Introduction

> What one sometimes does not know and feel accurately in waking hours – whether one has a good or a bad conscience as regards some person – is revealed completely and unambiguously by dreams.
>
> —Friederich Nietzsche, *Human, All Too Human*

One foggy morning back in 2004, I sat on a rock with Stiven. He was a Hamtai-Anga man who had spent over two decades mining gold at Mount Kaindi, in the Morobe Province of Papua New Guinea (PNG).[1] He migrated there from his rural village to work for his maternal uncle, a prominent local leaseholder. After rising to manage his uncle's operations, Stiven was forced out by a family dispute over the distribution of a significant gold find. He set up his own mine about a kilometre away, which he continued to work with his adult son. We sat more than 2000 metres above sea level, where it gets quite cold even in the tropics, so we shared hot tea and granitic navy biscuits as we discussed how local miners prospect for gold. Stiven explained that they observe the features of the landscape and the colour and texture of its soils. Then they painstakingly dig and pan samples of earth and gravel to check for gold and follow traces to the source. But he added that dreams are the best way of finding minerals. The capacity 'to see a gold dream' (see Chapter 2) enables Hamtai miners to find gold where even the powerful machines of foreign companies fail to do so. This, he said, earned them the admiration of other Papua New Guineans and foreign prospectors and the respectful title of '*lokal geologis*' ('local geologists' in *Tok Pisin* [TP], the PNG lingua franca).

To explain how gold dreams work, Stiven recounted the following events from years earlier.

> *Dream 1*
> Once I saw a dream about a white horse. A white woman rode it. There was a fence between us. The woman called my name and said: 'I have come for you, Stiven.' I climbed up the fence, almost to the top. I asked: 'Why are you looking for me?' She replied: 'To marry you [i.e. to marry and/or have sex with him].' I climbed down the fence, but she kept shouting at me. Then, she rode her horse towards me and jumped clean across the fence. She landed by my side and repeated: 'I have come to marry you!' I looked around and saw acres and acres of gardens full of bananas, pineapples and many other fruits like that, all very ripe. The white lady waved her hand around and said: 'I have come to marry you because you have all of this, because you own it all!' When I woke up, I thought about my dream. [My uncle] told me that if I ever dreamt of places with women or gardens that meant that there was gold there, so I knew there was gold in the location of my dream. I immediately walked there. I sat on a rock and the whole dream came back to me clearly. I called the boys (the miners he managed at the time) and we started digging. We worked there for months and we got nine kilos of gold from the veins I discovered.

This monograph investigates dreams like Stiven's to understand the lifeworld of a community of first, second and third generation immigrant artisanal and small-scale gold miners in Papua New Guinea.

Mineral prices started to increase in the late 1970s–1980s, and since the 1990s global demand continued to grow to unprecedented levels. Many new large-scale extractive projects opened across the globe, including Melanesia, often in 'greenfield areas' inhabited by indigenous peoples (Ballard and Banks 2003; D'Angelo and Pijpers 2022b; Gentilucci 2022; Howard 1988; Hyndman 2021; Jacka 2015: 29–31, 2018; Kirsch 2014; Lahiri-Dutt 2015; MMSD 2002). Anthropologists produced insightful analyses of these 'supply interfaces', describing 'the ground level conditions from which metals and minerals enter the global supply chain' (Bainton et al. 2020: 10). Their studies revealed the significant and often negative environmental, political and socio-cultural impacts of large-scale industrial mining on indigenous lifeworlds.[2] But global appetite for minerals is also fed by indigenous men, women and children engaged in artisanal and small-scale mining (ASM). Although there is no universal definition of this term, it usually indicates activities by individual miners, nuclear families,

or extended kin groups that are conducted almost exclusively by manual means, as well as more extensive semi-mechanised activities with a still limited capital investment (Bainton et al. 2020; Hentschel et al. 2003: 5–8; Lahiri-Dutt 2018a; MMSD 2002: 314; Susapu and Crispin 2001). These operations are often connected to large-scale mining (LSM) in complex ways, which change across locales and even in the same area, through sometimes repeated cycles of extractive exploration, production and closure.[3] Yet it is increasingly clear that ASM gives rise to its own distinctive forms of 'territoriality' within wider resource frontiers (Peluso 2018: 401, 414). It is often conducted 'informally', which is not the same as 'illegally' (Lahiri-Dutt 2018a). In many cases, artisanal and small-scale miners 'neither [formally] own the land and the minerals, nor are they "exploited" in the conventional sense as a 'working class' (Lahiri-Dutt 2012: 204). Their informal relations with each other and with minerals and the land are the key organisational principles of ASM territoriality (Peluso 2018: 401, 414). These relations are informed in complex ways by (often weakly enforced) state and international regulations and power; access to markets and capital; the proximity, where relevant, of LSM operations and other business or conservation interests; local and national availability of alternative forms of livelihood; migration patterns and neighbouring non-mining communities; specific precolonial, colonial and post/neo-colonial histories; and the distinctive socialities and cosmologies that miners bring with them and adapt creatively (ibid.; Bainton et al. 2020).

