TIMESCAPES, SUBJECTIVITY AND EMOTIONS AFTER THE INDIA–TIBET EARTHQUAKE, 1950*

I
INTRODUCTION

For Jean Kingdon-Ward, the night of 15 August 1950 should have been uneventful. She and her husband Francis, a well-known botanist, were hunting for plants in the Lohit Valley on the India–Tibet borderlands. That night they camped at Rima, a village just inside Tibet (see Map). All seemed calm. But, as Jean wrote in her memoir, 'I felt the camp bed on which I was lying give a sharp jolt . . . The realization of what was happening was instantaneous, and with a shout of "Earthquake!" I was out of bed'. Despite feeling many earthquakes during her years in the region, this was the first time she experienced 'the uttermost depths of human fear'. 'Incredibly', she went on, 'after an interval that can only be measured in terms of eternity, we found ourselves back in the more familiar dimensions of space and time'.[1]

Francis also wrote about the earthquake. 'I find it very difficult to recollect my emotions during the four or five minutes the shock lasted', he wrote in the scientific journal *Nature*, 'but the first feeling of bewilderment — an incredulous astonishment that these solid-looking hills were in the grip of a force which shook them as a terrier shakes a rat — soon gave place to stark

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[1] Jean Kingdon-Ward, *My Hill so Strong* (London, 1952), 166–7.

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terror'.[2] In both accounts, the earthquake made the landscape behave strangely, induced intense fear, and disrupted their sense of the normal passage of time.

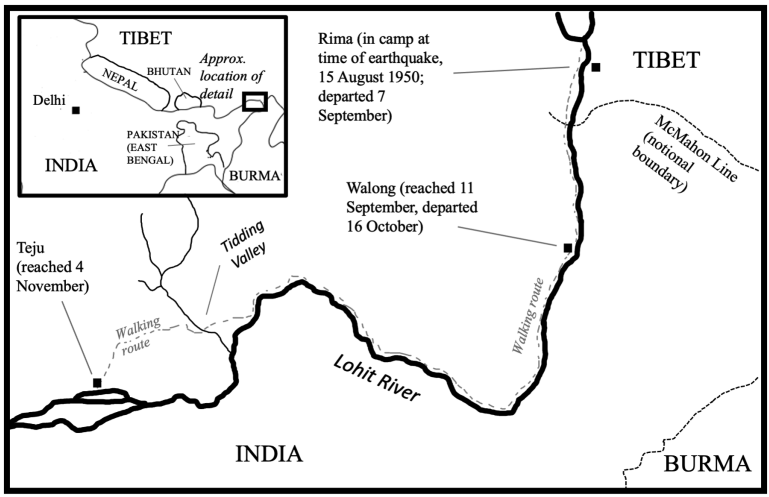
Historical research on time, including in South Asia, has been concerned largely with objective social histories, which analyse how time was measured and allocated to tasks, the longue durée of the Anthropocene, and the nature of historicity.[3] None of these approaches foreground the relationship between experience and time-sense that the Kingdon-Wards' writings pointed to. Studies of subjectivity, the ways that people understood themselves as individuals and in relation to others, have rejuvenated fields including gender history, subaltern studies and the history of revolutions, shifting focus from structures of ideology and power to the ways that individual people understood, related to, and felt about them.[4] Michael Roper's work on soldiers' experiences of war has revealed historical subjectivity in

[2] Francis Kingdon-Ward, 'Notes on the Assam Earthquake', *Nature*, clxvii (1951).

[3] E. P. Thompson, 'Time, Work-Discipline, and Industrial Capitalism', *Past and Present*, no. 38 (Dec. 1967); Mark Hailwood, 'Time and Work in Rural England, 1500–1700', *Past and Present*, no. 248 (Aug. 2020); Ritika Prasad, *Tracks of Change: Railways and Everyday Life in Colonial India* (Delhi, 2015), ch. 4; Faridah Zaman, 'Beyond Nostalgia: Time and Place in Indian Muslim Politics', *Journal of the Royal Asiatic Society*, xxvii (2017); Hatice Yıldız, 'The Politics of Time in Colonial Bombay: Labor Patterns and Protest in Cotton Mills', *Journal of Social History*, liv (2020); Jim Masselos, 'Appropriating Urban Space: Social Constructs of Bombay in the Time of the Raj', *South Asia: Journal of South Asian Studies*, xiv (1991); Alice C. P. Would, *Taxidermy Time: Fleshing Out the Animals of British Taxidermy in the Long Nineteenth Century, 1820–1914* (Univ. of Bristol Ph.D. thesis, 2021); Ann McGrath and Mary Anne Jebb (eds.), *Long History, Deep Time: Deepening Histories of Place* (Canberra, 2015); Tom Griffiths, 'Travelling in Deep Time: La Longue Durée in Australian History', *Australian Humanities Review* (June 2000); Dipesh Chakrabarty, 'Anthropocene Time', *History and Theory*, lvii (2018); Marek Tamm and Laurent Olivier (eds.), *Rethinking Historical Time: New Approaches to Presentism* (London, 2019); David Carr, *Experience and History: Phenomenological Perspectives on the Historical World* (New York, 2014), ch. 7; François Hartog, *Regimes of Historicity: Presentism and Experiences of Time*, trans. Saskia Brown (New York, 2015); Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time*, trans. Keith Tribe (New York, 2004).

[4] Moritz Föllmer, 'The Unscripted Revolution: Male Subjectivities in Germany, 1918–1919', *Past and Present*, no. 240 (Aug. 2018); Ananya Chakravarti, 'Mapping "Gabriel": Space, Identity and Slavery in the Late Sixteenth-Century Indian Ocean', *Past and Present*, no. 243 (May 2019); Romin W. Tafarodi (ed.), *Subjectivity in the Twenty-First Century: Psychological, Sociological, and Political Perspectives* (Cambridge, 2013), editor's intro.

THE LOHIT VALLEY



The map shows dates, locations and the Kingdon-Wards' walking route. National boundaries are not definitive.

situations of extreme stress, complemented by broader histories of emotion related to conflict.[5] Because earthquakes are such intense experiences, disrupting the sense of order in an individual's body and physical environment and inducing powerful emotions, they make the ideal focus for a study of subjectivity.

Subjectivity is important in histories of temporality because time-sense is a part of historical experience. Scholars have argued that attitudes towards time are integral to modernity: the sense that time can and should be regulated and disciplined, that events are speeding up, that time is scarce.[6] More recent work has emphasized that people since the early modern period have had more complex relationships to clock-time. Time-sense

[5] Michael Roper, *The Secret Battle: Emotional Survival in the Great War* (Manchester, 2009); Jan Plamper, 'Soldiers and Emotion in Early Twentieth-Century Russian Military Psychology', in Benjamin Lazier and Jan Plamper (eds.), *Fear: Across the Disciplines* (Pittsburgh, 2012).

[6] Norbert Elias, *An Essay on Time* (Dublin, 2007); Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Ithaca, NY, 1989), 224–68; Stephen Kern, 'The Culture of Time and Space', in Bruce Mazlish and Akira Iriye (eds.), *The Global History Reader* (London, 2005).

can be gendered.[7] Individuals have 'multiple ways of perceiving and making time' simultaneously.[8] Subjected populations could have ambivalent responses to colonial time-discipline.[9] There is no single 'modern' experience of time.

