

Why the Kanak Don't Fear Sharks: Myths as a Coherent but Dangerous Mirror of Nature

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ABSTRACT

This study focuses on the important role of sharks in the Melanesian mythology. Based on unpublished stories essentially originating from New Caledonia, we show how strong the links are between myths and the physical environment in which Kanak live. As prevalent mythical animals, sharks can indifferently play the role of avengers and righters of wrongs, or vehicles for the spirits of living or dead people. They can be either allies or enemies in wars, and their role as potential man-killers is never overlooked. However, when humans are attacked and killed by a shark, it is always for a material reason: the victim broke a rule or a tabu, the shark was an enemy, the sharks withdrew protection, the event allowed a pregnant woman to reach a new territory, etc. Beyond arbitrary metaphysical justifications, such perceptions reflect respect for social and natural order. For Kanak ni-Vanuatu and other Pacific Islander peoples, sharks are part of a coherent Nature that includes natural and social hazards. In the quest for sustainable development of the planet, more in harmony with Nature, so-called 'developed societies' might draw inspiration from such perceptions. Indigenous understandings could also help change the globally negative perception of sharks, and support shark conservation efforts in Oceania and worldwide.

Keywords: ethno-ecology, eco-anthropology, fatal attack, man-eater, New Caledonia, Vanuatu, Melanesia.

INTRODUCTION

The evolutionary lineage of sharks extends back some 400 million years. Sharks populated the waters of the Pacific long before the arrival and dispersal of human societies across Oceania beginning at least 40,000 years ago in the southwest Pacific islands (Kayser 2010) and in the central and eastern Pacific Islands in more recent millennia (Kirch 2017). Cohabitation between these marine predators and human beings developed *de facto*, as shown by the discovery of shark teeth in archeological sites from the Holocene (Allen and White 1989).

In Melanesia, the Kanak use sharks in many ways in everyday life, especially the skin and teeth. In Vanuatu, young sharks are commonly cooked in stone ovens (Guiart J., Pers.

This publication is dedicated to the memory of Jean Guiart, Professor Emeritus of the Ecole Pratique des Hautes Etudes, in recognition of his invaluable contribution to anthropological knowledge in *Oceania*. Professor Guiart, who died in August 2019, did not have time to finalise and see this study published in *Oceania*, the eminent journal in which he published his first English-language article in December 1951, 69 years ago. FYI. Guiart J. (1951) Forerunners of Melanesian nationalism. *Oceania* 22 (2), 81-90.

Obs.). Shark skins fastened taut on a wooden structure are used by *ni Vanuatu* women to scrape yam on banana leaves for a sort of cake (*laplap*) with fish and shellfish and fowl or pig meat in stone ovens (former Musée de l'Homme collections, photographs by Edgar Aubert de la Rüe 1934). Solomon Islands men and Polynesians used sharkskin to polish precious hardwood carvings, and shark teeth as edges for their weapons (Drew et al. 2013). In French Polynesia, sharkskin was also used as protection for warriors, particularly in making shields. Shark teeth fixed to a wooden handle were used as fighting implements and for medical or household purposes (Torrente et al. 2018).

At the evening bathing time on North Ambrym (Vanuatu), the men gather on the right side, the women and children on the left side, and the adults cup their hands downwards and strike the water to make a booming sound meant to frighten off the sharks, a technique they teach their children early (Guiart fieldwork 1949). In Hawai'i also, the knowledge that sharks can be dangerous to humans has always been recognized (Hobson and Chave 1990). People all across Oceania were well aware of the risk of being attacked by a shark. Fatal and non-fatal strikes and bites on humans did happen in ancient times, to an extent that is difficult to assess today. Nevertheless, there is nothing in the literature to suggest that sharks, more than any other danger linked to the natural environment, constituted a particular risk or generated above-normal fear as sharks do now, even in the Pacific region (Neff and Hueter 2013).

Sharks are probably one of the most demonized species in human history. For many they embody the 'ultimate killing machine'. Peter Benchley's (1974) book *Jaws* and the subsequent 1975 Steven Spielberg film unfortunately enshrined the shark as a 'monster' and 'man-eater' in the public's consciousness (Dobson 2006). This allows the development of a strong public emotion in modern societies any time there is a fatal attack (Denness 2019). This emotion is undeniably linked to the fear generated by this animal in a public that is largely disconnected from nature (Neff and Hueter 2013). This negative image of sharks in the public consciousness leads decision-makers to implement culling campaigns that are both ineffective in reducing shark attacks (Wetherbee et al. 1994) and harmful to the environment where these animals play a critical role (Ferretti et al. 2015; Heithaus et al. 2008). In other words, retaliatory measures taken against sharks in the context of human fatalities are partly generated and justified by an abnormally negative perception of these animals by the public and even by political decision-makers. It appears relevant to analyze why the ancestral perception of sharks was significantly different in ancient times, despite an equal or greater risk of shark attacks. This traditional understanding could potentially be effective in correcting current cognitive biases and ultimately promote the conservation of sharks (Panoch and Pearson 2017).

In this paper, we briefly refer to 'myth' and its role in South Melanesian societies. Based on unpublished texts collected by one of the authors (J. Guiart) in New Caledonia and Vanuatu (South-West Pacific) in the second half of the 20th century, we then show the place of sharks in these myths. Beside the significant role of sharks in Islander beliefs, we suggest how myths reflected the reality of the environment in which the Kanak and *ni-Vanuatu* lived, including their more objective perception of the risk of shark attacks on humans. We conclude that sharks, like all other components of the environment, were part of a coherent traditional view of natural hazards. The wisdom of that perspective should be rehabilitated in our modern societies.