In a first seminal review of the anthropology of mining published four decades ago, Godoy (1985: 210–11) noted that ASM's significance and complexity were seriously under-researched in many parts of the world. He argued that anthropologists were perfectly placed to fill this gap thanks to their theoretical and methodological traditions. This has happened to an increasing degree, yet ASM continues to be an under-investigated field in the anthropology of mining, particularly outside Africa (Lahiri-Dutt 2022). This is also true of Melanesia, where few anthropological accounts have focused on artisanal mining,[4] and fewer still draw on long-term participant-observation with artisanal and small-scale miners as they live and work in the mines (as opposed to very short field visits, historical sources, or second-hand accounts) (Bainton et al. 2020; Moretti 2006b). This is surprising when one considers that an estimated 44.75 million people in at least eighty countries worldwide depend on it directly for their livelihoods (compared to 2.5 million people employed in LSM), with another 134 million depending on it indirectly. Artisanal and small-scale gold mining (ASGM) accounts for up to 90% of all employment and 20% of production in the global gold mining industry (Cochrane 2017: 3; Fisher et al. 2021: 191). In Melanesia, an estimated 60,000 to 175,000 nationals are directly involved

in ASGM across PNG on a primarily part-time basis. This compares to a total of 20,000 people directly employed by all large mining companies operating in the country, with a further 25,000 indirectly employed by them through contractors and local service-providing businesses (Bainton et al. 2020).[5] Beyond PNG, 30,000–40,000 people practice artisanal mining around the Grasberg mine in West Papua, Indonesia (Cochrane 2017: 140). And some two hundred men, women and children reportedly do so at the Gold Ridge mine on Guadalcanal, Solomon Islands, about whom virtually nothing is known.[6]

This monograph draws on extensive fieldwork in the Mt. Kaindi area of the historic Morobe Goldfields of Papua New Guinea conducted between 2001 and 2013, with a main stay in 2004–2005. It sits at the interface of three recent trends in the anthropology of mining, which it explores relationally. The first ties into aspects of the 'ethical/moral turn' that gathered momentum since the start of the millennium (e.g. Barker 2016 [2007]; Laidlaw 2002, 2014; Mattingly and Throop 2018; Robbins 2013). Artisanal and small-scale mining is often depicted in negative terms by non-miner indigenous communities, journalists, researchers, politicians, transnational mining companies, international finance corporations and agencies, NGOs and even the miners themselves in certain contexts. Miners at times portray themselves and are routinely portrayed as selfish 'chancers' and 'gamblers' operating chaotically in abysmal working conditions, causing environmental degradation, feeding violence, illegality and sexually transmitted diseases (Cochrane 2017: 135–43; D'Angelo 2014, 2015; Hentschel et al. 2003; Jaramillo 2020; Lahiri-Dutt 2012: 194). But a growing literature is challenging this stereotype to show that artisanal mining is an important source of livelihood in 'the Global South' (Lahiri-Dutt 2015, 2018b). Some indigenous communities have very long histories of engagement in it as part of their subsistence strategies (e.g. Caballero 1996; Hilson 2010; Lahiri-Dutt 2018b). Millions more men and women across the world are newly drawn to the mines as 'places of hope' (Halvaksz 2020: 155), taking up mining to alleviate poverty in contexts of restricted, and often shrinking, alternatives (e.g. Bainton et al. 2020; Bryceson and Jonsson 2010; Hamago et al. 2023; Hilson 2006; Jacka 2018; Lahiri-Dutt 2015; 2018a; Maconachie and Hilson 2011). This includes locales marred by civil war and largely cut off from national and global markets and services, as was the case in Bougainville (O'Faircheallaigh et al. 2017). It also occurs in places that, from an etic point of view, could be described as 'residual landscapes' (Hamago et al. 2023, but see Chapter 1) where artisanal miners dig 'waste' or marginal deposits left in the shadow of current or past large-scale mining operations, or which are otherwise uneconomic to mine on an industrial scale (Cochrane 2017: 135–60;

D'Angelo 2022: 174–75; Jacka 2015: 44–45; Jaramillo 2020; Halvaksz 2008, 2020; Lahiri-Dutt 2018a; Moretti 2006b).