All of this scholarship, however, focuses on the everyday, on 'normal' conditions. Some authors have densely analysed exceptional events on short timescales. A microhistory of the Battle of Gettysburg narrates minute-by-minute but has little to say about the relationship between time and emotions.[10] A recent analysis of a single day in revolutionary France goes further in demonstrating that consciousness of the passage of time was central to Parisians' experience, and a study of late seventeenth-century England shows that the speed of political change 'tore events out of time' by undermining contemporaries' sense of how past, present and future related to one another.[11] Specific external environments, including situations of extreme stress or sensory overload like artillery bombardments and magnetic resonance imaging scans, have prompted emotional responses that impacted on people's sense of time.[12] Expanding on these precedents with a more systematic study, I take an earthquake as a moment of severe disruption to time-sense, examining the way that two individuals' emotions structured both the experience of shock and the eventual return to a sense of temporal normality. This shows, I argue, that time-sense can be even more flexible than scholarship has recognized. Major earthquakes

[7] Rachel Rich, '"Life Will Pass Quickly for Me": Women, Clocks and Timekeeping in Nineteenth-Century France', *Gender and History*, xxxi (2019).

[8] Alf Lüdtke, 'Writing Time — Using Space: The Notebook of a Worker at Krupp's Steel Mill and Manufacturing — an Example from the 1920s', *Historical Social Research/Historische Sozialforschung*, xxxviii (2013).

[9] Sumit Sarkar, *Beyond Nationalist Frames: Postmodernism, Hindu Fundamentalism, History* (Bloomington, 2002), 10–37.

[10] George R. Stewart, *Pickett's Charge: A Microhistory of the Final Attack at Gettysburg, July 3, 1863* (1959; Boston, 1991).

[11] Colin Jones, *The Fall of Robespierre: 24 Hours in Revolutionary Paris* (Oxford, 2021); Tony Claydon, *The Revolution in Time: Chronology, Modernity, and 1688–1689 in England* (Oxford, 2020), 45.

[12] Jessica Meyer, *Men of War: Masculinity and the First World War in Britain* (Basingstoke, 2009), 133–4; Roper, *Secret Battle*, 261; Victoria Bates, 'Sensing Space and Making Place: The Hospital and Therapeutic Landscapes in Two Cancer Narratives', *Medical Humanities*, xlv (2019), 14.

revealed that flexibility because they prompted the Kingdon-Wards (and, as we will see, others who lived through earthquakes) to reflect on both their emotions and their sense of time.

The idea of 'timescapes', pioneered by cultural critic Barbara Adam, can be expanded to capture the relationship between time, environment and subjectivity. In Adam's formulation, timescape is analogous to landscape. Timescapes and landscapes both require an observer to have a viewpoint, rather than assuming an external, objective perspective. Landscapes emphasize how what is visible to an observer (such as fences on otherwise open land) indicates what is invisible (farming activity). In a timescape, hidden or implied things are removed in time, as well as from sight. Adam uses timescapes to reveal the relationship between events where cause is temporally distant from effect in the cases of toxins, nuclear radiation and other human-made hazards.[13]

Adam's concept applies neatly to earthquakes, which occur on multiple timescales. Tectonic pressures build up over decades or centuries. Those pressures are released through a series of shocks lasting for seconds or minutes. Later, 'co-seismic hazards' such as landslips, floods and soil instability have extended effects on topography. All are a direct consequence of the ground-shaking but temporally distant from it by hours, days or weeks.

For Adam, subjectivity is essential to timescapes but manifests in the analyst's position rather than a historical person's sense of self. I show that timescapes are a critical part of an individual's subjectivity, not just a lens on external events. The cognitive act of understanding the connections over time between an earthquake shock, co-seismic hazards and one's own (or a fellow's) emotions defined the Kingdon-Wards' experience. Clinical psychology research on the relationship between affect, cognition and time-sense shows that time is subjective, and can seem to speed up or slow down depending on affective state, activities and circumstances.[14] I draw on these insights to suggest possible reasons for the way the Kingdon-Wards constructed timescapes.

[13] Barbara Adam, *Timescapes of Modernity: The Environment and Invisible Hazards* (London, 1998), 39–55.

[14] Sylvie Droit-Volet, 'Intertwined Facets of Subjective Time', *Current Directions in Psychological Science*, xxvii (2018).

This article argues that, for the Kingdon-Wards, two timescapes were the products of different combinations of emotions and environmental upheaval. In the first, the timescape of the main shock, fear and awe seemed to slow time down. In the second, the timescape of the earthquake's aftermath, fear and anxiety were bound up with recursive re-experiencing of psychological and material impacts. I examine each in turn, but they need to be understood in tandem because they overlapped and interacted. A short-duration timescale is not only interesting in itself as a distinct kind of historical subjectivity; moments could actively shape longer timescapes. Understanding the latter requires close attention to the former. In turn, the intensity of the 'original' moment takes on its full significance only because of its continuing influence on how people feel and act. The article therefore puts emotions into our historical understanding of time, temporality into our understanding of subjectivity, and both into the context of individual humans' relationship to the physical environment. A case study of a major natural hazard event shows that the sense of time could be central to how people in the past experienced events.

II

THE KINGDON-WARDS, THE EARTHQUAKE, AND SOURCE MATERIALS

The Indian Geological Survey described the 1950 temblor as 'one of the [most] disastrous earthquakes in history'.[15] It remains the world's ninth largest instrumentally recorded earthquake.[16] The 8.44 Mw tremor started at 7.39 p.m. on 15 August 1950 and lasted for between four and eight minutes. It deformed the earth's surface along a 200 kilometre-long line, shook people and buildings to the ground, twisted railway lines, and darkened the skies with dust. It sheared off the sides of hills and sent

[15] M. C. Poddar, 'Preliminary Report of the Assam Earthquake of 15th August, 1950', *Bulletins of the Geological Survey of India, Series B — Engineering Geology and Ground-Water* (1952), 1.

[16] United States Geological Survey, '20 Largest Earthquakes in the World', <https://www.usgs.gov/natural-hazards/earthquake-hazards/science/20-largest-earthquakes-world?qt-science_center_objects=0#qt-science_center_objects> (accessed 19 Mar. 2021).

them tumbling into rivers, forming landslip dams, which caused catastrophic floods when they burst days or weeks later.[17] The destruction topped the scale that earthquake scientists use to measure surface damage.[18] Approximately 1600 people were killed in India and an unknown number in Tibet.[19]

The Kingdon-Wards were in the Lohit Valley on a plant-collecting expedition. Francis was well known as an adventurer-botanist, as extensive UK press coverage of his earthquake experience showed.[20] He frequented the eastern Himalaya and had published twenty books, mostly about his travels in the region, since 1910. He was 64 years old, and had previously traversed the Lohit Valley in 1926. Jean (née Macklin), thirty-six years his junior, had married him in 1947. Limited biographical detail is available, but it is clear that she was a hardy and enthusiastic traveller, and a competent plant collector. This was the first expedition that she accompanied Francis on.

The earthquake was India's first major 'natural' disaster since independence in 1947, and had implications for the country's incipient territorial rivalry with China. The region itself was distant, poorly connected and not well known to plains India before the earthquake.[21] The Kingdon-Wards had warm friendships with Indian officials posted to the region, but they were all socially distant from the 'tribal' Mishmi inhabitants of the north-eastern mountains.[22] For example, Captain L. R. Sailo, the Indian government's local political officer, highlighted his dependence on the 'invaluable services' of his Tibetan interpreter

[17] N. N. Ambraseys and J. Douglas, 'Magnitude Calibration of North Indian Earthquakes', *Geophysical Journal International*, clix (2004); Aurelie Coudurier Curveur *et al.*, 'Surface Rupture of the 1950 Assam Earthquake: Active Faults and Recurrence Interval along the Eastern Himalayan Syntaxis', *EGU General Assembly Conference Abstracts* (2016), xviii.

[18] XII on the Modified Mercalli Scale: J. R. Kayal, 'Seismotectonics of the Great and Large Earthquakes in Himalaya', *Current Science*, cvi (2014).

[19] Poddar, 'Preliminary Report of the Assam Earthquake', 4.

[20] Cuttings collected in the Archives Collection at Kew Gardens, London (hereafter ACKG): FKW/2/17.

[21] See Bérénice Guyot-Réchard, 'Reordering a Border Space: Relief, Rehabilitation, and Nation-Building in Northeastern India after the 1950 Assam Earthquake', *Modern Asian Studies*, xlix (2015).

