THE 'GOLDEN SECTION' ON KITAWA ISLAND

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When one first looks at the *lagimu* and *tabuya* (Figs. 1 and 2), the two multicoloured prowboards placed symmetrically, like mirror-images of one another, on the ceremonial canoe (*masawa*) used for the Kula Ring exchanges (Malinowski 1922; Leach and Leach 1983), one is struck by the delicate visual balance between the graphic signs carved in the surface of the wood. The concept of randomness, in the sense of lack of 'order', as absence of planning, must, one feels sure, have been foreign to the person who carved these two prowboards: his hand and his eye must have been guided by precise rules of composition. In what follows I shall try to identify some of the aesthetic principles which determine these rules of composition and the technique which realizes them on a *lagimu* and *tabuya.* My exposition is based, as far as the aesthetic principles are concerned, on a series of conversations with Towitara Buyoyu — regarded as one of the greatest woodcarvers in Milne Bay — and Tonori Kiririyei and Siyakwakwa Teitei. Of these last two the former is a young carver of multicoloured prowboards, and the latter a carver and builder of hulls for ceremonial canoes.

These conversations, which I have called *Aesthetic Conversations,* were recorded on Kitawa[1] in 1976.[2] The texts thus transcribed constitute a veritable treatise in which it is possible to single out certain fundamental concepts, expressed in pertinent language, relating to the way of dealing with an aesthetic problem and realizing it at the visual level: for instance, the problem of realizing the graphic harmony of a *lagimu.* An example of this problem occurs when a carver finds himself having to distribute some

How to cite this book chapter:
Scoditti, G.M.G. (2021). The 'Golden Section' on Kitawa Island. In J. Siikala (ed.), *Culture and History in the Pacific* (pp. 233–266). Helsinki: Helsinki University Press. https://doi.org/10.33134/HUP-12-15

graphic signs over the surface of the wood, which is roughly triangular (an isosceles triangle) in shape.[3] The distribution has to take account of the 'triangular' shape of the prowboard and cannot contradict it in the 'formal', visual sense: a carver, for instance, cannot carve on it rectangular or square graphic signs, or graphic signs which, in order to be meaningful, and therefore harmonious, require a different, larger surface. It is laid down, then, that all the graphic signs must 'harmonise' with the triangular shape of the *lagimu.*

Harmony is therefore defined in this specific case as respect for the 'principle of non-contradiction': two elements, (a) the triangular surface of the wood, (b) the graphic signs carved on it with their curvilinear, spiral form, complement each other; the one seems to flow from the other. At the level of perception it is difficult to distinguish which of the two elements determines which. Indeed, they appear to the eye as a harmonious whole: the texture of the graphic signs is perceived as the very structure of the wooden surface. To use a linguistic metaphor, it might be said that 'form' and 'content' coincide. Thus harmony is understood on Kitawa as respect for the principle of 'non-contradiction' between two or more elements. It seems to me an acceptable definition. Open to debate but acceptable, because it has been defined. However, this definition of harmony is not static, because it is valid only if we are considering the relationship between the shape of the *lagimu* (which is triangular) and the form of the graphic signs carved on it and their distribution over the surface. It may still be valid when we consider the perfect bilateral symmetry of the graphic signs carved to the right and left of the vertical axis (which is realized on the *lagimu* by the graphic sign *karawa,* cf. Fig. 1): we may say that the graphic signs are harmonious because they respect the bilateral symmetry.

Harmony may further be produced by the mirror-relationship between the graphic signs: for example, the *weku* (carved on the left, when the *lagimu* is viewed from the front, with the canoe's outrigger on one's right) is a mirror-image of the *kwaisaruvi* carved on the right (cf. Fig. 1). Hence respect both for bilateral symmetry and for specularity produces harmony: the eye looks at and transmits to the mind a sense of calm. But in the very act of looking at the *weku* and *kwaisaruvi* one perceives their non-equality: the former is represented by two oblong holes inscribed in two whorls; the latter is encarved on a plane surface coloured black and inscribed in two whorls which are equal in size and colour to the first two. We have, then, two graphic signs which, while respecting the principles of bilateral symmetry and specularity, and therefore

producing harmony, are not equal.

Now this non-equality (lack of visual balance) 'disturbs' the harmonious texture of the entire surface: the *lagimu* 'seems' to hang to the right owing to the counterpoise between empty, light-weight and light-coloured (left) and plane, heavy and dark (right). It would seem to be, and indeed visually is, a loss of harmony, and hence produces a contradiction, at least at the visual level.

All this is valid if the *lagimu* is seen as an object 'in itself', independent of the whole ensemble 'ceremonial canoe'. If this 'ensemble' is now considered as a whole, as indeed it must be, we see that the contradiction, and therefore the loss of harmony, is eliminated, and harmony re-established. For because of the weight- relationship between the canoe's hull and the outrigger, when the canoe is in the water the outrigger rises to the right (Fig. 3). With respect to the floating-line (parallel to the eye's horizontal line of perception), the relationship between the respective weights of the hull and the outrigger produces an unbalanced perceptual line: it is as if the eye saw the hull sinking into the water. It is as if the line of the horizon (which coincides with the floating-line parallel to the water) were bending to the left, sinking into the sea. It constitutes a loss of visual balance. And the loss of visual balance means the loss of harmony too.

But the eye, especially an eye trained to 'see' forms, does not, almost for physiological reasons, accept this disharmony situation, which is eliminated thanks to the internal 'disharmony-contradiction' of the *lagimu.* For once the multicoloured prowboard is inserted in the hull of the canoe, the *kwaisaruvi* (cf. Figs. 1 and 3) always appears on the right, on the side of the outrigger, thus causing the following play of 'visual counterpoises':

a) on the left is a heavy, 'physical', objective weight (the hull), and a light-weight 'visual' mass (the *weku* — cf. Figs. 1 and 3 — which is a light-coloured, empty graphic sign);

b) on the right is a light-weight, 'physical', objective mass (the outrigger) and a heavy visual mass (the *kwaisaruvi,* which is plane and dark).

But since the hull of the canoe is hardly visible when it is in the water, and what we see is the *lagimu,* owing to the predominance within the field of vision of the *kwaisaruvi,* the eye has the impression that this graphic sign pushes the outrigger itself downwards, and the outrigger therefore appears 'visually' on the same line as the hull. Thus equilibrium is restored, harmony regained, and the contradiction eliminated (Fig. 4 and cf. Fig. 3).

Of course we are here only talking about visual Harmony, Equilibrium and Non-contradiction. These are visual stratagems

which presuppose a theoretical elaboration, the formulation of an interpretative hypothesis, and the drawing-up of a rule or set of rules which resolves or demonstrates the correctness of the hypothesis. This is only one example of how the problem of visual balance, of harmony, has been raised and solved. But the same problem is solved in a different 'way' by the School, or Workshop, of Lalela (one of the Kitawa villages): by enlarging the part of the *lagimu* protruding on the right.

Thus we have two solutions to one and the same problem, though the first is adjudged more 'beautiful', 'correct', and 'meaningful' than the second. Why? The answer is given by Tonori Kiririyei and Siyakwakwa Teitei in the *Aesthetic Conversations:* the 'beautiful', or rather the 'more beautiful', depends on the tradition of a School, on the style of a group of carvers, and therefore on a specific 'taste'.[4] But it is implicit in the notions of 'School', 'Tradition', 'Taste', etc., that one solution is adjudged more beautiful than another, because the person judging bases his judgement on a 'model' of specific reference. Beauty, then, is encapsulated in a model of historic reference, but it is also true that the elaboration of a model (for example, of a *lagimu*) that is different from other models depends (as Siyakwakwa and Tonori say in the *Aesthetic Conversations*), on the desire to 'be different' which is characteristic of a true carver. Indeed, Siyakwakwa stresses the way in which wanting to be different from another carver is a stimulus that sparks off the 'invention' of a new graphic sign, a new visual strategy.

Thus 'Beautiful' can, according to the woodcarvers of Kitawa, be synonym of Harmony, and hence of respect for the principle of noncontradiction, and also of taste, traditional mode, etc. Or, to put it another way, harmony, tradition, taste, and traditional model are all concepts which come into play when we wish to define why one solution is 'more beautiful' than another.

But from the 'visual' point of view, apart from the justifications provided *a posteriori* for the solution adjudged 'most beautiful', we have already seen that there is a kind of problem (which I shall for the moment call technical/aesthetic) — such as the problem of harmonization between the form of the *lagimu* and the graphic signs carved on it — which, because it is both technical and visual and not simply ethical, or mythical, requires not only a formulation in purely conceptual terms but also a 'practical' solution, by means of rules. In short, in the case of the multicoloured prowboards we have a problem, a solution, and an ethical judgement on the solution, but we have not, or so it seems, rendered explicit the Rule which made possible the solution of the problem. At least we have not done so in the form of a mathematical or geometrical formula.[5]

The woodcarvers of Kitawa say that a graphic sign is carved only when it is adjudged 'beautiful' or 'correct', but 'how' it is carried out technically on the wood is not (and perhaps cannot be at the level of verbal definition) made explicit in a rule. Or rather, this rule is given by the very act of reproducing the traditional way of engraving: thus a graphic sign is 'beautiful' when it is carved as the masters of the past carved it.[6] Therefore the technical rule which realizes an aesthetic concept (for example, a particular concept of beauty) would consist in the reproduction of the 'way' of carving of the master who has handed it on to his pupil.

