

The shifting gender of the gold: assessing female participation in artisanal and small-scale mining among the Anga of Mount Kaindi, Papua New Guinea

Introduction

The mineral price boom of the late 1970s and early 1980s led to the opening of new mining ventures in many previously isolated and marginal areas of the Asia-Pacific region. As these locales had been traditional foci of ethnographic research, regional anthropologists became increasingly preoccupied with the dynamics of resource extraction and its implications for indigenous lifeworlds (Ballard & Banks 2003). In Papua New Guinea, where law requires environmental and social assessment studies for all large-scale mining development, this type of research was also given momentum by consultancy opportunities both within the industry and for donors and advocacy groups with a stake in the sector. As a result, the past two decades have witnessed the birth and growth of a very rich ‘anthropology of PNG mining’ (for some examples see Banks 2000; Hyndman 1994; Filer 1990; 1997; Haley 1996; Hirsch 2001; Howard 1991; Kirsch 2002; Macintyre & Foale 2004; Rumsey & Weiner 2004; and Toft 1997).

Apart for a few isolated cases (Biersack 1997; 1999 and Clark 1993), however, PNG anthropologists have focussed exclusively on large-scale extraction, so that little ethnographic insight exists on the country’s largely indigenous artisanal and small-scale mining sector (ASM). Indeed, even after the Mount Kare gold rush brought it to international attention (Hancock 1994), commentaries within the discipline have remained so few that anthropological audiences could be forgiven for ignoring the very existence of an ASM sector in Papua New Guinea.

And yet, even conservative estimates suggest that at least 60,000 Papua New Guineans- or around 1.25% of the country’s entire population- are already directly

engaged in this type of production, with an additional 420,000 of them dependent on it in some way for their livelihoods (Susapu & Crispin 2001; Crispin 2004; MMSD 2002). Despite their low level of financial and technological capital, these miners extract an estimated 150 million Kina of gold and silver per annum, equivalent to around 1.4% of the national GDP (Susapu and Crispin 2001). If these statistics were not already sufficiently impressive, moreover, all economic indicators suggest that the PNG ASM sector is not only here to stay, but to grow significantly in the near future.

In recognition of its mounting importance and in tune with a global trend towards its revaluation and valorisation, the PNG governmentⁱ, international donorsⁱⁱ, and private interestsⁱⁱⁱ have launched a range of recent initiatives to promote ASM through scientific research, financial assistance, and technical support (Banks 2001; MMSD 2002; Susapu and Crispin 2001). Far from being aimed at increasing mining production per se, these efforts stem from the recognition that, if properly stimulated, harnessed and regulated, ASM could become a positive force for ‘sustainable and equitable development’, particularly in the most deprived rural areas of Papua New Guinea (Crispin 2004; Hinton et al. 2003; MMSD 2002; Susapu and Crispin 2001).

As it is now widely acknowledged, promoting greater gender equity is a crucial requirement for this positive transformation. Indeed, evidence from other world regions suggests that mining enterprises owned by women are generally better managed than those under male control, and that women are on average more concerned with environmental and health and safety issues than their male counterparts. Similarly, women appear to be much more likely to spend mining incomes on children and the running of households than the men, who are instead prone to wasting it on drinking, prostitution, gambling and personal gratification (Hinton et al. 2003; MMSD 2002: 316-17). For these and many other reasons, it is

clear that greater female involvement in ASM is not only important in its own right, but also for the positive ‘knock on’ effect it would have on the life prospects of children, families, local communities, and the environment.

In Papua New Guinea, artisanal and small-scale miners operate in a variety of different geo-historical settings (from the wintry heights of Mount Kare to the lush meanders of the Sepik River, from historically marginal areas to regions of long colonial experience, from new mining frontiers to established sites of resource extraction, and from close proximity to large-scale mining operations and/or urban markets and services to almost complete isolation); exploit deposits that differ dramatically in nature, dimensions, easiness of reach, and average ore grade and fineness; employ techniques as diverse as sluicing, dredging and tunnelling by means of anything from shovels, pans, and wooden or metal sluice boxes to water pumps, portable floating dredges, bulldozers, excavators, and front-end loaders; and bring an astonishing variety of ‘traditional’ political forms, cosmological outlooks, gender ideologies, kinship practices, landownership systems, subsistence strategies and modes of ritual exchange to bear on how they regulate access to mineral deposits, understand the environmental and health and safety risks connected to resource extraction, assess the viability and durability of their enterprises, and organise the production, distribution, and consumption of their mineral resources.

In order to develop effective strategies and policies for greater sustainability within this sector, it is therefore essential to understand how these historical, geographic, geological, economic, technological, and cultural factors shape female participation in ASM and influence the extent to which women suffer or benefit from it. As argued by Filer (see contribution to this workshop), one way to do this involves the creation of networks and common frameworks with which to consolidate information that is

already held by stakeholders active in the sector and to capitalise on their ability to generate fresh knowledge during their routine activities. In addition to this, however, it is also necessary to encourage more social scientists in general and anthropologists in particular to contribute their expertise to this realm of inquiry, particularly through independent and long term research on the ground.

In the course of this paper, I will draw on my own fieldwork experience to present a case study of female participation in artisanal and small-scale gold mining in the Mount Kaindi area of Papua New Guinea. By means of both historical and ethnographic evidence, I will show that local women face serious obstacles to full and equitable participation in mining, which include a variety of cultural factors such as pollution beliefs, land tenure practices, the unequal control of household resources, and the gendered division of labour. Far from being simply intrinsic to indigenous culture, however, I will argue that the current male dominance of Kaindi's mining landscape also relates to the gendered history of the colonial Goldfields and to contemporary national and international law and employment practice in the formal extractive sector. Similarly, I will suggest that local understandings of the roles women should or should not hold in mining are neither homogeneous and unambiguous nor resistant to change. On the basis of this analysis and of existing examples of 'good practice' within the sector, I will then conclude with some suggestions on how greater gender equity could be promoted in PNG ASM through a series of initiatives at the local, national, and international level.

Kaindi and the Morobe Goldfields

The first alluvial gold find in the Bulolo District occurred at Koranga in 1921. Five years later, when a much bigger discovery was made in the Edie Creek area of Mount Kaindi, hundreds of white miners and thousands of indentured labourers rushed to the

region. Within a few years, the easy deposits were worked out and many independent miners left to prospect further afield, so that the larger syndicates and companies like Guinea Gold No Liability, Day Dawn Ltd, Bulolo Gold Dredging (BGD, a subsidiary of the Canadian Placer Development Limited), and New Guinea Goldfield (NGG, a subsidiary of the Russo-Asiatic Consolidated) were left to dominate the Morobe extractive scene.

The Japanese invasion of New Guinea during World War II brought a sudden halt to the development of the Goldfields. At the end of the conflict, large-scale mining was swiftly resumed, but production never regained pre-war levels. By the 1960s, BGD closed all dredging operations and in the following decade NGG- the main employer in the Wau side of the Goldfields- followed suit and wound down its activities, which came to a complete halt by the early 1990s. In the years preceding and following Independence (1975) most expatriate residents abandoned the District, which began to suffer from unemployment and a general decline in the economy, public and private services, and law and order. As economic conditions worsened, mineral prices rose, and mining legislation and controls were considerably relaxed, a growing number of District residents (of both autochthonous and migrant origins) took up artisanal and small-scale gold mining as a commercial or subsistence activity.