[22] Donald F. Thomas, 'Fate of Tribal People in Quake-Rocked Assam', *Times of India*, 3 Sept. 1950, 1.

T. Tsering, and an officer of the paramilitary Assam Rifles complained after the earthquake that 'all [Mishmi] porters had bolted off', invoking colonial-era stereotypes of Himalayan peoples as essential but unreliable.[23] While Sailo is a characteristic Mizo name and the Assam Rifles drew recruits from the north-east, none seemed to identify with the Mishmis.

The expedition was a commercial venture, intended to yield plant specimens for sale, but the Kingdon-Wards' writings were an important additional source of income. Jean published a memoir of the whole expedition in 1952, while Francis placed four articles about the earthquake in major British and US journals, and a shorter piece in the Calcutta-based newspaper the *Statesman*. He also kept a private diary contemporaneous with events, now held in the Archives Collection at Kew Gardens, London. In what follows, I supplement these six texts with further material from the Kingdon-Ward papers at Kew Gardens, alongside published and unpublished sources by other authors from the Cambridge Centre of South Asian Studies Archives; Church Missionary Society files; the Balochistan Archives, Quetta; and the Imperial War Museum Sound Archive. These other sources enable comparisons between 1950 and other earthquakes in mid twentieth-century India.

The diary and publications differed greatly in emphasis and tone. The published accounts were written in the genre of imperial adventure literature, deploying laconic descriptions of danger and making only limited references to fear. Jean's lengthy and detailed memoir offered a close narrative of the days and weeks that followed the earthquake. Francis's articles were shorter, representing highly compressed narratives that foregrounded the dramatic nature of the earthquake and subsequent march back to the Indian plains. His diary recounted many of the same events as the published texts but reported fear and anxiety more openly. It gives a less sure footing for analysing Jean's inner life. The last few pages contained a letter that Jean wrote to Francis, and her marginal comments appeared at several points, but otherwise the diary represented Francis's point of view. This still has

[23] Office of the Inspector General of Assam Rifles (OIGAR) (ed.), *Review of Work Done by Assam Rifles during the Earthquake, 15th August, 1950, and Floods* (Gauhati, 1951), 28.

value for assessing subjectivity, beyond the published accounts, since he wrote in detail about the behaviours he observed in Jean, and the emotions that he attributed to those behaviours contemporaneous with the observation. Equally importantly, it offers accounts that were usually written within hours of events, giving insights into how Francis understood the relationship between subjectivity and temporality at the time.

III

A MOMENT OF AWE

Francis's first diary entry about the earthquake set out the initial emotional timescape. 'First a slight tremor about 8.10 [p.m.]', he wrote. 'Almost immediately . . . a terrible quake' followed, which 'lasted fully 3 minutes'. He and Jean 'lay flat on our faces outside the tent, sick with terror, the earth heaving and buckling'.[24] During those minutes, several things came together: sensations of movement and noise, the emotion of terror, and a disrupted sense of time, which appeared to stretch out and move slowly. His published accounts offered a similar picture. 'Suddenly, after the faintest tremor . . . the earth began to shudder violently', he wrote in *Nature*, 'but fifteen or twenty seconds passed before I realised that an earthquake had started'. Three more paragraphs described the strongest shaking.[25] In *National Geographic*, three-quarters of a page described 'only four or five minutes' over which the initial shock took place. 'My first feeling of bewilderment had given way to stark terror. These solid mountains were in the grip of a force that was shaking them as a terrier shakes a rat'.[26] The earthquake scrambled his senses by making the landscape move, by assaulting his ears with noise, and provoking intense fear. 'It had seemed an eternity', he concluded, echoing Jean.[27]

How to explain the strange things that the earthquake did to the Kingdon-Wards' perception of environment and time? Historians have used insights from biological and psychological

[24] ACKG: FKW/1/25: Francis Kingdon-Ward's 1950 *Diary*, 15 Aug., 6.
[25] F. Kingdon-Ward, 'Notes on the Assam Earthquake', 130.
[26] Francis Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', *National Geographic* (1952), 402.
[27] *Ibid.*, 403.

sciences to make claims about historical emotion, though the applicability of scientific research on emotions — which typically locates feeling in neuro-biological processes and overlooks changing meanings of emotions across space and time — remains controversial.[28] Yet the way that social psychologists have characterized one emotion, awe, has remarkable consonance with what the Kingdon-Wards recorded even though they did not use the word.

A foundational study describes awe as an emotional response to two triggers.[29] The first is a sense of vastness, something much bigger than the individual who senses it. We might colloquially call this 'wonder'. Vastness can be pleasant, perhaps experienced on viewing the night sky or a grand cathedral. But awe can also be induced through fear, more apposite to the Kingdon-Wards, whose senses were unpleasantly overwhelmed.[30] 'I have a distinct recollection of seeing the outlines of the landscape, visible against the starry sky, blurred — every ridge and tree fuzzy . . . but fifteen or twenty seconds passed before I realized that an earthquake had started', wrote Francis in *Nature*.[31] In *National Geographic*, he recalled crawling out of his tent 'alarmed, bewildered' and 'seeing a dark ridge silhouetted against a planet-powdered ribbon of sky become fuzzy for a moment. The whole bristling edge of the forest was shaking violently'.[32]

The whole experience was difficult to process. 'It is not easy to say exactly what happened', Francis admitted in the diary.[33] This pointed to the second trigger of awe: the problem of accommodation, in which vastness is difficult to comprehend in one's

[28] William M. Reddy, 'The Unavoidable Intentionality of Affect: The History of Emotions and the Neurosciences of the Present Day', *Emotion Review*, xii (2020), 172. Psychologists themselves debate the 'replication problem'. See Bradford J. Wiggins and Cody D. Christopherson, 'The Replication Crisis in Psychology: An Overview for Theoretical and Philosophical Psychology', *Journal of Theoretical and Philosophical Psychology*, xxxix (2019).

[29] Jonathan Haidt and Dacher Keltner, 'Approaching Awe, a Moral, Spiritual, and Aesthetic Emotion', *Cognition and Emotion*, xvii (2003). See also Michelle N. Shiota, Dacher Keltner and Amanda Mossman, 'The Nature of Awe: Elicitors, Appraisals, and Effects on Self-Concept', *Cognition and Emotion*, xxi (2007).

[30] Amie M. Gordon *et al.*, 'The Dark Side of the Sublime: Distinguishing a Threat-Based Variant of Awe', *Journal of Personality and Social Psychology*, cxiii (2017).

[31] F. Kingdon-Ward, 'Notes on the Assam Earthquake', 130.

[32] F. Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', 403.

[33] *Diary*, 15 Aug., 7.

accustomed way of thinking. Apart from unfamiliar sights, the earthquake induced a violent sense of motion and a succession of strange noises. It was impossible to walk, Jean wrote, because the ground shuddered 'like a mad thing beneath our feet', leaving them 'bewildered and annoyed'. Finally, they both reported bizarre and frightening sounds. Jean described 'a deep rumbling noise from the earth itself, full of menace, which quickly swelled in volume to a deafening roar'.[34] Francis added 'another more familiar sound — the crash of rock avalanches pouring into the valley on every side'.[35]

They each accommodated their experience differently. 'My first feeling was one of incredulous surprise', Francis wrote in the *Statesman*, 'and some seconds passed before I realised what was happening'. He used metaphor to emphasize the sensation's uniqueness: 'I had the feeling that we were lying on a thin cake of rock crust which separated us from the boiling interior of the earth'. A different metaphor appeared in another narrative: 'Something was pounding the ground beneath us with the force of a giant sledge hammer'.[36] For Jean, by contrast, 'The realization of what was happening was instantaneous', but she still found the experience difficult to accommodate. 'The noise was unbelievable, agonizing', she wrote. 'Never before had our ears been subjected to such an onslaught of sound'. Only as it faded, she wrote, 'was it possible to distinguish which elements of the confusion and uproar had been earthquake noises and which the thunder of landslides'.[37] Indeed, Jean was still wondering about the 'puzzling noises' she heard during the earthquake a month later.[38] Both of their accounts closely matched the psychological characterization of awe.

