Seascapes of the far, far, far… West, technologies of seamanship and environmental modification

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The skills of seamanship among inhabitants of the south-western littoral of Colombia, in handling apparently fragile craft, confer a mobility that allows them to maintain dense social networks. These networks help them to retain their autonomy in the face of exogenous pressures of development.

The south-western littoral of Colombia is a dynamic labyrinth, an extended alluvial plain of movable sandy keys and slow-growing mangrove estuaries dominated by moderately strong tides and soft winds. Since the Conquest this environment has been perceived by travellers, colonists and developers as a rich but hostile and wild periphery, a formidable barrier to contact, transport and overall progress. However, thanks to their skills of seamanship, local inhabitants have been able to move around in this environment with ease and efficiency, using watercraft that to outsiders seem fragile and vulnerable, but which are in fact highly versatile. Thanks to the mobility afforded by these craft, they have been able to form dense networks of interconnection, and to retain a measure of autonomy in the face of the potentially exploitative pressures of externally instigated development. Indeed the intricate and largely uncharted history of the region is characterized by a multiplicity of inter-ethnic contacts and intermixtures, local marooning and innovative smuggling; the dynamics of a crossroads rather than a periphery. At these crossroads, landscape and seascape merge to constitute a single extended field.

A dynamic labyrinth

The South-western littoral of Colombia is an extended alluvial plain, a belt more than 500 km long and up to 60 km wide[1], formed by the accumulation of sediments flowing from the deltas of the various rivers that descend from the Western Andes, which rest briefly on the subduction zone before falling in to the Yakina Trough. Because of its position on the edge of the continental platform, the zone is affected by semidiurnal tides (12.5 hrs cycle) with a range of up to four meters, and speeds of up to 2 m/s . The coupling of the high volume of drainage and the strong tide regime causes the continuous displacement of debris and drift wood on the surface and banks of sand and mud on the bottom, a fluid sea floor of movable sandy bars and keys . These conditions make navigation hazardous, requiring sizeable watercraft to remain 30

[1] It extends roughly from Cabo Corrientes near Buenaventura in Colombia (3º50' N 77º00 W) to the Cayapa River in Ecuador (1º10' N 79º04' W)

km away from the shore, and pilots to have detailed knowledge of the seabed and its ways of changing in order to guarantee transit through the basins of the rivers.

The South-western Littoral is situated in range of the Inter Tropical Convergence Zone (ITCZ), which causes a mild weather of around 26ºC, and a heavy raining regime. With an Annual precipitation of around 3500-8000 mm, it is one of the rainiest regions on the world . The sea is dominated by the Colombian current, a warm water (26ºC) eddielike cyclonic system which flows northwards and eastwards. This current is associated with highly variable winds, among which prevail the breezes (4.5-12 m/s) from the SW and the coastal light breezes (2.5 m/s) from the S. Which produce waves of up 1.95 m in height, a period of 11 seconds and a wavelength of 174m which as drawn near to the shore mild down in to a height of 0.90m , a period of 7s and a wavelength of 75m.

Through the whole year the conditions change substantially, in this way, during the dry months of December to February it is possible to see the high altitude Gorgona Island and even the Andean Mountainous chain. Between the months of February to April the displacement of the ITCZ southwards allows the entrance of the colder waters (16º) of the Panama bight from the north , bringing extremely calm waters, and dense fog abruptly disrupted by near gales (up to 15 m/s) from the N and the E . Afterwards starts the period of heavy raining which besides floods causes covert when not foggy skies which offer little visibility.

These dynamic conditions coupled with a high degree of seismic activity make the shore environment highly changeable. Its only source of stability derives from the various kinds of mangrove (*Rizophora spp, Mora megistosperma Laguncularia racemosa, Avicennia spp, Hibiscus tiliaceus*), threading an intricate net striving to gain and retain terrain from the sea. Slowly growing, the mangrove builds a biological barrier, on which a succession of other colonist species, humans among them, find the possibility to settle on . The living quality of this barrier entails a fragile and dynamic equilibrium with its inhabitants, where even small interventions have unforeseen and often devastating effects.