This process of renaissance and ‘indigenisation’ of the Morobe ASM industry had begun in the 1950s when the first PNG miners started to operate independently of Europeans. By the late 1970s, native producers accounted for over 80% of the Goldfields’ alluvial gold production and 45% of its overall output, and in the following decades ASM overtook large-scale mining as the main motor of the Wau-Bulolo economy. Today, an estimated 75% of Wau’s population, including women and children, are believed to mine at one time or another of their productive life.

Furthermore, even though the imminent opening of a local large-scale extractive project by Morobe Consolidated Goldfields (MCG) will offer alternative sources of employment, income, and services to both urban and rural residents, ASM is likely to remain a crucial component of the future economic and social landscape of the Bulolo District (Burton 2001; Crispin 2004; Jackson 2003; Lawrence 1994; Lowenstein 1982; Sinclair 1998; Susapu and Crispin 2001; Wangu 1995).

In the summer of 2001 and between April 2004 and January 2005, I carried out fieldwork in the Mount Kaindi area of the Morobe Goldfields. Located to the south of the Wau Valley, between the headwaters of the Upper Watut and the Bulolo Rivers, Mount Kaindi rises to a height of 2,500 metres above sea level, but most local mining operations are found between 1,000 and 2,300 metres of altitude and cluster around the Edie Creek Basin. A steep and narrow road links this area to the District townships of Wau and Bulolo, which are in turn connected to the coastal city of Lae, the second largest urban centre in Papua New Guinea. Because of its cold and humid climate and of tribal warfare, Mount Kaindi had not been permanently settled in pre-contact times, although the Hamtai- and Angaatiha/Susuami-Anga and the Biangai of the neighbouring Upper Watut and Wau-Bulolo Valleys visited it for hunting, gathering, trade, and ritual purposes (Gressitt & Nadkarni 1978; Lawrence 1994; Lowenstein 1982; Plane 1967).

At the height of the pre-war mining era, Edie Creek was home to hundreds of expatriates and over a thousand native labourers who worked individual claims or in the sluicing and underground operations of the larger companies. Today, the area is occupied by over two thousand people scattered in a myriad of settlements of between just one to over forty households, who live from alluvial and hard-rock mining supplemented by subsistence agriculture and small trade. Although this 'community'

includes recent and long term migrants from all areas of Papua New Guinea, the majority of residents and the focus of my ethnographic study are speakers of the Hamtai and Menya languages of the Anga linguistic family, who started to accrue to the mines in the immediate post-war years, first from the Upper Watut and Aseki areas of the Bulolo District, and then from the Menyamya District of Morobe Province and the Kaintiba Sub-District of the Gulf Province of Papua.

In the late 1950s, the first Angra migrants (mostly former NGG employees and tributers^{iv}) commenced to work independently of whites and a decade later some gained ownership of both old and newly created mining leases. In some cases, these pioneers won considerable fortunes that they reinvested in mining, housing and commercial properties and alternative businesses in and beyond the Bulolo District. Almost invariably, however, lack of education, poor finance and management skills, reliance on dishonest expatriate and national managers, and social pressure and family politics led to the collapse of these mechanised operations and the alternative businesses they had generated. As these early fortunes were won and lost, more Anga and PNG migrants accrued to Kaindi to find their own ground or work as labourers and tributers for established white and indigenous leaseholders and for NGG. For reasons already mentioned above, this process accelerated significantly in the past two decades, with the Edie Creek population more than doubling between 1980 and 1990, and nearly tripling again between then and 2000 (National Population Censuses 1980; 1990; 2000).

At the time of fieldwork, many official leases remained in the hands of the early Anga pioneers or their descendants, who employed family members and considerable numbers of non-related Anga and non-Anga people as labourers and tributers. The majority of indigenous miners, however, operated on 'customary land' that had never

been officially registered for mining development^v. Despite the relatively common use of water pumps, only one indigenous operation was sufficiently mechanised to warrant the title of 'small-scale'. Another small-mining enterprise belonged to an Australian expatriate, while a larger venture called Edie Creek Mining Company (ECM), which had inherited some of NGG's leases in the early 1990, was owned 51% by an Australian expatriate and 49% by two local landowners associations, the Kukukuku Development Corporation and the Biangai Development Corporation (see (Neale 1995). All other mining, whether alluvial or hard-rock, was conducted by means of gravity-powered water and very simple tools such as crowbars, spades, shovels, hammers, panning dishes, wooden and metal sluice boxes, and mortar and pestle.

The 'gendered morphology' of Kaindi's extractive landscape

Part I

Even the briefest visit to Kaindi would reveal that while women make up nearly half (44.56% according to the 2000 National Census) of the population, most local mining is conducted by men^{vi}. As I discovered through fieldwork, mining is universally viewed as a dangerous and physically demanding activity, and those women who engage in it often described their involvement as a matter of need rather than choice. Nevertheless, this limited female participation in mining is not exclusively a matter of personal preference but also the outcome of men's nearly complete domination of this contemporary sphere of production and social reproduction^{vii}.

In accordance with 'traditional' principles of landownership, almost all registered mining leases, tributary rights and customary land in Kaindi are held by men and transmitted patrilineally. Of course, as was the case in 'traditional' Anga culture, this patrilineal ideology is not always strictly observed and in practice women do hold

certain secondary rights to the land and resources of their kin and affines (cf. Bonnemere & Lemonnier 1992 and Burton 2001). Nevertheless, even these secondary rights are for the most part claimed and exercised not by the women themselves, but by their spouses and male relations.

Apart from ensuring their monopoly over land, which constitutes the most crucial 'means of production' in indigenous ASM, Anga men have exploited historical beliefs about gender to limit even women's capacity to participate in the sector as labourers. Like all other Anga (see Bamford 1997; Bonnemere 1996; Bonnemere and Lemonnier 1992; Godelier 1986; Herdt 1981; 1987; and Mimica 1981), the Hamtai and Menya followed a markedly gendered division of labour. While men took care of 'heavy duties' like felling trees and clearing and fencing agricultural plots, women undertook most day-to-day gardening chores such as weeding and the planting and harvesting of subsistence crops. Similarly, the hunting of large game, which used to have great subsistence and ritual significance, was an exclusively male prerogative and women were confined to catching less valued preys such as insects, frogs, rats, and lizards. Furthermore, men planted, owned, and tended the most valued forest and garden trees, like pandanus or areca nut trees, whereas women only helped in their harvesting and collected other forest produce like mushrooms, moss, ferns, and fruits. Women, on the other hand, were largely responsible for the rearing of pigs (a minor activity for the Anga compared to other Highlands peoples) and for everyday household chores that include child minding, cooking and the collection of water and firewood. Far from being confined to adulthood, moreover, this gendered mode of production formed an essential part of every child's socialisation, and girls as young as three were expected to follow their mothers and help them around the house and the garden, while boys were largely left free to play among themselves until they turned nine or ten, at which

point they would begin to engage and be instructed in archery, hunting, and other masculine endeavours (cf. Bamford 1997: 63-4).

In present-day Kaindi, women are expected to absolve all the roles that 'traditionally' pertained to their gender. In addition, heavy male involvement in mining has actually augmented their daily workload, obliging them to take on even those tasks that traditionally fell onto men, such as the felling of trees and clearing of gardens (cf. MMSD 2002). Furthermore, Kaindi was settled because of mining rather than for its climate or the fertility of its soils, most mining settlements are located close to workings but far from cultivable land, clean water supplies or sources of firewood and natural building materials, and population pressure has led to indiscriminate clearing of forests, loss of subsistence resources and pollution of water and land. As a result, local women have to walk considerable distances on a daily basis to wash pots and clothes, collect drinking and cooking water, and garden or gather fuel and forest foods, and their subsistence activities are made more difficult by harsher climates and often poor soils.