Understanding awe, rather than simple fear, as the dominant emotion of the earthquake's first timescape helps to explain the disrupted sense of temporality — the sense that the earthquake seemed to last an eternity — that the Kingdon-Wards reported. 'The initial shock had lasted only four or five minutes. It had

[34] J. Kingdon-Ward, *My Hill so Strong*, 166.
[35] F. Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', 403.
[36] *Ibid*., 403.
[37] J. Kingdon-Ward, *My Hill so Strong*, 166–7.
[38] *Ibid*., 189.

seemed like an eternity', wrote Francis, drawing a contrast between the earthquake's subjective duration and its objective measurement in minutes.[39] Their narratives also communicated in more subtle ways the sense that time seemed to be passing slowly. Francis, in *Nature*, noted that even as he and Jean lay together in 'stark terror', they 'spoke quite calmly together'. He used similar phrasings in other pieces.[40] Jean, similarly, had time to notice that when the shaking first began, Francis 'methodically put the cap on his pen, picked up the lantern, and followed me outside'.[41]

Finding calm amidst upheaval, and the recounting of detail at the temporal scale of seconds, suggested an expansive sense of time that some psychologists have associated with awe.[42] This raises the possibility that the slowing-down of time in the Kingdon-Wards' narratives was partly a product of their experience in the moment, and not just a literary technique to emphasize an exciting part of the narrative, or a retrospective imposition of experience through acts of memory long after events. Reinforcing this point, Francis also highlighted the duration of the earthquake, and closely recorded its sensations, in his diary entry, written just two hours after the shock.

The Kingdon-Wards' multiple sources of life-writing gave a particularly rich picture of how earthquakes disrupted subjective senses of time. A similar focus on minute-by-minute or even second-by-second narration was a characteristic feature of other earthquake survivor narratives, such as those found in a collection of first-person reports by members of the Assam Rifles who also survived the 1950 earthquake.

[39] F. Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', 403.

[40] F. Kingdon-Ward, 'Notes on the Assam Earthquake', 130; F. Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', 403; Francis Kingdon-Ward, 'Terror in Earthquake Valley: A Naturalist's Experiences at Rima', *Statesman* (Calcutta), 3 Feb. 1951, 11.

[41] J. Kingdon-Ward, *My Hill so Strong*, 166.

[42] Melanie Rudd, Kathleen D. Vohs and Jennifer Aaker, 'Awe Expands People's Perception of Time, Alters Decision Making, and Enhances Well-Being', *Psychological Science*, xxiii (2012); David B. Yaden *et al.*, 'The Development of the Awe Experience Scale (AWE-S): A Multifactorial Measure for a Complex Emotion', *Journal of Positive Psychology*, xiv (2019). For a counter-perspective: Michiel van Elk and Mark Rotteveel, 'Experimentally Induced Awe Does Not Affect Implicit and Explicit Time Perception', *Attention, Perception, and Psychophysics*, lxxxii (2020).

The unnamed leader of the 2nd Battalion described the moment of the earthquake near Sadiya, specifying (like the Kingdon-Wards) the earthquake's intensity and duration: 'The serenity and darkness of the evening was shaken by an earthquake of unprecedented intensity unleashing its fury and devastation for five full vicious minutes'. He then recounted the 'terrifying noise' of floodwater in the nearby river, a secondary hazard that the earthquake generated. 'For several seconds nobody knew what was happening' as they were 'stunned by the pitilessness and suddenness of nature's fury'. Only later could the riflemen 'comprehend the devastation'.[43]

The description communicated confusion, overwhelmed senses and topsy-turvy topography, similarly to the Kingdon-Wards' accounts. Without knowledge of the author's background, education and literary influences it is difficult to say whether this pointed to a genuine similarity of subjective experience, or a shared repertoire of tropes about earthquake survival. (The book was in English, which many riflemen spoke, but there is no information on the editing or translation.) Most other accounts in the volume did not invoke awe, fear or an explicit consideration of timescales, but a contribution by Captain Sailo, the political officer, hinted at a distorted sense of time. He contrasted the sudden 'thundering noise of boulders falling behind us' during the initial shaking with the stretched-out experience of the rest of the night, which was 'uncertain and full of anxieties . . . the hours crawled by like years'.[44] The Rifles' focus on the timescale of the most intense shaking, and the collection of experiences that fit the psychological model of awe, suggested that these authors recalled a timescape of shaking something like that of the Kingdon-Wards.

The Kingdon-Wards wrote in a colonial adventure genre, albeit after the formal end of empire in South Asia. Their experience of moving through India's social and physical environments was informed by the tangibly recent colonial past. Survivor narratives from Britons in colonial India who experienced earthquakes earlier in the twentieth century therefore make a reasonable comparator across genres. One compilation of narratives of an 1897 earthquake that centred on Assam, some way

[43] OIGAR, *Review of Work Done by Assam Rifles during the Earthquake*, 42.
[44] *Ibid.*, 13–15.

south-west of the Lohit Valley, included a first-person account of 'A Girl's Experiences in Shillong'. The unnamed narrator, who was probably British like the vast majority of rapporteurs in the volume, wrote that 'I suddenly heard a dreadful roar. I couldn't make out what it was. It sounded like a train, thunder and a landslip all together'. On seeing a nearby dam burst and the ground at her feet 'cracking and opening', she became 'wild with fear, and didn't know which way to run . . . my one idea was that it was the end of the world . . . I thought it had lasted fully ten minutes, but it had lasted only about thirty seconds'.[45] Her narrative had much in common with those of the Kingdon-Wards, written half a century later, invoking disorienting noise, the struggle to accommodate vastness, and a slowed-down sense of time.

Articles in British missionary periodicals about another major earthquake in Bihar, north India, in 1934 furnish further examples. One tale began with the problem of accommodation: 'I remember thinking "Whatever is that noisy lorry" . . . suddenly it dawned on me, and picking up a child I ran out shouting . . . the house . . . seemed to be jumping up and down'. Then, time still seemed sufficiently expansive to find calm in the midst of shaking, as it had for the Kingdon-Wards: 'The most surprising thing was the length of time it lasted. It seemed quite five minutes. We had time to talk to each other in a quiet connected way, and to laugh at the way people were rolling about'.[46]

We should note the continuity of colonial tropes — like the Kingdon-Wards, all these authors drew a social distinction between themselves and the Indians (during the 1890s and 1930s) or Mishmis (in the case of the Kingdon-Wards and Assam Riflemen) around them. Earthquakes did not break down social norms. Indeed, Nanni has argued that time-discipline was central to the colonial 'civilizing mission', particularly in the settler colonies of Australia and Southern Africa.[47] Indians however frequently outdid the colonial railway authorities in their concern with speed and punctuality of trains, disproving many officials'

[45] Extract from George Lambert, *India, The Horror-Stricken Empire: Containing a Full Account of the Famine, Plague, and Earthquake of 1896–7* (Elkhart, 1898), 472–3.

[46] 'The Earthquakes', *Zenana*, xli (Mar. 1934), 33.