But anthropologists have problematised narrow explanations of ASM participation in terms of poverty alone. They show that men and women also enter it to seek freedom and agency to pursue what Robbins (2013) calls 'the good': meaning 'to create and imagine their own (unpredictable) futures' and pursuing a better life 'at the 'unruly edges' of . . . extractivism' (Fisher et al 2021: 195, drawing on Tsing 2015. See also Jaramillo 2020; Werthmann and Grätz 2012). In Burkina Faso, the Democratic Republic of Congo and PNG women go to the mines for greater access to modern wealth and goods and to escape patriarchal constraints and seek new forms of agency (Bashwira and Van der Haar 2020; Wardlow 2004, 2006; Werthmann 2009). In Mongolia, young men from wealthier herder families do so to escape patriarchal hierarchies and pressure to share wealth (High 2017). Congolese young men leave urban lives for dangerous spells in gold and diamond mines as a modern version of traditional hunting initiations, aiming to acquire the 'masculine capacity' to 'tame' money and modernity (De Boeck 1998). Others do so 'to experiment with new ways of being a man in a context of economic crisis and changing gender relations' (Cuvelier 2014: 3). Even relatively better off Papua New Guinean professionals like teachers and health workers quit their jobs to join the infamous Mount Kare gold rush of the late 1980s (Jacka 2015: 91; Ryan 1991; Vail 1995).

At the same time, men and women engage in ASM to reproduce, extend and transform social relations. Both local and migrant miners use part of their earnings (including as remittances) in exchanges integral to social reproduction. They invest some in businesses and more enduring forms of wealth, like animals, land and houses (locally or in their home villages), or formal education for themselves and their relatives. They marry and have children and use mining wealth to sustain their households, whether in their home villages or at the mines (e.g. Bainton et al. 2020; Caballero 1996, 2006; De Boeck 1998, 1999; Halvaksz 2020: 130–31; Hamago et al. 2023; Roopnaraine 1997; Susapu and Crispin 2001; Walsh 2003, 2006). Though conflicts and social friction often accompany ASM, miners create social bonds with one another and (where relevant) their host communities. They form ties of friendship and conviviality and negotiate new rules for access to minerals, for structuring work and for distributing and consuming gold (Cleary 1990: 134; D'Angelo 2014, 2015; Fisher et al. 2023; Grätz 2004a, 2004b, 2009; Peluso 2018: 411; Schreer 2021; Soemarwoto and Ellen 2010; Walsh 2004; Werthmann and Grätz 2012). Much of the recent anthropological literature on ASM focuses on understanding the 'values and moralities' that guide these emergent socialities (D'Angelo and Pijpers 2022b: 4).

And many experts beyond anthropology and academia now argue that the best way to maximise the benefits and minimise the negative impacts of ASM does not lie in top-down 'formalisation' initiatives by governments, international organisations, or transnational corporations, but in building on 'social organisation [as] expressed and substantiated by the social relationships the artisanal miners form with each other' and with minerals, 'and the values and beliefs embedded in those relationships' (Cochrane 2017: 149. See also Fisher et al. 2021).

This last point ties into the second trend, inspired by another recent 'turn' in anthropology. The anthropology of mining has long focused on the interplay of extractivist capital (Jacka 2018) (alongside colonialism and Christianisation) and indigenous cosmologies to understand local mining lifeworlds.[7] But since the mid-2000s, the so-called 'ontological turn' has given this new impetus and more specific focus (Ferry 2022: 98). For example, a growing number of ethnographies draw on science and technology studies and actor network theory to investigate mines as 'sociotechnological systems', revealing how extractive techniques and technologies and relations within complex 'networks' or 'collectives' of human and nonhuman 'actants' shape mining territorialities (D'Angelo 2022: 167–68; Golub 2014: 7; Jacka 2018: 71; Massaro and de Theije 2018; Salman 2016). There is also a clearer focus on 'materiality', or 'how the properties of [minerals] as material "affordances"' (Ferry 2022: 95) and their 'becomings' (D'Angelo and Pijpers 2022b) through modes of production, exchange and consumption shape the values attached to them. This too has a long pedigree in anthropology,[8] but it arguably gained new impetus from the ontological turn.[9] Anthropologists increasingly explore 'the mutuality of human-mineral relations' (Walsh et al. 2021: 6) by reference to indigenous 'ontologies' where minerals figure as 'agentive', 'personified' substances.[10] The personhood of minerals invites efforts to understand their 'intent' (Viveiros de Castro 2017: 61–62) and develop 'tropes of accountability' (C. Stewart 2017) to explain why they appear or disappear in certain locations, why some miners find them and not others, or why they deliver, or not, hoped for personal and collective improvements (D'Angelo and Pijpers 2022b: 5). Jerry Jacka's trope of 'alchemy in the rainforest' beautifully captures this (2015: 3, 7). In many indigenous lifeworlds, the intent, presence and value of minerals are intrinsically interwoven with human affairs. And the transmutation of land into precious minerals, which is dreamed to enable a concurrent 'transformation of people by improving the human condition' (ibid.), is contingent on 'blessings' or 'punishments' framed by reference to emergent and locally defined moral values. Minerals give themselves to 'good persons' (Fisher et al. 2023: 7) who relate appropriately with them and with each other.[11]