ABOUT MYTH IN MELANESIA

Within Melanesian thought, two worlds co-exist, with 'myth as an independent and adequate mode of knowledge' and 'a related world of rationality and technology' (Clifford 1982). The structure of South Pacific myths is similar. They are closely parallel to the environment, but

also build and constantly change complex social institutions which have very little to do with what European people usually imagine, and interlock in such imaginative ways that they are so often scarcely translatable.

Melanesian beliefs were based on biocosmic relationships, expressed in the way they live and constituting an essentially religious understanding of relationships. The term “biocosmic” is drawn from the Greek *bios* (life) and *kosmos* (world), and describes an ordered whole or an ordered system of ideas which people share as the sum of their experience of life within their environment (Namunu 1996). As early as a century ago, Malinowski (1926, p.177) stated that “Myth as it exists in a savage community, that is, in its primitive form, is not merely a story told but a reality lived. It is not of the nature of fiction, such as we read today in a novel, but it is a living reality.”

However, the first European observers translated the indigenous mythical world in Oceania into something which would look from afar like Grimm’s *Tales*, that is, nature fables with more or less moralistic conclusions. Thus European narrators have given the rest of the world stories bereft of all their cultural wealth, divorced from the symbolic universe that generated them and from their value for everyday life. Adolphus Elkin (1940), discussing the Australian Aboriginal myth of the origin of red ochre, and Douglas Oliver (1949) in the Northern Solomons at Bougainville, among the *Siuai*, both showed the importance of the pathways created by the gods and ancestors passing through named places. The usual European editor tends to cut that aspect of the narrative because to European eyes it seems boring and repetitive. In the aboriginal context, however, this spatial dimension and the land issues conveyed by myths is important for understanding the reality of how things work, as has been well described by Bateson (1934) in his book *Naven*. The so-called ‘totemic’ myths of the *Siuai* of Bougainville Island describe the migration of a symbolic animal, a migration whose itinerary is punctuated by localities whose list corresponds exactly to the land tenure claimed by the clan claiming a link with the symbol (Guiart 1968).

In addition to this eminently structuring scope of social life (*via* control and land use), it is the contingent nature of myth is its ability to evoke a risk, often of natural origin, which may or may not affect some part of the population (Guiart 1968). Thus the ‘master’ of the volcano can act to protect the whole area or only his own people, or even, as in the case of the bursting of the island of Kuwae (South Central Vanuatu), in the former Shepherd Islands between Efate and Epi, where a whole island would have been destroyed as revenge for a nasty sexual trick (Ballard 2020).

Inside New Caledonia proper, all these different intervening parties tend to fit inside a general system which has neither beginning nor end, and inside which the god *Gomawe* is the chief of the subterranean and submarine land of the dead. He has an extensive penis which hunts for women with child, who must be protected and kept inside. He is responsible for floods and is found in all countercurrents (Leenhardt 1930; Waya Gorode, unpublished data). He can be met in human form, male or female, and brings death to anyone who has sexual relations with him. He is a shark in the sea, a sea snake on the beach, a lizard or a man carrying a mask inland. This god carries many names according to the forms he takes. In the shape of a shark he is found under names which can change from one linguistic area to another (Guiart 1964, 2003, 2015).

This is a theoretical and generalized way of seeing things that is meant to maintain a carefully balanced way of life manifested socially in interlocking rituals, where the responsible persons remain in touch so they can play their part at the right time and in the right succession (Guiart 1956). These rites, logically sequenced, are linked with the wellbeing of agricultural crops (yam, taro, breadfruit, and sweet potato if brought in before the London Missionary Society’s early efforts at Christianization and not by their Polynesian teachers). Looking after yams means controlling the sun, the rain, the floods, the winds and the insects.

The sun and the rain, floods and winds are indirectly controlled through the yearly presence of the whales (Leenhardt 1930) and also by the constant presence of the lizards, whose blessings are needed to protect the yam fields through their specific powers (Leenhardt, *idem*). The same god that is a lizard on the ground can be a shark in the sea (Clua and Guiart 2015).

In her effort to show the existentialist dimension of Melanesian myth, Van Heekeren (2004) points out that Leenhardt (1947) '...used the term 'mythe vécu' (living myth) to argue for an understanding of myth that was grounded in experience, rather than narrative....' This rooting of myth in everyday reality is a concept we will consider primordial in order to understand both the place sharks have taken within Melanesian myths and how these myths contributed to a particular perception, or even practical management, of the natural risk these animals posed to humans in bygone times.

SHARKS INSIDE THE MYTHICAL WORLD

Being so often gods, sharks were also all sorts of persons. All logical personalities were open to them, cruel killers or even protectors of men belonging to their own descent lines. Those latter could talk to sharks and ask favors from them. A man saved from a booze brawl on a mining site on the coast of Houaïlou later told Maurice Leenhardt how a shark saved him from being killed. The beast came close to the shore, took the man on its back and offered to take him to Ouvéa, where part of his descent line of Samoan origin was in Teuta, but instead left him along the coast further north at his request (Leenhardt 1947). The people belonging to this descent line, found as well on Ouvéa under the name of *Thamuâ*, as *Kêvo* along the east (*Parawiè* at the bottom of the Houaïlou valley) and west coasts of New Caledonia (*Gorobwia rhisai Bwawi*, Bourail), would pray to the shark, *coe*, before starting for Ouvéa. They would then see the shark coming, being replaced after some time in front of their double hulled high seas canoes by a light which showed the direction for Ouvéa (Guiart 1964). These people, unlike some others, do not claim that their ancestral sharks may also be a kind of warrior, attacking enemy canoes and sinking them.

