

‘Yams have no ears!’: *Tekhne*, life and images in Oceania

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ABSTRACT

This paper explores the imbrications between vital processes and technical processes in Oceania, from the angle of technical activities. Grounded in the ethnography of yam cultivation amongst the Abulës-Speakers (‘Abelam’) of Papua New Guinea, it builds on previous critiques of the modernist bias sustaining concepts of ‘technology’ and ‘production’ to reevaluate the analytical potential of the study of material activities and their ontogenetic properties as suggested by Gilbert Simondon. By paying attention to the temporality and the scale of practices, it suggests that the ethnography of techniques allows the unveiling of both emic dimensions of practices (or indigenous underlying theories of actions), and emic properties of entities in the world, be they living beings or artefacts. These dimensions and properties, to be tapped into and controlled, are thus made visible or elicited both within and through technical practices, via the work of imagination. Thus, processes, vital and/or technical, made visible through their performance or through their result, can take the shape of images, be they living beings or artefacts, presenting to society the possibility of reproduction and stability, without excluding their ontogenetic capacities.

KEYWORDS: technology, techniques, ontogenesis, action, magic, images, Abelam.

Consider the following encounter in Nyamikum, an Abulës-speaking (Abelam) village in the East Sepik Province of Papua New Guinea, between Ganbakiya, a renowned yam grower in his 40s, and me. Ganba was particularly famous for the power of his *manëgup*, the spell-songs used, among other things, in long yam cultivation (see Coupaye 2013:135-137).¹ On an early morning of 2003, on our way to his garden, I asked him about the reasons why he was singing to the yams, hoping to elicit a vernacular explanation. Ganba paused with a bemused yes, before laughingly saying: ‘Galëwarë [my village name]! Yams can’t hear! They have no ears! They are just food!’ Then he resumed his walk, laughing at my puzzlement (see Coupaye 2013:45-46).

This exchange encapsulates several issues – notably the particular jocular rapport between Ganbakiya and a credulous European anthropologist. For the purpose of this paper, I start with this relation made (even a negative one) between singing and a type of living being, yams. I consider that singing occupies within the cultivation process the same status of a ‘technical act’ as clearing the forest, digging the mound or building the trellis for the vines. ‘Technique’ is taken as the definition forged by Marcel Mauss through his work on prayer, magic and body techniques, that is, actions which are ‘efficacious’ (according to the actor) and ‘traditional’ (2003[1909]:49-57; 1973[1935]:75). I use this premise, upon which the Francophone anthropology of techniques, or *Cultural Technology*² was built (Lemonnier 1992: 4-11) to address the ways in

which relations between technical processes and vital processes are put to work to make specific forms emerge.

This paper, thus, weaves together three related themes. The first examines how the anthropology of techniques, when investigating the relationship between technical and vital processes, my second theme, can empirically contribute to current debates on a third theme, that is, materiality and ontology. Because of the Euro-American dominant narrative about ‘technology’, particularly in anthropology (Pfaffenberger 1992a), I start by examining two important critiques of this modern productivist understanding of *tekhne*. The first comes from the ethnography of Melanesia itself and its long discussion about production in terms of aesthetics and sociality. The second, coming from Tim Ingold (2013), posits a phenomenologically-inspired position on ‘making’ which replaces the hylomorphic premise by a flowing generative process of form creation. Both critiques provide powerful alternatives to the modernist perception of production and technology, however, both also overlook the analytical potential of investigating techniques as such. I claim instead that such an approach can specify *how* such material activities make forms emerge, and, in particular, reveal some elements of the vernacular *logics* at play in these processes. In this frame, I suggest that the ethnography of techniques can provide concrete and empirical means to shift the analytical focus from the question of ontologies, relational or not, composite or not, towards the ontogenetic capacities of such processes, from which both living beings and artefacts emerge and, at times, can merge. Rather than trying to validate the existence of a vernacular clean separation between technical processes and vital processes, I am shifting instead the question towards a heuristic and empirical frame: ‘what can material activities tell us about indigenous conceptions of life?’. In a form of ‘hermeneutic refraction’ (Pitrou 2016), this approach has not only a heuristic value in itself, but could also be mirrored in the ways in which some Pacific societies themselves play with the possibility of distinguishing and/or merging living beings and artefacts.

To demonstrate this, I use Mauss’s definition of technical and ritual acts as being efficacious, as my main analytical entry into the ways actors themselves conceive the logic of their actions, and how such logic provides both them and the ethnographer with empirical grounding for interpreting what they do, and the reasons for doing so. It is, I suggest, a powerful way to reveal indigenous pragmatics, which does not necessarily bring a definite answer to any ontological question, but rather concretely reveals the ontogenetic modalities of technical processes.

I then draw from my ethnography of yam cultivation as a technical process to show that the source of their relational ontology is not a given, but instead emerges out of the sequence of actions (which I call ‘technical processes’), which, *depending on the scale and the stage*, might treat them as plants, living beings, ancestors, extensions of the cultivator, artefacts, valuables or ‘just food’. Their capacities of being relational then emerges from the interweaving of technical and vital processes (performed or emanating from the different actors, substances, and relations), which is in turn displayed in a ceremony in order to make the result of such interweaving visible.

My last section, then extends the idea of technical processes used to make vital processes visible, by a short foray in one of the fields where Pacific ethnography has most contributed, that is the role of images. I suggest that the

multiple techniques of image-making mobilised during ceremonies, because they make vital processes visible and present within the ritual, are, there as well, a powerful empirical avenue to concretely examine processes of elicitation.

In my conclusion I end up with some reflections on the ways recent technical changes in the Pacific could be thought about in the same analytical frame.

TEKHNE, PRODUCTION, RELATIONS PROCESSES AND REIFICATION

‘Technology’ as a category, is sustained by particular assumptions about what ‘production’ is and does. This was a point noted by James Weiner in a 1995 paper dealing with *Tekhne* in Melanesia, in which, after describing the aim of authors such as Roy Wagner and Marilyn Strathern as ‘(...) question[ing] the dominance of productivist models in human social life and social analysis’, he pointed out how

in their appeal to the alternative social-existential tasks of evocation, elicitation and gathering, they have made the calling forth of a human world of action, relation and production a matter of the elicitation of forms and their proper grounding conditions, what we would conventionally label an aesthetic process. (Weiner 1995:39).

Based on Wagner’s (1986) demonstration of the crucial role of ‘analogical expansion’ in Melanesian symbolic processes and Strathern’s discussions about the visibility of relations (1995), such reintroduction of ‘aesthetic’ into the ‘elicitation of forms’, constituted a powerful incentive to examine the material dimensions of such process. In particular, comparing the respective position of magic/art and ‘technology’, J. Weiner also pointed out how, instead of being a by-product of processes of production, Melanesians keep aesthetics at the centre of their concerns. In this particular configuration, in a figure-ground reversal way, it is ‘production’ which is a by-product of ‘magic/art’ (or elicitation).

Such a suggestion is part of an older concern. Gilbert Simondon, a French philosopher of techniques, made a similar statement 40 years before, but on technical objects (2012[1958]). Though dedicated to modern types of ‘technicity’,³ echoes in J. Weiner’s paper invite a brief comparison. Examining the relations between *la pensée technique* (‘technical thinking’) and the other forms of thinking (religious, sociological, aesthetic and philosophical), Simondon suggested that all forms of thinking emerged from a previously ‘undifferentiated ground’, which he defined, in the vein of Hubert and Mauss (1972[1902-1903]; see Bardin 2015:165-190), as ‘magic’. *La pensée technique* emerged as an analytical objectification – separation – from a conceptual matrix in which objects and subjects – including artefacts and living beings – were not separated, but were particular ‘points’ (landscapes, tools, people, effigies...) in a reticulated whole of relations. It was the objectivisation or ‘figuration’ of some of these points into specific entities (such as technical objects) which progressively generated a ‘dephasing’ (borrowed from physics) of the different modes of thinking between, among others, technical and religious ones (Simondon 2012[1958]:221-245). Aesthetic is, for Simondon, a particular mode of thinking, a modality that offers a synthesis of the whole and a glimpse

of a reticulation that is no longer part of the ‘ground’, but reconstituted from the series of ‘figures’ (Simondon 2012[1958]:247-275).