The final trend relates to gender. Since the 2000s a growing literature has explored this under-researched field in the anthropology of mining (Jacka 2018: 71).[12] As industrial mining increasingly relocated to developing countries, it became apparent that women bore many of its negative impacts and enjoyed fewer of its benefits (e.g. Lahiri-Dutt 2011, 2015: 526–27; Macintyre 2003). Masculine biases were entrenched in the mining industry and in ILO-derived mining legislations.[13] This interacted with local gender ideologies, social practices and power structures to maintain or exacerbate established gender inequalities and frictions and to give rise to new ones. Women from mining-impacted communities actively denounced this, while scholars focused greater attention on gender in mining and awareness grew about the need to 'mainstream gender' among NGOs, donor agencies and within the large-scale mining industry (Lahiri-Dutt 2015). Academics challenged historically entrenched biases that obscured the roles of women in mining, highlighting how they had always been present in the mines – and this not just as supporters and reproducers of male miners confined to the domestic domain or ancillary activities, but also directly as prospectors, extractors, transporters and processors of ores and mineral traders (Lahiri-Dutt 2012, 2015, 2022). The presence of women is especially evident in informal mining settings. In much of the developing world, the number of women involved in it is growing. As mentioned above, this is both as they seek new forms of freedom and agency and to support themselves and their families in the face of conflicts, economic downturns and widespread neoliberal structural reforms that encouraged deagrarianisation and a retreat of national states from the provision of services and economic development, which were increasingly delegated to foreign corporations.[14]

Yet gender is even less researched and understood within informal mining settings (Lahiri-Dutt 2015: 527, 532–33). Efforts to investigate ASM through 'a gender lense' (Lahiri-Dutt 2012: 194) cannot focus on women alone but must take a dynamic, relational approach. Anthropologists working in mining are contributing to the growing literature on 'emergent masculinities' in the Pacific and elsewhere, showing that formal and informal mines are places where a plurality of emergent femininities *and* masculinities take shape and interact in complex ways (Lahiri-Dutt 2012, 2022).[15] But a recurrent finding is that the gendered division of labour 'maps onto ASM' in ways that negatively impact women's opportunities (Lahiri-Dutt 2022). Men often seek to create spaces, identities and prestige for themselves by excluding women from certain extractive activities and/or controlling their labour and income (e.g. Buss et al. 2020; Clark 1993; Cuvelier 2014; De Boeck 1998, 1999; Heemskerk 2003, 2008; Lahiri-Dutt 2011, 2015; Moretti 2006b; Wardlow 2004). But alternative visions of *kamapim gutpela man* (TP: 'becoming good men') are also possible in mining contexts (Kuo 2020,

2023; Zimmer-Tamakoshi 2017). As this book will argue, those too can be inspired by longstanding local modes and values of masculinity. They include giving proper recognition to women's individual and collective contributions. Or expressing 'gendered sympathy' (Arthur-Holmes 2020) for them as women in general or as one's lovers, wives, daughters, nieces, sisters, mothers and so on. It can also mean emphasising personal and collective masculine dependencies and obligations towards women (Kuo 2020, 2023; Zimmer-Tamakoshi 2017. See also Barnett-Naghshineh 2019; Gibbs 2017; Koczberski and Curry 2017). At times this coincides with privately or collectively stated recognition of one's own failure and/or that of other men, to meet such obligations (Gibbs 2017; Spark et al. 2021; Zimmer-Tamakoshi 2017). Men's admissions of failure can be connected to female discourses that aim to generate 'sympathy' from them, but also shame them into change. This can encourage men to support as well as hinder women's productive efforts, including as miners and/or to make greater contributions within the household. Understanding these dynamics is important, not least because men's support or opposition impact heavily on women's empowerment and economic opportunities, not only in mining but generally (Lahiri-Dutt 2022. See also Biersack 2017; Spark et al. 2021; Taylor 2008a; and Yamiyae's case study in Moretti 2006b). As for femininity, at times women seek improvements by working within dominant gender ideologies and power structures. But often they struggle actively against the status quo to achieve positive change. It is also clear that, even where female involvement in ASM grows, 'masculinity remains the predominant cultural value' (Lahiri-Dutt 2015: 529). For example, women are routinely confined to less prestigious and financially rewarding areas of ASM, such as being allowed to mine gold but not diamonds; or surface alluvials but not hardrock or other underground deposits; or processing and transportation of ore, but not mining. They are often paid less for their work than men, who sometimes also control their earnings (e.g. Buss et al. 2020; Cuvelier 2014; Heemskerk 2003, 2008; Lahiri-Dutt and Macintyre 2006; Lahiri-Dutt 2011; 2012: 196–97; 2015: 532; 2022: 5; Moretti 2006b). Against a development approach that sees women as 'victims of informal mining' and encourages them to stay away from it, a growing literature argues that the goal should be to promote their safe entry into all aspects of ASM, if they so wish (Lahiri-Dutt 2012, 2022). Yet the focus should not just be on female participation in informal mining but also, more broadly, on understanding and ameliorating the highly 'gender selective' distribution of its overall costs and benefits (Lahiri-Dutt 2022: 2; and 2012, 2015).