However, we still do not have an explicit formulation of the rule, only its transmission and application, consisting in the imitation, the reproduction, of the same 'way' of carving. In reproducing one of his master's graphic signs, the pupil only shows that he still believes in the validity of the rule: he carves a graphic sign on the right, for example, because the master's model would have it so. Non-imitation, non-reproduction, would in this case mean the nonapplication of the rule, and therefore non-knowledge, either theoretical or practical, of the technique of carving.

Apparently, therefore, the pupil does not set himself the problem of elaborating the rule in order to carve a particular graphic sign: the mere reproduction of this graphic sign is in itself a quasi-elaboration of the rule. I say 'apparently', because I do not rule out the possibility that the reproduction of a graphic sign and the 'way' of carving it, since it is achieved as a result of continual experience, looking over and over again (a real act of visual 'spying') at the master's and the other elder carvers' way of carving the graphic sign, may be tantamount to an intuitive learning of the rule. For example, if the master executes, with hand and chisel, a particular curve which leaves on the wood a graphic sign adjudged 'beautiful' and 'harmonious' both in itself and in correlation with the other graphic signs, the pupil, if he imitates the graphic sign and the 'way', will obtain the same 'correct' and 'beautiful' effect. And the obligation placed by the master on his pupil of repeating the graphic signs of his model might also be interpreted as a stratagem to make the pupil learn the rule, the way of carving is thereby viewed as the realization of an aesthetic concept.[7]

However, though we may be able to identify a rule for achieving a particular graphic sign adjudged 'beautiful' or 'correct' by reproducing the graphic sign which encapsulates it, such as 'the curvature of the graphic sign *A* must be executed as the master carved it on his model X; otherwise the result will be a disharmonious effect not only on the graphic sign itself but also on the entire texture in which it is inserted', the fact that such a rule is

learnt does not tell us how the rule was elaborated in the first place.

When Tonori Kiririyei says in the *Aesthetic Conversations* that he respects the rules for the composition of graphic signs as he learned them from his master Kurina, and that his respect for these rules permits him to achieve a positive formal result, he still does not disclose how these rules were elaborated. He only explains the value of 'reproduction' or reiteration, that is to say the reinforcement of the rule, but not how the rule was arrived at and why it was chosen to realize an ensemble of graphic signs adjudged harmonious. For the aesthetic judgement on the harmoniousness, or non-harmoniousness, of a texture of graphic signs on a *lagimu,* for example, can be accepted by virtue of the simple fact of its having been formulated.[8] The reasons for the judgement may not in fact be 'recounted' or 'revealed', but they must be known at least by the person who first constructed the texture of graphic signs, as well as by the person who has to articulate, and therefore justify at a critical level, his judgement: for the harmony of a texture of graphic signs cannot be purely a matter of chance; is only achieved by applying a rule which has been elaborated on the basis of precise aesthetic concepts.

The technical rules are always the result of theoretical reflection. To say that a carver carves according to the 'tradition' as he learnt it from his master is only to underline the fact that the elaboration of a particular rule has already occurred and that it has been accepted. For example, to hide behind the proposition "It is beautiful because I carved it as my master Kurina did" may mean either that the rule, and hence the technique, is kept secret, or that the same rule is applied by 'imitation', by repeating the same way of carving but without being capable of realizing it in a real geometrical formula of the type "$r = a^{o}$".[9]

In the first case the carver knows both the aesthetic principles and the rules by which they are applied at the factual level in execution, in a given material (such as wood, in the case of the *lagimu* and *tabuya*), but the elaboration of these principles, and their realization by using technical rules, is kept a tight secret from the time of initiation into the art of carving, and disguised in metaphors.[10] A visual metaphor, for example, is what the carver makes visible (such as a graphic sign carved and covered with colour), but the secret of the metaphor, in this case 'how' it was constructed, is not unveiled. Only a person belonging to the restricted group of carvers should know this way of construction and would be able to reveal it.

But the construction and revealing (and hence also the 'transmission' of the esoteric knowledge) occur only within the

group of carvers (the knowledge passes from master to pupil). Outside the group there are some who only perceive harmonious graphic signs but do not know the manner in which this harmony is realized, or the formulation of the rule for realizing a graphic sign is also attributable in part to the need to safeguard this 'knowledge' from infiltrations by elements considered to be non-orthodox.

The technical rule therefore exists but is secret, is not rendered explicit (hence the ban, in force among the carvers of Kitawa, on drawing a graphic sign on the wood's surface before carving it, a ban which is imposed on an initiate during his apprenticeship),[11] and is probably transmitted (apart from the 'visual' transmission through initiation and reproduction of the master's model) under the guise of poetic formulas, visual metaphors, etc., whose meaning is known only to the true initiate. If this hypothesis is correct, the situation on Kitawa is rather similar to that which obtained in the Orphic Mysteries and the School of Pythagoras. The hypothesis is supported by a series of factors, such as the following:

The esoteric initiation into the profession of carver of multicoloured prowboards, which already prefigured a clear distinction between the man who will engrave *lagimu* and *tabuya* (the 'face of the sun' and the 'face of the moon'), and who is credited with the ability to create images, and the man who will only carve the hull of a canoe — on which the prowboards will be placed — who is credited only with normal skill, similar in concept to the *tèchne* of the Greeks. It is during the initiation that the initiate hears his master-initiator chant the poetic formulas with which the hero is invoked — the mythical serpent Monikiniki, who 'posseses' the young man and imbues him with the ability to create images. And it is in the formulas that the aesthetic principles, which have a greater conceptual than a technical value, and which will guide the carver's way of working, are concealed in the form of metaphor.

(b) The period of apprenticeship, which may last as long as 20 years, and during which the initiate must respect a set of dietary prohibitions as well as certain norms of behaviour, or, as we might say, of professional ethics. It is in this period that an initiate learns the technique, the way of realizing on the wood a mental image which thus becomes a graphic sign and visible. It is the period in which the initiate must keep the secret of the technique he has learned and must not reveal to anyone outside his group (which constitutes a genuine school) 'how' the carving is done. For example, the technique could be revealed with a drawing: for by drawing one reveals a 'process' (from the general to the particular, from the abstract to the concrete, from the intuition to its realization by making it visible, etc.) which, precisely because it is a 'process', is

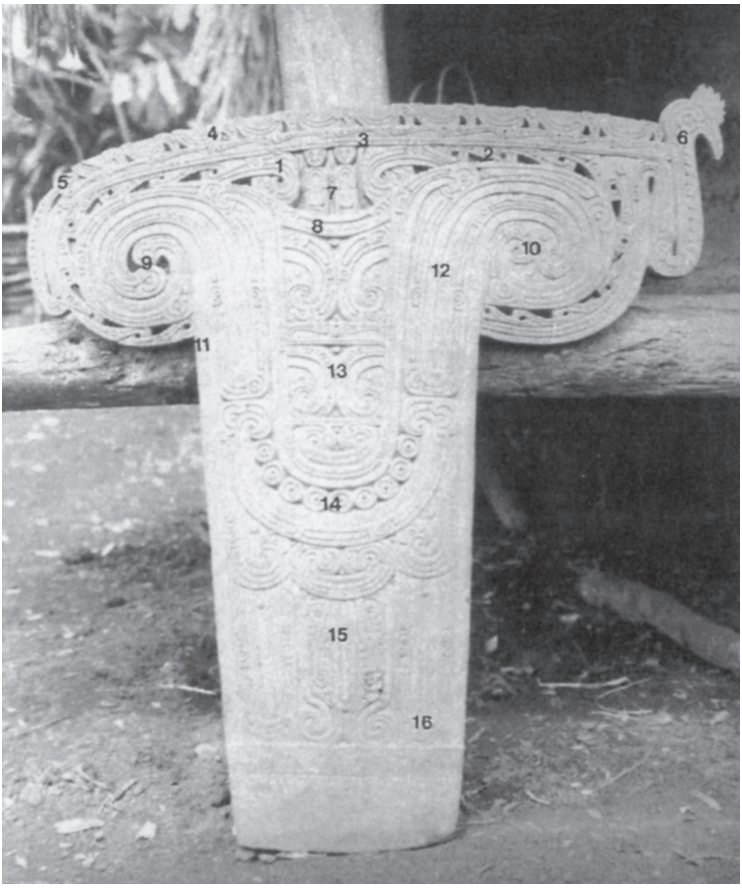

Figure 1. *Lagimu*, by Towitara Buyoyu, Kitawa 1974.

1. doka
2. gigiwani
3. kabilabala
4. susawila
5. monikiniki
6. rekoreko or siyakwakwa
7. tokwalu
8. vakaboda
9. weku
10. kwaisaruvi
11. kara kaimalaka
12. kara kaivau
13. karawa
14. duduwa
15. kaikikila
16. matara ina

Figure 2. *Tabuya,* by Kurina of Lalela, Kitawa.

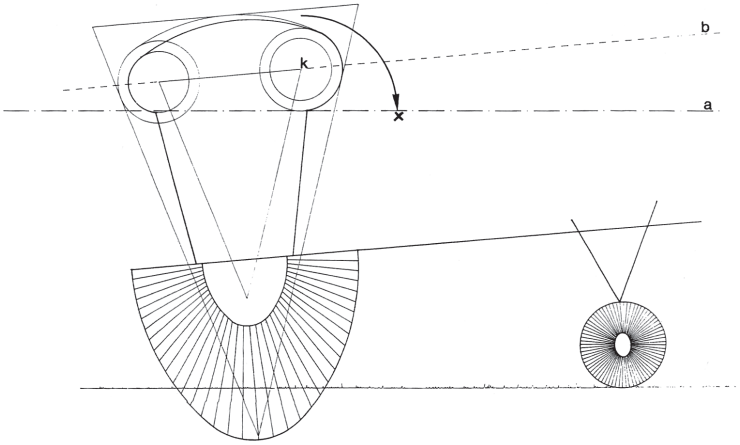

Figure 3. Schema of the 'visual unbalance' of the kula canoe, drawn by Alveraldo G. Scoditti.