In Simondon’s proposal, there is both an explicit Bergsonian heritage (the importance of the becoming of forms rather than the being of structure) and the echoes of what will be then addressed as networks (the reference to reticulations, with particular nodes). Such heritage also leads to an understanding of *tekhne* as a diffuse form of Heideggerian poiesis (Weiner 2001), an approach which runs deeply through Melanesian ethnographies of the past decades. Aiming at illustrating how Melanesians reveal (‘bring forth’ *i.e.* ‘produce’, see Coupaye and Pitrou, this issue) sociality through creative patterned acts of elicitation, these ethnographies have documented the different configurations leading to the emergence of these social forms as sources of creativity and vital processes.

However, Melanesian anthropology, perhaps because of having used one of the Maussian paradigms, that is the moment of exchanges and negotiations, as its main analytical starting point (Strathern 1988,⁴ see also Crook 2007; Moutu 2013), seldom sought to investigate the role of material activities properly in the emergence of these relational ontologies and, as such, took the analytical focus away from the particular material and temporal pragmatics at play in technical activities, which Mauss, as I will discuss below, also foresaw. Focussing primarily on technical processes, as the anthropology of techniques did, was thus often seen as implicitly validating the Modernist narrative and – in our case the separation (Latour would speak of ‘purification’, Simondon, of ‘dephasing’) of making from growing, of living beings from artefacts, or of technical processes from vital ones. From this perspective, thinking in terms of processes instead of relations (see Leach 2003), was implicitly seen as risking a fall back to the Modernist understanding of production, casting once again indigenous representations into our own models.

J. Weiner’s remark, however, posits an interesting conundrum in which, *in fine*, the study of material activities, while inherently empirical, can only fail in providing a valid heuristic frame for these vernacular ‘elicitations of forms’, because of their intimate casting within productivist models. It is thus no surprise that exchange, instead, became the main material-oriented avenue for anthropologists to understand Melanesian forms of sociality. But doing so overlooked the particular *technicity* at play in the ways in which things were made and used. It was almost as if relationality was inferred ‘back’ into creative processes, from the instantiation of relations through exchange, making actual techniques better explained by exchanges and relations, instead of seeing material activities as (social) relations *sui generis* as Mauss would have it.

Yet, I suggest, it is this particular conundrum which precisely justifies seeking the interweaving of vital processes with technical ones, not necessarily *instead of*, but *alongside* thinking through the much more ‘organic’ notions of ‘creativity’, ‘relations’ or ‘reproduction’, precisely because of their empirical grounding. Rather than considering them as being a by-product of one another, I, also, leave room for the possibility of both aesthetics and production being on the same analytical ground.

From a methodological standpoint, it requires putting no *a priori* emphasis on the ‘aesthetic’ or the ‘production’ side. Ultimately, conception, processes, production, reproduction, agency, practices, all these analytical categories imply some sort of changes, whose origins could be found in some

causalities or intentionality-based relations (*cf.* Coupaye & Pitrou, this issue), and which implicate at the most empirical level, body techniques and actual actions. Rituals, speeches⁵ and exchanges also mobilise, at some level or another, actions performed by actors in order to cajole, coerce, invite, facilitate, transform, destruct or create effects – that is Maussian techniques. From an empirical perspective, seldom are these categories of relations not moulded in, surrounded by, or emerging from material activities – what I call ‘technical processes’ – whether they involve things (living or otherwise) or not. As a result, ‘actions on materials’ cannot be dissociated from the ways in which agencies are understood.

Taking my exchange with Ganbakiya as starting point, there might be several ways to interpret what it reveals (for instance, the fact that he is also known for his jocularity). However, I will focus on a few. Whilst such a statement could have come from the emergence of a modern purification as a response to the framed question of the European ethnographer, it also indicates something about the fundamental heterogeneity and the positionality of a particular action (singing) as part of the whole (technical) process of growing yams. It not only revealed variations, uncertainties and contradictions in the interpretation about what growing/making yams were to Nyamikum people, but also the ways in which the act of singing/not singing could be analysed. It raises questions about the properties of the song, of the act of singing and of the yams as beings receptive to both. It also hinted at the fact that Ganbakiya, too, was aware of the possibility of distinguishing vital processes from technical processes – as well as of merging them back. It was also a commentary on the capacities of yams to be living beings or just food’.

LIVING BEINGS AND ARTEFACTS

Investigating the emergences of entities as living beings and/or artefacts, and when, how and on what basis they can adopt similar roles on the basis of the ways in which they come into being, has also received another treatment, more recent, critical as well of the Modernist understanding of ‘technology’.

As part of running debates on materiality, Tim Ingold’s reading of Simondon invited him to challenge the Euro-American hylomorphic and productivist frame (see Hallam & Ingold 2014:17-18; Ingold 2013: 24-26) of making, insisting instead on the emergence of forms as the result of a flowing form of engagement with materials, equated with growing. While these are potentially revealing emic conceptions, starting methodologically and analytically from growing or making does not accomplish the same project and, certainly, does not exhaust the issue. As with ‘aesthetic’ or ‘production’, it is not about asserting one as more valid than the other, but to evaluate their respective analytical positions. Hence, considering basketry as ‘growing’ *and* yam cultivation as ‘making’ both create particular heuristic oxymorons, which each reveal different properties of the processes involved, how they are understood and how we can analyse them. Simondon’s ontogenesis does not only deal with the question of individuation of people (1964), but also dealt with technical objects, and this is perhaps where “making” – like production or process – can regain its analytical value.

Like human beings, carvings and ceremonial houses, yams are not only grown, they are also ‘made’. It is the ways in which Abulës-speakers (and other Melanesian societies, see Leach 2003) might (or not) empirically merge both

making and growing which creates the possibilities for an ontological fluidity of humans and non-humans – while also allowing Ganbakiya’s playful answer. Focussing on the ‘making’ is not about artificializing yams, but neither do I want to naturalise them by considering them as *only* grown. Thus critiques of dominant productivist narratives of contemporary modes of ‘making’ or ‘production’ should not eschew the technical dimension of processes at play, lest it dissolves intentionally efficacious and traditional modes of actions back into an undifferentiated and vitalist approach which underplay the possibility of actors themselves to make their own distinctions – as did Ganba. Paying attention to technical acts, on the contrary, reveals empirically, the ways in which living beings and artefacts acquire their attributes and properties (of being composite, relational – or not) through and because of the ontogenetic quality of their “coming-into-being”, and *how* substances, actors and relations are intentionally manipulated.

From this analytical standpoint, focussing on making allows the re-evaluation of technical processes not as separated from other domains of human life, but as particular modalities of ontogenetic – thus deeply social – relations. The consubstantiality of people and things, or living beings and artefacts, thus becomes an emerging property of the ways in which people grow/make them as much as of the ways in which they interact with them, once made/grown. I will use two examples, both distant in time and space, to illustrate this point.

Starting with Alain Babadzan’s discussion of the ancient Tahitian *pa’iatua* ritual (1993), I can see the ontogenetic properties of the technical activities involved in the whole process. The sequence of material activities that activated divine effigies *to’o* included: the cleaning of the main *marae* (ceremonial platform); its decoration; the gathering of the *to’o* from priests of minor sites; the singing which summoned the divinities; the unwrapping of the effigies by the main priest; the exchange of feathers between the main effigy and the minor ones; and the returning of renewed *to’o* to their original places. The entire ritual, according to Babadzan, was about the capture and circulation of *mana* which I see in the shape of material objects, some of which coming from birds, others from specific material activities such as basketry and ligatures. Fertility, growth, gestation, productive capacity and political power were thus merged and enabled – as well as made visible – through actual actions that captured and distributed *mana*-made-material all across the polity (Babadzan 1993:139).