[47] Giordano Nanni, *The Colonisation of Time: Ritual, Routine and Resistance in the British Empire* (Manchester, 2012).

belief that Indians had little time-discipline of their own.[48] Some Indians spoke about earthquake temporality. K. B. Abdul Wabab Khan, a member of the Bihar and Orissa Legislative Council, told the chamber some weeks later that he had been in one of Bihar's most badly damaged towns. 'The shocks were so severe that it was impossible for us to keep our balance and it is no wonder that the . . . towns of North Bihar which took centuries to build were completely destroyed in about three minutes'. Like British accounts, Khan emphasized bodily experience and reflected on the contrast between the temporalities of human history and the earthquake's rapid destructiveness.[49]

One year later a Punjabi survivor of the 1935 earthquake at Quetta, north-western India (present-day Pakistan), described the 'see-saw movement' of the earth, and the feeling that the tremor lasted three minutes (in fact it was closer to thirty seconds).[50] While neither statement explicitly described awe, they both implicitly linked senses of time to bodily sensations, much like British rapporteurs. The many ways that British and Indian survivors spoke or wrote about time and earthquakes showed that the sense of earthquakes as being inherently temporal phenomena was widespread. Further triangulation across cultures comes from the French-Moroccan geologist Haroun Tazieff, who interviewed a survivor of a devastating earthquake in Chile in 1960. The man became 'really frightened' when a road's surface moved 'like choppy water . . . It went on forever'.[51] Tazieff himself described experiencing the sense that even a non-damaging aftershock lasted for 'over twenty long seconds', noting that 'an earthquake is of its very essence terrifying' because it shakes the ground under one's feet and 'sets the stability of the underlying basis of human life itself in question'.[52]

The very possibility of historicizing an earthquake's main shock from a subjective viewpoint comes from the fact that awe

[48] Aparajita Mukhopadhyay, *Imperial Technology and 'Native' Agency: A Social History of Railways in Colonial India, 1850–1920* (Abingdon, 2018), 20–40.

[49] Bihar and Orissa Legislative Council, *Proceedings*, xxx (15 Feb. 1934), 158.

[50] 'More Refugees Arrive', *Pioneer* (Lucknow), 7 June 1935, 6.

[51] Haroun Tazieff, *When the Earth Trembles*, trans. Patrick O'Brian (London, 1964), 10.

[52] *Ibid*., 27.

slowed people's perception of time, inscribed events on their memories, and prompted them to record those few moments in detail. Glennie and Thrift have argued that scientific and, to an extent, everyday temporal practice in England privileged 'clock time' as more accurate and regular then the 'natural time' of days and seasons as early as the seventeenth century.[53] Earthquakes disrupted the apparently linear regularity of clock time, but the Kingdon-Wards and others contrasted their sense of slowed-down time (linked directly to the natural environment) with objective clock-time. Reference to clock-time, perhaps, helped to accommodate the otherwise overwhelming experience even as the disruption of time-discipline had an important impact on people's earthquake subjectivity.

IV
AFTERSHOCKS OF FEAR

The Kingdon-Wards' accounts of the main shock did not exist in isolation. To better understand how this dense but brief timescape fitted into their longer-term emotional subjectivity and relationship to the environment, I now turn to their narratives of the aftermath. The next morning, under Rima's hazy, dust-filled skies, a new timescape began. Whereas the first timescape was connected to the emotion of awe by cognitive processing, this new one was characterized by the recursion of traumatic memory, which stretched the moment of the earthquake out into the subsequent weeks, and by the earthquake's continuing effects on the landscape. Historians of memory have previously rethought 'linear temporality', instead understanding ways that the past seems to persist in the present at the scale of life histories.[54] Rather than the established scholarly concern with the role of long-term memory in constituting selfhood, however, this section explores how the sense of time contributed to subjectivity-formation during a historical moment.

[53] Paul Glennie and Nigel Thrift, *Shaping the Day: A History of Timekeeping in England and Wales, 1300–1800* (Oxford, 2009), 256–7.

[54] Lisa Yoneyama, *Hiroshima Traces: Time, Space, and the Dialectics of Memory* (Berkeley, 1999), esp. ch. 4. For a review of memory studies approaches to time, see Victoria Fareld, '(In) Between the Living and the Dead: New Perspectives on Time in History', *History Compass*, xiv (2016).

Jean and Francis's position as white British travellers offered them comforts born of racial privilege as well as relative wealth. Unlike most of the people caught in the Assam–Tibet earthquake, they could eventually leave and continue their lives elsewhere. But for three weeks they were trapped at Rima, waiting for a down-valley walking route to reopen. There they entered a new domain of experience. One of the subjects that most preoccupied Francis's diary entries after the earthquake was Jean's physical and mental state, which manifested through several symptoms. One pre-existing symptom that the earthquake exacerbated was recurrent fever.[55] It waxed and waned for at least six weeks after the earthquake, as the botanists made their way towards the Indian plains. In late September, even after two weeks' rest at Walong under a doctor's care, the symptom worsened before eventually disappearing from Francis's entries.[56] Another, entirely new, symptom was sleep loss. 'Poor little Jean still cannot sleep — she who used to sleep for 8 hours so easily', wrote Francis on 18 August, and continued to note her sleeping difficulties until mid September.[57]

A third was generalized weakness. Jean's memoir of their first day's journey from Rima to Walong, on 7 September, described crossing the Lohit River on a rope bridge and marching along a damaged path.[58] She omitted that she was not walking, but carried by a porter. By the end of the second day, according to Francis's diary, she was still 'not well, though carried nearly all the way'. He was 'terribly distressed and worried'. Subsequently she walked more, but continued to be carried at difficult places all the way to Walong, another three days later.[59] Jean's memoir included one photo of her being carried across a small river, though she claimed it had been unnecessary.[60] An Assam Rifles report, however, confirmed that riflemen carried Jean on 7 and 8 September due to fever.[61] When the couple left Walong on 16 October, Francis's diary recorded that Jean was no longer

[55] *Diary*, 22 Aug., 19.
[56] *Ibid.*, 64.
[57] *Ibid.*, 18 Aug., 11; 12 Sept., 51; 29 Aug., 27; 14 Sept., 53–4.
[58] J. Kingdon-Ward, *My Hill so Strong*, 182–3.
[59] *Diary*, 7–8 Sept., 39–41; 9–11 Sept., 42–9.
[60] J. Kingdon-Ward, *My Hill so Strong*, 189.
[61] OIGAR, *Review of Work Done by Assam Rifles during the Earthquake*, 58.

feverish and was sleeping better, but still struggled with the walk. Jean herself recounted the first day's march out of Walong as the hardest she could remember. For some time afterwards, the diary made little mention of Jean's medical or mental troubles, except to note an injury to her leg.[62] But by 30 October her insomnia had returned and, worse, she suffered 'fits of black despair and depression'.[63]

Finally, Jean suffered low mood. It was only intermittent, and Francis frequently noted her bravery and cheerfulness.[64] Yet a letter from Jean to Francis, written at Rima on 24 August, testified to the depths her distress could reach. The letter anticipated imminent death, ending with a plea to 'trust in God's mercy, Frank, and He will surely let us be together through all eternity'.[65]

Jean's condition could 'only be shock', wrote Francis in the diary (and used similar phrasing in a letter to an acquaintance).[66] The doctor at Walong, M. C. Goswami, agreed with this unspecific diagnosis, though more precise and complex ways of understanding trauma were presumably available to them. Shell shock, which had dominated public understandings of First World War soldiers, might have seemed appropriate. Jean's symptoms were similar to some of those that doctors had described during the 1910s–1920s: sleep difficulties, fatigue and unexplained aches and pains.[67] The noise, vibration, commotion and terror of the earthquake, too, were in some ways analogous to the experience of suffering artillery barrages in the trenches, which was central to medical and popular definitions of shell shock (though Roper has emphasized the centrality of the way that soldiers anticipated terrible wounds to their own bodies, alongside sensory overload, to the emotional experience

[62] *Diary*, 24 Oct., 105.

[63] *Ibid.*, 30 Oct., 111.

[64] Examples include: *Diary*, 18 Aug., 11; 19 Aug., 13; 23 Aug., 19; 26 Aug., 22; 1 Sept., 32; 4 Sept., 36; 6 Sept., 38; 8 Sept., 42.

[65] Jean's note to Francis, 24 Aug. 1950, written in the *Diary*, 146–7.