The stranded mazes of History

Among the earliest archaeological records on the region are findings of rough clay, cotton spins, and other artefacts of fishing gear suggesting a fishing station in the Gorgona Island dating 3340±280 b.p. (1300 b.C.), various traits link it closely with later coastal findings

of Tumaco-La Tolita cultures (2500-1500 b.p.). These cultures intervened deeply their environment building massive mortuary promontories, and elevated fields with irrigating channels used in intensive agricultural practices and achieved a high degree of skill in pottery and metallurgy , where involved in an extensive obsidian trade, had close links with lower Central America and had deep influence over Mesoamerican metallurgy ; all these features point towards a highly complex social organization. At the time of contact with Europeans the zone was populated by various groups which on linguistic grounds have been classified as the Barbacoan variant of the Chibchan-paezan group, and it has being suggested that they are closely related to Chibchan groups Lower Central America on rather than to the Chibchan populations of the Colombian Andes.

Although local features are not excessively hostile, they have posed major problems to foreign travellers, colonists and developers. Before Pizarro swiftly conquered the Inca Empire, his expeditions spent more than three years half-stranded on the Gorgona Island. The weak, changeable and contrary winds and the sandy bars of the neighbouring coast are usually to blame. Nevertheless, the near by region nearby was not without interest, being one of the major sources of gold during the colony. Its vast resources and sizeable population were quickly recognized by the expedition, which found in the belligerence of its peoples and the intricacies of the mangrove sufficient reasons to resign and sail on southwards . The following centuries saw the drastic decline of the native population. Nevertheless it would take another hundred years and many failed attempts before, in 1635, encultured Spaniards in allegiance with *Señores serranos* (highlander lords) and Amerindian troops subdued the local peoples; gold exploitation and massive importation of African slaves to the zone started thereafter . Hostilities continued, Wafer describes how the region and local peoples were still beyond the control of Spaniards and feared by them. The following centuries saw numerous insurrections, Amerindians and marooned slaves continued to find in the environment a powerful ally. After the abolition slavery the Gold exploitation became unprofitable and the majority of colonists fled the zone . Later Republican efforts to induce Eurodescendent colonization were largely a failure .

Still nowadays, government officials and colonists from the highlands complain constantly about the isolation, lack of roads and the difficulties of movement and transport. Distrusting the traditional watercraft as well as its modern adaptations to outboard motor they are restrained to the main urban areas. For movements outside these cores they must rely on

the few motorists who drive fibreglass boats of foreign designs and on the coasting ships -which travel from the larger costal cities to the head of municipalities-. On the same line, Central Government and developmental organizations assume that, given the reduced terrestrial transport infrastructure (that given the characteristics of the terrain has prohibiting costs both of construction and of maintenance), its inhabitants lack mobility and remain isolated within their particular rivers . Thereby, the Government regards the region as a marginal periphery which remains in a state semi primeval nature. This became particularly patent in 1978 when the Government created a national natural park on the region without considering its inhabitants . Efforts of development have been transient, most of them related with an almost furtive exploitation of natural resources: gold, tagua, mangrove tannin, wood, shrimp and drugs ; their benefits have been arguably innocuous and in a few instances even disastrous.

Contrary to the above mentioned perceptions, local inhabitants enjoy now as in the past of a high degree of mobility which derives from their skills of seamanship and reliance in traditional watercraft technologies which not only are highly adapted to the local environments but also are closely associated with their development.

To a great degree modern population is afrodescendent . Nevertheless historical, genetic and cultural evidence suggests a large intermixture with Barbacoan Amerindians with a secondary contribution of eurodescendents and foreign Amerindians . Communities are strongly dualistic in their social structures, having the dyad rather than the individual as the most basic unity of society . These structures are reminiscent of Amerindian societies and in particular of prehistoric dwellers of the zone . For instance, they share the same musical traditions , myths and worldviews with groups closely related with the aboriginal population, and preserve Amerindian technologies of housing and watercraft .

Riding Foals and Canoes

Traditional watercraft technologies of the region involve long slender dugouts, called *potrillos* (young foals) *potros* (foals), and a third larger craft, which received a variety of names depending on its specific source: locals were called *canoas* or *faluchos,* Ecuadorian's *imbaburas*, and Panamanian's *bongos,* and has evolved in to the modern design canoes. The sizes of these watercraft depend largely on the availability of appropriate logs and thereby vary greatly nevertheless the above mentioned types refer to three standard sizes: three, five and eight