Coupled with their duties of child care, this effectively means that women are left with very little time to engage in gold mining, and that when they manage to do so they are forced to take even extremely young children along to the mines (cf. Crispin 2004; also see Hinton et al. 2003 for similar situations in Africa and Latin America). In addition, as girls are expected to help their mothers in their daily domestic and gardening chores from a very early age, they tend to gain lesser practical experience of mining than boys, who are also more likely to receive informal training in prospecting and mining techniques from their fathers and other male relatives.

Far from being simply a question of skill acquisition, however, this differential involvement in gold extraction has deep implications for how men and women come

to relate to the land and the spiritual cosmos and for what could be labelled ‘the mystical ecology and economy of indigenous mining’. So, for example, the Anga of Kaindi believe that avoiding mining accidents, locating new ores, and winning gold from known deposits depend on the goodwill of the ancestral and nature spirits (*hikoäpa*) that guard the land and its riches. Although some people possess magic and ritual means to communicate with the *hikoäpa*, it is mostly through dreams (*wata*) that the spirits provide counsel and guidance to the miners.

Overall, women are reported and report to experience far fewer ‘gold dreams’ than men. One of the reasons commonly given for this difference is that the *hikoäpa* only ‘love’ and ‘help’ those they ‘know’. Thus whether male or female, a newcomer to the mines will not receive many or any ‘gold dreams’ until, after weeks or months of living and mining in a specific area, s/he will have won the trust of the local *hikoäpa*. According to this same logic, women receive fewer ‘gold dreams’ because, as many an informant put it, ‘if you hunt you’ll have dreams about hunting, if you garden you’ll have dreams about gardening, and if you mine you’ll get dreams about gold’. Being less involved in mining due to competing responsibilities, women are thus held unable to develop as close a relationship to the spirits of the mines as their male counterparts. In turn, this results in a widespread belief that they should leave all mineral extraction to the men who, thanks to their deeper spiritual connection to the gold, can mine it more productively and with lesser risk to the *hikoäpa*, the environment, and themselves.

Apart from this singular catch-22, the Anga women of Kaindi face other cultural barriers to full participation in the ASM sector. As was the case for the wider Anga region (see, for instance, Bonnemere 1996: 184-5; 189; 191; Herdt 1981: 84), pollution beliefs and specific ideas regarding male and female physiology were

intrinsic to the gendered division of labour of Hamtai and Menya society. Today, the miners of Kaindi maintain that women are *inherently* dangerous beings whose presence (particularly but not only around and during menstruation times) in the mines can pollute the gold and anger the *hikoäpa* (cf. Biersack 1999; Clark 1993; Ryan 1991: 52; Hinton et al. 2003; MMSD 2002). So strong is this belief that even male miners who have frequent sexual relations with women are considered less likely to find gold and to be at greater risk from mining accidents. In part, this is said to be because sex temporarily pollutes male bodies, making them as ‘offensive’ to the spirits of the gold as those of women. However, there is another reason why too much contact with women should be avoided.

As appears to have been the case in pre-modern times and to be true to this day in non-industrial societies (Eliade 1978 [1956]), the miners of Kaindi conceptualise their rapport with the spirits of the mines in highly sexualised terms. Thus in many ‘gold dreams’ I recorded the *hikoäpa* appear as (often white) women who offer ‘marriage’ or sex to the miners. More generally, the miners hold that ‘Gold is like a woman, and it wants a man, a husband, to work it’. So engrained is this logic that men often referred to the spirits of the gold with whom they had regular oneiric intercourse (literally and figuratively) as their ‘wives’. Even more interestingly, their actual spouses seemed to do just the same, as I first discovered when, in the course of an interview, a woman matter-of-factly asserted: ‘My husband has a first wife, another woman, a white woman. She lives in my husband’s workplace... she was with him before I married him. She’s his first wife. I, who am the real woman, I am only his second wife’.

Now, as known from time immemorial polygamy represents, whether officially sanctioned or not, the foremost mother of misery. In Kaindi, this truism applies as

much to the partly spiritual as the purely flesh-and-blood triangle. In fact, many Anga believe that the female spirits of the gold, who are just as capable of jealousy as of love, will withhold their bounty from men who 'betray them' by marrying, sleeping and having children with other women (which, as my informants pointedly highlighted, explains not only why womanisers never remain rich for long, but also why younger men, who have few if any wives and children, always appear to get more gold from their labours than older, and thus more experienced but physically weaker, colleagues ever do).

Now, whether this is justified in terms of their polluting physiology, or because they're not sufficiently close to the *hikoäpa*, or again because they can make these spirits angry with jealousy, the fact remains that most Anga men proclaim that 'if you let women mine, the gold will disappear from your land, or landslides will cover and kill you', and on this basis attempt to keep women away from their workings. Moreover, as men control not only the public sphere of politics (all community leaders and local politicians are male) and institutional representation (women are scarcely if at all represented in official and unofficial landowners associations, miners associations, and government institutions like local administrations, the police, or the local courts), but also decision making within the household, even when they manage to engage in mining and obtain their share of gold, women find it hard to hold-on to it and are often forced to hand it over to their male relations or reinvesting it in accordance to the latter's interests and wishes (cf. Crispin 2004). In turn, this means, firstly, that women have less of an incentive than men to mine because they will often be unable to benefit directly from it, and secondly, that they will find it harder than the men to acquire and maintain tools like metal bars, dishes, boxes, shovels, or to

procure mercury or water pumps, without which they will be unable to mine, or at least to mine as productively as their male counterparts.

Part II

Far from being simply the product of 'traditional' Anga culture, however, the gender inequalities of Kaindi's extractive landscape also reflect the peculiar history of colonial development of the Morobe Goldfields and the Western 'culture of mining' that continues to dominate the legislative system of Papua New Guinea.

Thus when the Goldfields were opened in the 1920s, the Australian Administration decided that only married women would be allowed to join in the gold rush. On the one hand, this was justified in terms of protecting 'the weaker sex' from the harsh living conditions of the frontier, the risk of attack by hostile local populations, and from sexual violence by indentured labourers (a recurrent obsession of the PNG colonist). On the other hand, however, the move was prompted by a logic not very dissimilar to that reported above for the Anga, that is that loose single women and 'prostitutes' would 'exploit' (pollute?) the miners, draining them of their will to work and relieving them of their hard earned gold (see, for instance, Demaitre 1936 and Roberts 1996: 55).

What is more, even married women faced considerable resistance when attempting to enter the Goldfields. In her highly entertaining *Mountains, Gold and Cannibals* (1929: 1), for instance, Doris Booth recounts how, on her attempt to leave New Britain for the fields, 'the Government Secretary at Rabaul told me that a woman could not hope to reach the locality. The country was inhospitable, he said, and the natives were hostile- even cannibals. On no account, he concluded in his best administrative tone, would he issue me a miner's right'. Even though she applied to travel with her husband, Doris had to be smuggled to Morobe in a private schooner.