James Leach’s discussions of drums is another crucial case in point. Not only do the material activities of making a slit-gong for the Nekgini-speakers (2002; 2012) make visible the interchangeability of humans and drums, but they also correspond to a particular instant of the life of the human they are associated with, like the deposit of a *moment*, then forever gone. The cutting, the transport, the hollowing of the trunk, the decoration and the display of the new slit-gong, all entail material activities which, in their detail, both enact, create and reinforce the consubstantiality of the two entities. They display vernacular understandings of growth and creativity, in the form of a material deposit at a specific point/event in time, which cannot be replicated.

However, my focus is a different one than Leach’s: while his description, in the New Melanesian Ethnography tradition, powerfully re-adjusts Euro-American conceptions of creation and production, I am interested, here, in how gestures and actions on materials, in their merging with other

modalities of relations, also reveal particular notions of efficacy at play in the technical processes, as emerging out of practical outcomes or effects. Substances and entities, such as *mana* or Nekgini-speakers's *kaapu* (ancestral powers present in process of creation and production), emerge out of specific bodily practices, located at specific moments in the overall process, enabling *to'o* or slit-gongs to acquire and exert particular agencies (on divinities in the former; on sociality in the latter), a property usually attributed to living beings.

These two cases show how the material treatment of particular materials correspond to particular forms of social relations with entities that are themselves already part of the social world, though their 'natures' might be fluid and/or uncertain. Feathers, fibres, trees in particular originate from beings themselves imbued with agencies and vital capacities that are inscribed within a historical cosmological frame. The logic sustaining bodily actions (hunting, cutting, plucking, binding, carrying, etc.) engages with the materiality they present us with through properties (fibrosity, heaviness brightness, string-like...), which then are revealed, not only through the categories they invoke (the qualisigns, *cf.* Munn 1986), but also through experiencing the type of actions they afford.

Methodologically, thinking through how material activities make entities emerge as living beings and/or artefacts, invite thus a dialogue with previous ethnographies of relations between people and things.⁶ But doing so requires taking into account the difference of *scales* of phenomena. These scales extend from the micro empirical level here hands, through gestures (Sigaut 2012), split, sow, glue, fold, push or cut, and on the *logics* and *reasons* that put them in *sequence* for specific *effects*, to the wider cosmological frame through the metaphysics they implicitly manifest. This is where the investigation of technical processes in terms of emic efficacy provides its most empirical contribution to debates on materiality through their capacity to unveil the profoundly revealing dimension of material activities.

THEORIES OF 'EFFICACIOUS' ACTIONS: TECHNIQUES AND MAGIC REVISITED

Ganbakiya was not the only one to sing to yams to make them grow. Singing of *manëgup* is part of crucial steps in the entire yam growing process (see Coupaye 2013:117-121). Songs do not even need to be sung out loud, but can also be silent (*waanaba*), to achieve their effect – to be efficacious. It is thus the *act* of singing, silently or not, which delineates a logic moulded against, so to speak, the specific properties of, not only the singer or the thing sung to/upon, but of the act itself as well. The very fact that singing is combined and merged with other physical activities (in that particular case, the staking of the yam vines) shows that actions do not happen in isolation, but also occur *alongside*, as well as in, a flow of other activities. In this case, singing happens in parallel to pruning and staking the yam vines, and is seen as an integral part of the overall sequence of cultivation, like the cutting down of trees to open the garden, or its weeding.

There is little debate to have about the material dimensions of song and of singing as an act, be it silent or not.⁷ Such a material dimension was central to Mauss's thinking about sociality. Long ago, in contrast to many of his contemporaries, instead of trying to define and thus separate domains such as

religion, magic or technology, Mauss, more interested in the content of indigenous conceptions, showed how the study of bodily and material activities could be methodologically and conceptually crucial for ethnographers. His definition of techniques, arts, language and rituals as all being acts that were ‘effective’ and ‘traditional’ (Mauss 2007[1947]:67, 1973[1935]:75, 2007[1947]: 67-68) became the cornerstone of the anthropology of techniques (see Galliot 2015; Sigaut 2003,). While ‘traditional’ was referring to the fact that all these modes of actions were transmitted and learnt, the concept of ‘efficacy’ occupied a much more subtle heuristic role. Indeed, it implied an efficacy according to the actor – not the analyst; in other words, it was not the type of efficacy (symbolic, social or technical), nor the direction of efficacy (the actor or the acted upon), but the vernacular efficacy (see Coupaye 2013:237-246) which was analytically important. This allowed Mauss to avoid having to define exclusive domains (‘technology’, ‘aesthetics’, ‘rituals’, ‘language’) and, instead, to bring focus on the forms taken by indigenous pragmatics, through his definition of ‘technical’ acts. Rather than trying to elucidate the relation between ‘magic’ and ‘science’ – or ‘technology’ – through the thorny question of rationality (see Tambiah 1990) or the issue of the efficacy of symbols, I too am focussing on the specific agentive configurations at play in such modalities of actions.

The question of indigenous pragmatics resonates with recent discussion of the role of semiotic regimes (Keane 2005; Munn 1986; Peirce 1978; Robbins 2001) upon which events, things and actions are interpreted. If, indeed, for things to have meaning, they must have practical bearings, then in turn, practical – here ‘technical’ – endeavours could be thought of as positioned within signification regimes or vernacular epistemologies. It is thus no surprise that such a Peircean approach runs through Alfred Gell’s discussion of agency (1998), one of the first to explicitly formulate a pragmatic approach to objects (but see Morphy 1991; Munn 1986). Dealing with the scale of cognition and affordances and social relations happening in the vicinity of things, it also invites pushing a little further the relation between signs and their effect, nested within semiotic ideologies (Keane 2005).

In this frame, Mauss’s conception of ‘efficacy’ (1973[1935]:75) brings together relations between actions, results, their visibility and their interpretation, making it one of the crucial points where actions and meanings can be understood together (see Sigaut 2003). If, as Charles S. Peirce claims, ‘what is tangible and conceivably practical [is] the root of every real distinction of thought’ and meaning (1878:293), then, technical actions ones *also* are a level at which meanings and representations emerge from, even– and perhaps especially –non-verbally (*cf.* Lemonnier 2012). The same statement is made by Michael W. Scott, about ‘representations of conditions prior, contrary, or ultimate to the present’ as being ‘not semantically empty or without practical consequences’ (2007:28).

Thus, through the logic they manifest, all material activities offer an insight into implicit vernacular theories of actions and the effect they have on the world. This is particularly true in the main domains in which relations between vital processes and technical processes have been, more or less directly, tackled, that is, the relationships between techniques and magic/rituals. Rituals, in particular, provide us with an indigenous hermeneutics of such processes/relations, while making present the sources of what we call ‘life’ as

the result of a set of coordinated actions from several agents (see Pitrou 2015). Here again, a wide range of Pacific examples, from the Tahitian *pa'iatua* (Babadzan 1993) to Lono's circuit in Ancient Hawai'i (Valeri 1985), to the Yafar's *Yangis* ritual (Juillerat 1986), the larger category of millenarist movements (e.g. Jebens 2004) or Christianity (e.g. Barker 2012, Robbins 2001, 2004;) provide us with a wide range of cases helpful to (re)think the 'technical' dimension of rituals as being made of a particular configuration of actions and agents. The role of life force such as the Oceanic *mana* and its connection to technical activities (Hocart 1935; Keesing 1984; Tomlinson and Kāwika Tengan 2016; Revolon, this issue) can indeed be interpreted as a sign that distinguishes beings, but, depending on the type of actions, can also appear both as a way to think through capacities for action, making or reproduction and as a substance to be captured and manipulated.