fathoms (5, 8 and 12 meters) in length; with depths and breathes ranging respectively around b: 57-80-130 cm and d: 30-50-90 cm. Hard and cross-grained woods are preferred for the dugouts. Fine woods like cedar (C*edrella spp*), *guachapelí* (*Pseudosamanea guachapele*), *chachajo* (*Aniba perutilis*) and *ánime* (*Protium Sp*) are chosen because of their resistance and durability. However rougher, soft and spongy woods like *balsa macho* (*Ochroma lagopus*), *ceiba tolua (Bombacopsis quinatum) and ceiba (Ceiba petandra) (Hura crepitans)* are occasionally favoured because of their lightness, and in the later case also because of their size. Expansion techniques like heating or pressure are not known locally and there is no record of their use in the zone . The resulting shape is a slim flat bottomed shell with rounded buttocks and nearly straight strakes. Fore and aft are nearly symmetrical, both ends curve softly to give place to narrow overhanging platforms (20-40 cm wide). The prow is slightly fuller and can be easily distinguished by a scroll form carved on the front end.

Because of its form and dimensions, traditional watercrafts have access to multiple routes besides the coastal ones. A dense network of estuaries provides various alternatives parallel the sea. It is possible to travel through the whole length (500 Km.) of the littoral without hardly ever having to venture outside . Strictly, the size of the watercraft is inversely proportional to its route availability, while ships are constrained to a reasonable distance from the coast and to the main rivers; and the biggest canoes to the main estuaries, whereas the smallest foals have access to any channel of little more than their breadth 60 cm and depth 30 cm, which on a mangrove forest affected by tides of up to 4 meters in range entails a widely changing range. The tides open temporary paths in to the mangrove forest and create shortcuts across it, which interconnect the main rivers and estuaries. Rivers, estuaries and temporal shortcuts are not only protected from winds and waves, but in them the tides provide an important source of free energy available for displacement, which the local people manage carefully.

On the grounds of the absence of certain building technologies, little beam and low freeboard these watercraft have been dismissed as primitive and un-seaworthy . Sea-worthiness might prove to be a very ethnocentric notion: in the 1680's Dampier commented on his surprise at how even young girls from the region were more sea-able than him or any of his man, and how even an untreated log was seaworthy enough for locals to paddle across the surf standing over it. Such ability remains to the date, kids still play and fare standing on almost any floating device, from untreated logs found drifting to borrowed water tank caps. This should

question the notion of seaworthiness as a quality intrinsic to watercraft, which can be applied universally, regardless of the use given to the watercraft and the skill of its seaman.

Other authors considering the achieved forms and their functionality both on the estuaries and on the sea have noted the beauty and sophistication of their simple forms . Being made of a single piece and without forced expansions, the very shell provides a strong structure; thereby they do not require frames and so are very light. Although some self-righting stability is provided by having a thicker cross section on the bottom, because of the light and slender body, they are very *demanding*. That is: craft whose stability is greatly affected by the most minimal changes in the balance and equilibrium of each crew member, and requires great skill from them.

Being demanding is not necessarily a shortcoming, it allows a great degree of kinaesthetic sensibility to changes on the surge and currents produced around the bars, informing the required paths of action. Under a low visibility regime and without the aid of location technologies, kinaesthetic sensibility plays a crucial role in determining approximate position. It is the basis of a frame of reference on which the distance to the coast is inferred from the general feeling of depth. The currents around the more permanent features like the main banks, river and creek basins as well as the few rocky formations hint at the approximate position along the littoral. On the other hand as they are zealous they are also comfortable to paddle, swift, fast and highly manoeuvrable; all these features are fundamental qualities necessary to face the potential risks of the bars under a strong tidal environment.

The sensibility of the watercraft is also crucial for internal communication and enskillment. Members of the crew, usually a pair of men, have differential and interdependent access to sources of information, and control possibilities of the watercraft behaviour. The safety and success of the seafaring or fishing tasks depend on the crew's coordinated activity, mutual confidence and ability to communicate. A good deal of this communication, however, goes through the behaviour of the watercraft and the subtle alterations that the members of the crew are able to effect. These forms of collective cognition enforce the dualistic character of local cosmologies and social structures.