[66] ACKG: FKW 2/14: Extract from letter from Francis to Jessie Wight, Tocklai, quoted in a letter from Wight to Lady Macklin, 5 Oct. 1950.

[67] Edgar Jones and Simon Wessely, *Shell Shock to PTSD: Military Psychiatry from 1900 to the Gulf War* (Hove, 2005), 166.

of shelling itself).[68] Yet diagnoses of shell shock had fallen out of favour during the inter-war period and were not used during the Second World War.

From a present-day vantage point, Jean's symptoms recall post-traumatic stress disorder (PTSD), which has been diagnosed in earthquake survivors as well as war veterans since the 1980s.[69] Like some PTSD patients, Jean re-experienced a traumatic event, had persistent symptoms such as sleep disturbance, and believed that she did not have long to live. But there is no evidence that she experienced flashbacks, another major element of PTSD (which some psychologists have argued is culturally specific to soldiers' experiences of trauma since the 1991 Gulf War).[70]

The diagnosis of 'shock' instead recalled an earlier widespread description of British survivors of earthquakes in South Asia between the 1890s and 1930s. They were described as suffering from a non-specific but debilitating 'nerves' or 'shock'. May Sweet, who survived the 1897 earthquake at Shillong, wrote to her sister about the way the town's British community reacted to continual substantial aftershocks. Sweet had spent the previous night sitting awake, with her dressing-gown on, rushing outside at any sign of shaking. 'It is terrible', she wrote, 'living for over a week in a continual state of fear. Some people's nerves have entirely gone — mine are bad enough'.[71] Similarly, missionaries who survived another earthquake at Quetta in 1935 played a leading role in the medical response but Sister Manwaring, a nurse who had been rescued from underneath rubble, suffered badly from 'shock' and had to go home to Britain.[72] It was later

[68] Roper, *Secret Battle*, 257–65.

[69] For a review, see Y. Neria, A. Nandi and S. Galea, 'Post-Traumatic Stress Disorder following Disasters: A Systematic Review', *Psychological Medicine*, xxxviii (2008).

[70] Edgar Jones *et al.*, 'Flashbacks and Post-Traumatic Stress Disorder: The Genesis of a 20th-Century Diagnosis', *British Journal of Psychiatry*, clxxxii (2003).

[71] Cambridge Centre of South Asian Studies Archive: Small Collections, Box 22, Sweet, M. Papers: May Sweet to Mrs Godfrey, 28 June 1897.

[72] Church Missionary Society, Archive Section VI, Part 9, Reel 197, pp. 84–5 (Adam Matthews Publications microfilm): Henry Holland to Sir Cusack Walton, 5 June 1935.

decided that all the women missionaries should go home at once 'to have the best chance of recovery from the shock', according to a missionary magazine.[73] Applied only to women, the diagnosis of shock in this case was clearly gendered.

Whatever the medical definition, the earthquake continued to haunt Jean. It manifested in both her body (through weakness, debilitation and sleep loss) and mind (through repeated experiences of fear and anxiety). The recursive nature of emotion, in association with place, defined Jean's march down the valley. Indeed, she found one 'perfect autumn morning', in which 'the cloud-topped mountains had a serenity and beauty about them that was strangely reassuring', worth mentioning because 'I could not then associate them with feelings of fear or anxiety; only with the joy of walking through the hills on a fine, cold morning in high health and spirits'.[74] A lack of anxiety had become exceptional for her.

Somatic memory was central to Jean's timescape of the aftermath, and strongly linked to the material environment of the Lohit Valley.[75] In the latter sense it was unlike what Jay Winter has termed the 'free-floating' trauma that prevented shell-shocked war veterans from reconciling their pre- and post-war identities.[76] Jean's bodily re-performance of fear was intimately connected to the earthquake's ongoing effects on the physical environment, highlighting the uniqueness of an earthquake. Her sleep loss, for example, was closely associated with aftershocks. At Rima, she woke up after every night-time tremor that Frank recorded in his diary. 'One severe tremor, besides minor ones', occurred, Francis wrote. 'Darling Jean was terrified again', he wrote on 25 August. 'Even these [minor] tremors are terribly serious for her'.[77] Jean was not alone. Assam Rifles parties also had trouble sleeping due to 'constant tremors and [land]slides'. During idle daytimes they played games to take their minds

[73] 'The Earthquake in Quetta', *Church Missionary Outlook*, Aug. 1935, 131.

[74] J. Kingdon-Ward, *My Hill so Strong*, 186.

[75] Thanks to Victoria Bates for help in articulating this point.

[76] Jay Winter, *Remembering War: The Great War between Memory and History in the Twentieth Century* (New Haven, CT, 2006), ch. 2, esp. 56–7.

[77] *Diary*, 25 Aug., 21. Other aftershocks that woke Jean included those on 20, 25, 26 and 31 Aug., and 3, 11, 22 and 23 Sept..

off the aftershocks.[78] Two years later the Geological Survey reported that 'after-shocks are still causing distress and anxiety to the people of Assam'.[79]

Emotions, in Bourke's landmark history of fear, are fundamentally 'about the body — its fleshiness and its precariousness', but they also played a part in ways that 'agents are involved in creating the self in a dynamic process'.[80] Fear and anxiety for Jean, and indeed Francis, were direct responses to the material environment, which simultaneously manifested in their bodies and through their creation of the self. In other words, their bodily responses to dynamic physical terrain helped constitute their subjectivity, as Jean's description of the flood-stricken Tidding Valley (a tributary of the Lohit) illustrated. 'Such annihilation was awful to behold . . . The feeling of bewilderment, of crushing loneliness and primitive fear of the unknown, remained with me so long as we were in that stricken valley'.[81] Her difficulty in reconciling her earlier memories of the Tidding with the newly damaged landscape (which 'bore not the slightest relation to the old') was the only moment during Jean's narrative of the aftermath in which she came close to the negative awe she had experienced during the main earthquake shock. While the passage did not record a changed sense of time, the recurrence of awe emphasized her emotional connection between past and present moments. (Sailo, the political officer, also described the difficulty of mentally accommodating the post-earthquake landscape: 'the effects . . . [were] beyond our imagination . . . The whole valley could be seen [to be] horribly distorted'.)[82] Jean's relationship to the environment, then, was born of a combination of the embodied memory of the main shock and continuing changes in her material environment. Memory and environment came together to create a timescape of trauma.

For Francis, too, the aftermath presented itself through a timescape of emotional disorder. He did not record himself as seriously suffering from shock or nerves, but did record a

[78] OIGAR, *Review of Work Done by Assam Rifles during the Earthquake*, 37–8.
[79] Poddar, 'Preliminary Report of the Assam Earthquake', 5.
[80] Joanna Bourke, *Fear: A Cultural History* (London, 2005), 8.
[81] J. Kingdon-Ward, *My Hill so Strong*, 190, 225–6.
[82] OIGAR, *Review of Work Done by Assam Rifles during the Earthquake*, 15.

nightmare about the earthquake.[83] He was also concerned about a mysterious physical weakness that left him 'quite tired, temporarily exhausted' after a two-mile walk.[84] A more striking way that the earthquake structured Francis's emotional timescape during the march down-valley, though, was through its topographical effects.[85] The shaking had destroyed paths, leaving destabilized, landslip-prone slopes and sheer drops.[86] Francis's previous writings had often described his fear of heights, but the earthquake made things substantially worse.[87] The sheer frequency of frightening incidents in precipitous places came through in Francis's diary. During the first day's march out of Walong on 16 October, for example, he admitted to being 'really scared for a moment . . . It is hateful to be frightened, if only for a minute or two'.[88] He wrote fulsomely of his admiration for Jean, whose lack of fear of heights 'gave me courage'. Like Jean's 'shock', the extent and intensity of Francis's fear of heights was downplayed in both of their publications, and only became clear in the private diary.[89] The devastated landscape that the earthquake left in its wake ensured that fear was a constant characteristic of their journey. A timescape perspective helps show that their emotional experience was closely linked to the temporally distant effects of the temblor.