This is where a Maussian overview of this vast body of literature on ritual and magic provides us with many instances of the semiotic role of non-humans, the coordination of actions with other non-human agents, and of the logic of process through the sequential nature of the prescribed steps to follow to make ceremonies efficacious. Hence, when Trobriand carvers capture the fluidity of the sea water or the snake during their initiation to make their own carving gestures themselves more fluid (Campbell 2002:59-66), or when the death of Cook is equated with Lono's cosmological demise (Sahlins 1985:104-135), parts of the interpretative mechanism and logical connections at work rest on particular semiotic ideologies that distribute likeness and relations, continuities and discontinuities across different categories and scales of actions. Rituals, as techniques, indeed isolate familiar objects to create cognitive dissonances (Lewis 1980:6-38), but also to *make* the necessary distance or contrast to allow relations (of likeness and/or contiguity) to unfold (Wagner 1986; Wittgenstein 1982[1969]), by making forms emerge from a more uncertain and fluid background. In this 'magical' frame, indeed, life processes and technical processes are equated through a web of resonances and reticulations (Lemonnier's *perissologies*, 2012; see also Simondon 2012[1958]:247-275) that do more than give meaning to action, but also validate them and make them appropriate and efficacious. But, it does so *also* because rituals *too* emerge out of body techniques and material activities, *which are known* for making concrete forms emerge when gardens are cut out of the forests and planted in sequences, houses are built through the setting of a frame, later to be covered by fronds, or when a figure or a drum is carved out from a log.

Thus the efficacy I am thinking of is located at different scales: from the very embodied, routinised, *flowing* as Tim Ingold has it (2013), moment of acting, in which, there is little doubt that action and evaluation are merged (Simondon 2012[1958]; Leroi-Gourhan 1993[1964]), up to the entire making or ritual sequence (see Abramson, this issue), in which each step is carefully planned, but which also include moments of reflexivity from the actors on vital and/or technical processes as phenomena to think about, as well as interruptions and break down. As often with debates, this is a question of the chosen scale of observation and of the research question.

Local conceptions of efficacy might indeed mean an underlying ontological (indigenous) claim about the nature of beings involved but also about the nature of actions. Whilst leading us back to Philippe Descola's

specific modalities of actions as the grounding of implicit ontological regimes (or at least ontological regions, if we want to avoid closed boxes), it also makes room for thinking how these ‘schemas of practices’ (Descola 2013[2005]:91-111), actualised through technical processes, shed a light on the heterogeneous and composite ontologies of things done, and done to (see Coupaye 2013:286-291, 297-309) – or, even more, how technical processes are at the basis of the indigenous *ontogenesis* of people and things.

When it comes to yams among the Abulès-speakers, I have detailed elsewhere the overall sequence of cultivation, and how such artefacts emerge out of a sequence of configurations gathering different agents and substances, adumbrating heterogeneous collectives, and encapsulating properties, virtualities and agencies into a concrete entity (Coupaye 2013). I shall, in this paper, point out only some of the particularities the sequence revealed.

WHY CAN (WHEN DO) YAMS HEAR? THE TEMPORAL NATURE OF YAMS AS LIVING BEINGS OR ARTEFACTS

Tuber cultivation and in particular yams are a pervasive topic in Pacific anthropology (Battaglia 1991; Barrau 1965; Harrison 1982; Malinowski 1978[1935]; Mosko 2010; Tuzin 1972). Their centrality in Melanesian imaginations is such that they might also be considered as a central paradigm for thinking through people and sociality (Haudricourt 1964). But such centrality certainly comes from the type of relations people have with them, at a practical and sensible level. This articulation thus emerges from the particular moment in which both plants and humans (and other entities as well) cooperate, to make new forms emerge.

In Nyamikum, long yams (*Dioscorea alata*) of the Abulès-speakers (Forge 1965, 1990; Kaberry 1941; Lea 1966, Scaglione and Condon 1979) are cultivated following specific socio-material conditions. The cultivation takes over 8-9 months and is geared to the cultivation of a range of other crops. The overall cultivating sequence is deceptively simple and recursive. People describe the need of cultivating long yams because these ‘open the road’ to all other food, without which they risk starvation (Coupaye 2013:105-109). The best tubers are then decorated and displayed as images during an annual ceremony. The ceremony is itself an essential crucial step in the overall technical sequence, as by celebrating the long yams, it ‘invites them’ to come back again in the next season. After the ceremony, yams are exchanged as valuables for funeral, matrimonial or dispute compensations or, in previous times, between ceremonial partners. Finally, they are partly consumed and replanted for the next season. Then the cycle starts again.

The deceptive simplicity of the overall sequence in fact encapsulates several dimensions which can only be revealed by varying the temporal (specific operations, hours, days, months) and spatial (the yam mound, the garden, the village, the Maprik area) scale of analysis. Intimately geared to the cultivation and the harvest of all food, steps include ritual operations, the administration of substances (see Forge 1962) – all intimately interwoven with physical activities and gestures, such as digging of the ground or staking the vines of the yams (Coupaye 2013:91-158). This intertwining creates an intricate ballet of species and operations between the different gardens, depending on their age (when they were opened). Sociality itself is not only an integral part

of the process, but also emerges out of the ‘technical process’ (see Scaglione 1993 and Coupaye 2013:194-203; 234-237).

From a methodological angle, I used the *chaîne opératoire* as a way to empirically bring to light vernacular logics and reasons for doing things, conducting activities in particular ways and in a particular order (Coupaye 2013, 2015). The recording of the temporal sequence of activities revealed in its details that the cultivation process involved, depending on the *moment* and the *scale*, the contributions of humans and non-human entities, some of which are easily identifiable, such as the tuber itself, but also the soil (including its texture, its quality or its association with a particular clan), secret stones, weather conditions, celestial bodies or instruments such as the digging-stick or the hands. Other non-human elements were less visible or tangible and included clan and place-related entities, such as water-hole creatures called *waalë*, clan ancestors Gwaaldu or mysterious gigantic and multicolour earthworms called *baëkwaam*, as well as future elections or the Second Gulf War.

In the course of the process – and depending on the moment – growth, reproduction and regeneration appeared as the effects of specific qualities attributed to a plurality of agents, of what composes them and how these were mobilised. Collectives were not necessarily given, but emerged out of the process, allowing their recruiting. Hence, the *Jëwaai*, a quality residing in people’s bodies could be transferred to the soil and the tuber through contact or through sweat as the forest is cut down. It justified the start of the *Yakët*, the set of prescriptions and proscriptions, *before* the actual cutting of the garden, to avoid pollution by an untreated *Jëwaai*.

The heterogeneity of the process also showed the complexity and timing of the mobilisation of particular agencies. It outlined constituents of both people and things, not as abstract, but as emerging from particular actions on materials. For Nyamikum people, humans, entities and potent artefacts contain a form of ‘power’, called *waai* (a component of the *Jëwaai*), which corresponds to a capacity to have an effect on their surroundings and which also can be ‘transferred’ (*de kwasawu*) or attributed through specific procedures involving physical contact (such as touching or blowing) with a range of things, such as plants, humans, paintings or carvings and is at the very source of the capacity of secret stones to make things grow.

There are other identified sources of agencies. *Kwaminyaan* (‘the child of the meat’) and *wuranyaan* (‘the child of the spirit’), mostly attributed to humans and, according to some people,⁸ also to animals and insects, help identify entities who have the capacities for independent movement and will, at the exclusion of trees and tubers – whose movements seem to be too slow to see, even if their results (growth) are undeniable. Christian converts identify *kwaminyaan* as the ‘soul’, which, at death, goes to Heaven, but can also be attributed to ghosts. *Wuranyaan* is related to the ‘spirit’ as the source of interiority but can also be attributed to particularly potent entities such as the *waalë* or the clan ancestors Gwaaldu and artefacts, in particular the secret stones. Finally, *yamembi* is a source of power located in the breath and in words that activate both *kwaminyaan* and *wuranyaan*, and which makes them efficacious.