Another more important nexus of descent lines, called *Xetriwaan* in the Loyalty Islands, the Isle of Pines and south-east New Caledonia, *Naacuwè*, *Cidopwaan*, or *Baleowaan* much further north, are said to have come 'from the sea', chased away from Kiamu (Anatom at the southern tip of Vanuatu) by a destructive volcanic outburst, and to be linked overall to sharks which they neither fish nor eat, and which they can call upon to destroy enemies. Many of the legitimate chieftainships in these islands and in New Caledonia proper were linked to *Xetriwaan* lineages, recognized as coming from the same source (Guiart, Unpublish. Data). It was said that because they originally came from the sea, the sea would destroy all who would attack them. In New Caledonia proper, where the problem of chieftanship was more the buildup of prestige and the acquisition of land, the link with the sharks rather faded out of the picture over time, except in a very few instances (the shark god *Bwatat* in the Touho and Hienghène areas, Guiart 2013, 2015).

SHARKS AS A MEANS OF TRAVELLING AND COLONIZING

The marine nature of the shark predisposes it to importance in inter-island linkages, especially in a highly insular context such as the Pacific. As such, the shark as a symbol of a prestigious vehicle made the original human settlement of many islands possible, as detailed in the following examples.

Sharks conveying a new lineage to remote unknown islands

This myth takes place in the area of Napwe (New Caledonia) and starts with the narration of a fatal shark attack on a chief's wife:

The wife tells the chief: 'Talk to that woman and tell her we are going to fish and eat crabs.' The chief says: 'It is good.' The tide goes down (*the mangrove is to the south of Napwe, in the direction of the lower Tchamba river*). The two women go catch crabs until their baskets are full. The chief's wife says: 'Woman ! Let us go back. The tide is really up and we are going to have to swim.' They go, the woman first, the chief's wife behind. Come to the middle of the water (*expanse*), the woman says: 'I am going to swim in front and you behind.' The space between the two gets greater and there is a shark in the sea. The woman gets to the dry land, the shark swallows the chief's wife with her basket of crabs. The woman comes back alone, the shark has eaten the chief's wife¹...

This tragic event affects the whole community, which starts crying. However, this incident turns into a positive path forward, as the chief's wife does not die after being swallowed by the shark, and will start a new lineage on another island:

'The woman eaten by the fish is thinking in its insides. She has kept her knife. The fish goes straight towards an island and runs around with the waves. She takes out her knife and plants it into the entrails of the fish. The shark loses consciousness and beaches on the sandy shore of the island. The woman comes out, looks at the islet, lays down tired, moves her head and sees a coconut come floating with the tide. She takes it, peels it with her knife, breaks it and eats its almond, crawls on the beach and stays to heat herself in the sun... She shuts her eyes, opens them again and there is a house, with the noise of the water falling down the conchs at the carved head,² the coconuts, the bananas, the yams, the taros and still another house at the other side of the road. She still lives there today (*she is a first-born girl and has a birth right to all this*). (Text³ collected and translated by Jean Guiart in 1952).

A parallel story of the wife of the chief on the seaside at Kouaoua, to the south, makes her come out of the dead shark on the sand beach at Muli, south of Ouvéa. This version does not choose its island, the local myth linking it with one of the Loyalty Islands having chosen Lifou (Guiart 2013).

Sharks conveying a new lineage from the New Caledonia mainland to Ouvéa or Lifou (Loyalty Islands)

Pastor Eleisha Nabay was long posted in Canala and found descent lines which came from Nabay there and in Kouaoua. He told two French anthropologists (J. Guiart and C. Rivierre) the adventures of these descent lines:

'An ancestor of the Dumay is at Ouvéa today. He is born from a man whose mother was swallowed up by a shark as he was still in his mother's womb. This woman was married into the coastal Dumay, those who had settled at the mouth of the Kouaoua River. She was crossing the river to go scrape *Bulbifera* on the other side, and she had taken with her a shell to scrape the *Bulbifera* inside her basket. The shark came in and swallowed her with the shell. Once in the shark's

stomach, she lacerated this stomach with her shell. So the shark started to go all ways, shot to Ouvea where he lay on the sand. The people of the island began to cut it into pieces and heard the woman speaking: 'Be careful, you are going to hurt me!' They cut the shark's stomach and asked her: 'How come you are in the shark's stomach? How did that happen ?' — 'I am a woman married into the coastal Dumay, this fish ate me while I was crossing (*the river*) so as to scrape *Bulbifera* on the other bank, and that is how I am here.' (*Text collected by Jean Guiart, translated from the Paici tonal language by Jean-Claude Rivierre in 1979*)

At both ends, the story was confirmed by the local informants who agreed that the two Dumay descent lines in Kouaoua (New Caledonia) and in Muli (Ouvea) were the same line. This is only one of many stories in which a shark is the unhappy means of travel. In other more peaceful versions, such as in Clua and Guiart (2015), the people navigated on the back of the shark, who came when he was called or when he was badly needed.

A reverse version of this story is a New Caledonian myth of a woman eaten by a shark embodying her sister, and not an anonymous high seas beast. The shark comes from Kiamu (Vanuatu) and kills the woman, but later she is resuscitated by the red ant. The story conveys a historical fact, the migration from Kiamu (Vanuatu) to Lifou (Loyalty Islands), and is found in many variations, one of which is a migration from the New Caledonia mainland to Ouvea in the Loyalty Islands.