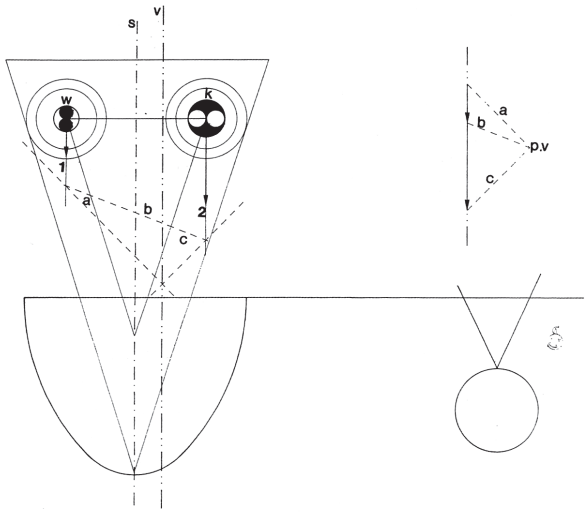

Figure 4. Schema of the 'visual balance' of the kula canoe, drawn by Alveraldo G. Scoditti

s	= axis of symmetry of the *lagimu*
v	= quasi-axis (apparent) due to the difference of mass of the *weku* and *kwaisaruvi*
01	= quasi-mass vector (*weku*)
12	= quasi-mass vector (*kwaisaruvi*)
P.V.	= quasi-pole of the quasi-funicular polygon
a-b-c	= sides of the quasi-funicular polygon.

The intensity of the quasi-mass vector is proportional to the surface of g.ss., that is to their quasi-mass. The displacement of the symmetry axis s from axis v is due to the different intensity of quasi-masses proportional to the g.ss., and it is determined through the composition of quasi-mass vectors 01 and 02 by using the method of the funicular polygon (graphic method to place the resultant inside the space of nonconvergent forces).

Polygonal construction of the 'schema-lagimu' forces:

(1) The quasi-mass vectors are parallel to each other and summed up in a vector sense (figures on the right of the *lagimu*);

(2) The points 0, 1, 2, shall abe connected to the quasi-pole P.V., arbitrarily chosen, so fixing the sides of the funicular polygon (a, b, c);

(3) By considering the polygon and drawing parallels to its sides (a-c or c-a), we will find the crossing point V on the quasi-axis v.

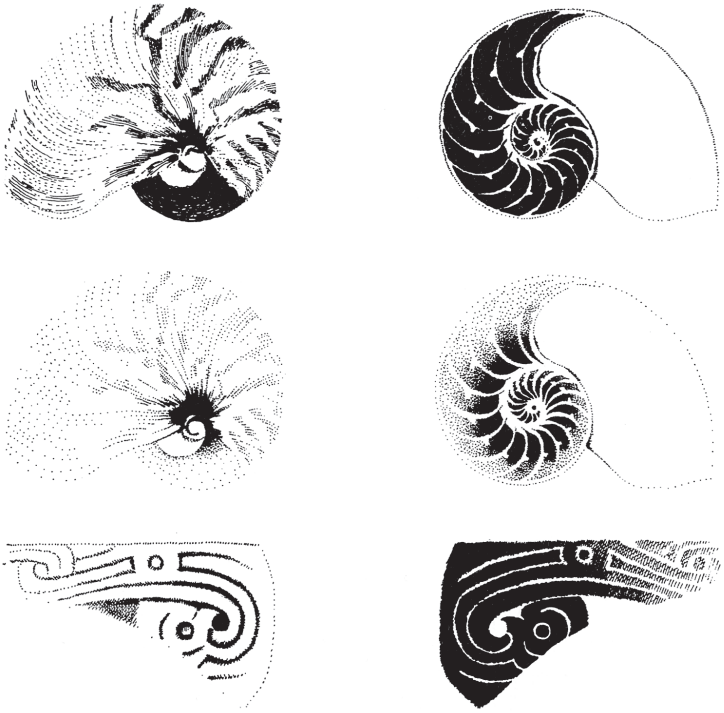

Figure 5. *Doka*, drawn by Giulia Napoleone (China ink).

Figure 6. *Nautilius pompilius*, drawn by Giulia Napoleone (China ink).

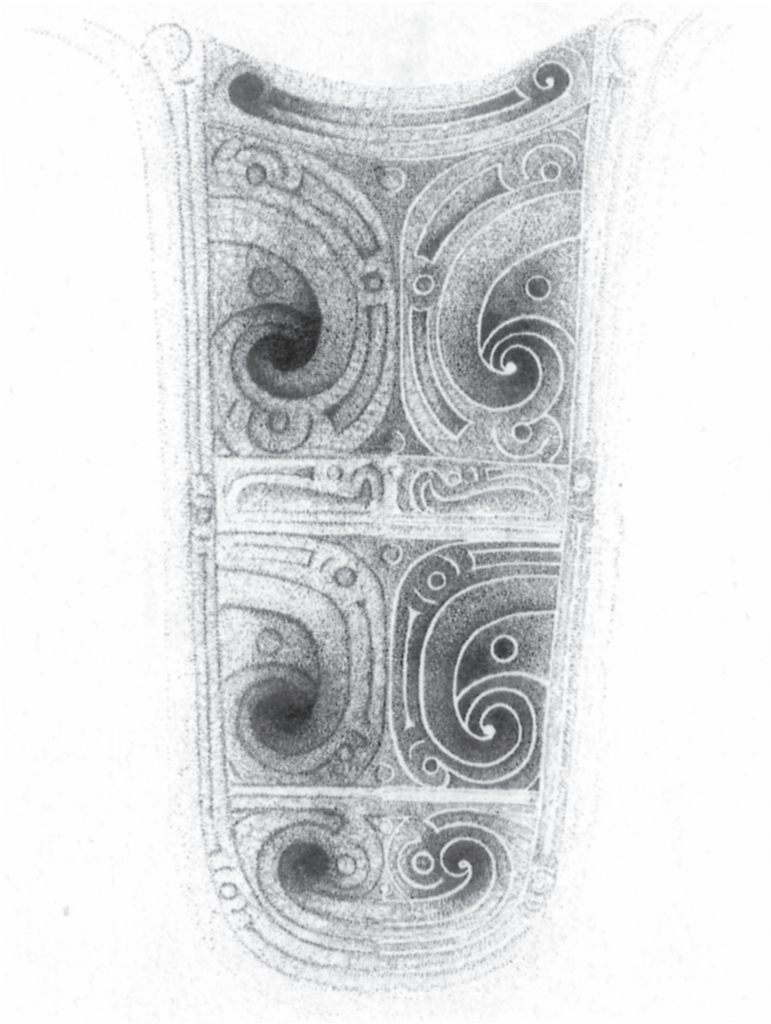

Figure 7. *Karawa,* drawn by Giulia Napoleone (China ink).

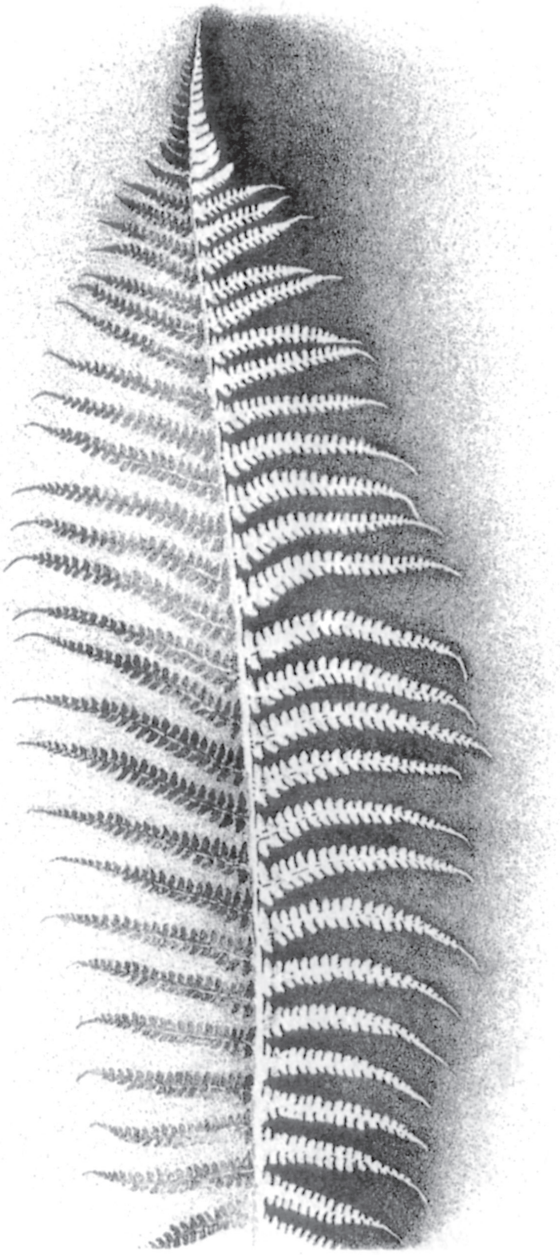

Figure 8. Fern, drawn by Giulia Napoleone (China ink).