Thus, Ganbakiya’s singing makes sense during the specific period⁹ during which the yam vines grow (Coupaye 2013:111, 113). It is an efficacious ‘action on material’ (singing, blowing) which mobilises his *yamembi* (power),

activates his *kwaminyaan* and *wuranyaan*, and, through the performance of *manëgup* (spell-songs), makes the yam grow. Ganbakiya's agency, his *waai*, is then transferred to the plant through both his hands twining the vines on the tutor and his breath inviting it to grow faster. The effect might not be direct on the tuber whose underground growth is invisible, but is on the vines which can grow more, up to 10 cm a day. This particularly spectacular behaviour acts *simultaneously and indifferently*, as both the reason for and the result of such a configuration of operations. The yams indeed have no ears, but the plant in itself, during the first phase of its development, is receptive to the overall process, as it is to wind, sun and rain. It is not only actual songs and their materiality (sounds, breath) which play their role, but the actual action of singing, be it out loud or in one's mind, which is perceived as having its own technical role. It is so, because in itself, singing might not be sufficient, and it has to happen at the same time as hands carefully twine a fragile vine back onto its tutor (following the particular direction of the twining; Coupaye 2013:132-133), while making sure that the whole length rests gently on the trellis. Ganba's success is interpreted thus as a result of his capacity to manipulate and recruit a complex set of relations, which includes selecting an appropriate forest spot to open his long yam garden, following a proper *Yakët*, choosing the place for the yam mound, commercing with non-human entities, knowing powerful *manëgup*, choosing ingredients for the magical substances – all of those which under the analytical term of socio-technical processes, shed a light onto what emerges from his garden – a powerful and beautiful long yam.

This case illustrates how an anthropology of techniques can specify and give concreteness to the relational ontology discussed in the New Melanesian Ethnography. It shows how the composite nature of things and living beings emerges through the ways results of processes *are related by actors themselves* to explicit or implicit reasons for actions. At the scale of operations, appropriate and efficacious actions taken by cultivators are moulded against the prerequisite possibility of knowledge of the vital properties of human and non-human elements, and in particular their capacity for having power, *waay*. Actual actions (*e.g.* using hands to plant the tuber to allow the transfer of Jëwaai which in turns allows *baëkwaam* worms to recognise the legitimate owner of the land) reveal, confirm, temporarily stabilise and perform the properties of the agents involved. Exactly like the digging of a berth of soft soil allows the tuber in the ground to grow to a larger size, in a methodological figure-ground reversal, material activities make room for the properties of growth, reproduction and power attributed to the collectives (instruments, bodies, agents, objects) recruited in the processes and their particular temporality (Haudricourt 1969[1962]), to become visible.

Depending on the moment in the whole sequence and the type of action performed on them, yams emerge at times as plants, living beings, ancestors, extensions of the cultivator, images, food or valuables (Coupaye 2013:249-295). Some material activities treat them as just food, whilst others imply that they are receptive sentient entities which can smell, hear, or eat, or, instead, deal with them as decorated artefacts, similar to carvings (named *wapinyan*, 'the child of the yams') or initiates. The entire sequence is made of heterogeneous actions, which indeed indicate *how* they can appear to have a relational ontology, but each action indicates (in a semiotic sense) through its logic, *whether* they can hear or not.

Ultimately, in the final ceremony, the *Waapi Saaki*, the ‘Lining Up of the Yams’, what is displayed is Ganba’s *capacity*, compared to other long yam cultivators, to navigate carefully through and mobilise different planes, semiotic regimes, contradictions and dangers, to produce a long yam. In other words, the ceremony makes visible ‘traditional’ and ‘efficacious’ actions-made-thing: a long yam.

LIVING IMAGES AND LIFE-LIKE IMAGES

This question of visibility is perhaps one of the avenues in which Pacific anthropology has contributed the most and is particularly crucial when it comes to ‘life’ which, as many other analytical categories, is rarely objectified. Indeed, whilst the results of vital processes (such as coming into being, growth or decay) can be perceived, their causes and mechanism often escape immediate perception. Thus, it is instead the qualities, the systems of relations in which they are engaged and the properties of living beings which are often at the centre of the work of imagination.

This brings us back to ‘aesthetic’ and ‘elicitation’, however, in this section, I am focussing on the level of actual efficacious practices of image-making, in a literal sense, in particular on the means by which the organisers of ceremonies orchestrate their generative processes. In this analytical frame, ceremonies become complex *dispositifs* in which images play a crucial social and material role in terms of what they provide to the senses. Notably because they follow sanctioned rules and sequences, ceremonies, from a Maussian perspective, effectively work also as ‘technical processes’ (Lemonnier 2012). As such, they offer a particularly auspicious way to investigate the logic of causalities at their source of (re)productive capacities and activities. This is where material activities bring concrete evidences to concepts such as ‘objectification’, ‘materialisation’ or ‘reification’ (in a Strathernian sense), when actual (bodily) practices and material activities ‘make sensible’ (vital/technical) qualities or relations.

I would methodologically distinguish two different interrelated scales. The closest scale deals with how specific material activities are mobilised to imbue people and/or things with vital and/or technical properties in order for them to play their part in complex *dispositifs* of image-making. The wider scale approaches ceremonies as themselves composite ‘artefacts’, coalescing, at particular cosmological (cyclical) moments, several underlying principles of life-making and renewal, through the gathering or summoning of specific configurations of heterogeneous agents, geared to make the presence of some of these more potent entities felt.

At both scales, there is, too, a vast literature, and even if, as I intend to here, one focuses on material and visual culture, there is a very long tradition of ethnographic investigations of the intimate relation between rituals and images, under the umbrella of the anthropology of ‘art’ (Campbell 2002; Firth 1936; Forge 1973; Gerbrands 1967; Morphy 1991; Munn 1973; O’Hanlon 1989; Schwimmer 1990; Strathern & Strathern 1971; Tuzin 2002). As noted by most, the main reason why Pacific images are so captivating is that *that they are made to be so*. Ceremonies are indeed techniques of enchantment (Gell 1992), mobilising composite sets of illusory and sensory *dispositifs* which adorn, disguise or animate bodies, figures, masks, houses or entire spaces and converge to make present and ‘give to see’ (Houseman and Severi 1994)

possible cosmological sources of living processes. Whether acoustic, olfactive or properly visual, these *dispositifs*, often aim at imparting complex artefacts with effects such as growth, animation and even reproduction. This allows whole rituals not only to render visible (perceptible) and ‘give-to-see’ places and ancestry to the audience (Leach 2002, Bell 2009), but also can convoke the very cosmological sources of vital processes (Revolon this issue).

Ethnographies are replete with documentation of such tactics of special effects – which we could call *theatric*¹⁰ – used by organisers to imitate and impress initiates, bringing ancestral figures to life. Masquerades, body decorations and performances are obvious examples, but so are Malakula *Nevimbur* animated puppets (Deacon 1934:463-465), Kwoma *yena*’s heads shaken to oscillate (Kaufmann 1993:162). One could also use effects of scale, be it gigantism (Easter Island *moai ahu*) or miniatures (Fijian miniature temples). Other such as optical effects of colours, tones or surfaces (Gell 1998, Revolon this volume), as well as iconography do more than adorn, communicate or represent, but also make present qualities and properties of their prototypes, imbuing canoes, bowls, paddles, houses or shields with agency – a crucial vital process. Visibility, in the form of appearance and animation, often plays a central role in this image-ination, but so do other senses: sounds and smells in particular (Kaufmann 1993:161-165) occupy an often under-examined source through which the presence of the unseen can be experienced (Tuzin 2002).

The Abulës-speakers’ ceremonial house *kurabu* stands as a good example of such a combination of techniques. The now extinct Abelam initiations cycle¹¹ was the occasion of one of the richest (documented) material and visual productions of Papua New Guinea, to the point of providing most of Euro-American museums with a wealth of collections (Smidt & McGuigan 1995). The main official aim was the gradual transformation of young men into adults and, for a few, into Great Men (*nëmadu*) through the setting of sequential encounters with sensorially rich installations. The highest stages were also the occasion to materialise inside of the *kurabu* the living presence of powerful ancestral entities (Gerrits 2012[1978]; Hauser-Schäublin 2015[1989]; McGuigan 1992). Several techniques, as often documented in the area, were used to convince the initiates (and the excluded crowd of women) that these powerful entities were actually present through artefacts specifically made for this purpose: decorated water-holes, animated masks, eerie sounds of hidden trumpets and bullroarers and shadowy and complex figures displayed in the *kurabu* inside of which the initiates had to crawl after having been submitted to physical and psychological ordeals aimed at creating a receptive state of mind.