A systematic reading of the literature indicates that these gendered aspects of artisanal mining are often interwoven with its ontological and moral dimensions, thus linking the three themes reviewed above. As already

said, miners often view minerals as agentive substances deeply connected with the organic, social and cosmic life cycle (Biersack 1999). They are held to emerge from and embody relations with powerful but ambivalent spirit entities associated with the land. As shown in C. Stewart's (2017) ethnography of dreams of treasure among Greek emery miners, minerals (and other forms of buried treasure) bring together the three types of 'value' that Graeber (2001) identifies in anthropological theory. They are commodities exchanged in global markets (economic value) that arise from productively differentiating relations between humans and between human and nonhumans (structural value), which are often defined by mutual obligations that inform action (moral value). Within these ontologies, men commonly frame the materiality and intent of minerals, and thus the values bound with human-mineral relations, in gendered terms that justify the exclusion of women from, or their subordination within, this domain of production and social reproduction (Ferry 2005, 2022: 99). As this book will show, women may seek avenues of agency within the bounds of such ontological and moral framings, yet often they find creative ways of challenging, subverting and even inverting them to imagine and reach for better personal and collective futures (Moretti 2006b; Wardlow 2004).

This ethnography explores the interconnection between the three values of minerals, human and nonhuman relations and gender in the Mt. Kaindi area of the Morobe Goldfields of Papua New Guinea, in wider Melanesia and beyond. Chapter 1 opens with an account of what followed the discovery of rich gold deposits at Mt. Kaindi in the 1920s. Minerals transformed the then uninhabited, spirit-infested mountain hunting ground that was a 'buffer zone' between warrying ethnic groups into a booming 'resource frontier' (Tsing 2005), but at the cost of wider violent colonisation and expropriation. The Morobe Goldfields experienced cycles of unprecedented industrial development interspersed within a long-term trajectory of relative economic decline. But artisanal and small-scale gold mining continued for nearly a century and expanded considerably after national independence in 1975. At Mt. Kaindi, it is undertaken primarily by Hamtai-Anga (aka Kapau or Kamea) migrants who began to arrive in the post-war era from other parts of the local Wau-Bulolo District, the neighbouring Menyamya District in Morobe Province and the Kaintiba Sub-District of Gulf Province. From the 1950s, some started to work their own claims as independent miners and won considerable fortunes. The chapter briefly outlines their traditional culture, key institutions and social forms. It argues that their migration was fuelled by a mix of limited and often shrinking, alternative economic opportunities; post-independence political and legal changes; and an indigenous sociality that fostered cyclic fission and migration and valued 'great men' capable of founding and growing

new settlements in vacant or newly conquered lands, as well as around gold mining claims (Burton 1997, 2003, 2007. See also Godelier 2017 for the Baruya-Anga).

Anthropological accounts from Africa, Asia, Europe, South America and Melanesia hint that oneiric experience informs how people engage in mining and relate to minerals[16]. Yet few anthropologists have subjected this to systemic analysis. C. Stewart (2003, 2017) is a notable exception, and his work inspired this ethnography in important ways. Chapter 2 introduces a few gold dream narratives and explains that the Hamtai consider dreams sources of revelation and power stemming from soul journeys and spirit visitations and interactions (Lohmann 2003a, 2007). It reviews an overlooked 'structural/analogic approach to dreams' that greatly informed my exegesis of gold dreaming (Sheriff 2021: 30). Inspired by Lévi-Strauss and by interdisciplinary works on the analytic value of metaphor, the approach suggests that, like myth, dreaming and dream interpretation work through structural analogies, inversions and transformations. These represent attempts to resolve personal existential problems faced by dreamers, which are informed by their social position and by processes of economic, sociopolitical and cultural change (Sebag 2017 [1964]; Kuper 1979, 1983, 1986, 1989; Kuper and Stone 1982). But in many indigenous lifeworlds, dreams also provide means of forging productively differentiating relations within the single cosmic flow of human-nonhuman sociality, which are needed to secure human and cosmic wellbeing. As suggested in Nietzsche's quote above, they also make dreamers aware of their obligations to human and nonhuman others and the degree to which they have met them or failed to do so (e.g. Brunois 2010; Chao 2018, 2022; Danowski and Viveiros de Castro 2017: 74; Descola 1989, 1994, 1996a, 2013; Kirsch 2004, 2006; P.J. Stewart and A. Strathern 2003; A. Strathern 1989; Viveiros de Castro 2007; R. Wagner 1972, 1977a, 1977b; Weiner 1986, 2001).

The chapter then outlines Michele Stephen's concept of 'the autonomous imagination' featured in dreams and other altered states of consciousness, which she argues to be a key source of socio-cultural, political and economic change in Melanesia, both in precontact and in colonial and postcolonial times. This book draws on it and on her ideas that dreams reveal personal desires and capacities for action otherwise hidden to the dreamer; that they seek to align such desires to wider moral obligations; and that they do so in ways that reflect different points of view and frictions within society (M. Stephen 1979, 1982, 1995, 1996; Herdt and M. Stephen 1989). These themes are reprised and expanded by Graeber (2001) and C. Stewart (2017), who argue that dreams seek to bring the three values mentioned above into alignment, helping actors to generate, debate and pursue alternative visions of how society could and should be.