When she reached Salamaua, the prospectors who had already flocked to the area welcomed her with such charming words as, ‘if you were my wife, I would club you before I let you go!’ (Booth 1924: 36). Eventually, Mrs Booth prevailed and the Mining Warden issued her a miner’s permit. A trained nurse, she then settled near Wau and, as she ironically points out in her memoirs, was later awarded a MBE for saving the lives of many a (male) miner during the worst dysentery epidemic of the Morobe Goldfields by that very Administration that had tried so hard to keep her from ever entering them.

Of course, the very fact that Mrs Booth made it there indicates that the mines of Morobe were not wholly female-free zones. From the very early stages, women became miners to follow their husbands or became wives in order to join in the gold rush, and Edie Creek itself came to have its long-term female residents (Clune 1951: 52; Roberts 1996; Sinclair 1998). Having said that, even decades after their opening, the European women of the Goldfields remained few in numbers and continued to be largely confined to domestic and ‘ancillary’ roles rather than being directly involved in resource extraction (cf. Roberts 1996; Sinclair 1998; also see Demaitre 1936 and Struben 1961).

Far from having escaped the attention of the first Anga indentured labourers, this reality fed into and strengthened their own cultural understanding that women and gold should not mix. What is more- as I realised after hearing young and old men alike explain time after time, ‘If I am present, I don’t let any woman mine (on my land). In our traditional ways women stay in the house and look after the children and cook food for their husbands and nothing more; and when the white men came here to mine they followed the same law, they didn’t let their women into the mines, oh no! Women were not allowed in the mines, they had to stay in the white men’s houses,

and that was it' - the patriarchal ideology that permeated the Goldfields in the colonial era was used and continued to be employed by the Anga as a justification for keeping their own female folk out of mining.

In addition to strengthening and justifying autochthonous prejudice, the indentured labour system, mining laws, and 'macho' culture of Western mining that shaped the pre-independence development of the Morobe Goldfields ensured that indigenous men became involved in resource extraction in much greater numbers and long before indigenous women, who in most cases remained in the villages to meet the subsistence needs of their communities and, even when they did make it to the mines, would very rarely be employed as workers or tributers by European miners, syndicates, or the larger companies (Healy 1967; 1968; Kuluah 1983; Sinclair 1998). As a result, indigenous males found themselves better placed than their womenfolk to learn Pidgin and 'the ways of the white men', gain mining skills, develop contacts within the industry and, once Papua New Guineans were permitted to work independently and the expatriate miners started to leave, to obtain miner IDs and take over abandoned or newly registered mining leases.

Instead of redressing these historical inequalities, successive reviews of mining law and practice since Independence have only succeeded in ensuring their continuity. According to the latest incarnation of the PNG *Mining (Safety) Act* (Chapter 195A, Part III, Division 3, Clause 23), no women are to be employed in underground workings and, more crucially, female workers can be employed in *any* type of mining operation only if: a) they are over 16 years of age (which also holds true of men); b) they are engaged in exclusively clerical or technical duties; or c) they work a tenement of which they are the holders. Because of these limitations, women have fewer legal employment opportunities than men within the large scale extractive

sector. In turn, this means that they are at a relative disadvantage in terms of earning potential, exposure to mining-related health and safety practices, and the acquisition of technical skills transferable to ASM.

Today as in the past, moreover, the gendered organisation of large-scale foreign companies directly influences Anga understandings of who should and should not be allowed in the mines. Indeed, when arguing with me, among themselves, and with their women about why men alone should be allowed to mine, the Anga men of Kaindi systematically pointed to the fact that all mining staff at Morobe Consolidated Goldfields are male and that women are hired only to work as caterers or in the offices as confirmation that even the Europeans know that allowing women into the mines makes gold scarce and angers the *hikoäpa* into causing landslides and other potentially fatal accidents.

By stating that women can mine only in a tenement over which they hold title, the Mining (Safety) Act also hinders women's chances to be legally and independently involved in artisanal and small scale mining. One way women have to circumvent this is to become the 'tributers' of a company or an established leaseholder. Under this system, a woman could mine alluvial deposits within the company or individual lease and pay a share of the gold she extracts to her employer. Under the old mining legislation, tributers *had to be taken on* because claims and leases had to be continuously worked and manned by a minimum amount of workers in order to be retained (Weston 1978). With the new Mining Act, however, this requirement ceased to exist and now both companies and individual leaseholders have neither the obligation nor the incentive to hire new tributers or retain old ones. As a result, women have even fewer opportunities than in the past to work for the larger companies and, at least in Kaindi, those who operate as tributers under individual

leaseholders tend to do so informally and thus, not being officially registered, illegally.

Of course, women could always apply for registered tenements from the Government. However, their chances of acquiring such titles are, to say the least, very remote. As already mentioned, in Kaindi men have a firm stranglehold on ASM, are better placed to gain employment in the large-scale extractive sector, and dominate all spheres of public and private decision-making. In turn, this means that women are less likely to receive formal education (families are more likely to invest in the education of sons than that of daughters), to acquire technical and practical skills related to mining, and to accumulate savings, which makes it harder for them to cope with the paperwork required for applications, to pay the necessary registration fees, and to demonstrate to the relevant authorities that they possess the knowledge and the capital to exploit the proposed lease. Even if they were to succeed in that, moreover, the traditional Anga principle of patrilineal inheritance would mean that at the next generation the lease would in any case pass to the woman's son, brother, or other male relative. And here we come to the last issue with current PNG mining law.

According to the last *Mining Act* (1992, Part II, Clause 9.2), any natural person who is a citizen of Papua New Guinea, including women, can engage in the non-mechanised alluvial mining^{viii} of an area of which s/he's the owner without having to register it as an Alluvial Mining Lease. Ostensibly, this provision was introduced to widen and legalise indigenous participation in the ASM industry by enabling 'customary landowners' to mine their land without the need for expensive and complicated paperwork. In practice, however, the new law widens participation only in so far as this is permitted by the customary system of landownership of each particular PNG community and leaves all PNG women who desire to mine but live under patrilineal

regimes of social organisation and of land tenure just as dependent on their male kin and as disempowered as they were before it was introduced.

Part III

From what has just been written, it is clear that while ‘traditional’ indigenous sociality and culture do pose some obstacles to female participation in ASM, sectoral gender inequalities are also connected to events that unfolded in the colonial past and to current mining law and practice. In addition, if indigenous ‘beliefs’ and ‘cultural attitudes’ to gender and mining are not to be essentialized and misrepresented, it is important to observe that they are neither unambiguous and unopposed nor resistant to change.

To begin with, although some women- and particularly the older ones- appeared to agree that their gender should limit itself to rearing children, cooking and looking after the household and growing and selling garden produce; or that being like a woman gold gives itself more freely to men than to women; or again that the presence of one of them makes a mine barren and dangerous, many other asserted, particularly when alone or in an all-female group but also in the presence of their husbands or of other males, that these were only ‘lies’ (tok giaman) that men use to keep all important activities and valuable things, including mining and gold, to themselves.

In particular, some of my female informants vigorously denied that the spirits of the gold are more attracted to one or the other gender. Instead, they argued that all that matters to the *hikoäpa* is whether a miner makes good use of the gold s/he gets or if s/he spends it on bad things (pasin nogut) like alcohol, promiscuous sex or gambling, sometimes commenting further that, as men are more likely than they are to engage in such type of behaviour, they actually make better and more productive miners than their male counterparts. On the other hand, certain women did not altogether refute

the gendered nature of the gold but reasoned that its guardian spirits can be either women or men, and that as such they can be partial to either male or female miners, according to each particular case. So, for example, during a spot of participant observation with a mixed group of alluvial miners, a young woman stood up after panning her gold dish and called out to me. When I approached her, she excitedly pointed to three shiny gold specimens in her dish and said, 'Look! My husband came here to work yesterday. He dug this same spot and got nothing. But look here, look at what I found! This gold must be a man, and he only wants women to marry him. You see, sometimes the boss of the gold is a woman, and she loves only men. She wants to marry them, so she gives them gold. But other times it is a man, and he wants to marry a woman. If a man tries to get his gold, he'll get nothing and will walk away empty-handed. But if it's a woman who digs, she'll find gold... he'll give it to her.'