One of these techniques, Nyamikum people recalled in 2014, was the tying of a rope, inside *kurabu*, at its pinnacle, which men hidden inside would pull rhythmically, following the sound of drums, to give an oscillating movement to the whole *kurabu*, giving it life and by thus increasing its iconic likeness to the mythical cassowary at the origin of all food. Other semiotic relations were also mobilised to impart the *kurabu* with properties analogous to those of a yam mound, creating perissologic echoes (Lemonnier 2012; see also Stasch 2003) with yam storage houses (Coupaye 2009), the inside of which contains the darkness and dampness required for the process of germination and sprouting of tubers. Thus, along with the painted façade displaying the occult (thus enchanting) principles of social reproduction (Losche 1995; Hauser-

Schäublin 2016[1989]; Coupaye 2017), the whole building became an image acting as a device, a *dispositif*, of social and cosmological creativity, using technical processes to manifest a semiotically vital process, making their sources present to the senses and the imagination.

These technical processes, by allowing the imitation of vital processes, made them visible, gave them to think, but also rendered them present and efficacious within the ritual, re-affirming and re-generating the cosmological frame.

CONCLUSION

Investigating the relations between technical and vital processes or living beings and artefacts is such a constitutive topic of Pacific anthropology that a fair review of the multiplicity and the diversity of cases goes far beyond the scope of a single paper. Yet this very diversity cannot but highlight its analytical relevance.

Focussing on techniques, as hinted above, however, can be risky because of the conceptual matrix from which ‘technology’ as a category and the new forms of Euro-American modernity have emerged since the Enlightenment. The record of ‘traditional’ technical processes done by the old ‘salvage ethnography’ might have been biased and moulded against colonial and economic concerns, but it also was driven by and even confirmed the intuition that technical processes were intimately connected to vernacular logics and conceptions of the nature of being. This is what thinkers such as Mauss (especially in his *Manual*, 2007[1947]) and two of his students, André Leroi-Gourhan (1993[1964]) and André-George Haudricourt (1987), formulated perhaps the best. Anthropology, as a discipline was thus aware that both the imbrications of technical processes with vital ones and their representations were a central part of the ontogenesis of human beings, both as a species (Leroi-Gourhan 1993[1964]) and as social agents.

Hence, changes in either of the terms were inseparable from changes in the others, in turn generating new modalities of imbrications, new modes of beings and thinking through the world in a recursive process. Arguably, one does not need to resort to ‘technological determinism’ to see that the massive introduction of new devices and technical processes interacted with Pacific vernacular categories, epistemologies, ontologies and socialites – a phenomenon well documented in more recent ethnographies. After industrial machines and infrastructures in the course of the 20th century, it is the turn of digital devices (*e.g.* Gershon and Bell 2013; Lattas 2006; Telban and Vávrová 2014), among others, to manifest their enchantment and their agency both because of their occult dimensions as well as the particular agency they seem to possess (automation, connectivity, storage, photography, sharing, *etc.*).

Such new imbrications call indeed for analytical and ethnographic scrutiny, as some vernacular modes of relations, still active three to four decades ago (depending on the region), have stopped (such as initiations) or changed drastically. But this makes it perhaps even more crucial that Euro-American conceptions of ‘production’ and ‘technology’, which emerged from more than two centuries of industrial and social changes, are also part of the conceptual payload these devices deliver to the adaptive and imaginative capacities of Pacific societies. These cases invite us to think about how new devices, new materials and new forms, while re-interpreted through what Bryan

Pfaffenberger called ‘technological dramas’ (1992b), have undeniably their own ontogenetic properties and transform pre-existing modalities in depth.

This is perhaps what is at stake in the ongoing debates between the recent ‘ontological turn’ and political anthropology (Bessire and Bond 2014; Graeber 2015; Henare *et al.* 2007,). I see there, if anything, how these tectonic changes in the socio-technical and, *crucially*, political settings of indigenous societies – *as well as* in Euro-American contexts – require the forging of appropriate analytical tools to address them, if only because of the ways in which these changes manifest themselves in political choices or the actual environment. In these debates, it is often the same old tensions between being and becoming which re-appear in new guises and, at times, old methods or paths – such as the empirical conditions set by changes in ‘technical systems’. My own reference to Simondon’s concept of ontogenesis is perhaps yet another attempt to resolve such tensions, as others also do, such as Scott (2007) among others. Building on Jadran Mimica’s or Valerio Valeri’s (2001) works, Scott proposes the notion of onto-praxis, ‘that is, the organization of praxis as the situational engagement of social agents with ontological categories – even to the point of sometimes transforming the terms of the deepest stratum of ontology’ (Scott 2007:20). I see there another formulation of the same concern of dealing with the tension between being and becoming, and between analytical and vernacular categories, both so recurrent in anthropology.

Thus, if the imbrications between technical processes and vital processes appear so constitutive to ethnographies, it is perhaps because this testifies a *vital* anthropological concern with both taking the actors seriously, and providing ways, through its comparative project, to empirically and critically think through the technical changes humanity has seen over the last two hundred years. Investigating the ‘general pragmatics’ (Pitrou 2015:2) which ties together material activities, modes of thoughts and their imagination, both from an empirical and analytical angle, might remain a way to see how to reconcile the apparent concreteness of artefacts with the transformative nature of living beings.

It is perhaps this gap that allows yams to hear songs at some stage, and be just food at others.

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NOTES

¹ See also Malinowski 1978[1935]:139-157.

² *Technology* is here to be understood as the ‘study of technical cultures’ – as *Cultural Anthropology* is understood as the ‘study of human cultures. For this tradition, techniques were inherently social.

³ Simondon (1964) also published on the notion of individual, and his arguments also bear some premises which anticipate some of the discussions later developed by the Strathernian approach to Melanesian individuality.

⁴ While there are many other approaches to gift exchanges in Melanesia (e.g. A. Weiner 1976; Munn 1986; Scott 2007), the influence of Strathern’s discussion of elicitation has had a wide reach in the thinking through material culture (e.g. Gell 1998).

⁵ I am not developing the question of the efficacy of words and speech, but I am aware, with Haudricourt (1987: 39-40) of the material nature of language (See also Pitrou 2015; Coupaye 2013: 194-203, n.1; 307).

⁶ Arguably the major party of Pacific ethnography, but see Bell and Geismar 2009 and Lemonnier 2012 for an overview of different traditions.

⁷ See for instance Telban’s discussion of songs and ritual among the Ambonwari people of the Karawari river (2008) in particular with the emergence of new forms under the influence of Christianity.

⁸ These data were collected during a short fieldtrip in 2014, through discussion with renowned cultivators, such as Nēbiyaa, Tony Bagwilawu and the painter Vitus Kwajike.

⁹ There are other moments when yams can actually ‘hear’, during the last stage of their growth, when a party of cultivators gather in the garden and their gossips and sexual jokes are said to please the tubers and make them grow. While displayed on the ceremonial ground during the ceremony, they are also said to be receptive to the joyful atmosphere and the singing of the crowd even if some of the most important interactions between humans also occur in the course of the event (Coupaye 2013: 207-248).

¹⁰ As in the ways in which in pre-modern Europe, one of the main uses of machines was for illusory *dispositifs* used, among other places, in theatres (Brun 1985; see Coupaye and Pitrou this issue).