...⁴ One day, he (a boy) tells *Waekiamu* (an old woman) he wishes to go back home (with his girlfriend, a grand-daughter of the old woman). Told by her grand-daughter, the grand-mother gives her instructions to the couple. 'Put six calabashes inside the canoe and put it to sea.' The boy obeys and puts also into the canoe a banana trunk, since called banana of Kiamu (the *Hnaisilin* chiefs in Maré have brought the same banana from Kiamu, *Musa trogloditarum*).... The old lady tells the couple to go inside the canoe and start off. She says: 'Here is a stem of *xedr* (plant growing on the beach). Knock it three times on the hull and steer for Lifou. The *xedr* will insure you a fair wind.' They go, but the sister wakes up and finds them gone. She also has *men*, due to her sickness. *Waekiamu* sees a large shark which is following them and she tells *Katrei*: 'Throw a calabash.' Which he does; the shark breaks it to pieces. *Katrei* throws the other calabashes one after the other. At the last calabash, they arrive at Jozip. They pull the canoe shore. The shark changes into a woman, who rushes on *Waekiamu* and kills her. *Katrei* had a *sinelapa* (*servant of traditional status*), the red ant, *xejè*, It goes inside *Waekiamu*'s body, going through every hole (*cf. the functions of body holes in Chinese medicine and eroticism*) until it brings back *Waekiamu* to life⁵ (*Text collected and translated by Jean Guiart in 1992*).

Other variants of this story go not to Ouvéa, but to Heo (another small island belonging to the Loyalties archipelago). The variants play with the mythical actors. Those of north New Caledonia start with the goddess of rain and floods, who tricks a chief's pregnant wife into going to bathe in the river and drowns her. However, the victim's husband, *Bwatat*, is himself the shark god. Her drowned body is brought by sea currents to an island which can be, according to variants, anywhere on Ouvea but also specifically on the island of Heo, where lives 'the mother of all winds'. She comes back to life from the effect of the sun, whose home, where he lives with his grand-mother, is in Ouvea, the uninhabited island of Seünö

Oüdetr. She bears two sons, who want to go back home to their father and are sent by the power of the local chieftainess (no male chief is involved in the event), who makes them grow up in a matter of months and gives them double-hulled canoes to go back home. The children, transformed to adults, are recognized by their father. In the interim, the goddess of rain had taken the chief's wife appearance and filled her belly with pot and pans to pretend to be with child. As punishment, she is shut up inside a house which is set on fire, and she bursts from the heat. Nonetheless, the goddess is still alive, and descent lines are still praying to her to protect their yam gardens.

SHARKS AS MEANS OF HIDING OR GETTING EVEN

Sharks as a marine carnal envelope for humans in Lifou (Loyalty Islands)

This story is a trick by men with supernatural powers, who vie with one another at taking different shapes. This theme of magicians playing against each other is popular in Vanuatu, from Efate to Epi and up to Malekula. The shark in this story is a transient shape and not an animal. *Mexanangö*, the principal *atresi* (priest) of Gaica in Lifou, has no particular observances or rituals with respect to sharks.

'Waymô would have been *tren adro* (the oldest descent line in a place, whose link with the *haze*, gods, creates their power, *men*) at Luecila. They are still there, under the name of *Luetre Epen*, considered as *ace kejè*, masters of the seashore and of the sea, beginning at Wasauhmié, that is at the present village of Luecila. Their *haze*, called *treujiletr*, the name of an unedible crab, would be also the light which is seen inside the waves. Their *men*, which is greatly feared, is attributed to their eating of this crab.

'Waymô at Luecila corresponds to what *Mexanangö* is at the bottom of the bay of We. *Mexanangö* saw every day a man fishing on the Löhna islet. *Mexanangö* one day changes into a leaf of *cica* (*white mangrove tree*), lets himself fall into the sea and changes into a shark. Waymô, the fisherman, also master of a *haze*, recognized who was inside the figure of the shark. When the shark goes to give him a knock with his tail, Waymô catches it between his arms. *Mexanangö* appears then as a man and says:

'Here I am.' — 'It is you, *Mexanangö* ?' — 'Yes, Come with me on the land. I have come to fetch you.' They go together on the firm ground and *Mexanangö* tells him: 'You are going to stay with me...'. (*Text collected in French by Jean Guiart in 1992 in Lifou island*).

The shark as an instrument of revenge in Ouvea (Loyalty Islands)

Sharks can be representations of strong human feelings but, in the following instance, they also have very strong collective links to the Kiamu people (ni-Vanuatu) as in the preceding *Katrei* story of Jozip in Lifou (Loyalty Islands). Inside another descent line, the image called for might be a lizard.

One day the (some) people (living in Ouvea but originating from the island) of Lifou and the village of Hulup (in Ouvea) go fishing at Ceu (*on the side of the island of Ouvea looking towards the high seas*). They go up, having finished. A man called *Hembwe* stayed in the sea to fish tridacna shell. The high sea begins. The people on the land come and see what looks like a line of fire. They call

(towards the west) to the man in the sea: 'He ! Beware of the shark which comes towards you.' The shark comes, but it is *Hembwe's* *tapu*, which he cannot touch, and he goes towards the land. The sea is going down slowly. *Hembwe* calls to the people on the beach: 'He! Jump on that fish who wants to bite me.' They take to their spears and rods, throw their spears at the shark and strike the sea with the rods. The shark swims away. They take *Hembwe* and pull him back on the land. He is out of his mind although the shark did not touch him. They carry him onto the land, but he does not talk to them. They work (around him), he does not speak. They make a stretcher, put him on it and carry him to Qagei. He still does not talk. They put him inside his house. They speak of finding someone to look after him.

Some say a man of Lifou has the cure. He should be called in. They go and fetch him, his name is *Pulio*. He comes and explains, the shark who attacked *Hembwe* is a *hmo*, which he himself sent for that purpose (*he cannot undo what has been done*). They then send a message to *Menahole*, elder brother of *Hembwe*, at Henëbwiny (Wagedhen). He comes and finds *Hembwe* dead. *Menahole* asks the wife the explanation of his death. The wife says: 'Before (*the event*), *Pulio* came to ask two shells from *Hembwe* because he was going to Lifou and needed them. But *Hembwe* did not want to give anything because they were his riches and he had hidden them⁶ (*Text in Qèn Iaay by Wadrawa Hnyigotr, translated by Jean Guiart in 1989 with the help of Joël Mau*).

