time, the author affirms, has been used as an active distancing device to pursue a denial of coevalness: 'A persistent a systematic tendency to place the referent(s) of anthropology in a Time other than the present of the producer of anthropological discourse' (Fabian 1983, 31). The discipline's evolutionist past strongly influenced the creation of labels used to describe the Other, including mythical, ritual and tribal, which only served to create a temporal distance with its 'archaic' subjects of study.

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interrupted by the COVID-19 outbreak in Latin America – and during 2022 after the lifting of travel restrictions to Peru. It is based on the combination of interviews and life stories, participant observation and the exploration of material traces. It also considers the analysis of diverse documents, including books, reports, master plans, newspapers, pictures and a vast set of alternative sources – at least for the official history – such as popular stories and legends, poems, chronicles and songs. Building on these heterogeneous sources, this work analyses how different voices, strategies and materialities articulate moments when disruptive events reshaped the history of the Callejón de Huaylas. Moreover, it also explores the diverse arrangements considered in order to cope with the uncertainties of the future and the conflicts that those past and future constructions may elicit.

By considering these heterogeneous sources for time exploration, my research deals with three main urban clusters and their areas of influence: Huaraz and its connection with the Palcacocha Lake; Yungay and all the interior valleys connecting with the Huascarán mountain; and Carhuaz and the villages located throughout the area influenced by Lake 513. Concretely, the book examines in depth three main events within these zones. First, I explore the history of the glacial lake outburst from Lake Palcacocha that destroyed an important part of Huaraz in 1941. Secondly, I analyse the consequences of the 1970 earthquake throughout the Callejón de Huaylas, and the resulting massive avalanche on the Huascarán Mountain that buried entire villages and cities of Yungay Province along its path. Finally, I deal with another GLOF from Lake 513 that headed close to the city of Carhuaz and its surroundings in 2010. Although this event did not represent a substantial threat to the region and its population, it triggered a series of political reforms fundamental to flood risk management in Ancash. These events, as we will see through the course of the book, have aroused diverse strategies to preserve public memory of the deceased while defining who has the right to be remembered as a victim of this catastrophe and who does not. Furthermore, these moments will bring massive transformations for these areas and the articulation of new forms of urbanism while reinforcing the presence of figurations that have shaped the Callejón de Huaylas and its history.

Setting a case study based on different moments in time defies the temporal stability that is implicitly assumed by spatial limitations around the field. When approaching cities of the Callejón de Huaylas over the decades, we are not dealing with the same places in different stages but instead changing versions with autonomous, yet interconnected, existences. Thus, rather than a strict analysis of the spatial cohesion and interactions between those three regions, in tune with what we could consider a multi-sited approach (Marcus 1995), the definition of my case study speaks more about the delimitation of several moments in and for time. It is an exploration of what remains when we talk about places over time, what is held in those places – especially under drastic moments of disruption that disasters entail. In tune with what Sharon Macdonald (2013, 52) defines as a multi-temporal approach – an in-

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quiry into the multiple ways in which 'people variously experience, understand and produce the past [and future] in the present' – I consider this work a study about different times shaped by disastrous moments, together with the figurations that those moments elicit.

The book is divided into three main sections of two chapters each, exploring concrete places and devices where forms of encounter emerge from the entanglements of disasters and times. Rather than following a strictly chronological account of the three main events in the Callejón, or having those events as the central topic of the different chapters, I focus more on the temporal tensions that emerge from these different encounters: what is lost and what remains; what is transformed and what endures; and what is intended to be controlled versus what resists such steering efforts. In the first section, I focus on the tensions between destruction and permanence – between the drastic losses associated with disasters and the memory of those lost places that survive the passing of time. Chapter One analyses the stories of survivors of the 1970 earthquake and subsequent avalanche that buried the old city of Yungay, to explore how that massive and dramatic event is reconstructed in the present. By paying particular attention to the rhythms and structures that these stories entail, the chapter shows that the extremely detailed testimonies of the moments before and during events like the 1970 avalanche give space to a suspended time from which concrete figures – the hero and the victim – emerge to make sense of the aftermath. In doing so, the chapter also briefly explores the relevance of the Callejón de Huaylas for risk and disaster studies, and how this region has served as a focal point for scientific research where different understandings of disasters have been applied and developed. Chapter Two, moreover, analyses the spatial configurations produced by the politics of memory around the 1970 earthquake and avalanche. By exploring the case of Campo Santo, an open memorial founded over the buried city of Yungay, I deal with the strategies and materialities that survivors and authorities followed to preserve the memory of the old town and the victims of the event. Concretely, I explore how the absence left by the avalanche is brought into presence under the notion of *intangibilidad* (intangibility): a legal title that recognises the immaterial value of the memorial as a site of cultural heritage.