In other cases, while women assented that they should ideally refrain from ASM, they then added that, as these days many husbands, fathers, and brothers waste all their money on drinking, gambling, and prostitution and fail to adequately provide for their wives, children, and sisters, women are left with no alternative but to become miners and concluded that men should bear this shame in silence instead of attempting to prevent them from doing whatever they can to meet their own and their children's needs.

As well as being resisted and subverted by women, the idea that gold is totally averse to females and that women should have no role whatsoever in mining falls short of universal and unambiguous currency even among the men. To begin with, all men I met accepted that women are perfectly capable of receiving 'gold dreams' from the *hikoäpa*, and even that some of them, usually referred to as the 'good women' (*äpaqa qeta ti* or *äpaqa kayata ti*) or those who have 'good blood' (*hinge'ä kayata ti*), obtain

more of these ‘omens’ and thus potentially more gold than the average male miner. In addition, some women were widely believed to possess the power to attract gold to themselves and their land or to make other mines barren, either because of their ‘good blood’, or because they are seers (*hingo wa’anga*) with secret means (*p’mapane’a* or *pä’ä*) of contacting and binding the *hikoäpa*, or because they hold the destructive power of witchcraft (*phänga*).

As is the case among women, moreover, some Anga men questioned the belief that one’s gender has any direct bearing on one’s ability as a miner, arguing instead that what truly matters is whether one lives according to the teachings of the Bible and spends one’s gold in a considerate way or, more rarely, that minerals are just inert things that are simply found and exploited with skills and sheer luck. What is more, whilst the majority of men maintained that women should ideally stay out of mining, many of them had- like a prominent local leaseholder who, observing a group of women mine close to his lease commented with resignation, ‘What they are doing is bad, but how are we to stop them?’- grown to accept that from the late 1970s and 1980s things had changed too much to ever return to the complete exclusion of women from mining. Asked what had contributed to this alleged increase in female participation in ASM over the past two decades (which unfortunately I found no reliable archival sources to either confirm or dismiss), my informants repeatedly mentioned a number of concomitant factors.

For a start, at Independence Papua New Guinea enshrined the goal of gender equity in its national law and Constitution, and prominent national and local figures and politicians gave public support to the rights of female citizens to participate fully and equally in the economic, political, and social life of the country. As seen in relation to mining legislation, these discourses did not translate in the complete eradication of

established patterns of discrimination. Nevertheless, many Kaindi women felt that they had served to make people aware that women too had 'rights' and to encourage them to gradually challenge their men's exclusive monopoly on mining. Of course, this process was also facilitated by a series of other modern developments, including the abandonment of Anga male initiation, the incorporation of men and women in a single and more equal ritual community under the aegis of Christianity, relatively greater access to education for both genders, the weakening of pollution beliefs, and the collapse of parental control over marriage, which, as has been the case in other Anga areas, have collectively led to a greater level of equality and mutual acceptance between the genders than was 'traditionally' the case (see, for instance, Godelier 1986: 220-24; and Herdt 1987: 210).

According to many male and female informants, moreover, this process had a 'snowball effect' because, when the first younger, post-independence Anga and non-Anga women began, often with the open or at least muted consent of their young husbands and male relations, to break established taboos to directly engage in gold mining, they served as an example to others, encouraging greater and greater numbers of women to follow in their steps.

A second important boost to female engagement in ASM was given by the process of deregulation of the sector that unfolded in the late 1980s and 1990s. Before those changes took place, only the holders of a miner's ID were allowed to mine and to legally sell gold. As the vast majority of permit holders were male, women had little incentive to mine independently because they were effectively unable to sell any gold without passing through their husbands, kinsmen, or male employers, who would more often than not retain all profits for themselves. Today, on the other hand, miner IDs no longer exist and intra-national gold transactions are fully deregulated, so that

women have a greater incentive to mine because they can retain a greater portion of what they get, either by mining in secret or on unclaimed land or, if they have to work with a husband or male relative or for a leaseholder who will appropriate most of their declared finds, by hiding part of the gold they produce to sell of their own accord either locally or in Wau and Bulolo.

In addition to offering women an incentive to mine by making it easier for them to retain part of what they produce, the recent relaxation of mining legislation and regulations and the progressive decrease in the levels of supervision and control of local mining operations by Department of Mines (DOM) officials made it easier for new migrants to move to Kaindi to open virgin land or to squat on existing leases and 'customary holdings'. As international mineral prices rose in the face of the worsening or stagnating economic conditions of the Bulolo District and wider Papua New Guinea, ASM became an increasingly attractive proposition to both the urban unemployed and migrants from areas with little cash earning opportunities and/or growing land pressure (precisely like the Menyamya District and the Kerema Sub-District of the Gulf [see Hanson et al. 2001]). In turn, this led to massive levels of immigration which, as mentioned in the opening overview of the Kaindi area, resulted in a manifold increase in the number of people living and working at Kaindi.

As had happened in the original gold rush of the 1920s, however, local deposits amenable to exploitation by simple tools proved insufficient to comfortably sustain such a large number of people and the miners of Kaindi found themselves competing more and more intensely for increasingly scarce resources and getting lower and lower returns for their labours. In turn, this meant that all but a few miners soon found it difficult to provide for their own and their family's sustenance without some occasional or full time help from their wives or female relatives, and so the historical

reluctance of Anga men to allow their women to mine was gradually eroded by sheer economic necessity.

But if more women became directly involved in gold mining because their men could no longer adequately provide for them and their children despite their best efforts, many others were forced to do so because their men refused to contribute to the running of their households and spent their earnings on beer, gambling, and prostitution. As well as being recognised by the women, who, as related above, use it to justify their participation in ASM, this reality is also fully acknowledged by the men, and on many an occasion I was told by some leaseholder or other that, although women should not be allowed to enter the mines but should stay in the house or the gardens, he allowed some to work on his land because he knew that their husbands, fathers or brothers didn't 'look after them well' and felt too sorry to chase them away.

Conclusion: a look to the future

In the Kaindi area of the Bulolo District, female participation in mining is held back by a number of serious obstacles. To begin with, the 'traditional' division of labour and heavy male involvement in resource extraction leaves women with little time to engage in this crucial form of production. What is more, due to 'customary' patrilineal modes of land tenure, beliefs about female pollution and the sexualised nature of mining, and of their 'traditional' domination of public and domestic decision-making, Anga males maintain a high degree of control over both access to mineral deposits and the distribution and consumption of gold earnings.

As a result, women are disadvantaged in terms of their ability to access formal education, to gain practical experience of mining techniques, to benefit from mining-related educational aids such as manuals or booklets, to obtain financing from commercial institutions, to acquire mining tools or fuels, or to meet fees for the

registration of official mining titles. Far from being simply the product of 'traditional' Anga culture and sociality, however, the overwhelmingly male profile of Kaindi's ASM landscape is also a historical accretion of, among others, the indenture system and the patriarchal culture of mining that shaped the colonial development of the Morobe Goldfields, which is to this day perpetuated by the gender bias of PNG and international mining legislation and practice.

