

## 6. Consequences

This chapter is offered in lieu of a conclusion, in that I use it to articulate just a few of the consequences of the ideas being developed in this study. It is, of necessity, something of a catalogue of disparate parts: I begin by extending the argument presented about the possibility of both natural and sexual selection contributing to the workings of the model. I do this by showing how - with regard to surface finish - the effects of the imperatives of 'efficient' natural selection, where costs are offset by adaptive benefits, may, paradoxically, prove more or less identical to those resulting from the imperatives of sexual selection, where costly (inefficient) signals are demanded. I consider beauty and one of its physiological cues. I review the usefulness of the model outlined here as an assay of existing or yet-to-be created theory; and turn briefly to its uneasy relationship with post-modernist approaches. I consider some of the consequences of this study for designers and their education. I indicate something of what the implications of this study may be for our understanding of the relationship of biological evolution to culture. As a prelude to a summary of key findings and some concluding remarks, I revisit the 'tests' outlined in chapter one for the identification of adaptations in the light of the evidence presented in the intervening material.

Compared with its predecessors, this chapter includes a higher proportion of speculative material.

### 6.1 *Integrating natural and sexual selection*

I have proposed that, in principle, both natural selection and sexual selection have roles to play in explaining how we come to devise artefacts and attribute significance and meaning to them; and that aesthetic sensibilities can operate independently of, or as part of the system of 'costly' signals. Such co-existence was briefly alluded to in the case study of my iBook, but I have not yet cited detailed examples of how I argue this might work out in practice. I will, therefore, revisit the specific proposition that costliness is equated with beauty and propose how it can be accommodated as a part in the wider

picture. As noted in chapter five, Miller has argued that whereas natural selection favours economy, sexual selection (and the non-reproductive variants proposed by Voland) demand that they are 'costly', and by the standards of natural selection, wasteful. Therefore, I shall return to, reconsider and develop the matter of surface finish and use it as an illustration of how both the Handicap Principle *and* stylistic appraisal - where some tangible benefit offsets costs in the more conventional way - may not only co-exist but, sometimes, lead to broadly coincident effects.

Dissanayake writes:

...the selective value of making special resides in and reflects specifically human species characteristics. The messages reinforced by the arts, and the behavioural tendency to reinforce or make special these messages, may also promote individual attention to important concerns, and, especially, reinforce communality and one-heartedness in group members. The psychobiological mechanisms for emotional congruence inherent in ceremonial participation have, I claim, given the temporal arts of music and dance, enhanced by visual and rhetorical extravagance, additional (even primary) human selective value.<sup>1</sup>

In this, Dissanayake's views broadly correspond with those of Mithen and others, who see practical utility in the exercise of artistic and aesthetic sensibilities focussing attention on information of importance to the group, as in, for example, the securing of resources, described in chapter four; she is also at one with Deacon (although with different emphases), in acknowledging the inherent social mediatory powers of ritual, and the benefits of cohesion. In pre-modern societies, Dissanayake reminds us, all the arts usually co-existed as parts of the larger, integrated whole of ritual or performance (which I would describe as one of the more formal branches of 'witnessed behaviour').

Voland, by contrast, argues that Dissanayake's 'making special' is, in reality, 'making expensive'. He writes: 'It is not enough to appeal to our sensory apparatus in a special way - kitsch does this too - instead preciousness is required for something to be considered beautiful.'<sup>2</sup> He cites by way of support (as both Miller and Kohn have done) the correspondence of such an assertion with the ideas developed at the end of the nineteenth century among the wealthy of East Coast America by Thorstein Veblen. Veblen wrote (and Voland quotes):

The superior gratification derived from the use and contemplation of costly and supposedly beautiful products is, commonly, in great measure a gratification of our sense of costliness masquerading under the name of beauty'<sup>3</sup>

Veblen is an author more honoured by the referencing than by the reading. Voland - like Miller, Kohn and others - has selectively referred to Veblen in support of the evolutionarily-based theory of 'honest signals' which have to be costly to be given credence. The proposal corresponds sufficiently to some aspects of human behaviour to enjoy support, as it should. Veblen, however, as the above quote makes plain, does not make the error of actually mistaking costliness as a prerequisite for beauty, but rather says that others will claim to admire beauty, but in reality are celebrating cost - or 'pecuniary reputability' to borrow Veblen's term, that is, what the costs tell us about the person bearing them.

Veblen was a thorough and careful observer of the phenomena on which he commented. Elsewhere in this justly famous, innovative study, he indicates that he is perfectly well aware that such an equation between beauty and costliness will not account for *all* aesthetic practices:

The underlying norms of taste are of very ancient growth, probably far antedating the advent of the pecuniary institutions that are here under

discussion. Consequently, by force of the past selective adaptation [note!] of men's habits of thought, it happens that the requirements of beauty, simply, are for the most part best satisfied by inexpensive contrivances and structures which in a straightforward manner suggest both the office which they are to perform and the method of serving their end.<sup>4</sup>

In this prescient prefiguring of evolutionary psychology, an intelligently contrived tool - such as the somewhat rough and ready, but somehow 'direct' and highly practical watering pot - might, by these 'evolved' criteria, be judged beautiful with, if anything, a preference for judicious economy in the achievement of its ends, rather than the 'conspicuous consumption' which marks out the other practices Veblen describes so well, in addition to those to which Miller and Voland attach such mistakenly universal importance. Thus, Veblen's arguments actually support a more complex picture as to the workings of aesthetics in artefacts, and the army of commonplace objects excluded from Miller and Voland's narrow view may now be re-admitted to the picture.

Veblen writes that 'the norms of taste are of very ancient growth' and I have explored something of what the evolutionary mechanisms may have been for the origins of these in chapter three.

## **6.2 'Costly signal systems' and 'tacit social intelligence value' can coincide**

I have acknowledged that Miller and Voland's proposal (that some of the social mediatory powers of artefacts might have originated in their function as costly indicators of sexual fitness, and then operated as signals in parallel, non-reproductive relationships) may provide a partial explanation of some of our responses to artefacts. I argue that - of greater importance than this - specifically *stylistic preferences* informed how our ancestors chose to create artefacts, because they had become adept at both embodying and interpreting the physical characteristics of artefacts in order to advertise or detect tacit

social data. Following Miller and Voland (and, in this particular, Veblen), the cost of the signal is valuable as an indicator of something resembling 'pecuniary reputability'; following my own model of stylistic sensibilities, I would argue that they deliver information - 'reputability' - far wider, more complex and more comprehensive in scope and, ultimately, more valuable.

A brief development of the ideas concerning surface finish illustrates how these considerations might have evolved in unison and thus, account for present day practices more convincingly than either explanation might do on its own.

### **6.3 *Surface as a function of cost***

Were an audit of all human artefacts from the whole world throughout the whole of history carried out, I suggest it would reveal that many of the most highly-prized have been shiny, with those that are smooth or regularly patterned coming in either second or third. In some cases, the addition of extra decoration would add to the esteem in which such things might be held. While allowing for their origins in the sensory and perceptual biases arising from the negotiating of the organic environment in terms of securing resources, predator avoidance and mate recognition described in chapter three, as well as the suggestion in chapters four and five - that smoothness and shininess have long been equated with effectiveness in a tool - I further suggest that in the entire range of possible surface treatments there exists an evolved hierarchy, albeit a somewhat loose one.