This story shows how the Lifou character took revenge for the affront imposed by his peer by mobilizing a shark to harm him. There are actually in Ouvea two distinct Lifou lines, those who stayed and were accepted, and those who were thrown out by force. This story tends to show that the resistance shown to some Lifou people means that they belonged to the aggressive part of the *Xetriwaan* people, linked to war sharks, which could be sent to do individual murders or sink canoes. In her essay, 'In Fiji all things go in pairs, or the sharks will bite', Toren (1994) explains that the word 'sharks' can refer to fishes, to the ancestor gods as manifest in that form, or to chiefs as dangerous and warlike persons.

SHARKS AS RELENTLESS RIGHTERS OF WRONGS

One constant rule is that all variants belong to a descent line and all the individual names and place names cited belong to that lineage. When a shark is the god of a particular descent line it may have a name, but if so the name cannot be pronounced and we do not always manage to learn it.

The place names are of all sorts. Some expand into a number of names of particular neighboring yam or taro fields. Others are only slight stops on the road, where a stone or a branch will be added to each already considerable heap of similar offerings. There are spots where it is forbidden to shout, or to sing. At other places one should get out before sundown under pain of a supernatural sanction. There are places where fishing, or drinking in a water hole, are forbidden.

These seem like small things to beware of. Respecting these *tapu* is nevertheless essential. Sanctions come without having been heralded. They are not automatic. Those coming from the thunder may not touch the people of the shark, who are often those who can control the sun and the rain (*tene dray* in Lifou, *karè ma kwa* in Houailou, Guiart 1992). The systems of reference are complex and should be entirely memorized. Gregory Bateson (1932) calculated that among the Iatmul of the middle Sepik River the systems of

reference implied having thirty thousand names at the tip of one's fingers. Shark or no shark, each name is only one of innumerable parallel systems. In the course of a professional life, we only manage to learn a fraction of that reality. Parallel naming systems included in land tenure rules can be many.

The principal symbolic link of sharks is with death. On southwest Tanna, the dead of a specific descent line are brought to the pass in the reef, where two sharks protective of these people live, and the bodies are tipped over the canoe to feed these two special sharks (Guiart 1956). In New Caledonia proper, at Ware, halfway up the steep hill dominating the Hienghène Catholic Mission, is a rock on which a tree has grown. The dead of all the area come there, come down the hill and climb the rock and the tree, and jump from there into the sea where they immediately take the shape of sharks, greeted by the former dead who previously also became sharks (Guiart 1987, 2003).

At the 'Roche Percée', on the coast of Bourail, the dead from all the Bourail and Houaïlou area are said to come and jump from there into the sea to become sharks. They first pass through the checkpoint of a goddess armed with claws, who pierces their earlobes if they have not been pierced in the course of their former lives (Leenhardt 1930). At this place favored by wave-lovers of all origins, if a high seas shark comes inside the lagoon and attacks a white man it is considered to be the sanction of the shark gods against the white men who are violating the taboo protecting the site – as happened in 2011 (Clua and Reid 2013). This view of the shark as executioner is an old one. Women with their periods were not to participate in any fishing attempt under pain of being attacked by a shark (J. Guiart, *Pers.Obsv.*).

Some sharks on the south coast of Malaita help in collective fishing bouts with a seine net by pushing the fish towards the net, at the request of the appropriate descent lines who have a special link with them, some of who may organize instances of feeding their shark, at the same time symbolic and real. Other descent lines are allied with porpoises for the same results. On the north coast, fishermen catching sharks with a noose must first go through a ritual to ask the forgiveness of the sharks. These sharks are lagoon sharks, often called 'sleeping sharks', which do not attack humans and with which more or less positive relationships can be established. Some sharks in Vanuatu are of the same kind, helpful for their own people, dangerous for the enemies of those they protect (for instance they can sink single-hulled canoes or execute those who break a taboo).

Some people on the east coast of Malekula claim they have found a short cut, building a wooden frame resembling a shark, inside which a skin diver uses the structure to come close to a canoe, sink it and cut the limbs of the people swimming. Some carvings represent the event as does a drawing in the sand (Guiart 2011). As shown by Firth (1981) in Tikopia, all these examples demonstrate the role of the shark as an active mediator in human affairs in the Melanesian realm.

SHARKS AS PART OF A COHERENT NATURE

Some shark myths push the relationship with land tenure to the sharing out of the sea approaches, the places for putting out nets and fish-traps and for more adventurous high seas fishing for yearly migrations of tuna or bonito fish, always followed by schools of aggressive sharks and quieter but nimble porpoises. This link between man and nature is mediated by the specific members of a descent line and by special beasts or animal life, special plants or even rocks, or the woman who lives inside the rock on which a god has pissed – it can be Maui tikitiki (Tanna, Efate, see Guiart 1956, 2014) – and who is then found to be with child. This mediation prevents any attempt to interfere with a process by which man is part

onlooker and part master of carefully adapted techniques of survival. There is no feeling of a necessary revenge towards the sharks. The shark does what it has been created to do and can often be something else than what it appears to be, for instance a god or an ancestor in disguise, which can be recognized through the language of its eyes (Leenhardt 1947). If captured, such beings should be put back to sea without killing them.