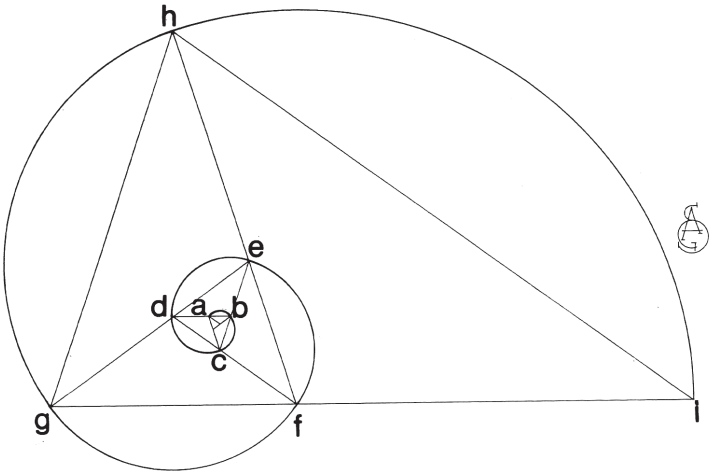

Figure 9. Schema of the 'equiangular spiral', drawn by Alveraldo G. Scoditti.

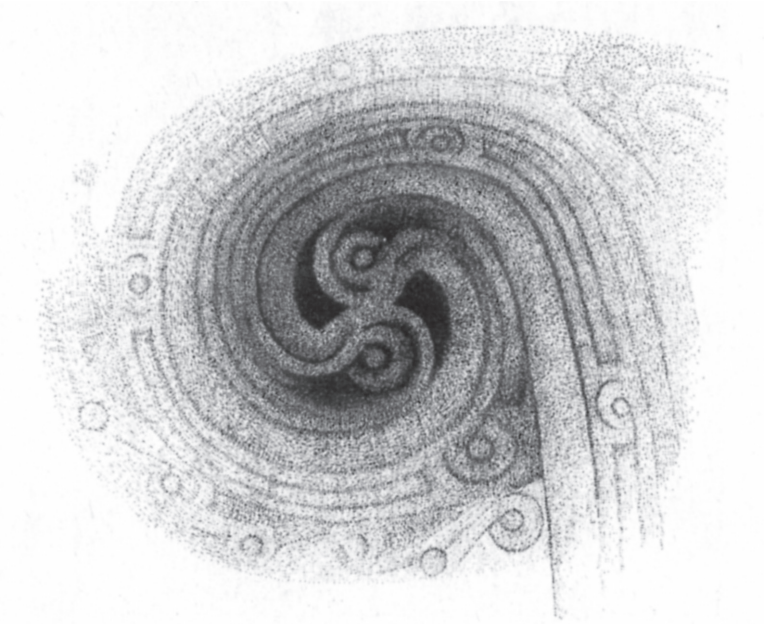

Figure 10. *Weku*, drawn by Giulia Napoleone (China ink).

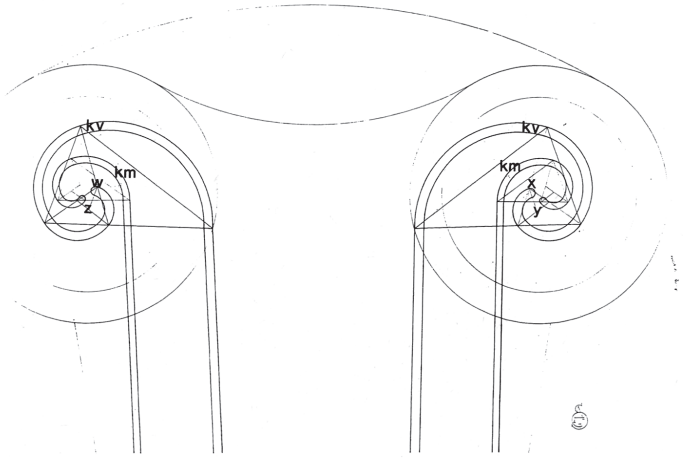

Figure 11. Schema of both the *weku* and *kwaisaruvi,* drawn by Alveraldo G. Scoditti.

kv = kara kaivau
km = kora kaimalaka
y = starting-point of the spiral km (right)
x = starting-point of the spiral kv (right)
z = starting-point of the spiral km (left)
w = starting-point of the spiral kv (left)

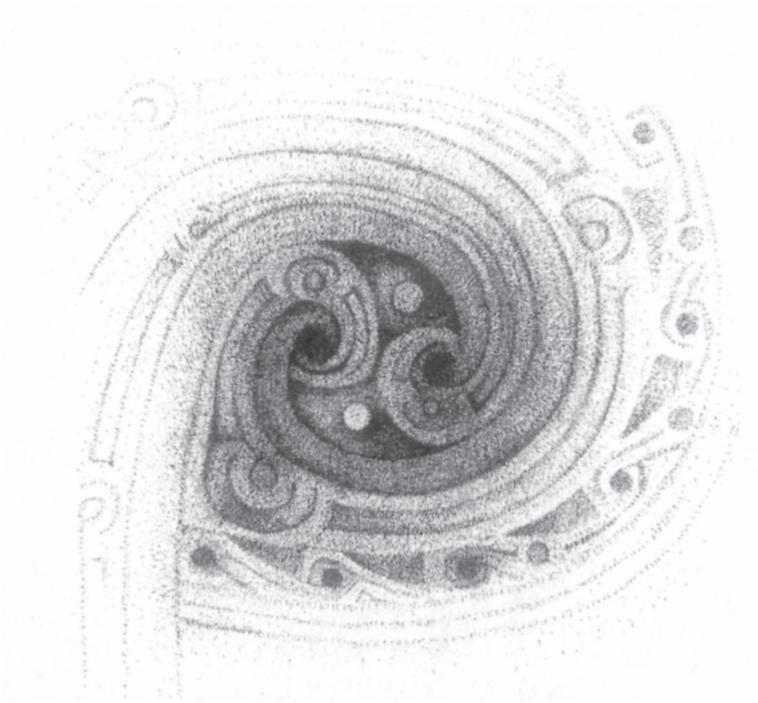

Figure 12. *Kwaisaruvi*, drawn by Giulia Napoleone (China ink).

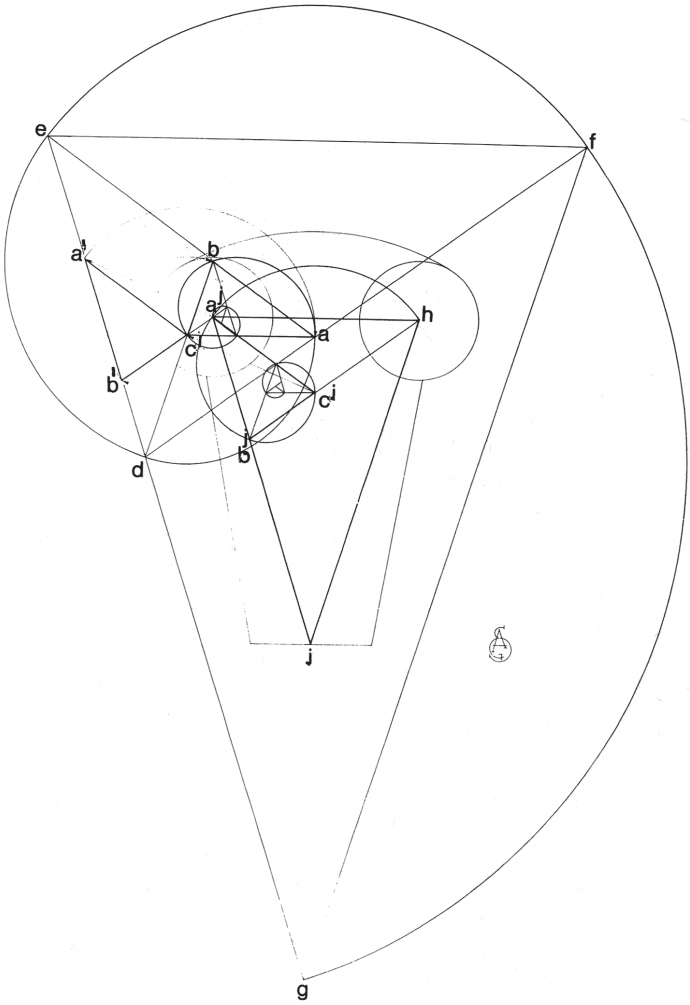

Figure 13. Schema of the *lagimu* as *gnomon* of the *weku,* drawn by Alveraldo G. Scoditti.

The triangle EFG, that inscribes the schema of the *lagimu,* is the last of a 'gnomic' series of triangles including the g.ss.