Section Two addresses the continuities and transformations that the aftermath of disasters brings to urban areas. It explores how the city of Huaraz has endured its destruction over time, and what type of material changes those destructions have elicited. Chapter Three analyses how the reminiscences of destroyed pasts are turned into a part of history; how, in other words, rubble is turned into artefacts of archaeological value. To explore this issue, I take the case of Pumacayán, an archaeological site located in the middle of Huaraz. There, I pay special attention to the stones of this site and the multiple operations they have fulfilled over time – as ancient guardians of the city, construction materials, reminiscences of distant past under the notion of archaeological objects, or simple rubble to be discarded. Stones

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help show how the construction of ancient history at this site, sharply defined by the idealisation of an old urban world and its indigenous heritage, clashes with the new urban figures brought forth by the 1941 flood and, notably, the 1970 earthquake. Chapter Four, moreover, deals more in detail with those urban transformations experienced after the 1970 earthquake, to explore the emergence of what we initially defined as the cosmopolitan city. The traditional mudbrick houses have been replaced by clay brick and concrete, inaugurating a sense of identity loss among the old *Huaracinos*. Yet, those same materials also provide the only means of creating a sense of security for that part of the population living in the area exposed to floods – a basic stability amid precarious forms of life while they await a more definitive housing solution.

The third and last part of this book moves the focus from the efforts to deal with a lost past, to the strategies for building a stable future in a highly unstable region, emphasising the different mechanisms for keeping anticipatory strategies around outburst flood risk up to date. Chapter Five explores the history of flood risk management in the Callejón de Huaylas to analyse how attempts to control nature led to the articulation of new forms of time in the Andes: a time of engineering mitigation, but also times of labour and shift-work regulating the rhythms of the local population working in the lakes. Moreover, the chapter also analyses the frictions and conflicts that efforts to control nature can lead to. By exploring the attacks against Lake 513's early warning system, a new type of technology in the region that monitors in real time those mountain lakes at risk of outburst, the chapter reflects on the temporal interruptions that socio-technical systems elicit. The complexity of the case, expressed by the diverse explanations and stories around the destruction of the monitoring equipment, are condensed and simplified through certain figures configuring two apparently irreconcilable realities: an urban lowland aiming to push a civilisation project throughout the region versus a rural highland resisting the implementation of foreign machines seeking to control nature. Chapter Six closes this last section by exploring alternative practices for dealing with the insecurity originating from the region's increasingly unstable glacial lakes. By analysing forms of relating to lakes in ways that diverge from scientific understandings of nature, the chapter explores how institutional risk mitigation efforts are deeply intertwined with ancient forms of connecting with mountain entities. Furthermore, the chapter explores how the relationships to other entities, including guardian crosses located in the highlands, can create forms of security based on diplomatic relations of partial recognition.

The book concludes by returning to a general view of figurations and assemblages as central analytical concepts for this work. Specifically, I reflect on how both concepts can allow us to explore disasters through historical and temporal lenses, considering both dimensions as separated, yet interconnected, arrangements that provide different perspectives on the understanding of disasters. Finally, I close with

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some words about my own ethnographic work as a Chilean and *gringo*[4], as people used to call me in the Callejón, two figures representing an uneasy, historical otherness in the region. By considering my positionality as a foreign researcher, I conclude by reflecting on how my work can be related to documentarist and documentarian efforts defying the very temporal articulations of anthropology as a field.

There are some limitations to the exploration, presented herein, of the temporal ecologies around disasters in the Callejón de Huaylas. A project like this does not aim to present an exhaustive compilation of all the attempts throughout this region to preserve memories and stories around disasters. There is a broad collection of books in this regard, including the work of Rómulo Pajuelo Prieto (2002; 2010), Steven Wegner (2014), Danilo Barrón Pastor and Filomeno Zubieta Núñez (2020) and Lucio Meza Marcos (2021), to name a few. This book is not intended as a detailed study of the aftermaths of those catastrophes; instead, the work of Anthony Oliver-Smith (1986), Barbara Bode (2001) and diverse testimonies of local authors such as Marcos Yaurí Montero (1971), Manuel Valladares Quijano (2011), Leoncio Vega Rizo Patrón (2011; 2012), Nehemías Vergara Méndez (2013), Javier León León (2016) and Roque Otárola Peñaranda (2020) deals with those issues. Neither is it an exhaustive review of regional efforts to deal with threatening events such as GLOFs and avalanches. The work of Mark Carey (2010) is a remarkable source in that respect. This ethnographic work – a graphic production, sometimes poetic, certainly frustrating at moments and mostly embedded in concrete moments of pedagogical creation (Ingold 2014) – is instead an effort to understand how disasters produce forms of times as diverse as the stories containing traces of those past and future disasters. Thus, it is a study about the temporal implications of disasters, as semiotic and material arrangements, and the figurations that emerge around them to make sense of the worlds lost and those to come.

4 Originally referring to people of US-American origin, the word *gringo* is also used in many South American countries, especially in rural areas, as a synonym for foreigners of 'white' appearance. Whereas I do not necessarily consider myself white in the European context in which I am immersed while writing this book, I am identified as such in countries such as Chile and Peru in accordance with the Spanish ascendancy of part of my family. Marisol de la Cadena (2004) reflects on these identity differences when studying racial discourses around the notions of indigenous and *mestizo* in Peru. She recognises having 'indigenous looking features' that is easily associated with an indigenous heritage in Northern countries; yet, in Perú most people consider her white. 'Taxonomies and labels belong to interconnected histories ranging from the personal to the collective and from everyday, to artistic and academic practices that connect Europe and the Andes', she affirms (De la Cadena 2005, 261). Historical categories around race and ethnicity, in this sense, are not only applicable to people from the low- and highlands in the Callejón; they are also part of the labels that a researcher like me embodies when conducting fieldwork.

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