The logical structure behind such rationalisations implied a wiser understanding of environmental problems, breaking with the modern cognitive biases that can be observed today, particularly in relation to shark risk (Neff and Hueter 2013). Young people learned both about the risks and how not to fear them. It respected a balanced relationship with all the aspects of Nature, and included registered links between particular descent lines as the masters of a plant, an animal, a rock, the wind, the sun, the rain, the thunder or a star linked to yearly organized agricultural work.

There is always an answer to difficult problems: to go and see the 'clever' (the seer) and get from him, or her, the right priest to be seen for a problem. In the same way, the seer can build up a symbolic road in which the wrongdoer will find himself caught as inside a net, and his further behavior shall show his guilt and at the same time the curse fallen unto him (Leenhardt 1930). The curse can take the form of a shark attack. This imaginary world has kept its roots in present village life, maintaining a situation where there is always an answer to any problem, and all which surrounds man must be respected as well as controlled for security and wellbeing.

Information and details about sharks provided through myths remained reliable and even specific to particular Kanak environments until the end of the 20th century. There are enough details in the stories to set up reliable hypotheses about which shark species were involved in which myths, probably as a consequence of real everyday interactions or more scarce events (such as attacks on humans) remembered from more remote days.

Regarding myths that involve the swallowing of an entire person (for example the Kouaoua chief's wife), there are two species that can reach a size large enough to at least give the impression that the shark is big enough to swallow an entire adult human being. The most probable is a tiger shark *Galeocerdo cuvier*, which can reach a length of 5.5 m with an impressive jaw width of around 50 cm for such a size. This species is a permanent top predator in the coastal and pelagic waters around the Western Central Pacific islands, including New Caledonia where it is usually quite elusive but can sometimes be found in feeding aggregates (Clua et al. 2013). The other candidate species is the white shark *Carcharodon carcharias*, which can reach a total length above 6 m with jaw widths above 70 cm. This species is mainly present in New Caledonia from June to November but can be present almost all year round, except from March to April when it is found in more southern waters around New Zealand (Clua and Séret 2012). Apart from a slightly different residency period in New Caledonian waters, both species can swim in coastal waters and be in a position to attack a human being, and also have a habit of long distance movements from one island to another, making their behavior consistent with the inter-island role of sharks described by some myths.

Available historic data before the 1990s dealing with fatal attacks on humans in New Caledonia does not allow a reliable identification of the species involved. More recent fatal attacks that were thoroughly documented show that a white shark was responsible for a fatal attack on a woman on Luengoni beach (Lifou) in 2007 (Clua and Séret 2010) and another fatal strike on a young male surfer near Bourail (Grande Terre) in 2009 (Clua and Reid 2013), while a tiger shark was responsible for a fatal attack on a young male kite-surfer in Kendec pass near Koumac (Grande Terre) in 2011 (Clua et al. 2014). Regarding the myths involving large sharks, however, details seldom allow a determination of which species is meant, except in some instances in which a white color is mentioned, favoring the

white shark. This distinction is actually not important since the main interest of these myths is the awareness of people, in particular young people, of the risk of being attacked by a large shark while they are at sea.

REAL SHARKS FOR CONVINCING MYTHS

The rooting of shark myths in the real Kanak environment is more significant when particular myths mention a specific coastal habitat, such as rivers and river mouths common around the New Caledonia's Grande Terre. A specific myth deals with this concept, being the 'Story of the shark of the river mouth':

It has become the *tēija* of the mouth of the river descent line because, when a man dies, his breath⁷ goes down in the water and goes inside the shark. This shark is a god, he lives in the water at the site called *Gapilowa*.⁸ This site is the object of prayers and sacrifices on the part of the people of old. They dive and bring yams in the bottom and when they come up the fish die. The fish are their food in complement for the feasts when they have some. This why they say that the shark is the *tēija* of the *Gorode* and the *Pwêêiriwê*. On this subject another talk, the shark goes up and spits blood in the river, so that a man can fall sick and the shark eats it and if he is disrespectful for a tapu, he is eaten by the shark as the *tēija* would do in any descent line (*Text by pastor Philippe Gorode, collected by Jean Guiart, translated from the Paici tonal language by Jean-Claude Rivierre in 1979*).

Most of the sharks are marine animals unable to survive in fresh water. Tiger and White Sharks would then never be found in river mouths with a high dilution of salt water and even less likely in a river itself. The Bull Shark *Carcharhinus leucas* is one of the few euryhaline sharks with a capacity to adapt its physiology to freshwater. Adult females of that species use river mouths for giving birth and this species is present in New Caledonia (Werry and Clua 2013). As an additional convincing fact about this specific species being involved in bites on humans in New Caledonian rivers, Bull Sharks are the third commonest species involved in fatal attacks on humans around the world. We can then think that the above described myth relies on real facts of attacks on humans by Bull Sharks, with 'blood spits' as mentioned in the myth such as can be witnessed during an attack.

Whatever the species, sharks were undoubtedly more numerous in Melanesian coastal waters in the past, with more frequent interactions with humans, which helps explain their significant place in the supernatural world, as a kind of mirror for the natural one. However, high densities of these animals in the marine realm and increased opportunities of human encounter might not be the only explanation for such a widespread representation of sharks in the Melanesian mythical world and in other Pacific island regions in general.

From a biological point of view, sharks can reproduce by three different adaptations: they can be oviparous (laying eggs as many marine fish do), ovoviviparous (producing eggs that remain in the female uterus where they hatch, giving birth to embryos that will still grow for a while inside the uterus before being dropped outside) and also viviparous (with embryos that are fed through umbilical cords in the female uterus, and then born when properly developed). The potential discovery of shark fetuses with umbilical cords in the belly of fished viviparous female sharks (such as Bull Sharks for example), exactly as fetuses develop in pregnant women, would indeed support a perception that sharks are closer to humans than most of other fish that produce eggs (like birds). The other two large shark

species mentioned, Tiger and White Sharks, are ovoviviparous, and do not have umbilical cords, but they still give birth to young tiny animals, like human reproduction. Our hypothesis is that all these elements facilitated the inclusion of sharks in myths alongside with people, with the frequent mention of mutations from shark status to human and *vice versa*.