¹¹ In Nyamikum, the last initiation, combining several stages together, happened in 1967, and gathered several neighbouring villages. For more complete description see Gerrits 2012[1978], Smidt and McGuigan 1995

REFERENCES

- BABADZAN, A. 1993. *Les dépouilles des dieux. Essai sur la religion tahitienne à l'époque de la découverte*. Paris: Editions de la Maison des Sciences de l'Homme.
- BARDIN, A. 2015. *Epistemology and Political Philosophy in Gilbert Simondon*. London: Springer.
- BARKER, J. 2012. The Enigma of Christian Conversion. Exchange and the Emergence of New Great Men among the Maisin of Papua New Guinea. In L. Dousset & S. Tcherkézoff (eds.) *The Scope of Anthropology: Maurice Godelier's Work in Context*, pp. 46-66. New York & Oxford: Berghahn Books.
- BARRAU, J. 1965. L'Humide et le Sec: An Essay on Ethnobiological Adaptation to Contrastive Environments in the Indo-Pacific Area. *The Journal of the Polynesian Society*, 74(3), pp. 329-46.
- BATTAGLIA, D. 1991. Punishing the yams: leadership and gender ambivalence on Sabarl Island?. In M. Godelier & M. Strathern (eds.) *Big Men and Great Men: Personifications of Power in Melanesia*, pp. 83-96. Cambridge: Cambridge University Press.
- BELL, J.A. & H. GEISMAR. 2009. Introduction: Materialising Oceania: New ethnographies of things in Melanesia and Polynesia. *The Australian Journal of Anthropology*, 20, pp. 3-27.
- BELL, J.A. 2009. Documenting Discontent: Struggles for recognition in the

- Purari Delta of Papua New Guinea. *The Australian Journal of Anthropology*, 20, pp. 28–47.
- BESSIRE, L. & D. BOND 2014. Ontological anthropology and the deferral of critique. *American Ethnologist*, 41(3), pp. 440-456
- BRUN, J. 1985. Biographie de la machine. *Les Études Philosophiques*, 1, pp. 3-16.
- CAMPBELL, S. F. 2002. *The Art of Kula*. Oxford: Berg.
- COUPAYE, L. 2009. Experiencing Space: The tēkēt Frieze of the Abelam, Maprik Area, Papua New Guinea. *Arts & Culture*, pp. 210–25
- . 2013. *Growing Artefacts, Displaying Relationships: Yams, Art and Technology amongst the Nyamikum Abelam of Papua New Guinea*. Oxford & New York: Berghahn Books.
- . 2015. Chaîne opératoire, transects et théories : quelques réflexions et suggestions sur le parcours d'une méthode classique. In P. Soulier (ed.) *André Leroi-Gourhan 'l'homme tout simplement'*, pp. 69–84. Paris: Éditions de Boccard.
- . 2017. The Problem of Agency in Art. In A. Clark & N. Thomas (eds.) *Anthony Forge, Style and Meaning: essays on the anthropology of art*. Leiden: Sidestone Publishing.
- CROOK, T. 2007. *Exchanging Skin: Anthropological Knowledge, Secrecy and Bolivip, Papua New Guinea*. Oxford: Oxford University Press.
- DEACON, A. B. 1934. *Malekula. A Vanishing People in the New Hebrides*. Londres: Georges Routledge & sons.
- DESCOLA, P. 2013[2005]. *Beyond Nature and Culture*. Chicago: Chicago University Press.
- FIRTH, R. 1936. *Art and Life in New Guinea*. London & New York: The Studio Publications
- FORGE, A. 1962. La peinture, substance magique. *Palette*, 9, pp. 9-16.
- . 1965. Art and environment in the Sepik. *Proceedings of the Royal Anthropological Institute for 1965*, pp. 23-31
- . 1973. Style and Meaning in Sepik Art. In A. Forge (ed.) *Primitive Art And Society*, pp. 169-192. London & Oxford: Oxford University Press.
- . 1990. The Power of Culture and the Culture of Power. In N. Lutkehaus, C. Kaufmann, W.E. Mitchell, D. Newton, L. Osmundsen & M. Schuster (eds.) *Sepik Heritage*, pp. 160-170. Durham: Carolina Academic Press. 2015.
- GALLIOT, S. 2015. Ritual efficacy in the making. *Journal of Material Culture*, 20(2): pp. 101-125.
- GELL, A. 1992. The Technology of Enchantment and the Enchantment of Technology'. In J. Coote & A. Shelton (eds.) *Anthropology Art and Aesthetics*, pp. 40-63. Oxford: Clarendon Press.
- . 1998. *Art and Agency*. Oxford Clarendon Press.
- GERBRANDS, A. 1967. *Wow-ipits: Eight Asmat Woodcarvers of New Guinea*. The Hague, Pans: Mouton & Co.
- GERRITS, F. 2012[1978]. *The House Tambaran of Bongiora. A view from within of the Tambaran and Yam Cults of the Abelam in the East Sepik Province of Papua New Guinea*. Lugano: Seria Antropunti, Museo delle culture Lugano & Giampiero Casagrande editore.
- GERSHON, I. & J.A. BELL. 2013. Introduction: The Newness of New Media. *Culture, Theory and Critique* 54 (3), pp. 259-264.

- GRAEBER, D. 2015. Radical alterity is just another way of saying 'reality': A reply to Eduardo Viveiros de Castro. *Hau: Journal of Ethnographic Theory*, 5(2), pp. 1-41
- HALLAM, E. & T. INGOLD. 2014 (eds.) *Making and Growing: Anthropological Studies of Organisms and Artefacts*. Farnham: Ashgate.
- HARRISON, S. 1982. Yams and the Symbolic Representation of Time in a Sepik River Village. *Oceania*, 53, pp. 141-162.
- HAUDRICOURT, A-G. 1964. Nature et culture dans la civilisation de l'igname: l'origine des clones et des clans. *L'Homme*, 4(1) : pp. 93-104.
- . 1969[1962]. Domestication of animals, cultivation of plants and human relations. *Social Science Information*, 8(3), pp. 163-172.
- . 1987. *La Technologie, science humaine. Recherches d'ethnologie et d'histoire des techniques*. Paris: Maison des Sciences de l'Homme.
- HAUSER-SCHÄUBLIN, B. 2016[1989]. *Ceremonial Houses of the Abelam - Papua New Guinea*. Goolwa (SA): Crawford House Publishing.
- HENARE, A., M. HOLBRAAD & S. WASTELL (eds.) 2007. *Thinking through Things: Theorising Artefacts Ethnographically*. London & New York: Routledge.
- HOCART, A. M. 1935. The purpose of ritual. *Folklore*, 46(4), pp. 343-349.
- HOUSEMAN, M. & C. SEVERI. 1994. *Naven ou le donner à voir*. Paris: CNRS.
- HUBERT, H. & M. MAUSS. 1975[1902-1903]. *A General Theory of Magic*, New York: W. W. Norton & Co]
- INGOLD, T. 2013. *Making: Anthropology, Archeology, Art and Architecture*. London and New York: Routledge.
- JEBENS, H. (ed.) 2004. *Cargo, Cults, and Culture Critique*. Honolulu: University of Hawai'i Press.
- JUILLERAT, B. 1986. *Les enfants du sang. Société, reproduction et imaginaire en Nouvelle Guinée*. Paris: Ed. de la Maison des Sciences de L'Homme.
- KABERRY, Phyllis. 1941. The Abelam Tribe, Sepik District, New Guinea: A Preliminary report. *Oceania*, 11(3-4), pp. 233-258; 345-367.
- KAUFMANN, C. 1993. La Mélanésie. A. L. Kaeppler, D. Newton and C. Kaufmann. *L'art Océanien*. Paris: Citadelles & Mazenod (trans. 1997. New York : Harry N. Abrams).
- KEANE, W. 2005. Signs are not the garb of meaning: on the social analysis of material things. In D. Miller (ed.) *Materiality*, pp. 165-205. Durham & London: Duke University Press.
- KEESING, R.M. 1984. Rethinking 'mana'. *Journal of Anthropological Research*, 40(1), pp. 137-156.
- LATTAS, A. 2006. Technologies of Visibility: The Utopian Politics of Cameras, Televisions, Videos and Dreams in New Britain, *The Australian Journal of Anthropology*, 17(1): pp. 15-31
- LEA, D. 1966. Yam Growing in the Maprik Area. *Papua New Guinea Agricultural Journal*, 18(1), pp. 5-15.
- LEACH, J. 2002. Drum and Voice. Aesthetics, technology, and political relations in a Rai Coast (Papua New Guinea) society'. *Journal of the Royal Anthropologic Institute*, 8, pp. 713-734.
- LEACH, J. 2003. *Creative Land: Place and Procreation on the Rai Coast of Papua New Guinea*. New York: Berghahn Books.
- . 2012. 'La Mort du Tambour: choses uniques sur la Rai Coast de