So, we have that the triangle $A^jB^jC^j$ (that includes the *weku* or *kwaisaruvi*), is the *gnomon* of the triangle A^jH,J; the 'translation' triangle $A^iB^iC^i$, is the *gnomon* of the triangle DEA; the triangle D,E,A is the *gnomon* of the triangle EFG.

subject to error, with the consequent necessity of correcting this error — for example, erasing the sign that was executed and replanning it — which thus reveals the 'change of mind'. But above all, drawing, and hence rendering visible an intuition, in full view of everyone, implies a recognition of the possibility of error: for example, the intuition (which at the conceptual level is equivalent to a hypothesis) could be denied by the experience which in this case might compel the carver to modify the sign in which the intuition has been encapsulated. Of course the world of experience can 'only' be represented by the expressive medium, by a language, by a way of expressing oneself. But the carver, during the constructive process of a graphic sign, observes that the mental image itself, indeed the intuition of a mental image, needs to clash/meet with the world of experience in order to reach a 'formed state', in order to become a graphic sign. However, the carver also knows that this recognition of the world of experience, viewed as one of the terms of artistic expression (verbal and non-verbal), must not be revealed, and he disguises it under the concept of creativity, viewed as an almost exclusive attribute of the engraver. In short, "the way it is done" must be hidden in the mind: hence the ban on drawing, on revealing. The image must pass from the mind directly on to the wood without the mediation of drawing as a 'visual trial', and hence without revision. The meaning (also in the wider sense of verbal, as well as mythical-symbolic meaning) of the engraved graphic sign, which conceals the passage from the initial intuition, which through conceptual reflection becomes a 'project', to the execution of this project, must remain secret. Secrecy continues through the practice, which I would describe as quasi-esoteric, of respect for prohibitions: by respecting them, and therefore abstaining from eating certain foods, the initiate learns forms of self-control and purifies both his body and his mind. Non-respect for prohibitions nullifies the value of the initiation and implies being driven out of the group and, above all, away from the master. The act of initiation is nullified.[12]

(c) The final step, when the initiate is recognized as an 'artist' (*tokabitamu*) or 'artisan' (*tokataraki*), that is a builder of hulls for ceremonial canoes. When, in short, he has reached the last step on the ladder of initiatory values. It is the moment when he is acknowledged as having the ability to 'invent images'.

We have, then, a series of progressive tests, which make one suspect that on Kitawa, as on other islands in Milne Bay where the exchange of the ceremonial Kula Ring is practised, there is a group of carvers which broadly resembles, both in its internal organization and in its way of behaving, the typical structure of the

Orphic and Pythagorean Mysteries. It is within this group that we must look for the rule which must represent and realize an aesthetic concept, taking for granted, in view of the observations already made, the fact that knowledge of it may be 'explicit' (in other words formalized) for the person applying it, even though it is encapsulated in some 'magic' metaphor or word.

But I should make it clear that the stimulus to identify the rule on the basis of which the whole texture of the graphic signs on *lagimu* and *tabuya* is constructed is founded on the hypothesis, of a 'formalist' nature, that the rule itself is 'also' enclosed in the 'form' in which a graphic sign, and hence the whole graphic surface of the two multicoloured prowboards, presents itself to the eye. If the attraction which an artefact exercises over the eye and the mind of the perceiver is determined partly by the 'way', initially only intuitively perceived, in which it has been planned and constructed, then this way must be encapsulated in the object itself. It may be sublimated (for example, a triangular form is sublimated by a span of colour which hides the 'absoluteness', 'rigidity' and 'abstractness' of the schema 'triangularity') but nevertheless present, underlying.

This brings us the relationship between the Rule (in the sense of an architectural quasi-project) and the 'form' which 'veils' the Rule. The presence of the Rule, its essentiality, therefore constitutes the intrinsic beauty of the form of an artefact, one might say 'secret essence', known only to the person who constructs it but intuitively perceptible to the person who perceives it: it is the correlation between Rule and Form that renders a visual artefact 'self-sufficient' at the expressive level.

The rule of the Golden Section

The task of identifying the Rule which, in my opinion, forms the basis for the planning and construction of *lagimu* and *tabuya* was achieved with the help of the master of the art (*tokabitamu bougwa*) Towitara Buyoyu, of the 'Nukulabuta' clan and the sub-clan 'mwauli'. Towitara, who died in 1975, was considered an inventor of images, in other words, a person who had elaborated and proposed a new model of multicoloured prowboards, and therefore a man who was in the best position to suggest how a *lagimu* or a *tabuya* is planned and carved.[13] His prowboards are regarded all over Kitawa as the most correct interpretation of the schema of canoe *tadobu*[14], as well as of the concept of 'harmony'.

The crucial factor that suggested Towitara's 'way' of carving, and hence the nature of the Rule which governs the graphic composition of the multicoloured prowboards, and in particular of the four graphic signs (*doka, gigiwani, weku* and *kwaisaruvi*) which are termed 'basic', or 'fundamental', and which realize the schema of the *lagimu,* (cf. Scoditti 1982a), is the *doka* (Fig. 5). This graphic sign is classed by the carvers themselves as the most 'meaningful', the one most laden with aesthetic and symbolic values, a sort of technical and aesthetic *summa.* A perfect graphic realization of it determines the artistic skill of a carver. It is considered to be the symbol of imagination (an essential prerequisite for anyone wishing to be considered a genuine carver, a *tokabitamu*) and ratiocination.

For example, Towitara himself explicitly stated that from the way in which a *doka* is carved one can tell the 'quality', the conceptual density, of its author. Such great emphasis on the way of carving the *doka* cannot be considered a matter of chance; there must be precise reasons, even if it is impossible to render all of them explicit: it is in the *doka* that we must search for the secret Rule for carving, a harmonious graphic sign, for realizing the Harmony (the equivalent of the Golden Section of the Pythagoreans) of the entire graphic texture of a *lagimu* and *tabuya.*

If we look, now, at a *lagimu* carved in 1973 by Towitara Buyoyu (cf. Fig. 1), we observe the *doka* symmetrically arranged around an axis passing through the centre of the *lagimu* (cf. Figs. 1 and 5). This whole area is considered the most meaningful both from the technical-aesthetic and from the symbolic point of view. From the technical-aesthetic point of view it is the area which, according to the carvers of Kitawa, presents the greatest difficulty in execution: indeed three of the four graphic signs classed as 'basic', or 'fundamental' (*weku, gigiwani* and *doka*) are carved on it.

From the symbolic point of view the area is significant because the *doka,* which, as I have mentioned, is a metaphor for the imagination and the power of reasoning, is carved there. For the *doka* is the formed idea, the expressed concept. The *gigiwani* (cf. Fig. 1), on the other hand, symbolizes an idea, a concept, in the process of formation: it is a foretaste of something that will be, but is not yet, perfect (cf. Scoditti 1982a). It is as if the carver had wanted to represent through the *gigiwani* his creative effort, his attempt to achieve perfection: it is no coincidence that a long string of *gigiwani* culminates in the *doka.*

Through the presence of the *weku* (cf. Fig. 1) this area symbolizes the primal scream of the mythical hero Monikiniki, before it becomes a definite, formed word. It also expresses the polysemic

magma of the word itself before it is classified by a single concept. Through the presence of the *kwaisaruvi* (cf. Fig. 1) the area symbolizes the beauty of the mythical hero metaphorized by the eye, but it is a feminine beauty, as if it wished to express the attribute of generative force, of the mythical hero, symbolized by the whole *lagimu/tabuya.*

In short these four graphic signs viewed as an 'ensemble' symbolize at the visual level the concept of 'schema', which from time to time is interpreted in a specific model of *lagimu* and *tabuya.* Schema here means a 'harmonious' construction (first mental, and conceptual, and later concrete), and includes within itself, as in a synthesis, a series of universal principles which can be traced on all multicoloured prowboards, at least at the level of planning, as for example in the right-left counterpoise between two elements with respect to a centre (the *weku* — which is empty and light in colour — is counterbalanced by the *kwaisaruvi* — which is plane and dark). The correlation between these two graphic signs can itself be read, again at the level of universal principles, as a correlation and opposition between 'speaking' (*weku*) and 'seeing' (*kwaisaruvi*), as visual extensions in their turn of the intellect and imagination (*doka*).

The *doka,* then, appears as the supreme synthesis of an ensemble of technical-aesthetic and symbolic values, as the emblematic metaphor that must be unveiled if one is to grasp the secret not only of the construction of a *lagimu* or a *tabuya* but also of the aesthetic principles which underline this construction. It is in the *doka* that the Golden Number of the carvers of Kitawa, the key to carving and executing a 'beautiful' *lagimu,* must be hidden. Now the *doka,* according to Towitara Buyoyu (whose account was later confirmed by Tonori Kiririyei and Siyakwakwa Teitei), is inspired by the *Nautilus pompilius* (Fig. 6), in Nowau (the language spoken on Kitawa) *goragora.*[15] And two shells placed side by side led to the original idea of representing the two *doka* on the *lagimu* (cf. Fig. 5).

At this point two interconnected problems present themselves:

(1) The first concerns the 'reason' why the carver decided on the *Nautilus pompilius* and not on another shell or another element of Nature, in order to construct the graphic sign *doka;*

(2) The second concerns the 'way' in which the passage was made from the *goragora* shell to the graphic sign *doka;* in short the mechanism, the calculation, which transformed an element of nature (which in this case may coincide with experience) into an element of the mind of man — an element of culture — as if it were, particularly for the person looking at it, one of man's own products. This problem also raises the question whether a calculation of a

mathematical or geometrical kind (even if it was kept merely at the intuitive level, and hence not rendered explicit in a formula of the type $\frac{\sqrt{5}+1}{2}$ forms part of this mental mechanism, in order to plan the *doka.*[16]

I said earlier that the two problems are interrelated: and indeed the eye of the carver (which may be a metaphor for the mind's ability to think) perceives the *goragora* (which may be a metaphor for nature, experience) and from this perception originates the *doka,* seen as a 'process' (a meeting-point between the reflecting judgement and the object of reflection) that has been realized, as a result of the constructive ability of the man-carver who has reflected on the first element/*goragora*. This is a reflecting judgement which develops within the set of aesthetic problems concerning the planning of the *lagimu* and the *tabuya,* and which therefore originates as typically 'formal' but then, in turn, is a way of manifesting itself characteristic of the reflecting judgement in general, that is to say, of man's planning ability.