Setting aside 'costs' in terms of the rarity of materials for a moment, from the Miller/Voland perspective it could be argued that, if each type of surface originated in the working of materials, each may have represented more or less time spent on such work (and therefore, costs); and that, as a consequence, some surfaces which were judged 'costly' would, on average, be more highly valued than others.

Consider, for example, the surface treatments which may have been achieved by the successive stages necessary in the making of, say, a piece of

rock (such as in the case of some of Neolithic axes) or wood, regular, or smooth, or shiny: first, the untouched and perhaps irregular surface would need to be uniformly worked with a tool to produce a more-or-less even surface. Traces of the blows or cuts needed to do this may have exhibited themselves as a pattern of regular marks. This incipient pattern could have become deliberately sought, of course, with what might have started as the by-product of achieving uniformity, becoming the objective instead. Alternatively, further work could have made the unit of the pattern smaller and smaller, until it became so small as to be imperceptible; and thus the artefact will have exhibited a smooth surface. Yet further working could transform a merely smooth surface into a shiny, polished one. At each of the stages, the regularly-patterned (if sufficiently small, in terms of unit repeated), the smooth, and the shiny, the option exists to introduce decoration or further pattern (such as a larger pattern on a smaller one) onto the surface. Thus, according to costs, the following broad hierarchy of surface qualities - starting from the least valued, ascending to the most highly prized - could be proposed:

1. rough and random (often = natural, unworked);
2. uniform pattern as a by-product of regular work;
3. uniform pattern deliberately sought;
  - a) plus added pattern;
4. further work, leading to matt smooth;
  - a) plus added pattern;
5. still further work, leading to shiny;
  - a) plus added pattern.

The hierarchy here can be explained with reference to the handicap principle: each is progressively a more 'costly' surface treatment, and thus becomes increasingly valued, where the artefact is to act as an 'honest signal'. In part, I suggest that the hierarchy is a 'loose' one, partly because this model represents an average of the different ways in which surface finishes can be

achieved; and some other methods on some other materials would deliver a somewhat different order.

#### **6.4 *Surface as a function of the detection of tacit social intelligence***

Nonetheless, I suggest that a parallel - or perhaps, still stronger - reason for such a hierarchy (and its looseness) might reside in the degree to which it more or less corresponds to one in which each surface treatment facilitates the reliable expression and detection of tacit social intelligence: a rough, unworked surface is difficult to interpret, often betraying little - if anything - useful, regarding the behaviour of the artefact's creator(s) (although if the artefact indicated that the rough surface had been deliberately prized, that might, of itself, be revealing). The uniform patterned surface which is a by-product of work, by contrast, is revealing. Not only does it show evidence of protracted, intelligent, skilled effort, but the eye ranges more easily over it (information reduction, as described in chapter three) and is more likely immediately to detect any inconsistencies or flaws which will stand out - and each of which might have some value as an indication of the behavioural character of the creator. Further, as noted, pattern as a by-product of process shows an intelligent, perhaps desirable - and attractive - economy. A truly smooth surface will still more reliably reveal nuances of an artefact's form; whilst a highly-reflective, glossy, shiny surface is probably the most revealing of all. Extra pattern added to either the smooth or shiny surface may represent greater investment in the artefact in terms of accumulated work, and therefore make the artefact more 'costly'; yet it might also provide additional data about the character of the maker although, arguably, a plain, shiny surface might be more difficult to achieve than the superficially more costly 'shiny surface with added pattern', which may (creatively?) conceal flaws.

Add to these agendas derived from costliness and the expression and detection of tacit social intelligence such still older sensory and perceptual biases which may have arisen from successful foraging and one arrives at the

inescapable conclusion that a congruence of evolutionary imperatives helps account for this - arguably - universal preference for shininess:

1. a shiny ( or smooth or regular) surface would most easily have betrayed soundness in fruits and berries;
2. shininess, according to Coss<sup>5</sup>, might also once have betokened the presence of water - essential for life; shiny artefacts look as if they are wet, i.e. in proximity to water;<sup>6</sup>
3. because shininess was once (probably) the most time consuming surface to achieve, it would be seen as the most costly;
4. finally, at a social level, a shiny surface in an artefact not only provides tangible evidence of the highest levels of protractedly applied making skills on the part of the artefact's creator, it also yields the most comprehensive tacit social data about the maker (or person associated with it) of all possible surfaces.

One further possibility is that a truly shiny *flattish* surface is capable of showing a lively, probably somewhat distorted, but potentially endlessly fascinating image of the face of the person staring at it.<sup>7</sup>

### **6.5 A contemporary example: shiny motor cars**

I suggest that something of this kind of hierarchy of surface is evident today. Think, for example, of the surface treatment of the bodywork of motor cars. A walk around any car park (in most countries) will instantly confirm that shininess is the preferred norm for the surface treatment of these ubiquitous products of the Western World (and increasingly, everywhere else). They could just as easily have a matt finish, so the question arises: why *are* cars shiny? Conventional accounts<sup>8</sup> would probably consider ease of manufacture, cultural convention (perhaps with special reference to the 'machine aesthetic'), rust protection and ease of cleaning; all such explanations may be true, and must be given due weight. To these I would want to add that such a predisposition



has a long evolutionary history, stretching back, as described above. Cars are a perfect example of the artefact as a source of tacit social intelligence (alongside, of course, their considerable, symbolic-narrative value). They may well, in some circumstances, operate as manifestations of 'pecuniary reputability'; but they are also a major physical manifestation of personal repute. Thus, on the bodywork of a shiny car, the slightest dent, scratch or rust spot can instantly be detected, precisely because of the shininess of the glossily painted, polished finish. A dull finish would betray less of such data.

There are cultures where this shininess in cars is not, or cannot be, maintained once the vehicles are in use. However, wherever it is esteemed, there is a thriving trade in polishes and lacquers to enhance shininess, fillers and spray paints to conceal scratches, dents and holes, not to mention the millions of garages and workshops world-wide which do nothing else but return scratched, dented or crumpled bodywork to something more closely resembling its original form and, of course, pristine shininess. No-one could claim that from practical or safety perspectives alone, *all* of this work is strictly necessary. One need only add to this the extent to which a shiny car demonstrates that it has been kept clean, whereas a matt surface would do this less well, to appreciate that only when cars, like so many other of our artefacts, are fully appreciated as agents of evolved, social mediation, does such 'extra work' make complete sense.

The rusting car - like the decaying cut flowers - is, by contrast, an intimation of entropy and death.