Despite all this, there is hope in the facts that those indigenous cultural beliefs and social practices that hold women from resource extraction are neither universally nor unambiguously accepted within the Anga community, and that female involvement in ASM appears to have actually increased over the past twenty years. Having said that, however, more can surely be done to promote greater gender equity in the sector.

To begin with, it is necessary to campaign vigorously in favour of women's rights to participate in ASM and to make female miners as visible as possible at both the local and national level. An example of how this can be done comes from a recent outreach programme funded by AusAid and administered by the Department of Mines. One of the aims of the project was to produce educational videos and booklets about mining techniques and environmental and health and safety issues to be circulated in established mining districts and shown with portable video technology to isolated rural communities.

When programme officials filmed women carrying out mining to include a female element to these visual aids, they encountered resistance from local men (Crispin 2004). According to Crispin (*ibid*), it was unclear if the men protested for they genuinely felt that the women being filmed were doing something technically wrong or out of jealousy because they would feature in the films instead of or alongside themselves. In my opinion, both reasons were probably true, but in addition to that,

the teams' actions attracted protests because, by valuing female agency and knowledge, they were subverting male dominance of that important sphere of action and of production. In turn, this confirms precisely how important it is that any material designed to reach not only established mining communities, but also those who may be about to embark in the sector, should contain a visible reminder that mining should not be and needs not be 'for men only'.

In Kaindi as elsewhere in the developing world (see MMSD 2002), women are often forced to take even very small children with them to the mines, where they can be exposed to accidents such as landslides or to intoxication from handling liquid mercury, drinking from contaminated containers or puddles, or inhaling mercury vapours during retorting. Because of this, as well as for their own safety, it is therefore particularly important that women should be fully aware of the risks involved in ore extraction and in processes of amalgamation and retorting.

As I mentioned earlier on in this paper, however, women have comparatively fewer opportunities than men to gain practical mining experience and informal instruction from other small-miners and to be exposed to good practice and formal training within the large-scale extractive industry. As a result, it is crucial that they be actively targeted by and involved in future outreach and educational initiatives like the Japan Social Development Fund (JSDF) programme to be implemented by the Wau Ecology Institute, which aims to enhance the capacity of small-scale mining communities to deal with social and environmental issues and to form an informal national network of ASM stakeholders, and the EU Sysmin Infrastructure Development Programme, through which the DOM plans to provide training facilities for ASM operators.

Apart from technical education, women also need financial assistance to be able to engage more independently in mining and to obtain greater benefits from their labour.

In Kaindi and wider Papua New Guinea, artisanal and small-scale miners find it hard to obtain financing from commercial institutions, which are weary of getting involved in a business that is considered extremely risky, unwilling to lend to those with little or no collateral to offer as security for their borrowing and who have no credit records and limited proven management skills, and disinterested in clients with limited and sporadic earning potentials and who lack either good references or the capacity to deal with a rather complex bureaucracy and paperwork.

But if accessing financing is difficult enough for male miners, it is even more so for women, who have generally lower levels of formal education, lesser control over family earnings and savings, and even less of a chance to hold formal title over mining, agricultural or residential leases or other forms of collateral. In turn, this means that women have but limited venues to raise funds to buy mining equipment, finance trips to better gold markets, or meet application fees for mining leases.

In the light of these problems, the recent opening of the Wau Microbank, a joint venture between the Asian Development Bank, the PNG Government, and the Bank of PNG represents a significant and potentially very positive development. Unlike larger commercial institutions, the Wau Microbank does not require references or complex paperwork but relies on a simple passbook system supplemented by photo IDs which the men and women of Kaindi found much easier to understand and to use. In addition, the bank accepts clients with very small and irregular incomes, offers 'group accounts' through which a number of small-earners can unite to save and borrow, and after a few months of saving provides small loans that are on average equal to or 1.5-2 times as much as the loan holder's existing savings. Even more crucially, the bank travels to Kaindi on a pretty regular basis to collect from clients who wish to add to their savings, a practice that is particularly helpful to women who,

due to the presence of substantial numbers of ‘rascals’ (bandits) within and between Kaindi and Wau, are often put off travelling to Wau or Bulolo to save their mining or marketing earnings for fear of being robbed.

If women are to fully benefit from the new opportunities offered by projects like the Wau Microbank, however, they must be politically empowered and helped to gain greater control over local mineral resources. As observed in this paper, all local community leaders in Kaindi are men and all the most significant positions in local government and administration and in crucial institutions such as indigenous landowners’ associations or the miners’ association rest firmly in male hands. In order to counter this monopoly, positive discrimination practices should be considered in the local politico-administrative order and women should be encouraged to form their own associations, and most especially a female miners’ association.

That this is not only possible but desirable is shown by existing organisations such as the ‘Kaindi Nani (‘older sister’) Group Association’. This body was formed in the mid-1990s by a middle aged Hamtai-Anga couple from the Edie Creek area of Mount Kaindi with support from a sympathetic female official of the Bulolo District Government. At the time of fieldwork, the organisation comprised nearly two hundred members, most of whom were Hamtai women engaged in the growth and marketing of garden produce and the processing and sale of store-bought foods and items.

With continued support from the District’s Administration and from local interests such as Edie Creek Mining, the Nani Group managed, cleaned and maintained the market area of Kaindi, and had been responsible not only for creating a safer environment in which women could carry out marketing without interference from criminals, but also for successfully protecting their hard earned profits from repeated attempts by local male leaders, leaseholders, and ‘customary landowners’ to extract

'rents' and 'taxes' from the market users. In my opinion, organisations of this kind should be given support by local politicians and business leaders and by the Provincial and National Governments and could serve as a model for the creation of female miners' associations to promote and safeguard women's interests in the ASM sector (cf. Hinton et al. 2003 and MMSD 2002).

To achieve greater gender equity in PNG ASM, moreover, it is also necessary to review existing mining law and current employment patterns within the formal mining sector. Far from being exclusive to Papua New Guinea, the concept that direct female involvement in large scale mining should be kept to a minimum is common in the legal frameworks of many other countries and is sustained by international conventions such as the ILO's 1919 Convention on Night Work and the 1935 Convention on Underground Work. This principle, however, is based on what have been recently found to be rather 'shaky' health grounds (MMSD 2002: 205) and has as its only effect that women are grossly under represented in the PNG and global LSM sector and are almost entirely confined to clerical, nursing, catering, human resources, education, and other ancillary jobs (MMSD 2002: 205). In turn, this at once limits their earning potential and economic independence, thus making them even more likely to engage in informal mining, and compromises their relative ability to acquire skills and finances transferable to the ASM sector (cf. Hinton et al. 2003), thus hindering their capacity to mine safely, productively and independently.

As well as making women directly employable in LSM operations, however, it is important to address recent legal changes that made tribute arrangements between companies and small-miners largely redundant. As an example of how this can help women, I would like to point to the case of an old Hamtai-Anga woman I met in the field. Yamiyae, as I shall call her here, was born in the Aseki area of the Menyamyama

District. When she was still a young girl, she married a Hamtai man, with whom she had two children. A few years into the union, her husband abandoned her for another woman. Now without access to land, Yamiyae went to leave with relatives near Manyamya, where she met and married a Menya man whom I shall refer to as Luk.