The carver mind, then, looks at the *goragora* because it is seeking an 'excuse' (which I would describe as being of a formal nature) to represent one of his mental projects, which may be, as in this particular case, both aesthetic (related to the sphere of the carving of the two multicoloured prowboards) and ethical (and hence related to a mode of behaving and of representing the history of the social group in which the carver lives). I would say, in fact, that the *goragora/doka* represents, *par excellence,* the cardinal principle within the Culture of Kitawa: it symbolizes man's — the carver's — ability to reflect on the Forms on Nature, on their way of 'presenting themselves'. These forms are felt to be harmonious on the basis of the reflecting judgement, on the basis of that sensation of calm which they produce in those who perceive them, as if they were indeed forms constructed by the mind of man. It is as if, by reflecting on a form of Nature perceived by the mind, man discovered the Form of one of his mental images, of Harmony. Harmony, which might be defined as an ensemble of elements (one would have to specify in each particular case whether the elements are aesthetic, ethical or mythical, but it seems to me that the distinction is chiefly a methodological one) which balance one another out in such a way as to realize a situation of stasis, of arrest (even though this may be only momentary), is therefore a product of the activity of the reflecting judgement which in Nature tries to identify situations of 'stasis', of 'arrest'.

This type of 'identification' lies at the root not only of the art objects produced on Kitawa (in addition to the *lagimu* and *tabuya,* other objects such as spatulas for the betel nuts, ebony mortars,

mats of woven coloured fibres, decorations for the face and the body for the dances of Milamala, etc.) but also of the social structure itself (for example, the fundamental binary nature of the brother- sister relationship which finds a mirror-image in exogamic marriages; the balancing of power among the four clans who design the power structure; the ceremonial Kula exchange itself, interpreted as a form of harmonious relationship between two partners).

The principle of harmony that characterizes the 'way', the constructive ability, of a carver of *lagimu* and *tabuya,* must have been elaborated in his mind as an ideal of perfection which the carver then attempts to realize in concrete form: it presents itself as a mental project which must in some way be the result of reflection on harmonious forms already realized in Nature. But it is equally obvious that the principle of harmony can be verified with reference to one's own body: for example, in the rhythmical beating of the heart.

These reflections are the basis of the intuition of the principle of harmony which one tries to represent externally in a form that may itself also be suggested by nature. But the suggestion must be one that pertinently expresses this principle. One's gaze, cast upon Nature (no longer perceived as an ensemble of data opposed to man and foreign to him, but as a homologous way of expressing the harmony and rhythmicality of the Forms) falls therefore on a series of elements that the eye itself (the mirror of the mind) judges to be harmonious and similar (but not equal) to the mental project of harmony. The harmony of a leaf, the fern, for example, reveals itself as such to the eye insofar as the leaf is chosen to mean, and hence to symbolize, a 'mental' project of harmony: it is probable that the leaf has 'in itself', so to speak, a schema of harmony, otherwise it would not be possible to explain why it is looked at by the carver, but it is equally true that it is the gaze (a particular gaze cast at a particular moment, but the fruit of a continual attention to the problem of representation) which attributes harmonious value to the leaf. Thus it is as if the leaf lent form, a particular form (which will subsequently be adjudged harmonious) to the mental project of harmony.

But at the moment when the project of harmony (already elaborated but, perhaps, not adequately expressed by an internal image) meets the 'form' of the leaf (and the meeting is planned, in the sense that there may be pure chance in the contingent moment, but it is a chance that has been sought for), this form is not accepted as the eye 'sees' it, and hence as a figurative element to be taken just as it is and inserted into a formal context, but is interpreted — that is

to say, taken over by the mind and made its own.

The form of the leaf functions, then, as a 'point' of departure, as an image which is sounded out by the mind to see if it will adapt itself, once it has been modified, to representing a particular project of harmony. The image of the leaf is seen in transparency, manipulated, the mechanism of its formation is grasped, its essence is sucked out, and, once it has been reduced to its 'skeleton', and therefore freed from figurative elements, it is associated by the mind with the project of harmony which already has 'a life of its own', and so to speak, a conceptuality of its own which, to use a metaphor, 'borrows' the form of the leaf, elaborating it in the process (Figs. 7, 8 and cf. Fig. 1).

Of the original form of the leaf only a faint recollection remains. There remains a 'metaphorical form', that is to say an allusion, a recollection, a memory. The whole mental process, or mechanism (perhaps the mathematical/geometrical calculation itself) which has resulted in the graphic sign inspired by the leaf remains hidden within the form of this sign. It may be reconstructed provided one has been initiated into the mechanism.

This interpretative hypothesis is also valid for the construction of the *doka* inspired by the *goragora* or *Nautilus pompilius,* whose form must have attracted the eye of the carver constantly seeking Expressive Forms to represent 'visually' his project of harmony. But the eye that has looked at the shell must have activated the mind of the carver, whose gaze has penetrated deep into the inside of the Nautilus, and has seen the harmonious succession of the whorls of a spiral theoretically growing in size *ad infinitum.* In the same way a harmonious experience in the past of a creator of images may theoretically continue *ad infinitum.*

Now within our so-called 'classical' tradition the Nautilus expresses in Nature the rule known as the Golden Section, the Golden Number of the Pythagoreans, supposed in theory to be a 'logarithmic or equiangular spiral', and described by James Bernoulli as the *Spira Mirabilis.*[17] The subject of this spiral has also been taken up by D'Arcy W. Thompson, who has demonstrated how the whorls of the equiangular spiral continually grow in size with respect to the whorls of Archimedes' spiral — or uniform spiral, in which r = aθ — according to a fixed relationship, which means that "Each whorl which the radious vector intersects will be broader than its predecessor in a definite ratio; the radious vector will increase in length in geometrical progression, as it sweeps through successive equal angles, and the equation to the spiral will be $r = a^{\theta}$"[18]. The characteristics of the equiangular or logarithmic spiral are:

(a) The curve of the spiral is a figure that grows continually without changing its form, just as in the shell *Nautilus pompilius;*
(b) The vector angles around the pole are proportional to the logarithms of the successive radii, and therefore we will have the formula o = k log.r;
(c) The similarity continues;
(d) Nevertheless the increase in size is asymmetrical and is characteristic of the equiangular spiral.

If we connect these characteristics with the *doka* (derived, by a process of schematization and abstraction, from the *goragora*), we arrive at the conclusion that this graphic sign has been constructed on the basis of a calculation, probably intuitive in nature, and that it is characteristic of the Rule by which the logarithmic or equiangular spiral develops (Fig. 9). This seems to be the origin from which is derived the harmony of the *doka* and the harmony of the entire *lagimu/tabuya,* seen as a *gnomon* of the *doka* and the other three fundamental graphic signs.

The *doka,* then, contains 'in itself' the Rule, the reason for its construction and the justification for its harmony. In short, through the *doka* the woodcarvers of Kitawa demonstrate that the principle of harmony corresponds to extremely precise canons, to rules which are probably only felt intuitively, but which must be followed in order to produce a harmonious object or artefact. Towitara Buyoyu's insistence that it is in the *doka* that a carver's constructive ability is affirmed or denied must therefore be interpreted as a way of saying that in order to carve a correct, 'beautiful' *doka* it is necessary to apply the rule of the Golden Section just as it is realized in the *goragora* or *Nautilus pompilius.* And a correct curvature of the *doka* towards the *tokwalu* (cf. Fig. 1), the quasi-human figure carved on the vertical axis of the surface of the *lagimu* (which in order to be harmonious must respect a particular proportion, fixed probably 'by eye'[19] partly on the basis of the whole hull) is a demonstration that the carver has intuitively carried out a calculation which makes it possible to consider the final whorl of the spiral-*doka* as the result of a series of internal whorls which increase in size in a geometrical progression according to a fixed relationship (perhaps established roughly on the basis of the size of the whole surface of wood) starting from a pole, which in this case coincides with the *ubwoli* (cf. Fig. 1), a hole which is made in the wood and from which the graphic sign begins. Of course the perceiver only sees the external form of the *doka,* while the skeleton that governs and determines this form remains completely hidden.

In short, the geometrical, abstract calculation — which constitutes the progressive succession of the whorls and their size — remains 'secret' because it is located in the mind (*o nopoura nano ra*): the expression (literally "it is inside his mind") is in fact used on Kitawa to suggest that the structure, the skeleton, of the *lagimu/tabuya,* and therefore the carver's constructive ability, resides in the mind. Which could also be interpreted as a metaphor signifying that a carver knows the intuitive, quasi-geometrical calculation relating to the way of constructing a graphic sign but that he conceals it like a secret "inside his mind". The only aspect of this calculation that he reveals is the final product, that is a 'beautiful', 'correct' form, which appears so only as a result of his imagination and his constructive ability. But the same occurs in the *Nautilus pompilius,* or *goragora:* we do not actually see the geometrical progression of the whorls unless the shell is sliced open in section.

It is obvious that carving the *doka* on the basis of the supposed geometrical progression of its whorls does not mean carving according to the formula of the Golden Section $\frac{\sqrt{5}+1}{2}$ (which is an *a posteriori* realization of a way of constructing which in the beginning, probably, is followed more or less by experience, by "trial, error and correction"), but it rather means 'recognizing' the existence of this Formula as it is manifested in Nature.