### **6.6 *A partial definition of beauty in artefacts***

Having cavilled over the term 'beauty' I shall, even so, hazard a rough and incomplete definition (with regard to artefacts, at least) of my own. In so doing, I am only describing the circumstances in which I believe the experience of beauty might sometimes occur; I am not laying down a blueprint for its achievement. For the purposes of this exercise, I propose that beauty is not just an intense aesthetic experience (although it includes that) but an

experience which also involves coincident intense input from all the elements of the model. Thus, the potential for beauty to be apprehended in an artefact exists in direct proportion to the extent to which those regarding it apprehend:

1. positive reflexive, sensory and perceptual inputs;
2. positive aesthetic and/or technical pleasures built on those sensory inputs;
3. by means of the first question of style, positive *tacit social data* regarding the character of the maker (or artist, or person or people associated with it);
4. by means of the second question of style, the consonance between this data and any intended symbolic or narrative content;
5. and finally by means of the third question of style, deep consonance running through and uniting all these different levels and thus, delivering an overwhelmingly positive sensation.

The greater the degree of consonance - provided the emergent impression is positive - the more intense the sensation. I hasten to add, such experiences of beauty can seem virtually instantaneous. I do not imagine anyone would be aware of the sequence described above and the mechanism described; but I would argue that, at its most intense, 'beauty' is as good a label as any to give to such a experience. I allow there may be others - perhaps many others - which is why I describe this definition as incomplete.

### **6.7 *The natural as artificial: or a partial definition of beauty in nature***

As noted with the example of the Apple iBook laptop computer, artefacts can *simultaneously* refer both to Nature, and to Artifice. I argue this has been a commonplace phenomenon. One means (there are others) by which this can be achieved, for example, is by the decision to introduce any one of the degrees of surface uniformity referred to above. Thus, at one level, the artefact is exhibiting the organic surface characteristics originally prized in and

associated with good-quality food and healthy sexual partners, and now the foundation of an aesthetic pleasure derived from an appreciation of Nature; at another, because they are embodied in artefacts, rather than found objects, and because artefacts are records of behaviour, these surface qualities provide direct evidence of intelligent human skill, and therefore of artifice.

The working definition of beauty in artefacts given above can be reversed to explain something of why we believe we identify beauty in nature on some occasions. In admiring, say, a scallop shell (*fig. 36*), I suggest that part of our admiration rests on this oscillation between nature and artifice. In the case of the shell, or other such commonplace manifestations of 'beauty' in the organic sphere, we admire it *as if it had been made* by someone. Thus we can apply precisely the same mechanism of searching for evidence that will deliver tacit social intelligence, the test for consonance, and so on (while, perhaps imposing our own symbolic-narrative meanings). Once again, provided the emergent impression (arising from the tacit social intelligence) is positive, as with 'genuine' artefacts, the greater the degree of consonance the more intense the sensation. It is as if one is in the presence of an artefact, the maker of which (on the basis of such an appraisal) one would esteem.

It is quite unnecessary to push this one stage further, and point to such intense impressions as evidence for the existence of The Maker, to believe that some sensations of beauty may, nonetheless, arise in precisely the manner described. Once again, as in the examples of collectively or machine-made artefacts, the model works when there is no such individual maker; we still appraise *as if there were*. I interpret this as measure of the deep-rootedness of this mechanism, and of its adaptive value to our ancestors over the past 50,000 to 100,000 years, or more. I assert we live with and use it still.

I will now, briefly, consider a commonplace physiological indication of being in the presence of something very beautiful indeed (or at least, very important).

### **6.8 Why some things make the hairs stand up on the back of your neck**

I have proposed, in chapter five, that the key to understanding how our sensory-kinetic-affective mode of engagement with artefacts is integrated with our symbolic-narrative one is the concept of style. I now further propose that this explanation can be extended to explain a commonplace physiological phenomenon experienced, not only in the realm of artefacts, including especially affecting works of art, but in witnessing moving performances of dance, singing, music, drama, or even acrobatics: the sensation of the hairs on one's skin standing upright; or of the 'spine tingling'.

In considering the likely origins of our responses to colour in chapter three, I argued that the reason that in some circumstances even today, the colour red (on its own, or in combination with black or white) has the ability to affect us in such diverse embodiments as military uniforms, flags, the décor of both McDonald's (before its recent, anguished anaemia) and the brothel, was that each of these referred to something which, in our evolutionary past, was of vital importance either to our chances of survival or reproduction: violence, food or sex. I propose that the sensation of the hairs standing up on the back of one's neck (or arms, or wherever), while it may have originated as an adaptive reflex response to trap air in the fur when the temperature drops, has become exapted to function (in some circumstances) as an aid to social orientation. It is a physical prompt to the cerebral workings of the mind which, once again, enables us better to evaluate *behaviour*. I argue that they are a wake-up call to the individual to respond appropriately to the answers arriving in response to all three of the questions of style (described in chapter five) which we habitually, unconsciously pose in considering any of the phenomena listed above. With artefacts, as noted, we evaluate the data delivered by means of the tacit social intelligence mechanism; and then use that data as a test of the intended symbolic-narrative content, or as an assessment of consonance between the different levels, or both. When the hairs go up on the back of your neck, you are being reminded that you are receiving social intelligence *of vital importance!* It might be rendered as:

*On the basis of this evidence (tacit social data and the 'answers' to the concomitant 'style questions') the person revealed has an exceptional combination of abilities and sensibilities;; and these are so congruent, complementary or otherwise relevant to your circumstances, that you must pay close attention.*

We may - sometimes - say that what we are witnessing is 'beautiful'; but what we do in practice is *re-cognise* the importance of the incoming data. Indeed, the phenomenon is by no means only occasioned by beauty. The hairs also behave in this way when confronted with danger for example, or, as in the case of the roller coaster or horror film, the simulacrum of danger. A similar cross-over of alarm and pleasure signals has already been noted with regard to perceptions of snakeskin and other 'alarming' patterns in chapter three. The fact that this experience can indicate both good and bad things, in terms of our reproduction and survival, seems to suggest that (like some of the responses to the colour red) it is a response triggered by *any* factor once critical to our abilities, either to survive, or reproduce, or both.

The variety of circumstances which can prompt these responses is wide, but invariably comes back to behaviour as the most reliable indicator of what the other is really like. So, in the case of singing or the playing of music, it is the immediate experience of the results of the behaviour of the other which delivers the data. Recordings *may* deliver the sensation, if they seem convincing as links to actual performance. Much may depend on context. In the case of, say, a painting, it is the artefact as physical record - the embodiment - of behaviour and, therefore, the evidence of the ability, insight, sensibility and so forth of the artist which prompts the effect. Similar responses might be occasioned by the experience of a building or a garden.

To develop the point made above, it may also be triggered by a *shared* aesthetic experience - of, for example, a landscape, as in the last chapter - where no behaviour is to be detected in the nuances of the physical

surroundings occasioning the sensation; but where the shared response to what is there, is of such overwhelming power that a deeper understanding of the person one is with is delivered.

In each case, the quality and validity of the data delivered is superior to any that might be secured by the operation of reason alone. Indeed, the general principle is worth spelling out: the older (in evolutionary terms) the mechanism on which the response is based, the greater the potential for accurate, valuable and reliable intelligence. Thus, to cite a commonplace example: the words 'I love you' have been uttered millions of times for a variety of reasons, only some of which include those words being true. The manner in which they are uttered (the style) is considered by many the deciding factor in evaluating their apparent import, while (once again) behaviour is the most credible evidence of all.