Still it is often pointed out that because of their slenderness and low freeboard, local watercraft has little capacity. This is of course relative as even a *potrillo* increases the cargo capacities of a person by more than a tenth fall, and a *canoa* or *falucho* would carry around 5.5 tons , that is, it was on the same range of capacity as the trucks which carry out most of the

freight in Colombia to the date. Now, in order to achieve their full capacity double balancing outriggers have been used . These are balsa logs attached to the sides or close to the sides and fixed to one or various short bars and tied to the gunwales. Because unless the watercraft is fully loaded or extremely hilled they are not in direct contact with the water, Hornell ventured that these were undeveloped versions of 'real' outriggers like those seen in Polynesia and even suggested that they would have been brought by Spaniards from the Philippines . Clay models of dugouts with balancing outriggers dating to 1200 and 2000 years B.P reveal that in fact this is very ancient practice, long depurated by time and interaction with the local environment. The particular arrangement of these attachments enables additional cargo capacity and last resource stability without sacrificing the normal performance characteristics of the watercraft: without reducing its sensibility, speed or manoeuvrability. Furthermore, depending on the particular circumstances they are easily removed -to increase route availability- or added -to increase their capacity- sometimes using more than one par turning the *canoes* or almost into rafts .

Channelling forces through the Canaletes

Although oars are known in the region and were used in some particular travels, the traditional and preferred means of steering and propulsion before the advent of the outboard motors were lanceolated paddles called *canaletes* (diminutive of channels). Generally being made of *chachajo* (*Aniba perutilis*) the sizes and forms vary greatly first depending on gender and size of the user, but also according to functionality and ethnicity. Men use long shaft *canaletes* which allow them (*bogar:* from lt. *vocare* to call) to paddle or tow standing; meanwhile, women use a shorter shaft sharper variety and paddle sited on low chairs. Up river *canaletes* tend to be longer, thicker and blunter as towing is their main use, seamen's *canaletes* on the other hand tend to have wider and sharper blades (*paleta*) as they are more often used for paddling, as side rudders or leeboards. Finally there are some differences on the carving styles of the handle (*Oreja:* Ear) which are linked with the traditions of the makers and the paddling techniques of their users.

Women's strokes are short and in general function solely for propulsion; direction is applied by leaning the paddle backwards in the manner of a side rudder, and thereby usually after three or four strokes a female pilot will rest to steer or correct the curse. Nevertheless, rather than simply pulling the paddle towards the body, every stroke takes advantage of a wide variety of leverages in order to optimize movement. First the paddle is thrown forwards, than

further pushed using the body weight, later sunk and finally through a hip torsion swiftly twisted and feathered producing a lift effect during the recovery.

Besides propulsion *canaletes* play other roles. Because of the sharp edges of the female ones, when women hold them in a particular angle while pulling they can produce a roaring sound, called *ronquido* (snore), which is considered as a female trait, can be a way of flirting and has a strong erotic connotation . It is hardly heard any longer, but old men like Teofilo Ibarbo and Domingo Biojo still evoke it with nostalgia:

> "Basically, the snore was the loud equivalent of a pronounced movement of the hips while walking"

As the roaring sound still snores in their memory it is also a frequent and important theme many folk lyrics .

Men, meanwhile normally paddle standing. This allows them paddle or tow according to the particular to the available substrate and also to use the weight of their body to power the stroke; thereby men's strokes are longer. Their strokes are also continuous; there is no pause to steer. A continuous rhythm is part of the key to maintaining balance. At the beginning, being of beat I would have problems to maintain my balance even on wide modern canoe. Only when and while, I caught the rhythm was I able to remain standing alone for a considerable period of time on a zealous *potrillo* I borrowed in order to practice. By keeping the beat men are able to use wave-induced disequilibrium to give additional trust to the watercraft. Gabino Ibarbo and I achieved speeds of up to 6 kt and a relax average of 2 kt, on an 8 meter canoe of modern design which he used to taught me.

While paddling standing direction is achieved in a variety of ways which depend on the specific situation, the desired effects and the particular techniques of the pilot, but generally involves only slight torsions of the paddle through the stroke. Each stroke balances, propels and in the case of the pilot on the helm steers, all simultaneously. This continuous paddling technique is used by men even when paddling seated, as is done when sailing. These same trends were observed by Barrett .

Moreover, as stated by Wilfrido Ibarbo an accomplished *mareño,* in response to my biomechanical descriptions:

> "*Bogar* is not a matter of force, it should be effortless a swift and relaxed, movement, actually the key lies on having the appropriate *swing* on the final twist, it's a matter of rhythm."

Paddling is not a matter of brut force, not even of delivering force through the adequate leverages; it is a matter of feeling the dynamics of the water through the ear (handle) of the *canalete* and by moving coherently matching the flow, channelling the available forces or following them. As the rhythms of the sea vary through the day with the winds and the tides, with the location and the direction of travel, keeping the rhythm and being attentive to it allows men to remain atoned with the environment, perceiving and channelling the forces of the waves and sporadic currents in order to and take advantage of free energy sources and thereby minimize effort. *Bogar* is a process of finding an agreement with the surge and the currents. It is a conversation with the environment.