Jean and Francis's post-earthquake emotional timescapes, then, differed in important ways. Jean's was close to the well-recognized effects that earthquakes, artillery bombardments, and other terrifying, extraordinary experiences can cause. It seemed to be a direct consequence of the earthquake, and marked a break with her 'old self', as Francis put it, at least while she remained in the Lohit Valley.[90] Jean's state was often responsive to the earthquake's continuing effects, placing her

[83] *Diary*, 25 Aug., 21.

[84] *Diary*, 23 Aug., 19.

[85] These continued for at least a decade. E. H. Pakyntein, *Census of India 1961, Volume III, Assam: Part 1-A — General Report* (Gauhati, 1961), 41.

[86] Poddar, 'Preliminary Report of the Assam Earthquake', 21.

[87] Francis Kingdon-Ward, *The Land of the Blue Poppy: Travels of a Naturalist in Eastern Tibet* (Cambridge, 1913), 15–16; Francis Kingdon-Ward, *Plant-Hunting on the Edge of the World* (London, 1930), 347.

[88] *Diary*, 16 Oct., 93–4.

[89] J. Kingdon-Ward, *My Hill so Strong*, 191; F. Kingdon-Ward, 'Caught in the Assam–Tibet Earthquake', 412.

[90] *Diary*, 19 Sept., 59.

emotions into a dynamic relationship with the material environment. Francis's, by contrast, was largely contingent on the way that the earthquake had destroyed paths over dizzying heights. While the earthquake was a root cause of the fear and anxiety that dominated both individuals' timescapes, those timescapes had different textures. Fully appreciating the way that time, emotions and environment came together to produce individual subjectivities requires attention to differences in the Kingdon-Wards' experience as well as similarities. This contrasted with their consistent responses during the earlier, awe-struck timescape of shaking.

In psychological literature, suspicion of the material environment is a well-established consequence of surviving earthquakes.[91] To return to colonial-era comparators, British survivor narratives from Quetta also attested to a transformed sense of place and a distinctive timescape. Quetta was a popular hill station among the British in India before 1935, with a busy social scene.[92] Shortly before the earthquake Elizabeth Harrington, a working-class army wife who had been in India for two years, arrived in Quetta. It was, she said in a later interview, 'just like going home to England', full of grass and roses, but the earthquake transformed her relationship to the landscape.[93] Although she described the main shock in detail, her most blunt articulation of fear concerned witnessing a huge landslip some days later. 'I've never liked mountains since . . . if you've ever seen a mountain fall down it frightens the life out of you because you don't think a mountain will move'.[94] Choosing to dwell on a secondary impact that manifested days later highlighted the

[91] Jiuping Xu, Yan Wang and Wanjie Tang, 'Posttraumatic Stress Disorder in Longmenshan Adolescents at Three Years after the 2013 Lushan Earthquake', *General Hospital Psychiatry*, liv (2018); Lara M. Greaves *et al.*, 'Regional Differences in the Psychological Recovery of Christchurch Residents following the 2010/2011 Earthquakes: A Longitudinal Study', *PloS One*, x (2015).

[92] Dane Keith Kennedy, *The Magic Mountains: Hill Stations and the British Raj* (Berkeley, 1996), ch. 2.

[93] Imperial War Museum, London, Sound Archive: Elizabeth Harrington, interviewed by Margaret A. Brooks (18 Mar. 1977), Reel 4: 08:46. Available online at <https://www.iwm.org.uk/collections/item/object/80000892> (accessed 7 Jan. 2021).

[94] E. Harrington interview: 17:00.

way that the earthquake created a timescape in which cause was temporally distant from effect, and where an individual's relationship to the landscape was drastically altered.

To return to the Kingdon-Wards, the strength of the connection between place and timescape was finally illustrated by the abrupt change in tone in Francis's diary from 6 November onwards, when they finally reached the Indian plains. 'A perfect day, almost cloudless blue sky', he wrote. 'The mountains seem far away, but you can see the streaks of white indicating [land]slips'. While these passages said little about their affective states, except to note that Jean slept well, the tone was positive. Francis dwelt on the beauty of their surroundings and the comforts obtained. 'Well trained servants! Magazines! . . . Already the Lohit valley seems very far away'. Fear and anxiety were noticeable by their absence. That Francis spent more ink describing a friend's pet porcupine than recording his or Jean's emotions testified to his newfound sense of well-being.[95] As they travelled further, Francis wrote of seeing places where earthquake tremors and co-seismic flooding had done damage. But there is little of the attention to the horrors of unstable topography, or the close link between landscape and emotional state, that characterized earlier entries.

The published accounts of the journey all ended with or before the party's arrival at Teju on 4 November 1950, creating a narrative frame that identified the terminal point of the march with the end of the earthquake's story. In reality, the earthquake had continuing psychological effects. According to Francis's biographer, who interviewed Jean, she could never feel at ease in a building until she knew of an escape route. Francis reported persistent guilt for having exposed Jean to danger.[96] Yet the weeks of their march constituted a distinctive emotional timescape, which was linked strongly to the embodied experience of moving through place. An epilogue in Jean's memoir recounted flying over the Lohit Valley four months later, on an aeroplane dropping relief supplies. She wrote about the 'thrilling and wonderful' experience, and 'the power and majesty of the mountain scene'.[97] For Jean, the valley had returned to the happier domain

[95] *Diary*, 6 Nov., 123; 9 Nov., 126; 10 Nov., 128.

[96] Charles Lyte, *Frank Kingdon-Ward: The Last of the Great Plant Hunters* (London, 1989), 189.

[97] J. Kingdon-Ward, *My Hill so Strong*, 234.

of the sublime, which travellers often invoked to communicate the grandeur of nature.[98] Similarly Dayabhai Naik, the head of the Assam governor's charitable relief fund who first reached the earthquake-affected area in late September, wrote that one location 'has maintained its beauty . . . When I reached Pasighat crossing I felt very happy and felt that a burden has been lifted from my mind', showing that the region could still inspire strong positive emotions even after the earthquake and flood.[99] Earthquake timescapes were defined by positioning in place as well as time: they existed most clearly while the Kingdon-Wards were physically on the ground amidst the valley's geography. Even if Jean's account of the flight suppressed secret qualms, she could write of the region in positive terms, in sharp contrast to her earlier description of the flood-blasted Tidding Valley. It was no longer a landscape of disgust or fear.

Earthquakes formed a narrative break in the Kingdon-Wards' Lohit Valley accounts. They were analogous to the characteristic phases of life that Ulrich Herbert identified in oral histories of German workers during the 1930s to 1940s.[100] Major events with long-term repercussions, such as getting a steady job, starting a family or the outbreak of war, marked the temporal boundaries to distinct phases of life. For Jean and Francis, too, the earthquake divided 'before' from 'after'. But it did not fit comfortably into their broader life experience, inducing an emotional mix in Jean that was different from her 'normal' personality so long as she was in the Lohit Valley. Whereas major events marked boundaries *between* biographical phases for Herbert's interviewees, earthquake timescapes sat outside the Kingdon-Wards' 'normal lives' and were intimately tied to emotions and their immediate physical environment. Leaving the Valley transformed both Kingdon-Wards' emotional states, and marked the termination of their published narratives. According to the diary, it also heralded something like an ending to their

[98] See Robert Macfarlane, *Mountains of the Mind: A History of a Fascination* (London, 2003), ch. 3.

[99] Dahyabhai Naik, 'Assam Earthquake Relief: Extreme North-East Frontier', *Modern Review*, lxxxix (1951), 149.

[100] Ulrich Herbert, 'Good Times, Bad Times: Memories of the Third Reich', in Richard Bessel (ed.), *Life in the Third Reich* (Oxford, 1987), 102–3.

earthquake timescapes, which existed only at a particular moment, in a particular place.