I propose the importance of the social data as the ultimate cause for this phenomenon. The proximate causes can be bewilderingly diverse. Thus, the modern stamp collector. The collecting of stamps contributes to his sense of identity; some stamps are more highly-prized in his philatelic circle of acquaintances than others. In circumstances where there is a chance he may acquire it, he sees a 'penny black', or some other coveted example. The hairs on his neck stand up - whereas, to the majority of us with no interest in stamps, no such sensation would be occasioned (although it might, by something quite other). To the collector, possession of this rarity may enhance status among others so minded and re-inforce a sense of identity. The physiological reaction alerts him to this potentially important social consequence.

### ***6.9 This model (and others) as tests of existing theory***

I propose the following as a general principle: as has been shown, our shared, evolved history profoundly informs, is inextricably bound up with and enriches our lives today. If we are to understand ourselves more fully than we do, the extent to which this is the case needs to be acknowledged, inquired

into and - once practice makes us confident that we understand that which we are considering - embraced. In doing so, I propose that we have an opportunity to re-evaluate existing theory.

Evolutionary explanations have potential as tests by which other approaches may be assayed for validity: if a pre-existing (or new) analysis, based on evaluating evidence drawn from contemporary and historical cultural data alone can be shown to rest easily on this biological substratum, then that strongly implies that it has validity. If, on the other hand, it is at odds with this understanding, then one of two things must be so: the account of the evolved dimension may be faulty, in which case, more work needs to be done; or the approach based on historical, cultural data alone is not valid as it stands, and it might be the structure in need of refinement, revision, or perhaps, in rare, extreme cases, rejection.

#### **6.10 A theoretical case study: Barthes' semiology**

I have already introduced Barthes into this study. Semiology - at least, in Barthes' early 'scientific', structuralist expositions of it - is a theory which, partly, seeks to explain *how* significances and meanings are attributed, although his political agenda means he is as much pre-occupied with motivation as he is with mechanism. I have claimed that the model I have constructed is a complete account of *mechanism*. Logically, and following the principle outlined above, all other accounts with no evolutionary dimension, yet which seek to account for this important aspect, ought - in their major features, at least - to be congruent with the ideas proposed here. Accordingly, I will now conduct just such an assay. It is not my intention, on this occasion, to make a comprehensive, systematic comparison between the model being developed here and Barthes' semiological approach to cultural criticism, as described in his seminal work *Mythologies*<sup>9</sup>; I will not tease out all the nuances and issues which, in some fuller treatise, usefully might be put into a wider theoretical framework. That would be an instructive (though not inconsiderable) task. Rather, I will engage in a more limited exercise, in which I point out some

differences of approach and some congruencies, in order to show how - in principle - such a method of theoretical 'essay', proposed above, might be worked out.

Barthes' approach - building on the linguistic work on the semiology of language by Saussure - has widely been acknowledged as yielding worthwhile results, such that, as a method, it has been deployed by others to productive effect. He himself came to reject this early treatise, claiming there could not be a 'scientific' approach to critical theory; yet his book remains in print and is still widely read. One of the standard, and most widely-appreciated theoretical works on advertising, *The Decoding of Advertisements*<sup>10</sup> by Judith Williamson, acknowledges its debt to Barthes' semiological method. In *Mythologies*, Barthes devotes more than half the book to a succession of engaging analyses of examples (originally published as journalism) and the remainder to an urgent, lively exposition of his theory. Unfortunately, because it is in translation, and because of its highly specialised re-uses of words both commonplace and obscure, it remains, perhaps, less accessible to many anglophone admirers than it ought.

Barthes pursued an avowedly left-wing, anti-capitalist, anti-bourgeois political agenda and sought to analyse diverse expressions of popular culture (re-using and developing some of Saussure's techniques) which, in his view, operate as a system that he terms *mythology* and according to which, objects - which in this case could as easily be the image of Greta Garbo's face on the cinema screen as anything concrete - have meaning according, not to their 'content' (what they are), but to their location in discourse. As the playwright Denis Potter memorably observed, Barthes' preoccupation was

...the study of the signs and signals, the symbols, gestures and messages through which western society sustains, sells, identifies and yet obscures itself by painting or powdering over its raddled whore-like visage...Barthes' purpose is to tear away masks and demystify the signs, signals and symbols of the language of mass culture.<sup>11</sup>



In principle, Barthes argues, anything (a word, an artefact, an image) may act as a sign. By putting that sign in a context (with its 'signifier') it generates meaning (the 'signified'). He suggests that this is an iterative process, so that this mechanism generates language (where anything, including objects, can work as language); language then, in turn can be used for myth. Thus, an artefact may be placed in a context (discourse, the signifier) and generate meaning as language (the signified); this meaning may then in turn be placed into another, larger context (mythological discourse - another signifier) and generate yet further meaning at the level of myth (in his special sense of the term).

Barthes himself would almost certainly have been hostile to any undertaking which sought to find evolved 'universals' in terms of meaning. He wrote:

Are there objects which are *inevitably* a source of suggestiveness, as Baudelaire suggested about Woman? Certainly not: one can conceive of very ancient myths, but there are no eternal ones; for it is human history which converts reality into speech [meaning the mode of discourse, which is the subject of his study, rather than only speech, as such], and it [history] alone rules the life and death of mythical [in his special sense] language. Ancient or not, mythology can only have an historical foundation, for myth is a type of speech chosen by history: it cannot possibly evolve from the 'nature' of things.<sup>12</sup>

I agree. In chapter four, I have argued that there may well be universal, adaptive objectives, but not that some specific things will inevitably express specific ideas. The proposal in this model that 'any *thing* can mean anything' is identical to his assertion that 'any material can arbitrarily be endowed with meaning'.<sup>13</sup> Further, in illustrating the power of myth, he writes:

In order to grasp the power of motivation in myth, it is enough to reflect for a moment on an extreme case. I have before me a collection of objects so lacking in order that I can find no *meaning* [that is significance at the level of language alone, rather than the 'higher' level of myth]; it would seem that here, deprived of any previous meaning, the form [of myth] could not root its analogy in anything, and that myth is impossible. But what the form can always give one to read is disorder itself: it can give a signification to the absurd, make the absurd itself a myth.<sup>14</sup>

Thus the concept of an *epistemic urge*, which I arrived at by reflecting on and extrapolating from the observations of others regarding biology and evolution, is also a discernible element in his account resting on culture alone.

One further - and critical - example of congruence resides in Barthes' approach to style:

*Style*, at least as I defined it then, is not a form [that is, the stuff of myth], it does not belong to the province of a semiological analysis of Literature. In fact, style is a substance constantly threatened with formalization.<sup>15</sup>

Style, as has been shown in chapters four and five, is a concept central to the present undertaking, in that its embodiment and appraisal serves to unite the sensory-kinetic-affective and symbolic-narrative modes of engagement with artefacts. Barthes' position recognises that style should not be conflated with this second mode, but equally, is alive to the possibility that it may be 'formalized' - that is, manipulated in order to sustain particular symbolic or narrative ('mythic' in his terms) meanings. This is precisely the circumstance where, I argue, the second and third questions of style come into play, that is: assessing the credibility of imputed symbolic-narrative meanings against tacit social intelligence delivered by the physical character of the

artefact; and then making a separate judgement as to consonance between the different levels, as yet a further test of credibility.