Sailing by the Orienting Winds

For the *mareños* a matter of equal concern to the tides are the winds. Wind is the basis for orientation and may be a powerful ally or adversary. In spite of its great variability, that is from the climatologist point of view , local peoples recognize Southwesterns and Southern-terrals as the constant winds, which alternate around noon and midnight. The constant winds are to be distinguished from other more sporadic ones, which are coined as *contratiempos* (literally counter times or setbacks), and are readily differentiable by their strength, temperature, humidity and rhythm. Thereby wind is used to discern directions, rather than the other way around. The winds are the basis of an allocentric frame of reference which permeates through the logic of mareños, as winds and currents come from the Southwest, and things fall from above, this direction is up and Northeast is down.

Together with *canaletes,* fore and aft sails have served to the propulsion of local watercraft. As there are early references to this kind of sails in the general region: the Cueva Indians accounts of the existence of another ocean to Nuñez de Balboa in Panama and Oviedo's informants of Pizarro´s expedition to Ecuador as well as early pictorial records (Madox and Spielbergen) there are strong reasons supporting the aboriginality of these technologies . Moreover, although sometimes classified as sprit sails , the rig is known in Spanish as *guaira* or *huari* rig as these names are of Amerindian origin , it is necessary to consider whether the transfer of technologies could not have been from the Americas to Europe rather than the other way around.

Local sails are shroudless, the mast is not fixed through any kind of tensors but remains sustained by a partner called *taburete* (stool) made of a board with a hole in the middle

fixed on the gunwales near to the prow, and the *castaño* (nut) a foothold with one or more holes on the bottom of the craft, which allow different inclinations of the mast. The latter is relatively short and strong, only a little more than half the length of the watercraft usually is made of white mangrove (*Avicennia spp*). Extending the mast in an almost vertical position is a slightly longer sprit which makes the tip of the rig flexible. The semi triangular sail is further extended on a boom of the same length of the watercraft [2], and would have sail area of 9.5 m^2. Although the sail may seem small the Sail Area / Displacement ratio is very considerable (25-45) which is on the range of extreme racing boats. This can be understood from the prevalence of soft breezes and also because the resulting rig has greater length than height, which although reducing its efficiency and capacity, increases its stability by maintaining low the centres of equilibrium of the watercraft. In fact, several of the rig's characteristics: the inclinable mast, its loose extension through a sprit and the shape of the sail contribute towards a ductile rig similar to that of acrobatic birds, which although does not have a great cargo capacity is very flexible and well adapted for an environment of changing winds . In order to avoid lateral drift, mareños successfully use their paddles in the manner of side rudders and leeboards; some of them use a local variation of the *guare*, made from broken canaletes both to prevent drift and also to maintain a constant course.

Through their journeys and fishing trips, mareños combine winds, tides and the shielding of the mangrove in order to minimize their efforts. Departures and arrivals are synchronized with the appropriate tides and winds or organized in such a way as to minimize effort. Despite being able to tack, that is to sail zigzagging towards the wind, if it is necessary to travel for long against the wind they prefer to dismantle the whole rig, bundled it and paddle windwards offering as little surface as possible rather than undertaking lengthy tacks. Whenever possible, under such circumstances they look for shielding behind the trees and assistance from the tides. Conversely if travelling against the tide the look for the assistance of the wind. But when sailing is not possibility and is necessary to paddle against the tides, routes near to the river or estuary side, where counter currents and still waters are found, are preferred. Finally if tidal currents are too strong *mareños* seek anchorage and rest while the dynamic is reversed. Local navigation, both its means of orienting and locating but also its means of propulsion are based on the principle of following passive displacement means thereby implies sensibility and versatility. Faring in the Southwest is not a matter of imposing

[2] A potrillo such as the one described by Hornell (L: 5.6 m, B: 0.63 m and D: 35) had a mast of 3.3 m a sprit of 3.7 m and a boom of 5.6 m.

ones dominium over the environment but rather about finding how the environment is going in your way.