Nature 'is not thinking' about the formula when it 'constructs' its elements: the Nautilus 'is not thinking' in terms of $\frac{\sqrt{5}+1}{2}$, but it constructs it according to a logic, a mechanism, that man later 'thinks out', and schematizes or symbolizes, in this formula! The formula of the Golden Section is, then, a form of 'synthetic memorization' of a process of growth judged to be harmonious. Even 'animism' is therefore simply a recognition of this constructive logic or ability in Nature: it makes no difference whether we say that the Nautilus has 'a soul' or that the Nautilus grows according to the formula $\frac{\sqrt{5}+1}{2}$. Both modes of expression are the result of the reflecting judgement: the mind-eye sees that the Nautilus, seen in cross-section, presents a series of whorls that have moved away according to a certain progression from the initial point of departure (which is fixed arbitrarily) and that this way of growing could continue *ad infinitum.* Then it reflects on this way of growing and deduces from it that it is different from other ways of growing (for example, that of a tree). It defines the way of growing of the Nautilus as a 'way of growing in a geometrical progression', and schematizes and memorizes it in the formula $\frac{\sqrt{5}+1}{2}$. But it is not necessary to elaborate a formula in order to say that we are conscious of this 'way' of growing: it is enough to demonstrate it by the effective construction of a graphic sign, such as the *doka,* or an

artefact, such as a *lagimu* or *tabuya.* This same 'way' is externally perceived simply as harmonious.

It seems obvious to me, at this point, that the harmony (which is better defined as a principle expressed through a rule defined by the carver) of the *doka* synthesizes and symbolizes the harmony of the entire *lagimu,* and that it does so on the basis of the distribution over its surface of the graphic signs, especially the fundamental ones, engraved by applying intuitively the rule of the Golden Section, just as it is manifested in the logarithmic spiral of the *Nautilus pompilus/doka.* For example, each of the *gigiwani* (cf. Fig. 1), which form the long string that culminates both on the right and on the left in the two *doka* (which are to be considered as *gnomons* of the former) is also constructed on the basis of the Golden Section.

But the similarity between *doka* and *gigiwani* seems to be only structural, geometrical, because the relevant source of inspiration in nature is different. In fact, if Siyakwakwa Teitei's account is correct, the *gigiwani* was constructed as a result of the inspiration provided by a chain of chrysalides linked together (in this case, too, a curvilinear element of nature is involved) which form a series of logarithmic spirals which have their origin in a focal point and move away from it in a geometrical progression.

It is for this reason that I have defined the *doka* as *gnomon*[20] of the *gigiwani:* their structure is the same, except that the *doka* is greater in size. The *weku* (Figs. 10, 11) too, was constructed on the basis of the Golden Section (or Golden Triangle): each of the two *ubwouli* holes represents the point of departure from which there develops in geometrical progression one of the two spirals which inscribe a golden triangle on which this graphic sign is based.[21]

Even the *kwaisaruvi* itself (Fig. 12 and cf. Fig. 11), which could be described as the photographic positive of the *weku* (a plane, dark graphic sign is counterbalanced by an empty, light-coloured one) is constructed by applying the rule on the Golden Section: the two whorls, coloured respectively red and black, inscribe a golden triangle and are comparable, at the geometrical level, to two equiangular spirals which have a point of origin corresponding with the points of origin of the *weku* (points which in the *kwaisaruvi* are less perceptible because they are hidden by the plane engraving and the dark colour).

Therefore both the *kwaisaruvi* and the *weku* synthesize on the geometrical level a growing series of golden triangles in which, starting from a particular triangle (the innermost one with respect to the whorls), every other triangle is a *gnomon* of the preceding one.

Moreover, for the principle of translation, and taking as a point of reference the *weku,* for example, the triangular schema itself (isosceles triangle) of the entire surface of the *lagimu/tabuya* is constructed on the Golden Section, and is inscribed in an equiangular or logarithmic spiral (Fig. 13). The same principle applies if we take as a point of departure for the development of the spiral the *kwaisaruvi.* Therefore the entire surface of the *lagimu* can be considered a *gnomon* of the golden triangle (which coincides with the graphic sign *karawa* — cf. Figs. 1 and 7) which lies at the innermost point on the whole surface. Thus the *lagimu/tabuya,* as a geometrical and abstract schema, is equivalent to an equiangular spiral inscribing a golden or isosceles triangle. It is no coincidence that in the past Kitawans used to build ceremonial canoes called, significantly, *goragora,* and characterized by a *lagimu* in the form of a large, stylized, Nautilus shell.

Notes

1. Kitawa Island, Marshall Bennetts (Melanesia).
2. Both the Nowau and the English texts, together with an interlinear translation and a list of the vocabulary used in the Conversations, form part of Vol.II of my dissertation for a Ph.D. in Oceanic Languages, examined in October 1982 at the School of Oriental and African Studies, University of London. Also enclosed with the same volume were the three cassettes containing the recordings of the Conversations in Nowau conducted between Siyakwakwa Teitei, Tonori Kiririyei and myself.

   The Conversations recorded were first transcribed with the symbols of the International Phonetic Alphabet and then rendered in an orthographical form. The texts thus defined were checked in 1980 with Kaigabu Kamunamiya, at the Linguistics Department, Port Moresby University, and finally computerized at the Literary and Linguistic Computing Centre, University of Cambridge.

   I am particularly grateful to Professor George B. Milner (S.O.A.S., University of London), not only for his supervision of the Ph.D. thesis but also for having assisted me during the definition, both phonetic and phonemic, of the Nowau texts. I would also like to thank the phonetician Dr. Francis Nolan (Department of Linguistics, Cambridge University) for helping me establish examples of phonetic transcription of Nowau.
3. In this case 'triangular' refers to the basic structure of the *lagimu* (and also of the *tabuya,* seen as 'half' of the *lagimu;* cf. Scoditti 1982). For, if we schematize the various *lagimu* carved on Kitawa, from a particular period of time onwards, we obtain a 'figure' very similar to an isosceles

triangle or golden triangle. This structure may in turn be interpreted as a materialization of the general and abstract schema, 'triangularity', understood as a 'logical notion' and perhaps also a mythical one. Therefore the triangular structure of the *lagimu* is only an interpretation (linked both with a specific period of time and with a school of art on Kitawa) of the schema 'triangularity', and with respect to this schema it represents a concrete, visual, 'model of reference'. It is significant that during the early phases of apprenticeship a young carver learns to carve from a pandanus leaf a triangular shape, the size of the palm of the hand, as if to master visually the concept of 'schema' through a physical, objective interpretation of it.

4. On Kitawa every carver of *lagimu* and *tabuya* forms part of a 'school' or 'workshop', whose organization is similar to that of the medieval Guilds or the Renaissance artists' workshops. A school is led by an old carver who is recognized as the repository of the model of *lagimu* and *tabuya* followed by the members of the same school. Often the *caposcuola* is also the man who constructed a new 'model', that is to say a new interpretation of the schema multicoloured prowboard: in this case he is called *tokabitamu bougwa***.** Every school, or workshop, is distinguished by a series of graphic signs peculiar to it alone, or by the graphic-visual solution of an aesthetic problem. Both on the graphic signs and on the aesthetic solution there is a strict copyright (Scoditti 1982).
5. A rule may be only 'intuited', and may never even be rendered explicit in a mathematical formula; or it may be followed for decades in an empirical manner, testing, looking and correcting, and then be rationalized in a formula - indeed, be 'formalized'. In general Rule is here understood as 'empirical', Formula as 'theoretical'. They are not, however, taken as opposed to one another but simply as correlated. For example, the greater part of Western architecture, at least until the early Renaissance, is, if we exclude Vitruvius, based on the Rule and not on the Formula.
6. The appeal to 'tradition' has often been seen as an imitation or reproduction of a 'codified' means of expression, as a lack of invention. In my opinion, however, it is more correct to interpret this appeal to tradition as a way of emphasizing the validity of a given 'model of reference' which is still considered valid not because it is 'absolute' but because it is 'difficult' to violate in a society in which the absence of writing or drawing (as 'proof' in order to correct an error, or a proof to test the validity of a new hypothesis) make its 'modification' more problematical.
7. Hence the imitation of the master's model by one of his pupils is to be interpreted as a visual metaphor, a 'visual correlation' between an aesthetic concept and its practical realization in the multicoloured prowboard of a ceremonial canoe. The aesthetic concept of harmony, for example, is metaphorized on the *lagimu* by carving symmetrical graphic signs (the *weku* on the left and the *kwaisaruvi* on the right) around a central axis (*vilakora* or *karawa*), so that by compelling a pupil

to respect this symmetry the master teaches him, in addition to the bilateral symmetry, the aesthetic concept of 'harmony' realized by representing the former. The rule "carve the *weku* on the left and the *kwaisaruvi* on the right" thus renders explicit the aesthetic concept of Harmony in its essence and the same continual repetition of the rule is nothing less than a restatement of the validity of this concept and of the ways of realizing it.

8. Cf. L.Wittgenstein, *Lectures and Conversations on Aesthetics, Psychology and Religious Belief.*

9. This is the formula of the equiangular spiral, whose values, unlike those of the Archimedean or uniform spiral (where we have r = ao increase in size according to a definite ratio given, indeed, in the formula $r = a^{\theta}$. Cf. D'Arcy W. Thompson, 1977.

10. Metaphor is used in this case as a stratagem for 'correlating' an aesthetic value and the relevant rule that realizes it visually. For a Nowau carver, then, metaphor operates both as a means of masking and as an expressive stratagem, in order to represent: the visual metaphor expresses by 'veiling', and only a person who knows how a metaphor is constructed can intuit its true value, the hidden secret.