It might be thought from this brief outline that, in terms of the relationship between his theory and this biologically-based model, it could be argued that Barthes' semiology - applied exclusively to popular culture, rather than all cultural outputs - corresponds to some aspects of the operation of the symbolic-narrative dimensions, but - given its overwhelmingly linguistic basis - in principle, it has little useful to say about the sensory-kinetic-affective levels. Yet this is not quite the case: in his expositions of his theory through the examples in his journalistic essays (rather than the formal exposition of it which follows), just such sensory-kinetic-affective elements persistently creep in. When considering steak and chips, he is perfectly alive to the power of the sensory experience of *saignant* meat under one's teeth.<sup>16</sup> So too, the sensory-kinetic-affective mode is perfectly recognisable in his account of the exploration to which members of the public subjected the, then, radically new Citroën D.S. 19 (*fig. 37*), referred to in chapter five, when, it will be remembered, the 'bodywork, the lines of union are touched, the upholstery palpated, the seats tried, the doors caressed, the cushions fondled'.<sup>17</sup>

Elsewhere, he remarks:

There are in the *D.S.* the beginnings of a new phenomenology of assembling, as if one progressed from a world where elements are welded to one where they are juxtaposed and held together by sole virtue of their wondrous shape...<sup>18</sup>

Whatever his views on the value or morality of this impression (he does not approve), Barthes is allowing that a part of the Citroën's appeal lay in what, in this evolutionary model, might be referred to as 'tacit social intelligence' arising from sensory and aesthetic pleasure. He is even alive to the reality that sensory, aesthetic data may imply something of methods of

making and, by implication, the character of the maker - even if the maker, in this case (like the giant, knife-wielding 'maker' of the BMW ZX4 in chapter four) is wholly imaginary, and in possession of supernatural powers. And further: he recognises that this is something that those 'fondling', no less than those admiring of the 'wondrous shape[s]' will reflect on, as they consider associating themselves with this extraordinary car.

Thus, Barthes' model measured against this one has numerous points of coincidence and agreement. Indeed, it is sufficiently congruent to have passed the 'assay' test, and can easily be accommodated as a useful tool alongside an evolutionary explanation, such as this one, to explain some aspects of the symbolic-narrative mode of engagement with artefacts (and a few about the sensory-kinetic-affective one).

### **6.11 Evolutionary theory and post-modernism**

I chose Barthes for consideration in this limited exercise because of his persistent currency among design theoreticians. Other approaches might similarly be tested for congruity, but such undertakings - revealing as I suggest they would be - must lie in the future. Of course, as the above exercise makes clear, this novel theoretical approach does not, of itself, supplant all others (which seems, for example, to be the aim of Carroll and his followers in the field of literary criticism). Rather, I argue that it lays out the biological, evolutionary foundations, the bedrock, on which those other approaches - Barthes' semiology, no less than theories of material culture, or Marxian or feminist analyses - insofar as any of them relate to *mechanism*, must rest.

Even so, the approach advocated here is severely at odds with the scepticism and relativism which has characterised much post-modern theory. As noted, Barthes himself later came to reject this 'scientific' structuralist, semiological method discussed above, following Derrida and others to join the post-modernist camp. In design, no less than in the discipline of history, post-modernism delivered a much-needed jolt to some of those adhering to apparent certainties about the nature of their undertakings, encouraging a

wariness of 'Big Ideas' - given the damage some of them seemed to have done - and a refreshing pluralism in terms of whose stories should be judged significant. However, by now, the post-modernist enterprise is looking distinctly tired, as the limitations of scepticism and relativism become ever more apparent. In particular, science has exhibited a profound unwillingness to be relegated to the status of 'just another approach' among many. Scientists make mistakes and the culture of science may reflect the prejudices of those who practise it; however, either its task is to describe what is, or it is not. I do not for one moment advocate an uncritical, headlong rush towards science as delivering instant, novel, objective answers to questions in the field of design. I do, however urge a steady, diligent engagement with it. In particular, I believe we are obliged to reflect on the consequences of the steadily increasing appreciation of the effects of our evolutionary history for our understanding of the lives we lead now. Indeed, while this process has barely begun, I believe it unavoidable. Accordingly, by means of this study, I have tried to open up a larger (and in the future, I hope, somewhat busier) frontier between design theory and evolutionary theory; and have used it to add to the flow of ideas from design towards contemporary evolutionary biological thinking, rather than - as has, hitherto been the case - only have ideas flowing in the opposite direction (and then have them remain largely ignored upon arrival).

### ***6.12 The consequences for designers and their education***

Theory is a legitimate (and entertaining) sphere of human activity in itself, with ends of its own. Designers, however, only need it to the extent that it will enable them to become more effective as designers, that is: devise artefacts which - among those whom such objects are intended to enjoy currency - will prove satisfying. Professional designers are engaged in all manner of activities, from the avowedly ephemeral, where only immediate, contingent needs are met, to producing architecture, towns, cityscapes and other, more durable artefacts, where some longer-term value is aimed at. To

no insignificant degree, they construct our environment. Their education today - rightly - focuses on practice. Mostly, they learn by doing.

However, institutions which seek to educate designers and so prepare them for their professions recognise the value of theory (in this strictly utilitarian sense), and incorporate it into their programmes of study.<sup>19</sup> This has been longer established in the education of architects and artists, than in that of designers; and the fact that, until recently, this element was often referred to in design educational institutions as 'Art History'<sup>20</sup> betrays the fact that systematic theoretical thinking about *design* has crossed the threshold of academia only comparatively recently. Under different guises, design theory has since become an element in strategies for the more effective education of designers, as well as (almost) a discipline in its own right. Much has already been written about the history and theory of design; some of that already sees service in this former, 'useful' role.

My ambitions for the utility of this particular approach to understanding design as far as designers and design education are concerned are comparatively modest: a more complete, clearer insight into the nature of their undertakings, both in terms of the processes by which artefacts are devised (their own practice), and how such objects are engaged with (the experiences of end-users); secondly, just as we seem to be rushing headlong into the virtual, I want vigorously to re-emphasise the value of contemplating *the physical and real*; and finally, to offer confirmation that much that practitioners have long suspected of being real in terms of 'intuition' or 'creativity' has a logic behind it (even if much of that will always remain unseen and unseeable).

The first of these, I suggest, has been explored in sufficient detail in this study, for its implications to be self-evident; to re-rehearse them now would be to repeat much that has already been made plain in detail. The last two however, warrant a little development.