The focus on sharks in the mythical world is also conveyed in imagery and material representations that help further identify species involved in Kanak daily life and beliefs. One of the best indications is carving or sculpture that includes shark teeth, which more or less significantly differ from one species to another. Surprisingly, the material art of Melanesia does not often include sharks, at least much less often than other regions of Central or Eastern Oceania. For example, based on the analysis of shark tooth weapons, Drew et al. (2013) showed that two species of shark, the Spot-tail (*Carcharhinus sorrah*) and the Dusky (*C. obscurus*), were present in the Gilbert Islands (Kiribati) during the last half of the 19th century but not reported in any historical literature or contemporary ichthyological surveys of the region. In Polynesia, the Blue Shark (*Prionace glauca*), a pelagic species inhabiting the open waters of the ocean far from the coast, plays a central role in the myths (see the 'shark cult' in Ellis 1972). This animal is actually never named and is highly respected as the gods' servant. It is feared as one of the most involved species in human group attacks during ship disasters or maritime battles in high seas. Blue sharks are not actually very large sharks (total length < 4 m) but are often met in schools that can quite easily enter into 'feeding frenzies'⁹ in the presence of a feeding stimulus, such as many people in a panic. From an anatomical point of view, blue sharks are characterized by a slender body and a thin and long snout, which simplifies their identification in material representations or drawings, such as *Te ma'o Purotu*, the blue shark of *Ta'aroa* (Torrente et al. 2018).

However, as far as we know, Melanesian mythology and its material representations do not include blue sharks. The absence of this species from Melanesian myths is actually another clue of the strong links established between the environment and the contents of the mythology. Blue sharks are present in Western Pacific waters but it seems obvious that Kanak living in large islands (one with the most extended closed lagoon in the world in New Caledonia and another linking the Solomon Islands to the Bismarck Islands), and not far to sail when they needed to reach the next island, had few opportunities to interact with blue sharks, unlike high seas Polynesian navigators. That would explain the presence of Bull Sharks in Melanesian myths (rather than Blue Sharks).

KANAK SHARK PERCEPTIONS: CONCLUSION

As described above, sharks as mythical animals can play the role of avengers and righters of wrongs, of vehicles for living or dead people, and either allies or enemies in wars. Their role as potential man-killers is never overlooked. However, in Melanesian mythology, when humans are attacked or killed, it is always for a material reason: the victim broke a rule or a taboo, or was an enemy of people under the protection of sharks, or the event allowed a pregnant woman to reach a new territory, *etc.* In myths, sharks are never just predators killing human beings for food, even less killing at random. Whether or not the metaphysical justification is arbitrary, this perception remains calm and respectful.

Such a perception helps Kanak live in a remarkable harmony with their environment without irrational fears of natural hazards. This perception remains dominant even today and contrasts significantly with the behavior of European people facing a shark event, including native New Caledonian or transient white people (all Caucasian). Recent shark attacks prove this fact, in particular the fatal attack in Bourail in 2009. Following the death of a young Caucasian surfer (Clua and Reid 2013), a group of European people launched a

culling campaign against sharks. More recently in May 2019, a near-fatal bite occurred on a 10-year old child in Noumea (Southern Province), followed few days later by a fatal bite on a 50-year old fisherman around Belep Island (Northern Province). While the predominantly Melanesian population of the North accepted the death with a certain amount of good-natured fatalism, a crisis atmosphere took hold in the capital, which is mainly populated by Caucasian people, resulting in a campaign of indiscriminate shark killing (DNC 2019).

Not a single Melanesian was, logically, involved in any of these culling campaigns. Despite the tragic nature of the accident, keenly felt by everyone, the Kanak in the case of the Bourail fatality suspected that a shark was sent to punish white men for confiscating the neighboring tabu site of 'La roche percée' (J. Guiart, Pers. Obsv.). The same sort of 'positive fatalism' can be perceived for all shark attacks in New Caledonia, as far as we could get information on the subject. One interesting instance took place in February 2011 when a 21-year old Kanak was severely bitten on his left arm by a Grey Reef Shark (*Carcharhinus amblyrhynchos*) as he was spearfishing with his cousin on the northern coast of Ouvea (Loyalty Islands), the part of the atoll exposed to high seas (Jublier and Clua 2018). After he was carried to the hospital in Noumea, we had the opportunity to interview him. The local media had tried to develop, as usual, a sensationalist approach to the event that would again demonstrate the fierce and malefic nature of sharks. The fisherman did not fall into the journalistic trap, saying that 'it is normal to interact with sharks while spearfishing and wounding fishes in Ouvea, and he had no resentment against the shark that attacked him.'

The island people's approach to the natural environment, including natural hazards, could represent an inspiring goal in current times when the sustainable development of the Earth is becoming recognized as critical for the human future. Nunn and Pastorizo (2007) showed how the study of myths has much to contribute to an understanding and assessment of geohazards in parts of the Pacific like the Solomon Islands. In the same spirit, we believe that recognition of Melanesian myths and their contents could help improve our understanding of the real level of danger embodied by sharks. A young 21-year-old Kanak woman asked about the Kanaka relationship to nature, said, 'We come out of nature, we come out of a rock, we come out of a lizard, we come out of a tree, and that's what makes our culture... that's what makes our identity' (See Horowitz 2001).