Chapter 3 recounts the 'invention' (R. Wagner 1972, 1981) of gold dreaming by the first Hamtai miners. It introduces several more dream narratives that exemplify the most common analogies found in this 'dream genre'. These tropes portray minerals as garden crops, mines as gardens and mining as analogous to subsistence gardening. The chapter offers an ethnographic account of the division of labour and techniques used in mining and gardening, which miners invoke to explain the analogies of gold dreams, alongside similarities in the materiality and cultural, social and economic significance of crops and minerals.

Chapters 4 to 8 introduce many more dream narratives and analyse their analogic symbolism, including by reference to other social domains, like hunting and marriage and to beliefs about reproduction, magic, ritual and myth. They suggest that the analogies explored in Chapter 3 fit into a wider framing of mining as (re)productive engagement between humans and the spirits of the land. Their jointly descriptive and analytic methodology is inspired by the analogic-structuralist approach to dreams outlined in Chapter 2 and by M. Strathern's method of 'analogical ethnography' (Lebner 2017b: 12) that investigates relations through relations (M. Strathern 2005: vii; Lebner 2017a). The chapters show that analogous modes of sociality and morality replicate themselves at different levels of scale in the Hamtai lifeworld, from that of human domesticity and affinity to that of macrocosmic human-mineral relations (Lebner 2017b: 11; Viveiros de Castro and Fausto 2017: 48. See also Descola 2013 for comparisons beyond Melanesia).

At Mt. Kaindi, dreams are sources of agency because they enable miners to find gold. But they also provide 'tropes of accountability' (C. Stewart 2017: 112) and 'metaphors of dependency' (M. Strathern 2001: 236) by making people aware that obtaining gold depends on securing the goodwill of the spirits of the mountain. In line with M. Strathern's model of Melanesian sociality, including her discussion of Melanesian forms of 'perspectivism', gender provides the master trope for the structuration of human–mineral relatedness (1988, 2001, 2022). Miners get dreams and gold, by attracting spirit brides that link them to the wider spirit community and grow minerals for them as human wives grow garden crops and children. But they can achieve this only in so far as they behave like good husbands and affines to the mountain spirits. This means taking care when mining the land; investing inscriptive 'hard work' in it; avoiding promiscuous sex that makes the spirits jealous; and giving regular offerings of food and valuables that act like marriage and child-growth payments. It is by means of these reciprocal exchanges that miners and spirits transformed each other from potential enemies or 'non-persons' into spouses and affines (cf. Descola 2013) and that Mt. Kaindi turned from a frightening wilderness and colonial and post/neocolonial resource frontier into a productive homeland shared by

human and nonhuman 'placepersons' (Halvaksz 2020: xi. See also Lattas 2010; C. Stewart 2017).

The above recalls M. Strathern's idea of 'total figuration' or R. Wagner's notion of 'fractal sociality' (M. Strathern 2004; R. Wagner 1986, 1991, 2001). While those two authors outlined them most explicitly in their works, fractal cosmologies and modes of social and cultural description and analysis have long been present in anthropology (Mosko 2005). The theme of fractality is expanded in Chapters 9 and 10, where we learn that Kaindi's gold is getting harder to find with every passing year. Like other Melanesians who predicate material development on appropriate relations between humans and between humans and nonhumans, Hamtai understand this decline in moral terms and, more specifically, 'in terms of male-female relations' (Clark 1993: 746; Barker 2016; Jacka 2015; Halvaksz 2020; M. Strathern 2022 [1999]). In local discourse, the perceived decline of the land's creativity (Leach 2003) stems from a double breakdown of gendered reciprocal exchanges between miners and guardian spirits of the gold and between human men and women. The microcosmic and macrocosmic levels of conjugal-affinal sociality and morality that structure Kaindi mining do not just resemble one another. They also affect each other iteratively as interconnected parts of what Jacka (2015: 3) calls a single 'cosmic moral economy' linking 'the total environment . . . and human affairs' (cf. Bird-David 1990: 191, 1992; Barker 2016; Descola 2013; Halvaksz 2020; Hyndman 2005; R. Wagner 1977b). At Mt. Kaindi, gold has become what R. Wagner (1991: 165) calls a 'relational resource': at once the outcome, embodiment and indispensable medium of the fractal (microcosmic and macrocosmic) productive and procreative flow of exchanges that alone sustains the wellbeing of men, women, children and nonhumans.