### **6.13 Re-instating the physical and the sensory in design practice**

Among the consequences arising from this study, is a re-affirmation of the centrality of the physical reality of artefacts and of their making as the starting point for understanding much - perhaps most - that is interesting about them, including key aspects of the visual; our physical, sensory, kinetic experiences of artefacts is of the greatest importance. Increasingly designers in many fields are making use of computer-aided design. Indeed, it must not be forgotten that, for designers, despite their often invaluable computer-aided design (CAD) software, actual *model-making*, the literal construction of miniatures, or of full-size mock-ups, or any physical 'trials' of the sophisticated artefacts which come to populate our contemporary, material world, continues to play a central role. It remains an effective, simple and direct means of resolving many of the attendant practical, mechanical, spatial or aesthetic problems. Thus the proposal from Mithen cited in chapter four - that artefacts can sometimes best be understood as a mode of reflexive thought, rather than communication - would seem, in this instance, to be vindicated by contemporary practice.

Most designers will tell you that resolving problems in this way is a satisfying activity. I suggest it is not accidental that such 'hands-on' problem-solving still delivers satisfaction: throughout the world, there are millions who seek out comparable activities, either in a professional capacity, pursuing a trade or craft; or, still more commonly, in the discharge of private duties, or in the pursuit of pleasures or pastimes. These can include cooking, gardening, home decorating, car mechanics, model-making, jig-saw puzzles, origami or countless other similar popular activities. I cite the universality of these manual practices - even when alternatives are often available - as evidence that these pleasures from manual dexterity and creativity are very old; and, indeed, that they are evolved.

Of course, virtual problem-solving is also pleasurable; but, for as long as we are obliged to share (and construct) our physical environment, I suggest

paying close attention to the physical reality of things needs, still, to be at the heart of design and designing.

#### **6.14 *Confirming the value of intuition***

The practice of design, despite numerous attempts to systematise it (as, for example, at the Bauhaus, or the Ulm Hochschule für Gestaltung, or more practically - but with equally little success - the Royal Institute of British Architects in the 1960s<sup>21</sup>) remains a mix of the reasoned, logical and conscious, and the intuitive and subconscious. The word 'intuitive' is often used in unhelpfully loose ways to account for all manner of apparently valuable but superficially mysterious, irrational or inexplicable behaviour. I use it here in a precise way: I intend it to mean that which an individual taps into, the mental mechanisms and sensibilities - such as that relating to style and tacit social intelligence, just described - which are the products of long, evolutionary refinement. These intuitive impulses interact with and inform overt analysis, reasoning and logic. Whatever the value of intelligent reasoning (and it is considerable), I would suggest that the most successful designers, like the majority of the most valued, creative artists in all other fields, in all other societies, and in all other cultures have a deep respect for those aspects of the creative process which are, in this precise sense, 'intuitive', because it is these which are most likely to produce results which they, the designers, will find satisfying, and which, more importantly, others are likely to find genuinely affective and meaningful.

Indeed, this is a commonplace of the creative process, when that process is conducted at a high level: artists may speak of being 'lost' in their work; writers, of passages 'which seem to write themselves'; and designers are no different in this respect: sustained periods of hard work on a problem may enable a period of more relaxed 'incubation', during which little is done; and then - for some at least - the 'eureka moment'; and for others a gradual but no less real 'creative' resolution. Apparently fanciful notions such as 'the muse' being with one, or acting as a 'channel' for some exterior source of inspiration



are rooted in human experience. Alexander Moulton, the designer of the ingenious and once famous Moulton bicycle described the process thus:

Thinking is a hard cerebral process. It mustn't be imagined that any of these problems are solved without a great deal of thought. You must drain yourself. The thing must be observed in the mind and turned over and over again in a three-dimensional sort of way. And when you have gone through this process you can let the computer in the mind, or whatever it is, chunter around while you pick up another problem.<sup>22</sup>

All successful designers are obliged to exploit the workings of this 'computer in the mind'. Given the multi-dimensional problem-solving designers are called on to reconcile (by which I do not just mean spatial, but technical, practical, social, aesthetic, moral problems, etc.), it should not surprise us that such evolved neural machinery is brought into play. The mechanisms at work are precisely those mental apparatuses which are the products of millions of years of natural selection, and they are - more or less - in all of us, though not everyone has the opportunity to set them in motion. Yet when they are, the sophistication, refinement, and subtlety which often characterise the resultant creations are expressions of this monumental, genetic accumulation. As some of them may be made up of open-ended, ontological developmental brain modules, so it must be that, if they are to flourish, our potential designers must be given opportunities for practice from an early age.

I invite designers to acquaint themselves with these novel insights. I offer them as a description of what I believe happens; they are categorically not a prescription for successful design. As implied above, no overt 'system' on its own will ever supplant the intuitive dimension of design. Indeed, I suggest that the fact that this evolutionary model recognises that truth, and accommodates such sensibilities, is a key feature which lends it credibility. Although there is much to suggest that practice and habits of mind help, no one can contrive by acts of will alone to tap into these intuitive states. As Moulton

indicates, one has simply to work at a problem using logic and reason, and then allow oneself be open to the possibility that they may 'kick in'.

### **6.15 Evolution, culture and change**

A parallel study, comparable in size to this one (or possibly considerably bigger) could be written about the relationship of our evolutionary history to contemporary life. Following the horrors perpetrated in Nazi Germany, which were rationalised at the time on the basis of the supposed science of eugenics derived, in part, from crass readings of Darwin's central ideas, a post-war climate emerged in which explanations of human behaviour more or less vigorously eschewed any discussion of an evolutionary dimension. Apart from recent history, at the core of this taboo was the fear that evolution might be invoked to identify genetically-determined characteristics, at a time when the aspiration was towards greater improvement, modernisation and progress - not only in the realm of science and technology, but in terms of human behaviour and social responsibility as well. If human characteristics were 'givens', how could there be improvement?

Wilson's *Sociobiology*<sup>23</sup> re-ignited the debate in 1978 and controversy has accompanied it ever since. Things were not helped when neoconservatives such as Richard Herrnstein and Charles Murray crudely deployed ideas about genetic inheritance to further political ends. Herrnstein and Murray proposed in their now discredited study *The Bell Curve*,<sup>24</sup> that black Americans and Latinos were genetically less intelligent than their white counterparts, and that the American welfare system should stop - as they saw it - subsidising poor ignorant mothers to have numerous unintelligent offspring. Similarly - although more credibly - when in 2000 Thornhill co-authored a paper with anthropologist Craig Palmer in *The Sciences* entitled 'Why Men Rape'<sup>25</sup> claiming both that rape was evolved and natural, there was a predictable outcry; this, despite their collective assertion that 'the fact that rape in an ancient part of human nature in no way excuses the rapist'<sup>26</sup> and that they were using the terms 'natural' and 'biological' solely to indicate that they were 'of life', rather than

inevitable. Plainly, with evolution, one has to be careful. In general, neither social scientists nor feminists have initially warmed to the evolutionary agenda.<sup>27</sup>

I dwell briefly on this apparently tangential background material, because it helps explain something of the tenacity with which many seek to discount evolution as anything but a marginal factor - if that - in the workings of human culture. Some, one surmises, do so from the best of intentions, believing that the more rhetorical and strident phenomena which reach the pages of newspapers represent the whole; others may dismiss it as just the most recent of fashions among the fashions in ideas; whilst others, one suspects, including many in the realm of material culture and design, have vested interests in avoiding complicating terrains they have traditionally regarded as both 'artistic', rather than scientific, and their own. Indeed, the conventional perception of an antipathy between the arts and the sciences has done little to resolve this dilemma.