- Papouasie-Nouvelle-Guinee'. *Techniques & Culture*, 58, pp. 28-47.
- LEMONNIER, P. 1992. *Elements for an Anthropology of technology*. Ann Arbor: University of Michigan Press.
- . 2012. *Mundane Objects: Materiality and Non-Verbal Communication*. Walnut Creek (CA): Left Coast Press.
- LEROI-GOURHAN, A. 1993[1964]. *Gesture and Speech*. Cambridge (Mass.) & London: The MIT Press.
- LEWIS, G. 1980. *Day of Shining Red: An Essay on Understanding Ritual*. Cambridge: Cambridge University Press.
- LOSCHÉ, D. 1995. The Sepik Gaze: Iconographic Interpretation of Abelam Form. *Social Analysis*, 38, pp. 47-60.
- MALINOWSKI, B. 1978[1935]. *Coral Gardens and their Magic: A Study of the Methods of Tilling the Soil and of Agricultural Rites in the Trobriand Islands*. New York: Dover Publication.
- MAUSS, M. 1968[1909] 2003[1909]. *On Prayer*. New York & Oxford: Durkheim Press/Berghahn Books.
- . 1973[1935]. Techniques of the body, *Economy and Society*, 2 (1), pp. 70–88.
- . 2003[1909]. *On Prayer*. New York & Oxford: Durkheim Press/Berghahn Books.
- . 2007[1947]. *Manual of Ethnography*. New York & Oxford: Durkheim Press/Berghahn Books.
- MCGUIGAN, N. 1992. Apangai Ngwalndu Maira. Documentation of Artefacts from the Lu and Puti Initiation Ritual at Nyambikwa Hamlet, Apangai Village. Collection made for Rijksmuseum voor Volkenkunde Leiden.
- MORPHY, H. 1991. *Ancestral Connections*. Chicago: University of Chicago Press.
- MOSKO, M. 2010. Deep Wholes: Fractal Holography in Trobriand Agency and Culture'. In T. Otto and N. Bubandt (eds.) *Experiments in Holism: Theory and Practice in Contemporary Anthropology*, pp. 150-173. London: Wiley-Blackwell.
- MOUTU, A. 2013. *Names are thicker than blood: kinship and ownership among the Iatmul*. Oxford: Oxford University Press.
- MUNN, N. 1973. The Spatial Presentation of Cosmic Order in Walbiri Iconography. In A. Forge (ed.) *Primitive Art And Society*, pp. 193-220. London & Oxford: Oxford University Press.
- . 1986. *The Fame of Gawa: A Symbolic Study of Value Transformation in a Massim Society*. Cambridge: Cambridge University Press.
- O'HANLON, M. 1989. *Reading the Skin: Adornment, display and society among the Wahgi*. London: British Museum Press.
- PEIRCE, C. S. 1878. How to Make Our Ideas Clear. *Popular Science Monthly*, 12, pp. 286–302.
- PFAFFENBERGER, B. 1992a. Social Anthropology of Technology. *Annual Review of Anthropology*, 21, pp. 491-516.
- . 1992b. Technological Drama. *Science, Technology and Human Values*, 17(3), pp. 282-312.
- PITROU, P. 2015. Life as a process of making in the Mixe Highlands (Oaxaca, Mexico): towards a 'general pragmatics' of life. *Journal of the Royal Anthropological Institute* 21(1), pp. 86–105.
- . 2016. Action rituelle, mythe, figuration. L'imbrication des processus

- vitaux et des processus techniques en Mésoamérique et dans les Basses-Terres d'Amérique du Sud », *Revista de antropologia* 59(1), pp. 6-32.
- ROBBINS, J. 2001. Ritual communication and Linguistic Ideology. *Current Anthropology* 42(5), pp. 591-614.
- . 2004. *Becoming Sinners. Becoming Sinners: Christianity and Moral Torment in a Papua New Society*. Berkeley, Los Angeles & London: University of California Press.
- SAHLINS, M. 1985. *Islands of History*. Chicago: University of Chicago Press.
- SCAGLION, R. 1993. Abelam: Giant Yams and Cycles of Sex, Warfare and Ritual. In M. Ember & C.R. Ember, Editors, *Portraits of Culture: Ethnographic Originals*, pp. 3-24. Englewood Cliffs, NJ: Prentice Hall.
- SCAGLION, R. & R. G. CONDON 1979. Abelam Yam Beliefs and Socio rhythmicity: A Study in Chrono Anthropology. *Journal of Biosocial Science* 11, pp. 17-25.
- SCHWIMMER, E. 1990. The Anthropology of the Ritual Art'. In A. Hanson & L. Hanson (eds.) *Art and Identity in Oceania*, pp. 5-14. Honolulu: University of Hawaii Press.
- SCOTT, M. 2007. *The Severed Snake: Matrilineages, Making Place, and a Melanesian Christianity in Southeast Solomon Islands*. Carolina Academic Press.
- SIGAUT, F. 2003. La formule de Mauss. *Techniques & Culture*, 40, pp.153-168
- . 2012. *Comment Homo devint faber*. Paris: CNRS.
- SIMONDON, G. 1964. *L'individu et sa genèse physico-biologique (l'individuation à la lumière des notions de forme et d'information)*. Paris: P.U.F.
- . 2012[1958] *Du mode d'existence des objets techniques*. Paris: Aubier.
- SMIDT, D. & N. MCGUIGAN 1995. An Emic and Etic Role for Abelam Art (Papua New Guinea): The Context of a Collecting Trip on Behalf of the Rijksmuseum voor Volkenkunde, Leiden. In P. C. Dark & R. Rose (eds.) *Artistic Heritage in a Changing Pacific*, pp. 121-141. Honolulu: University of Hawaii Press.
- STASCH, R. 2003. The Semiotics of World-making in Korowai Feast Longhouses. *Language & Communication*, 23, pp. 359-383.
- STRATHERN, A. & M. STRATHERN. 1971. *Self Decoration in Mount Hagen*. London: Duckworth.
- STRATHERN, M. 1988. *The Gender of the Gift: Problems With Women and Problems With Society in Melanesia*. Berkeley & London: University of California Press.
- . 1995. *The relation: issue in complexity and scale*. Cambridge: Prickly Pear Press.
- TAMBIAH 1990. *Magic, Science, Religion, and the Scope of Rationality, The Lewis Henry Morgan lectures*. Cambridge England & New York: Cambridge University Press.
- TELBAN, B. & D. VÁVROVÁ. 2014. Ringing the Living and the Dead: Mobile Phones in a Sepik Society. *The Australian Journal of Anthropology* 25(2), pp. 223—238.
- TELBAN, B. 2008. The Poetics of the Crocodile: Changing Cultural Perspectives in Ambonwari. *Oceania*, 78(2), pp. 217–235
- TOMLINSON, M. & T.P. KĀWIKĀ TENGAN (eds.) 2016. *New Mana:*

- Transformations of a Classic Concept in Pacific Languages and Cultures*. Canberra: ANU Press.
- TUZIN, D. 1972. Yam symbolism in the Sepik: an Interpretation Account. *Southwestern Journal of Anthropology*, XXVIII, pp. 230-254.
- . 2002. Arts, ritual, and the crafting of illusion. *The Asia Pacific Journal of Anthropology*, 3(1), pp. 1-23.
- VALERI, V. 1985. *Kingship and Sacrifice. Ritual and Society in Ancient Hawai'i*. Chicago & London: University of Chicago Press.
- . 2001. *Fragments from Forests and Libraries*. University of Carolina Press.
- WAGNER, R. 1986. *Symbols that Stand for Themselves*. Chicago & London: University of Chicago Press.
- WEINER, A. B. 1976. *Women of Value, Men of Renown: New Perspectives in Trobriand Exchange*. Austin: The University of Texas press.
- WEINER, J. 1995. Technology and *Techne* in Trobriand and Yolngu Art. In *Social Analysis*, 38, pp. 32–46.
- . 2001. *Tree Leaf Talk: A Heideggerian Anthropology*. Oxford: Berg Publishers
- WITTGENSTEIN, L. 1982[1969]. *Remarques sur le Rameau D'Or de Frazer*. Paris: L'Âge d'Homme.