The idea that personal and collective efficacy and wellbeing depend on the establishment of 'collaborative, procreative and nurturant' marriages with powerful spirit entities existed in many traditional domains across Melanesia, some of which are reviewed in Chapter 9 (A. Strathern and P.J. Stewart 2004a; and P.J. Stewart and A. Strathern 1999). These included male initiations, bachelor and fertility cults, hunting, shamanism/mediumship and precontact quarrying activities. As is well known, these beliefs sustained ideologies that promoted the exclusion or subordination of women in important domains of agency, prestige and social production and reproduction. This rested on varying degrees of coercion, but also on cooperation guided by shared values about the importance of complementary differentiation for the common good, supported by recognition of mutual dependencies and obligations between men and women (ibid.). As Clark (1993), Wardlow (2004, 2006) and others noted for Mount Kare, at Mt. Kandi these beliefs 'mapped onto' ASM, engendering novel sources

of friction between men and women (Moretti 2006b), but also emergent values of masculinity and femininity that attempt to obviate them. Kaindi men claim that they alone can positively engage the spirits of the mines and that women's unbridled involvement in ASM is causing gold to disappear. As Tuzin (1997) argued for religious change among the Ilahita Arapesh and Holly Wardlow (2004) for gold mining at Mount Kare, the autonomous imagination of dreams provides Kaindi women with ways to challenge, subvert, or even invert these masculine claims to primacy and exclusivity. At the same time, women appeal to traditional moral mechanisms akin to those Herdt (2004: 29) described as 'the moral pedagogy of women in public ceremonies' for the Sambia-Anga and Tuzin (1997: 90) as the 'incriminating charter' of Ilahita-Arapesh masculine culture. They accuse men of causing Kaindi's decline by wasting all their gold in promiscuous sex with prostitutes, gambling and conspicuous consumption that directly angers the spirits and leaves women no choice but to mine independently. They do so both to shame men into allowing them greater room for autonomous agency; *and/or* to make them recognise their dependencies from women and the importance of domestic reciprocity for social and cosmic reproduction and wellbeing.

The Conclusion compares these discourses to those examined in the rich global literature on 'devilish', 'polluting', 'hot', or 'bitter' money.[17] Mining-derived wealth has figured centrally in it and such notions have clear gendered dimensions related to the value of domestic obligations for social reproduction. I draw on Akin and Robbins's suggestion that, in Melanesia, discourses about the opportunities and stresses associated with colonial and post-colonial socio-economic change have articulated primarily as critiques of 'bitter persons': destructive figures blamed for making potentially fertile flows of wealth 'barren' and dangerous through selfish accumulating and consuming (1999: 37). Kaindi men and women portray themselves as 'suffering subjects' (Robbins 2013: 448) and accuse one another of being the 'Bitter Gender' whose selfish behaviour is compromising 'the cosmic good' (ibid. See also Malbrancke 2019). In Melanesia and elsewhere, this trope is deployed to articulate new visions of masculinity and femininity. Men use it to delineate exclusive spheres of agency to satisfy conspicuous accumulation and consumption. Women do so to assert equal capacities and rights to men. But both also use them to champion visions of 'the good' – which includes living in a *gutpela ples* (TP: 'good homeland') as *gutpela manmeri* (TP: 'good men and women') – based on the values of social relations that are effective and unifying *as and because* they differentiate appropriately, through mutual recognition, dependencies and obligations.