In their admirable book *Sense and Nonsense*,<sup>28</sup> Kevin Laland and Gillian Brown give an overview of the key positions in this debate from Wilson onwards, namely: sociobiology, behavioural ecology, evolutionary psychology and gene-culture co-evolution. I cannot settle the disputes covered by these disparate positions here but, on the basis of the limited evidence assembled and arguments mounted in this study, I can suggest something of what this relationship between evolution and culture may be.

Plainly, I do not think that the ability to attribute significance and meaning to artefacts is a product of culture alone, operating independently of biology or genetics. I believe I have shown that we each embody countless physical and psychological characteristics which are the products of our evolutionary history, and that these profoundly inform how and why we engage with artefacts. In this context, each of the key features which make up the model described in the previous chapter needs to be thought of as consisting of *mechanism* and *content*. I argue that the more recently evolved the mechanism, the more susceptible it is to processing content which arises from

contingent cultural factors. Thus, in the oldest element relating to reflexes, senses and perceptions, there is no such susceptibility: mechanism and content are wholly genetically determined. Almost everyone, setting aside disability or injury, feels the weight of an object, its smoothness, coolness or warmth in the same ways.

The more recently evolved affective, technical and aesthetic sensibilities are built out of these sensory<sup>29</sup> inputs; but in this case, the mechanisms - that is, the *ability* to exercise these faculties - is delivered by our genetic make-up, but content *may* be informed by evolutionary imperatives, but may also vary somewhat according to contingent environmental factors. Thus, aesthetic pleasure at a smooth, well-proportioned form (such as the watering pot) may, as noted, partly be a legacy of the importance in our evolutionary environment of discriminating between say, sound or rotting fruit; whereas the satisfaction of using an effective tool is not confined to any particular form of tool, but may result from whatever local practice has contingently been developed.

I suggest that the sensibility towards style is an evolved mechanism which once contributed to the adaptive advantage of successfully negotiating social relationships by predicting the probable behaviour of others; and that (with the caveats regarding changed circumstances given in the previous chapter) it continues to do this. The content here can potentially be still more variable, as anything - any created thing, in fact - can be the bearer of tacit social intelligence.<sup>30</sup> Once again, that which is contingently available can be made use of.

Finally, if this is true for the sensibility towards style, then it is still more so with regard to our capacity to ascribe symbolic or narrative meanings to artefacts. I repeat, the capacity is evolved, because it has been selected for on the basis that it delivered adaptive advantages (the ultimate causes for its existence); but that as far as content is concerned (the proximate causes for its particular workings), as discussed, any thing can mean anything. To say that it can is not the same as saying that it will. I am not implying that ascribing

symbolic or narrative meaning is invariably wide open, that the process operates on a *tabula rasa*, where only that which culture alone has generated sets the agenda. This is for two reasons: firstly, as noted, symbolic or narrative meanings may be built on the data from the sensory-kinetic-affective mode. As the preferences that account for this are - as described in chapter three - often based on adaptive biases, so these may affect the character of symbolic meanings generated when this part of the mechanism comes into play. Secondly - as with the workings of all the mechanisms subsumed in the model - the mechanisms themselves have evolved to further adaptive advantages. As the work of Carroll implies (though I might place less emphasis on the importance of inclusive fitness), on average, some adaptive goals will persist and inform just which symbolic or narrative meanings are ascribed. In the pursuit of these objectives, however, countless variations in how they may be achieved will suggest themselves - some of which will permit symbolic meanings to be ascribed with little or no reference to data from the other, older half of the model.

I tentatively proposed such an agenda in chapter four and reproduce it now for convenience:

1. the securing of resources;
2. the passing on of genes, including -
3. the furthering of inclusive fitness;
4. the mediating of relationships within a group;
5. the mediating of relationships between groups;
6. the expression - as conscious beings - of an individual sense of identity;
7. the expression of an all-embracing account of the world (religious or scientific).<sup>31</sup>

On the basis of this study, I suggest that culture alone is incapable, on average, of wholly cancelling out the effects of evolved imperatives, as some have claimed; that unlike natural selection, it involves intention and therefore

operates in a Lamarckian, rather than a Darwinian fashion; but that it is deeply embedded in and, indeed, only made possible by the consequences of our evolved history. This is not to suggest in some panglossian way that everything and anything is adaptive, when changed circumstances, conflicting adaptations and common sense so obviously and regularly suggest otherwise.<sup>32</sup>

I propose that this study would probably correspond with and support most closely the position of the gene-culture co-evolutionists, where the 'dual-inheritance' of both biology and culture is acknowledged and where the agenda is about clarifying how each operates and interacts with the other. As noted, I take issue with evolutionary psychologists, Cosmides' and Tooby's extreme modular view of the brain; nonetheless, I take it as evidence that more unites some of these schools of thought than divides them, that I can agree more or less completely with one of their descriptions of culture. 'Culture', they write, should be viewed as:

...the manufactured product of evolved psychological mechanisms situated in individuals living in groups. Culture and human social behaviour is complexly variable, but not because the human mind is a social product, a blank slate, or an externally-programmed general-purpose computer, lacking a richly defined, evolved structure. Instead, human culture and social behavior is richly variable because it is generated by an incredibly intricate, contingent set of functional programs that use and process information from the world, including information that is provided both intentionally and unintentionally by other human beings.<sup>33</sup>

This theme of the relationship of culture to biology is likely to grow to become ever more prominent in debates about human culture in general; eventually, I suggest, it will figure more as a matter of course in discussions attendant on art and design.

### **6.16 *Is the model a suite of genuine adaptations?***

In chapter one, I asked if our ability to attribute significance and meaning to artefacts represented a suite of inter-linked adaptations. Then - in the absence of a fully-developed theoretical model - I proposed that it does, and entered an interim argument that, to the extent that the attribution of significance and meaning to artefacts contributes to the stories by which we identify ourselves, it also strengthened our sense of identity; and that in conscious humans, a strong sense of identity is a necessary foundation for the will to live, and to survive (and therefore stand any chance of reproducing).

Now that the case has been more fully developed, I return to the criteria given in that opening chapter for identifying an adaptation: The first, that it be species typical, was met then; the second from Thornhill (and echoing a similar one from Ridley<sup>34</sup>) demanded that it should be 'a phenotypic feature that is so precisely organised for some apparent purpose that chance cannot be the explanation of the feature's existence.'<sup>35</sup> On the basis of the full arguments mounted in this study, I assert that the case for the inter-related adaptations constituting the model being 'well-fitted' to our physical and social environment is proven. Firstly, the mechanisms described enable us immediately to negotiate the social, by investing the physical with significance and meaning; secondly, it enables us rapidly to re-imagine the social significances and meanings ascribed to our physical environments, thereby facilitating *re-adaptation* to both our social and physical environments as the one or the other changes, or both change.