From Manyamya, the two then moved to Kaindi, where one of Luk's parallel cousins worked for NGG. Eventually, Luk became a NGG tributer and the couple had two children of their own. In 1990, however, Luk died in a tragic mining accident, leaving Yamiyae and her children from both marriages behind. After Luk's death, some of his relatives from the Bulolo District and Manyamya confronted Yamiyae, whom they accused of having caused his death with 'poison magic' or witchcraft. In a heated confrontation, the group burnt down the couple's house and took away or destroyed all of Luk's water pumps and mining tools, and it was only thanks to the intervention of some distant relations of hers who resided in Kaindi that she wasn't killed that very night.

Although she received monetary compensation from NGG for the death of her husband, Yamiyae was forced to relinquish it all to her affines. In addition to this, Luk's relatives attempted to take Yamiyae's tribute away from her on the basis that she was 'only a woman' and had no right to hold on to the land of her husband. According to Yamiyae, however, NGG first and then ECM stood firmly by her side and refused to transfer her tribute rights to her affines. In a very touching account, Yamiyae told me how she initially struggled to mine and to garden at the same time. After a while, a woman from a nearby settlement of full time agriculturalists began to give her food from her own gardens, freeing Yamiyae to mine full time and accumulate enough resources to finance her children's primary and secondary

education. In return, Yamiyae allowed the woman's family to work on her land when they needed money for store goods.

Similarly, Yamiyae received regular support and material help ranging from child minding to gifts of food or help in building houses and tool sheds from her neighbours and local relatives, whom she repaid by letting them work for her when they needed money to buy salt, soap, or other trade items. Finally, she succeeded in maintaining regular contact and positive relations with her relatives back in the Aseki area because she was able to assist them with PMV fares when they came to visit her and to contribute to marriage and funerary payments and other important exchanges in her community of origins.

As this story clearly illustrates, Yamiyae's tribute arrangement with NGG/ECM and the support she received from these companies enabled her to retain control over both her labour and her mineral resources, by means of which she not only gained enough cash for her own and her children's sustenance, but managed to do something that normally only men are able to do, or at least to do to such an extent, that is to use her land as a bargaining tool and a means to win political and material support for herself and her children both in Kaindi and in her community of origins. In turn, this highlights the positive role small, medium and large companies operating in the formal mining sectors can play in empowering female miners and why it is important that they should be offered some form of incentive to hire, train and support more tributers and to ensure that a good percentage of them be should be women.

Finally, there is a last crucial reason to review current national and international mining law and to fully open the PNG and global formal mining sector to women, and that is that this may serve as a positive example to ASM communities. In Kaindi as in many other parts of Papua New Guinea and the developing world, indigenous

artisanal and small-scale miners have long coexisted and continue to operate in close proximity with mechanised foreign operations. Through my discussion of the gendered colonial history of the Morobe Goldfields, the logic behind current mining law and the employment practices of large-scale mining companies like MCG, and the ways in which the Anga miners of Kaindi look at these when ordering and discussing their own mining practices, I have attempted to demonstrate two simple facts, that is firstly, that indigenous miners are neither closed in their own cultural box nor stupid, and secondly, that they do not hold a monopoly on misogyny.

On this basis, I would suggest that our well-meant attempts to preach to ‘the native’ how important it is to involve women in ASM will run the serious risk of being laughed off as hypocritical or even malicious for so long as Western mining companies continue to be seen by indigenous people to act precisely as if they too believed mining to be especially dangerous to women and women to gold. Of course, whether it will prove easier to dispel our own ‘pollution beliefs’ than those of ‘the natives’ is hard to predict, but judging from the now millenarian history of Western mining ideology and practice, one is sadly led to conclude that it very probably shan’t.

Endnotes

ⁱ Particularly through the Department of Mines (DOM) (Susapu and Crispin 2001).

ⁱⁱ At present, these include the Australian Development Bank, AusAid, the EU, and Japan's Social Development Fund (Banks 2001; Susapu and Crispin 2001).

ⁱⁱⁱ Such as Metals Refining Operations Ltd, PNG's sole private metal-refining company, and mining companies such as Aurora Gold Ltd, Highlands Pacific, and Porgera Joint Venture (Susapu and Crispin 2001).

^{iv} As will be discussed more fully later on, a 'tributer' is the holder of a 'tribute agreement' with a company or other leaseholder whereby s/he is allowed to mine that company's or other leaseholder's tenement provided that the holder shall receive a portion or percentage of the minerals won by the tribute holder

^v According to the new Mining Act (1992) this is perfectly legal as long as: a) the miners can demonstrate customary ownership of the land they work or an agreement with its customary owners; b) they limit themselves to the exploitation of alluvial deposits; and c) they use no mechanical mining equipment including water pumps. In relation to these clauses most operations I encountered were less than kosher as the customary ownership of the area is still hotly disputed between and within local Anga and Biangai communities, miners worked indiscriminately alluvial and lode deposits, and water pumps were used whenever they could be afforded or borrowed.

^{vi} This is not to say that women are altogether absent from the ASM scene. On the contrary, females of all ages are found mining alluvial and vein gold alike, feeding gravel into sluice boxes, digging and crushing gold stones, and panning, amalgamating, and even retorting and selling the gold they extract. On average, however, women make up only a minority of mining teams, particularly in the case of hard-rock operations. In addition, the majority of female miners I met worked with

their husbands, fathers, brothers or other male relatives, and only rarely were they mining independently or with all female relatives and companions.

^{vii} In present-day Kaindi, it is impossible to obtain items of daily consumption like tinned meat and fish, salt, sugar, oil, soap, or clothes without cash. Similarly, money is essential in providing for education or medical treatment; purchasing tools and building materials like bush knives, axes, spades, gold dishes, corrugated iron, nails, cooking pots, or water pumps; and acquiring items of great personal, status and business value like radios, beer or cars. Furthermore, as most ceremonial and social exchanges, from brideprice payments to church offerings and from gift giving during religious festivities to collections for marriage or funerary feasts now involve both cash and store-bought items, money has invaded all aspects of local sociality and has become an invaluable source of efficacy, power and prestige. Given its importance a cash-earning activity, it is then hardly surprising that the Anga men of Kaindi should have strived to extend established patterns of domination to include the new field of gold mining.

^{viii} That is the mining of ‘all unconsolidated rock materials, transported and deposited by stream action or gravitational action, which are capable of being freely excavated without prior ripping or blasting’ (Mining Act 1992, p.2) conducted ‘by the use of hand tools and equipment but not by pumps nor machinery driven by electric, diesel, petrol or gas-powered motors’ (ibid, p.3).