From the "Potrillo a canalete y vela" to the outboard canoe

The apparent vulnerability of traditional watercraft can be better understood in terms of the swiftness, sensibility and versatility they entail. Given the lack of instruments, poor visibility of waters and clouded and frequently foggy skies, the most important sources of navigational information are the wind and effects of the surge on the watercraft behaviour. The sensibility and simplicity of these technologies allows the craft, when skilfully crewed, to attain a high versatility and to take advantage of the passive displacement available, being particularly well adapted to the various environments of the region, which although not excessively risky for small craft, are very dynamic and variable.

The watercraft technologies on the zone have undergone deep changes in the last forty years; in particular with the advent of outboard motors. Sails are not often seen any longer; although a few old men and women are still skilful in their use. Paddling dugouts continue to be used although not to the extent they were before. The outboard motor has increased the velocity of displacement to up to 34 Km/h, has provided greater freedom from the environmental forces; nonetheless seamen of the region continue to rely on the passive displacement possibilities afforded by the environment in order to reduce costs, and have access to the tidal routes. In order to achieve this, modern watercraft builds on the potrillo, splits through its middle line in order to add a middle board, but preserves the general form and follows the principles and basic lines of the traditional outrigged dugout. This design makes inbuilt hilling stability a last resort; granting the necessary safety for the additional weight of the outboard motor and the strength to resist its force. Under normal circumstances the craft remains fast and its stability highly dependent on the crew's skill, retaining thereby a good deal of the sensibility necessary for traditional navigation, given that its means have not yet being replaced by navigational technologies such as the compass, GPS or even radios.

Inhabiting and modelling the littoral

On the short term almost every task in a rural village of the littoral like El Bajito implies a constant movement back and forth: In their fishing trips and journeys to the waterwholes twelve year old Kids, often cover more than 10 Km. with a range of around 4 Km.[2] which they know in great detail. Women cover similar distances to reach the *piangua*

(*Anadara spp.*) shelling forests. Teams of youngsters or aged men and kids cover between 24 to 60 Km to the inshore prawning grounds, and have a range of more than 10 Km. Offshore line fishers cover 40 to 70 Km. with ranges well over 20 Km^2. On the long term people frequently alternate between fishing and cultivation. The later in fields, which although sometimes might be up the river more frequently are in familiar holds on distant rivers. Moreover there is the distance to the markets where the produce is sold, which vary amply, some products like *piangua* requiring travels across the Littoral into Ecuador to be commercialized. The frontier allows highly profitable business and thereby smuggling is a constant token, which most grown men have practiced in at least a few instances. With the prosecution to narcotics, Mexico has become a major goal, smuggling ever more profitable and sophisticated, to the degree that submarines are being produced by locals on the zone. But smuggling has been a constant characteristic of the region afforded by a dense waterway infrastructure and stimulated by official prosecution, which from the colony on has been the generalized attitude against local trade .

During their everyday life people move up and down the rivers and from river to river, up and down the coast, and round again. Along with the continuous movement extended family networks spread sparsely through out the littoral. Family members pay regular visits and exchanges in order to maintain contact. Children for instance frequently, spent a couple years living and working by their aunts and uncles in rivers far away from the one of their birth, although with urban growth more often they go to study to the main ports, regional centres and chief towns.

Adding to the already dynamic panorama, extractive enterprises, which every now and then fuel local economies, and the violence which precedes them or follows soon afterwards, force people to turn reiteratively into the colonist status in order to take the grip of the current boom or evade its nasty associate. As the market tide raises people move away from their fields and strands. Settle temporarily on a new place and attempt to get a return. As booms pass, either leaving some yield or more often deep debts, people may perhaps return into their coast or their bush, and start over with cultivation or exploitation of the fishing grounds. Rarely does one find grown persons who have not changed the place and ways of living various times throughout their life.

The structure of the littoral reflects this dynamism, it bears the traces of a long process of travel and dwelling. The littoral has being deeply intervened as pre-contact mortuary

promontories, elevated fields and drainages testify . There are records of some explicit recent interventions: the cayapa's straightening of some estuaries , and the tracing of new channels to shorten old routes , some of which have overwhelmed foreign engineer's hands, causing devastating floods . For the most part however estuarial paths are akin to those on the lawn, the effect of the continuous interaction, the transit of slender watercraft, through a fragile environment. The effect is accentuated by the dynamic character of the environment and often aided or canalized by selective logging or the placement housing. Route density is to a great degree the result of human displacement. The southwestern environment is like the watercraft of the zone demanding and versatile. This modelling interaction often works on the same logic of conversation, found in those practices which govern everyday movement and consists of feeling the trends of the currents and rhythms and setting the appropriate limits to channel available forces.