Blindly and candidly adhering to such a specific and extreme vision of the origins of man is not part of the Melanesian culture. Sharks, lizards, and other natural things, are called 'Grand-father' as a honorific appellation. This does not mean any descendance from a shark god unless an always strictly localized myth says so expressly. It might mean the fun of pulling a French person's leg.

It is about considering that human beings are simply part of the overall ecosystem in which they live, with a duty to sustainably and wisely manage their part of it. This concept has always been the center of the Kanak's perception of their world.

ENDNOTES

1. One of the archaic aspects of this text is that the names of the persons are never said. The *tapu* is respected.
2. See Leenhardt (1932), «Les deux soeurs de Moaxa», for the image of the waterfall represented by an arrangement of conch shells of different sizes starting from the carved head
3. *Ajië language text written in 1952 by Amelia Neghosari, wife of Wapela Sawa. Translated by Jean Guiart with the help of the late Pierre Asawa, of his father Ketiwan Asawa, chief of Bwa, of pastor Avenë Kwerhō of Bwa also and of deacon Gayō Mèsikweo of Nerhëghakwea, valley of Houailou.*
4. The beginning of the story is as follows: 'An old woman, *Atre Onatr*, had a grandson, *Katrei*, who was playing at building small models of canoes, which went round the bay instead of going straight out to sea, and he was following them on the coral flat rocks which were just over the water. The old lady took pity on the boy because of his wounds on and under the feet caused by the coral. Through her *men*, she has a canoe of normal dimensions appear on the beach. She gives it to the boy. 'Here is a real canoe with its paddles and its sails. Try it by going to the reef Hayjenōjozip.' ... Another day, he goes to the reef, crosses the pass and

goes outside. The south wind comes and takes him to Kiamu. Once on the beach, *Katrei* pulls the canoe ashore. An old woman, *Wahnapu*, was living there with her two grand-daughters. One, *Waekiamu*, was very beautiful. The other suffered from mycosis and lived alone in a house full of flies attracted by the smell of her wounds. The old lady feels a premonitory tickling of the soles of her feet, *qanamacca*, and says to *Waekiamu*: 'Go to the beach and look, something has come.' The girl goes and finds the canoe empty. But she sees the traces of *Katrei*'s feet and follows them, finding him where he had hidden. *Waekiamu* goes to see her grand-mother, who tells her to bring the boy. When he comes, the two girls feel desire for him. He lives with them."

5. The end of the story is as follows: "*Waekiamu* then goes up with *Xejè* towards *Katrei* and her sick sister. Two boys from *Onatr*, the two left-handed (which gives them a *men* stronger than the sick sister), kill the sister with mycosis. There is still there a rock with the appearance of a sleeping human person. *Katrei*, *Waekiamu* and the two *Onatr* boys go and see the grandmother, who says: 'Unhook your canoe and let it float.' Since then, there are two rocks in the bay looking at each other, one is the canoe, the other one is the floater. They then go to Thingetuma. 'You are going to live there with *Waekiamu*.' says the old lady. One day *Waekiamu* tells her husband of her wish to go and see her grandmother at Kiamu. *Katrei* goes to see his grandmother. 'It is good', says she, 'but let us go first to the fields.' Over there she talks again: 'We are going to shut our eyes and nobody is allowed to open them.' Thus they do, and when they open their eyes, on the instructions of the grandmother, they are standing at Hnamek, on the cliff over the sea (between Jozip and Hnaeu). The old lady talks to her grandson: 'I had told you to let go your canoe, because you were not to go ever again to Kiamu by canoe. Take baskets of yams and all the *Angetre Onatr* are going to come with you. They all hold a basket of yams and an *alu* (magnagna) rope at the same time. They shut their eyes and when they open them, on the order of the old lady, they are on Kiamu, at the other grandmother's home. They act in the same way for the return. The use of this technique was kept for a long time by the *Angetre Onatr*, until a woman not from their lineage disobeyed and opened her eyes, breaking the charm"
6. The story ends as follows: "*Menahole* speaks to the man of Hulup (*Luexotr*, chief of Hulup): 'Let us take my brother and bring him at Hönyöü to *Kong Hulup* (the god of the place). I want to find the god of the man who has killed my brother.' They bring the corpse to Hönyöü, to the site set aside to the god of *Menahole*. They put down the corpse inside *Kong Hulup*'s cave. *Menahole* stays there to speak to *Kong Hulup* and enumerates the names of the men. He tells out each name one after the other until the god tells him which one is the one who has stricken *Hembwe*. The god does not speak until he says the name of *Pulio*. The god then says to *Menahole*: 'Send a message to the men at and around Hulup, so that they come here for this affair.' They come all in respect of what has been said. *Menahole* speaks: 'All of you here, the *je ditir* (those who fatr, that is bring the first fruits of the yam crop) of Hawiny and Luexotr, of whom the dead man is *Hembwe*. The man who killed him is from Lifou, *Pulio*. Let us be prepared to go and kill all the Lifou who live at Qagei. Do be prepared to kill them today.' The men of Hönyöü and Hulup prepare for war so as to attack the Lifou at Qagei. They are at Wagewe and wait for the day to come. Unknown by them, a man has gone from among them, to warn the Lifou and tell them that war surrounds them and that they must get away. They flee into the bush. In the morning the war of Hulup and Hönyöü bursts upon the Lifou. They open the houses, which are empty. The Lifou get away at Öhnyötr (north-east Ouvea), a village entirely peopled with men from Wetr country, Lifou, and from there go back to Lifou, from where they never came back until now.'
7. 'Breath' is the Kanak concept. The constant European translation as 'spirit' or 'soul' has no meaning in Melanesian and Kanak tradition.
8. That is the site of the shark of the *Gopwea* at *Neweta*.
9. See the definition of the phenomenon in Clua et al. (2013)

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