V
CONCLUSION

This article has only nudged at the question of how far the temporal subjectivity that earthquakes produced in the Kingdon-Wards and other survivors was itself a reaction to the importance of time-discipline in contemporary British and (post-) colonial culture. The limited Indian material included here hinted at some commonality with the ways that Britons experienced earthquake time. Practical limitations prevented me from representing Mishmi perspectives at all. I was not able to undertake fieldwork in Arunachal Pradesh due to pandemic travel restrictions, personal circumstances and the difficulty that foreign scholars have in accessing sources in this strategically sensitive region. Contemporary third-party sources for the 1950s are rare because the Indian government restricted access then, too.[101] Reporting in Anglophone Indian newspapers focused on 'facts', not personal narratives. I was unable to find sources in Hindi, and have no command of north-eastern languages. The lack of written sources for Himalayan history in local languages is, anyway, a common problem. Even scholars who can use them must frequently rely on English-language sources.[102] Further research on how the 1950 earthquake impacted on Mishmis' or Tibetans' sense of time would more fully identify whether and how timescapes vary across cultural and linguistic backgrounds in face of the same environmental event, and add time-sense to the ongoing debate among historians of emotion over the balance between neuro-biology and social conditioning.[103]

Yet the case of the Kingdon-Wards is not as limited as it first appears. The numerous other accounts of earthquake survivors from mid twentieth-century South Asia showed that an

[101] Bérénice Guyot-Réchard, *Shadow States: India, China and the Himalayas, 1910–1962* (Cambridge, 2016), 16.

[102] For example, Kyle J. Gardner, *The Frontier Complex: Geopolitics and the Making of the India-China Border, 1846–1962* (Cambridge, 2021).

[103] N. Eustace *et al.*, 'AHR Conversation: The Historical Study of Emotions', *American Historical Review*, cxvii (2012).

intensification of time-sense was an established trope in writing about earthquakes; the consistency of this trope across the Kingdon-Wards' multiple sources, including the unpublished diary, strongly suggests that temporality was central to the story they told themselves about their earthquake as well as to public-facing narratives. Their writings, or rather Francis's, also held wider significance in another way. Because his accounts were widely circulated and quoted, his experience of it became synecdochical for the earthquake in English-language publications and newspapers, and even British diplomatic reporting.[104] Even the Government of India's Central Board of Geophysics, in a compilation of scientific writings on the earthquake published in 1953, relied on Kingdon-Ward for a first-hand description of the shock in the epicentral tract.[105] The experiences of Mishmis, Tibetans and indeed Jean and Sailo did not gain the same public traction, at least in India's Anglosphere. Substantially through the power dynamics of race and gender, the writings of one British man gained significant status as representative of the 1950 earthquake. The Kingdon-Wards' writings are hardly the defining sources for either a systematic study of temporal subjectivity or a history of the 1950 earthquake.[106] But they remain instructive as rich examples of what ego documents can reveal about individual timescapes.

Temporality, then, was central to the Kingdon-Wards' subjectivity. Their sense of themselves as individuals, as subjects of experience, was constructed at the intersection between the earthquake's effects on their environment and the powerful emotions that it triggered. These subjectivities played out on two timescales: the few minutes of the main shock and then the several weeks of slow travel down the valley. Time was not

[104] A British consular official interviewed Francis after the earthquake to gather strategic information about north-eastern India. The National Archives, London: DO 35/3063: Mr Davies's report on tour in Assam from 28 Dec. 1950 to 4 Jan. 1951.

[105] E. R. Gee, 'The Assam Earthquake of 1950', in M. B. Ramachandra Rao (ed.), *Compilation of Papers on the Assam Earthquake: Publication No. 1* (Calcutta, 1953), 102.

[106] For the latter, see Bérénice Guyot-Réchard, 'Nation-Building or State-Making? India's North-East Frontier and the Ambiguities of Nehruvian Developmentalism, 1950–1959', *Contemporary South Asia*, xxi (2013); Guyot-Réchard, 'Reordering a Border Space'.

merely the 'container' for their senses of themselves. The feeling of time passing actually helped constitute their subjectivity, requiring our conceptual move from time*scale*, understood as an objective measure of a unit of time, to time*scape*, understood as a temporal subject-position made up of feelings and thoughts. Thus the minutes of the main shock were experienced through a slowed-down sense of time, most likely linked to the neuro-biological effects of awe. A wider palette of emotions, including boredom and humour, structured the subsequent weeks, though space has precluded discussion of them here. The emotions that most closely linked both Kingdon-Wards to the first timescape, however, remained fear and anxiety. The earthquake sprawled through their ongoing experience. The force of the temporal-emotional moment of the main shock can, indeed, be best appreciated through its overlapping relationship with the timescape of the aftermath. The earthquake was an unpredictable and traumatic event that ruptured the anticipation of a continuity of the status quo, reordering the timelines that those who survived could use to make sense of the experience.[107]

Methodologically, Hölscher has articulated a defence of objective history by arguing that historians need a homogenous 'empty time' to ground historical narratives in a universal reality.[108] But the Kingdon-Wards, and other British and some Indian earthquake survivors in South Asia, dwelled precisely on the way that the earthquake disrupted their sense of linear, well-ordered time. Recognizing this does not require us to discard the common ground that Hölscher calls for — I have not argued that time is illusory any more than oral historians or scholars of historicity necessarily reject the idea that time flows when they highlight the non-linear functions of memory or objects from the past.[109] But understanding that time could

[107] Thanks to Elizabeth Haines for helping me to articulate this point.

[108] Lucian Hölscher, 'Time Gardens: Historical Concepts in Modern Historiography', *History and Theory*, liii (2014), 591.

[109] Richard Hall, 'Emotional Histories: Materiality, Temporality and Subjectivity in Oral History Interviews with Fathers and Sons', *Oral History*, xlvii (2019); Amy Tooth Murphy, 'In Search of Queer Composure: Queer Temporality, Intimacy, and Affect 1', in Clare Summerskill, Amy Tooth Murphy and Emma Vickers (eds.), *New Directions in Queer Oral History: Archives of Disruption* (London, 2022); Marek Tamm and Laurent Olivier (eds.), *Rethinking Historical Time: New Approaches to Presentism* (London, 2019), editors' intro; Taymiya R. Zaman, 'Cities, Time, and the Backward Glance', *American Historical Review*, cxxiii (2018).

feel flexible and disordered for historical actors over the short span of minutes and weeks does point to a way of understanding histories of exceptional moments. Histories of battle and revolution already hint at the subjective temporalities of intensive events. Further research could readily seek to trace how those experiences produced overlapping timescapes in response to specific stimuli, revealing how, why and for how long moments of especially intensive time-sense continue to impact on subjecthood. In contrast with the everyday temporality that other scholars have already explored, subjective time-sense should be a key part of history of emotions research on extreme situations.

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ABSTRACT

Scholarship on historical temporality has explored what time meant to people in the past. Going further, how did historical actors' perception of time shape their experience of events? Jean and Francis Kingdon-Ward, two British travellers, lived through a major earthquake on India and Tibet's mountainous frontier in 1950. Their numerous published and unpublished narrative accounts showed that the earthquake severely disrupted their physical environment, inducing powerful emotions and changing their sense of the passage of time. Comparisons with other accounts by British and some Indian survivors of mid twentieth-century earthquakes in South Asia showed that others, too, felt that earthquakes disrupted their sense of linear, well-ordered time. This article develops Barbara Adam's concept of timescapes to emphasize how a temporal subject-position is made up of feelings and thoughts. It draws on psychological research on the relationship between emotion and time-perception to reveal a temporal subjectivity that extended through and beyond a moment of extreme stress, and was closely connected to place. New insights are offered for scholarship on the histories of emotions, subjectivity and the environment, putting emotions more firmly into our understanding of historical time.