Bibliography

- Ballard, C. & G. Banks. 2003. Resource wars: the anthropology of mining. *Annual Review of Anthropology* 32, 287-313.
- Bamford, S. 1997. *The Containment of Gender: Embodied Sociality among a South Angan People*. PhD Dissertation, University of Virginia.
- Banks, G. 2000. Marginality and environment in Papua New Guinea. *Asia Pacific Viewpoint* 41, 217-230.
- 2001. Baseline study for Papua New Guinea: London: Mining, Minerals and Development Project, International Institute for Environment and Development.
- Biersack, A. 1997. Men, mines, and the environment: gendering mining at Mt. Kare and Porgera, the Papua New Guinea Highlands: Paper presented at the panel 'Culture/Power/History/Nature: Papers in Honour of Roy A. Rappaport', organised by A. Biersack and J. Greenberg, Annual Meeting of the American Anthropological Association, Washington, DC, November 1997.
- 1999. The Mount Kare python and his gold: Totemism and ecology in the Papua New Guinea Highlands. *American Anthropologist* 101, 68-87.
- Bonnemere, P. 1996. *Le Pandanus Rouge: Corps, Différence des Sexes et Parenté chez les Ankave-Anga (Papuasie-Nouvelle-Guinée)*. Paris: Éditions de la Maison des Sciences de l'Homme.
- Bonnemere, P. & P. Lemonnier. 1992. Terre et échanges chez les Anga, Papuasie Nouvelle-Guinée. *Études Rurales* Juillet-Décembre 127-128, 133-158.
- Booth, D.R. 1924. *Mountains, Gold and Cannibals*. London: Cecil Palmer.
- Burton, J. 2001. *Morobe Gold and Silver Project: Socio-Economic Impact Study (Vol.I-III)*. Port Moresby: Morobe Goldfields Consolidated Limited.

-
- Clark, J. 1993. Gold, sex, and pollution: male illness and myth at Mt. Kare, Papua New Guinea. *American Ethnologist* 20, 742-757.
- Clune, F. 1951. *Somewhere in New Guinea: A Companion to Prowling through Papua*. London: Angus & Robertson.
- Crispin, G. 2004. Women in mining in Papua New Guinea: Paper presented at the 'Pit Women and Others: Women Miners in the Asia-Pacific Region' Workshop, Canberra, ANU, Friday 2 July 2004.
- Demaitre, E. 1936. *New Guinea Gold: Cannibals and Gold-seekers in New Guinea*. London: Geoffrey Bles.
- Eliade, M. 1978 [1956]. *The Forge and the Crucible: The Origins and Structures of Alchemy*. London: University of Chicago Press.
- Filer, C. 1990. The Bougainville rebellion, the mining industry and the process of social disintegration in Papua New Guinea. *Canberra Anthropology* 13, 1-39.
- 1997. The Melanesian way of menacing the mining industry. In *Environment and Development in the Pacific Islands* (eds) B. Burt & C. Clerk. Canberra: Australian National University.
- Godelier, M. 1986. *The Making of Great Men: Male Domination and Power among the New Guinea Baruya*. Cambridge: Cambridge University Press.
- Gressitt, J.L. & N. Nadkarni. 1978. *Guide to Mount Kaindi: Background to Montane New Guinea Ecology*. Wau, PNG: WAU Ecology Institute.
- Haley, N. 1996. Revisioning the past, remembering the future: Duna accounts of the World's end. *Oceania* 66, 278-285.
- Hancock, G. 1994. The economics of small-scale gold mining systems in Papua New Guinea. In *Small-Scale Mining: A Global Overview* (ed.) A.K. Ghose. Rotterdam: A.A.Balkema.

-
- Hanson, L.W., et al. 2001. *Papua New Guinea Rural Development Handbook*. Canberra: Australian National University.
- Healy, A.M. 1967. *Bulolo: a History of the Development of the Bulolo Region*. Guinea Research Bulletin No.15. Canberra: Australian National University.
- 1968. Labour and combination in New Guinea to 1942. In *Labour and the Gold Fields* (ed.) Australian Society for the Study of Labour History. Canberra: Australian Society for the Study of Labour History.
- Herd, G. 1981. *Guardians of the Flutes*. London: University of Chicago Press.
- 1987. *The Sambia: Ritual and Gender in New Guinea*. London: Harcourt College Publishers.
- Hinton, J.J., et al. 2003. Women and artisanal mining: gender roles and the road ahead. In *The Socio-Economic Impacts of Artisanal and Small-Scale Mining in Developing Countries* (ed.) G. Hilson.
- Hirsch, E. 2001. New boundaries of influence in Highland Papua: 'culture', mining and ritual conversions. *Oceania* 71, 298-312.
- Howard, M.C. 1991. *Mining, Politics and Development in the Pacific*. Oxford: Westview Press.
- Hyndman, D. 1994. *Ancestral Rain Forests and the Mountain of Gold: Indigenous Peoples and Mining in New Guinea*. Boulder, CO: Westview Press.
- Jackson, R.T. 2003. *Morobe Gold Project Social Impact Assessment: Base-Line Study*. Richard T. Jackson Consultancy Services, Philippines.
- Kirsch, S. 2002. Anthropology and advocacy: a case study of the campaign against the Ok Tedi mine. *Critical Anthropology* 22, 175-200.

-
- Kuluah, A. 1983. Wokim gold long Morobe. In *Small Scale Mining: An Appropriate Industry for Papua New Guinea?* (ed.) M.J. Blowers. Lae: Papua New Guinea University of Technology.
- Lawrence, T. 1994. Impact of mining in Papua New Guinea: the Morobe Goldfield. In *Science of Pacific Island Peoples, Volume III- Land Use and Agriculture* (eds) J. Morrison, P. Geraghty & L. Crowl. Suva, Fiji: Institute of Pacific Studies, University of the South Pacific.
- Lowenstein, P.L. 1982. *Economic Geology of the Morobe Goldfield (Volume I)*. Geological Survey of Papua New Guinea, Memoir 9. Port Moresby: Geological Survey of Papua New Guinea.
- Macintyre, M. & S. Foale. 2004. Politicized ecology: local responses to mining in Papua New Guinea. *Oceania* 74, 231-252.
- Mimica, J. 1981. *Omalycce: An Ethnography of the Ikwaye View of the Cosmos*. PhD Thesis, Australian National University.
- Mining Minerals and Sustainable Development (MMSD) Project. 2002. *Breaking New Ground*. London: Earthscan.
- Neale, T. 1995. A century of mining and no small scale mining industry! Why? In *Proceedings of the Huon Seminar '94 Workshop on Small-Scale Gold Mining* (ed.) P.M. Afenya. Lae, PNG: The Papua New Guinea University of Technology.
- Plane, M.D. 1967. *Stratigraphy and Vertebrate Fauna of the Otibanda Formation, New Guinea*. Canberra: Bureau of Mineral Resources, Geology and Geophysics.

-
- Roberts, J. 1996. *Voices from a Lost World: Australian Women and Children in Papua New Guinea before the Japanese Invasion*. Alexandria, NSW: Millennium Books.
- Rumsey, A. & J. Weiner eds) 2004. *Mining and Indigenous Lifeworlds in Australia and Papua New Guinea*. Wantage, Oxon, UK: Sean Kingston.
- Ryan, P. 1991. *Black Bonanza: A Landslide of Gold*. South Yarra, Victoria: Hyland House.
- Sinclair, J. 1998. *Golden Gateway: Lae and the Province of Morobe*. Bathurst, NSW: Crawford House Publishing.
- Struben, R. 1961. *Coral and Colour of Gold*. London: Faber and Faber.
- Susapu, B. & G. Crispin. 2001. Report on small-scale mining in Papua New Guinea: London: International Institute for Environment and Development.
- Toft, S. (ed.) 1997. *Compensation for Resource Development in Papua New Guinea*. Port Moresby: Law Reform Commission.
- Wangu, A. 1995. Placer gold in Papua New Guinea. In *Proceedings of the Huon Seminar '94 Workshop on Small-Scale Gold Mining* (ed.) P.M. Afenya. Lae: The Papua New Guinea University of Technology.
- Weston, B. 1978. Stirring days in the New Guinea Goldfields- or dust in the sky. *Pacific Islands Monthly* August 1978, 63-67.