11. Drawing, inasmuch as it is a graphic trace, even though barely perceptible to the eye, is to be interpreted in this case not so much in a technical sense as in a 'symbolic', I would even go so far as to say 'conceptual', sense. For its prohibition implies, of course, the possibility that it can be executed: therefore there is no question of 'drawing', as a graphic trace, not being known by the Nowau carver; it is rather the function of drawing that is denied and prohibited. A Drawing, understood as a sketch, a trace, 'memorizes', fixes, a logical passage, or the shadow of a concept. It blocks an intuition, and therefore develops an operation of 'memorization' which is at the same time one of 'unveiling'. In drawing, or tracing, the silhouette, the shape, of a graphic sign before carving it the carver reveals the mechanism that has led to the construction of the graphic sign itself. It is as if he unveiled to the whole village the mystery of the construction. Moreover, by this tracing, or drawing, he also reveals the error, the change of mind — both of which must remain internal, closed in the mind of the carver. The village must not 'see' the material proof (the drawing and its erasure) of the error and the change of mind: a graphic sign must appear on the outside as if it were constructed from nothing, the work of a thinking mind, the material concretization of lightning intuition which knows no elaboration, changes of mind, attempts.

12. The game is very subtle: a master, even if he has initiated a young man (who may belong either to the same lineage as the initiator — thus violating the rules of matrilinear descent — or to a different lineage) could reject him during the apprenticeship. Or he might realize that the initiate is not up to the task, is not 'made of the right stuff'. In these cases it is said that the initiate has not respected the canonical prohibitions, with the consequence that he annuls his capacity, attributed to him at the moment of initiation, for 'constructing images':

the initiate is, in fact, denied the possibility of carving multicoloured prowboards for a ceremonial canoe. The opposite may also occur: a young initiate may decide to withdraw from the 'career of carver' and therefore eat the forbidden foods.

13. Towitara knew how to carve, for example, harmonious *lagimu* and *tabuya* because in addition to possessing a precise concept of harmony (probably the fruit of a collective, historical effort, even though limited to a restricted group of carvers) in his mind, he was able to realize it in a specific 'form' which, in turn, requires the excogitation of a rule, of a 'way', that renders it visual, material. Therefore the Rule, if it exists, is at the same time both a 'form rendered explicit' and a 'concept' (the mechanism of construction) veiled by this 'form'.

Thus we have an aesthetic judgement on an artefact formulated by the group within which this artefact was produced, and the judgement is based on the recognition that one is seeing realized materially, an ensemble of aesthetic principles that must, therefore, also be encapsulated in the object itself. One must of course remember that a judgement is always conditioned by tradition, by the ancestral 'way' of seeing (and the 'way' may be interpreted as a metaphor for 'model of reference'), but the tradition is made up of principles and rules that are interpreted at different times, and if an interpretation evokes a positive judgement, this means that it has 'grasped' the spirit, or the soul, of the traditional norm, which thus presents itself no longer as a relative, limited value but as a 'classical' value.

What is underlined in the traditional or classical norm, through this interpretation, is its value as a general, abstract schema rather than its rigidity; otherwise there would not even be the possibility of an interpretation. Moreover, the appeal to tradition, to the ancestral way of seeing and judging, is made with regard to a specific artefact and not in the abstract: the judgement is given at the moment when an artefact evokes it with its texture of graphic signs.

Therefore this texture must contain the reason, the rule, the way, of its construction. The very harmony or disharmony, of the texture is, so to speak, immanent in the texture itself even though it is correlated to the concepts of harmony or disharmony.

14. The *tadobu* schema of the ceremonial canoe is followed in the band of islands of the Kula Ring to the west of Kitawa as far as Iwa, to the east of Kitawa, while the *nagega* schema (whose variant *goragora* was constructed on Kitawa) is still followed in the islands of Gawa, Kwaiwata and Muyuwa. It is very likely that the name *tadobu* derives from the island Dobu, belonging to the Kula Ring, which is situated to the west of the Trobriands. This schema must have spread from this island to the Trobriands and from there to Kitawa via Vakuta, to the south of Kiriwina. According to Towitara Buyoyu, whose clan and subclan originated in Vakuta, the *tadobu* schema was imported to Kumwageiya (the territory of Kitawa controlled by clan groups originating in Vakuta) and gradually imposed itself on the two other territories of Lalela and Okabulula. The *tadobu* canoe is considered

swifter, more agile, than the *nagega* canoe, whose structure is more massive (cf. Munn, 1977).

15. It seems to me of interest to record an observation made by Towitara Buyoyu when we were discussing the relationship between the two terms *doka* and *goragora.* In reply to my question as to why the *Nautilus pompilius* shell is called *goragora* in Nowau, whereas the symbol derived from it, through a process of schematization and abstraction, is defined by the term *doka.* Towitara said that the question of the terms that connote a graphic sign is entirely arbitrary: *doka* and *goragora,* he said, are only 'names'. By this I think that Towitara was emphasizing that:

(a) The relationship between an element of Nature, such as the Nautilus, and a graphic sign inspired by this element is an 'indirect' relationship, in the sense that the element may function as an 'excuse', as a point of departure, therefore having a formal or formalizing value, for the construction of a graphic sign. The graphic sign *doka,* for example, which is inspired by the Nautilus, takes from its 'form', understood as an element that represents to the eyes, visualizes, the whole mechanism of the formation of the graphic sign itself. It is the visual — indeed, formal — synthesis of this mechanism. It is, of course, an interpreted 'form', and therefore produced by the intellect.

(b) The relationship between the word *doka* and the graphic sign that it connotes is arbitrary in the sense that the same graphic sign could be called by a different name. But it may be that by connoting the graphic sign with *doka,* which in Nowau vocabulary also means 'to think', 'to imagine', 'to produce concepts, ideas' (cf. Scoditti 1982a), the carver wished on the contrary to allude to the symbolic-iconographic content associated with this sign. If, according to the iconographical interpretation of the *lagimu* and the *tabuya,* the *doka* represents the intelligence and the imagination of the mythical artist-hero (and hence an idea of perfection, harmony), it is quite likely that the term *doka* was chosen to indicate these concepts which, in order to be represented graphically, needed to seek a 'formal excuse' in Nature, in a natural element that could realize this ensemble of concepts graphically. This element was identified in the *goragora,* or *Nautilus pompilius,* because 'formally' it represents a figure, the logarithmic or equiangular spiral, which realizes in nature the concepts of perfection and of harmonious progression (from a 'given' point a series of increasingly large whorls develop in a geometrical progression).

16. This is the formula of the golden section or golden number: "Cette équation traduite en mots donne l'énoncé suivant 'Le rapport entre la somme des deux grandeurs considerées et l'une d'entre elles (la plus grande) est égal au rapport entre elle-ci et l'autre (la plus petite)'. Appliquée à des longueurs en divisant un segment AC en deux segments AB et BC par la choix d'un B tel que AC : AB = CB : BC, elle correspond à ce qu'Euclide appelle déjà: Partage d'un longueur en moyenne et extrême raison. C'est aussi bien géometriquement qu'algébriquement le partage asymétrique le plus 'logique' et le plus important à cause des ses propriétes mathématiques, esthetiques, etc."

(Ghyka 1959: 27). In note 1 on the same page Ghyka writes "La valeur numérique du rapport au nombre-mesure = 1.618 ... est l'expression arithmétique de la section dorée ou nombre d'or: suivant la suggestion de Sir Th.Cook et Mark Barr (dans *The Curves of the Life,* Constable édit.), je l'ai désigné par le symbole ø".

17. James Bernoulli 1961 in *Acta Eruditorum,* quoted by D'Arcy W. Thompson in *On Growth and Form,* 1977: 178, note 7.
18. D'Arcy W. Thompson, 1977: 176.
19. 'Measuring by eye' is determined by the long apprenticeship and by experience: every rule, before becoming a mathematician and/or geometrical formula, is indeed determined by experience, by man's continual application to a problem. The Kitawan carver does not possess an explicit 'table' of the proportions that he must respect when he carves a *lagimu* or *tabuya,* or when he carves an outrigger for the ceremonial canoe. The measuring is done intuitively, and is based on the 'gaze that calculates', literally 'by eye': the eye, for example, calculates the distance between one extremity of the trunk and the other, and establishes the relationships, for example, relative to the thickness of the wood, which must be respected in order to obtain a harmonious outrigger. And in the carver's mind, activated and made expert by experience, a subtle calculation is made, which causes him later to carve the multicoloured prowboards to 'a certain size'. He uses his eye, his mind and his hands (how many times have I seen the length of an outrigger being calculated by stretching out the arms 'in the form of a cross', starting, for example, from the point x and then gradually moving them till they reached point y!): by experience he knows that the length must be 'half an arm high and one arm wide' if he also wishes to obtain a particular visual harmony. And by repeating this relationship for decades he 'founds' the Rule which may later be rationalized in a mathematical and/or geometrical Formula.
20. "There are certain things, says Aristotle, which suffer no alteration (save of magnitude) when they grow. Thus if we add to a square an L-shaped portion, shaped like a carpenter's square, the resulting figure is still a square; and the portion which we have so added, with this singular result, is called in Greek *gnomon".* D'Arcy W. Thompson, 1977: 181.
21. At the symbolic level the *weku* represents the primal scream, the howl, of the mythical hero Monikiniki which, later, is transformed into a 'word'. The transformation from 'scream' to 'word' is like the development of the whorl of a logarithmic spiral which grows in a geometrical progression and moves in an asymmetrical manner away from the original point-shout, but does not negate it.

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