Notes

1. In line with local pronunciation, pseudonyms of a Biblical or other Western origin used for my informants are given in the Tok Pisin spelling.
2. See Banks (2019) and Bainton et al. (2020) for recent overviews. Ethnographic monographs from Melanesia include Bainton (2010), Cochrane (2017), Gentilucci (2022); Golub (2014), Halvaksz (2020), Jacka (2015), Kirsch (2006, 2014), Skrzypek (2020), P.J. Stewart and A. Strathern (2002).
3. Fisher et al. (2023: 9); Halvaksz (2008, 2020). And see Bainton et al. (2020) for a recent overview focused on PNG; Cochrane (2017: 135–50) for Papua.
4. For some notable exceptions see Bainton et al. (2020); Biersack (1995b, 1999, 2006); Clark (1993, 1995a); Clark and Hughes (1995); Golub (2014: 8–9, 84–92), Halvaksz (2008, 2020); Hamago et al. (2023); Jacka (2007, 2015); Moretti (2006b, 2007); O'Faircheallaigh et al. 2017; Vail (1995); Wardlow (2004, 2006).
5. Susapu and Crispin (2001) already estimated the number at 60,000 over twenty years ago. Lynas (2018: 156) places it at 100,000. Bainton et al. (2020) report that most current estimates still converge on these numbers. But they suggest that PNG artisanal miners could now number 175,000 based on national population growth. During a 2013 visit to Papua New Guinea's Mineral Resources Authority's Small-Scale Mining Branch, their officials gave me a figure of around 100,000–150,000 based on estimates drawn from their nationwide outreach surveys and gold production levels.
6. According to observations by Matthew Allen, of the Australian National University, reported in *Pacific Waves* on 12 March 2015.
7. E.g. Biersack (1999); Clark (1993); Godoy (1985); Nash (1993 [1979]); Parry and Bloch (1989); Taussig (1980).
8. E.g. Eliade (1978 [1956]); Godoy (1985); Nash (1993 [1979]); Parry and Bloch (1989); Shipton (1989); Taussig (1980).
9. D'Angelo and Pijpers (2022a); Fisher et al. (2021, 2023); High (2013, 2017); Jacka (2018: 70–71); Walsh et al. (2021). For the place of 'materiality' in the ontological turn see Holbraad and Pedersen (2017: 199–241).
10. For examples of such ontologies *see*, among others, Absi (2003, 2006); Bainton (2010); Bainton et al. (2012); Biersack (1995b, 1999); Burton (1984); Brutti (2000, 2005, 2007); Caballero (1996, 2006); Clark (1991, 1993, 1995a); D'Angelo (2014, 2015); De Boeck (1998, 1999); Eliade (1978 [1956]); Ferry (2005, 2022); Gentilucci (2022); Godoy (1985, 1990); Golub (2014); Grätz (2004c, 2009); Halvaksz (2006, 2008, 2020); Herbert (1998); High (2013, 2017); Jacka (2005, 2015, 2018); Jorgensen (1998, 2004, 2006); Klubock (1998); Lahiri-Dutt and Macintyre (2006); Luning (2006, 2009, 2022); Macdonald (2016); MacMillan (1995); Nash (1993 [1979]); Parry and Bloch (1989); Peluso (2018); Rumsey and Weiner (2004); Salazar-Soler (2002); Schneider (1993); C. Stewart (2017); P.J. Stewart and A. Strathern (2002); A. Strathern and P.J. Stewart (2004b); Taussig (1980, 2004); Ulmer (2020); Vail (1995); Walsh (2003, 2006); Wardlow (2004); Werthmann (2003, 2005).
11. See also Biersack (1999); Clark (1993, 1995a); D'Angelo (2014, 2015); Fisher et al (2021); Gentilucci (2022); Golub (2014); Jacka (2015: 36–39, 2018: 67–68); Halvaksz (2008, 2020); High (2013, 2017); Luning (2009, 2022: 187); Moretti (2006b, 2007);

O'Faircheallaigh et al. (2017: 5); Peluso (2018: 412–13); C. Stewart (2017); Walsh (2003, 2004, 2006); Walsh et al. (2021); Werthmann (2003, 2005).

12. For some examples see Heemskerk (2003, 2008); Hinton et al. (2003); Lahiri-Dutt (2011, 2015, 2018a, 2022); Lahiri-Dutt and Macintyre (2006); Macdonald and Rowland (2002); Macintyre (2003); Mercier and Gier (2006); Moretti (2006b); Scheyvens and Lagisa (1998); Wardlow (2004); Werthmann (2009); Yakovleva (2007).
13. Lahiri-Dutt (2011, 2012, 2015, 2022); Lahiri-Dutt and Macintyre (2006); Mercier and Gier (2006); Moretti (2006b).
14. Bainton et al. (2020); Bashwira and Van der Haar (2020); Bryceson and Jonsson (2010); Hamago et al. (2023); Jacka (2018); Kirsch (2014: 32–33); Lahiri-Dutt (2012, 2015); Maconachie and Hilson (2011); Werthmann (2009).
15. E.g. Bainton (2008); Biersack and Macintyre (2017); Clark (1993); Cuvelier (2014); De Boeck (1998, 1999); Kuo (2020, 2023); Macintyre (2008); Moretti (2006b); Wardlow (2004); Zimmer-Tamakoshi (2012, 2017, 2021).
16. *See*, among others, D'Angelo (2014); De Boeck (1998: 784–85); Heemskerk (2008), Herbert (1998: 150), Shaw (1992: 46) and Walsh (2003: 295) for Africa; C. Stewart (2003: 491, 2017: 75, 109–29) for Europe; Bainton (2009), Clark (1993, 1995a), Haley (1996), Halvaksz (2020: 132–33); Jorgensen (2004), Moretti (2006b, 2007), Robbins (2004: xxv), A. Strathern and P.J. Stewart (2004b: 98) and Wardlow (2004) for Melanesia; Absi (2003: 94–97, 104–6, 232–33) and Larreta (2002: 174) for South America; Peluso (2018: 412), Schreer (2021) and M. Stephen (2003: 124–25) for Southeast Asia.
17. E.g. Biersack (1999); Clark (1993); D'Angelo (2014); De Boeck (1998); Grätz (2004b, 2004c, 2009); High (2013, 2017); Jacka (2015: 200–1); Larreta (2002); Luning (2006, 2009); Nash (1993); Prodolliet and Znoj (1992); Roopnaraine (1997); Ryan (1991); Sallnow (1989); K. Schneider (1993); Shipton (1989); Soemarwoto and Ellen (2010); Taussig (1980, 2004); Vail (1995); Walsh (2003); Wardlow (2004, 2006); Weiner (1994, 1995, 2004); Werthmann (2003, 2005, 2009); Znoj (1998).