I introduced a further test by which an adaptation might be identified: that it originated as an expression of, and is sustained by, genes. I proposed then that archaeological evidence - which I have since cited - points to the genetic origins of the suite of abilities which make up the ability to attribute significance and meaning to the material world, including artefacts. I argue that each of these abilities is genetic in origin and that they co-evolved to operate effectively; and further, that - apart from disability or injury - such is their universal deployment among humans across history, irrespective of culture or location, the strong

inference must be that they are maintained by genes, rather than culture (to which, as indicated, I suggest they make a significant, indeed inescapable, contribution).

The next test required that a character must help its bearer survive and reproduce. That too, I believe, has been demonstrated: our attribution of significance and meaning to artefacts is primarily a strategy for adapting to our social environment more effectively, by enabling us to affect or predict the likely behaviour of others in the future *through artefacts*, just as others will with regard to ourselves. At different times in our lives, and in some circumstances, part of those negotiations is sexual, with consequences for successful reproduction. Some of these negotiations may have consequences for the reproductive chances of our relatives; but I do not believe we operate chiefly as 'inclusive fitness maximisers', as some sociobiologists have argued but that, at best, we may do so intermittently. Even if some relationships may be non-reproductive, yet have consequences for inclusive fitness, I argue that overall these adaptations support both survival and reproduction. Inclusive fitness is an element in that larger picture. This wider remit includes the successful social negotiation by the individual of his social environment in order to avoid danger, identify allies and survive.

The last test demanded that an adaptation be purposive, complex, and among 'the sorts of characters that before Darwin would have suggested the existence of God.'<sup>36</sup> Again, on the basis of the full argument presented in this study - including the summary laid out here - I propose that its purposiveness is consistent and overwhelming; while its complex and subtle workings - even if, in our own age, they do not warrant a divine explanation - are, nonetheless, wondrous to behold.

### **6.17 A summary of findings**

Hitherto, most studies inquiring into how our engagement with artefacts has evolved have focused on a variety of disparate aspects, such as, for example, perceptual biases, cognition, artefacts as signals, 'art', aesthetics, 'beauty', tool-making, or engineering. I have, instead, proposed a model which seeks thoroughly to integrate or account for these diverse aspects of our engagement with artefacts



(and some others), and which, I assert, accommodates *all* the ways in which we attribute significance and meaning to artefacts. This model is, I claim, a product of our evolutionary history.

In summarising its key features, I will initially describe it in terms of the 'makers' or 'designers' of artefacts on the one hand, and 'appraisers' , on the other; however, as will be re-iterated shortly, it has applications beyond such immediate circumstances of artefact generation.

I propose that - aside from their practical advantages, artefacts may be regarded as *accumulations of behaviour*; that in our evolutionary past, individuals were highly-attuned to interpret behaviour - or, as in artefacts, the consequences of that behaviour - in order better to predict how others might behave towards them, and therefore, affect their chances of surviving and reproducing. The model, it is argued, is partly a consequence of this sustained, evolutionary imperative.

It consists of two halves which I have called the *sensory-kinetic-affective* and the *symbolic-narrative* modes of engagement.

I propose that these two modes are made up of a number of levels, each progressively more recently evolved than the last; and that each level functions according to the hybrid structure of our evolved brains. Thus in the first sensory-kinetic-affective mode, it is acknowledged that we engage with our created, environment through our reflexes, senses (which, critically, include both touch and our kinetic senses) and perceptions, all three of which I have, for the purposes of this study, subsumed under the term, the *sensory level*; out of the data which this level delivers, I propose that we build two principal types of pleasure: that which derives from the physical sense of how things work, which I have referred to as a *technical pleasure*; and *aesthetic pleasure*.

A subset of our aesthetic responses is peculiar to the appraisal of created, rather than found things; I refer to this subset as a sensibility towards *style* - 'the manner in which the thing is done'. This sensibility is, potentially, highly attuned to detecting nuances of form, texture, finish, colour - every aspect, in fact, of the physical reality of things - with the purpose of intuiting something of the character, make-up and therefore, likely future behaviour of the maker. I call this resultant

data *tacit social intelligence*, and suggest that recognition of such data in an artefact - where the impression of the maker is positive - can deliver yet another kind of pleasure. These, then, are the levels which together, make-up the *sensory-kinetic-affective* mode of engagement. I intend 'sensory' - as above - to stand for the reflexive, sensory and perceptual; 'kinetic' to stand for kinetic (sensory) sense, which is often overlooked; and affective to refer to all the emotions prompted by these types of engagement, but most especially technical and aesthetic sensibilities.

The second half of this model is the *symbolic-narrative* mode. Depending on the character of the data delivered by the first mode, it is open to makers or designers to seek consonance between sensory-kinetic-affective qualities and the symbolic or narrative meanings the artefact is intended to bear. In particular, as the *tacit social intelligence* (arising from style, or, more properly, a sensibility towards style) refers to behavioural qualities, it can be critical in determining what these symbolic or narrative meanings can be.

As indicated above, although described here in terms of 'maker' or 'designer' and 'appraiser', I propose that, unaltered, the same model can explain how artefacts have significance and meaning in successive physical and social environments where, depending on context, mere possession or association with the artefact means that an individual is seen by others as being sympathetic to the behavioural qualities it embodies.

I propose that a summary of the workings of this model of how significance and meaning can be attributed to artefacts can be expressed thus:

**A. Significance arises by the sensory-kinetic-affective mode, as a result of:**

1. *reflexive, sensory and perceptual responses;*
2. *technical and aesthetic appreciation arising from 1;*
3. *tacit social intelligence arising from evaluating 1 and 2 (the first judgement of style).*

**B. Meaning arises by the symbolic-narrative mode, as a result of:**

4. *more or less satisfying symbolic-narrative meanings, arising out of its interplay with different physical and social contexts; and either*
  - a) *consonant with 1 - 3 (the second judgement of style, delivering further social intelligence); or*
  - b) *fashioned with little or no such consonance;*

**C. Significance or meaning or both can arise by means of evaluating the degree of consonance between levels of both modes from 1 - 4a (the third judgement of style, delivering yet more tacit social intelligence); and subsequently from**

5. *change in any of numbers 1 - 4 (including a + b), generating new significances, or meanings;*
6. *as 5, until the artefact is no more.*

Although I argue that this model is complete, in describing its elements in linear, linguistic terms, I am not suggesting that they operate in their entirety, all the time, or that we experience their workings as sequential 'events'. On the contrary, the experience may seem virtually instantaneous; artefacts may be apprehended through the sensory-kinetic-affective mode alone; or by the symbolic-narrative one, with little or no reference to the sensory-kinetic-affective one; and that an artefact may migrate from exclusive apprehension in one mode to the other and back again. The non-linear workings of this model account for the near infinite variety of meanings and significances artefacts may have bestowed on them, and thus, its flexibility in the face of physical or social environmental change.

I claim that makers or designers may occasionally create artefacts with little or no regard for their power as agents of *social mediation*, (as, for example, among contemporary designers, where artefacts are used as a mode of reflexive, practical, problem-solving thought) but that in the majority of cases, this social dimension is acknowledged and pursued in terms of the artefact's physical make-up.

I further claim that the sensibility towards style is recursive, that is, it is applied to artefacts in three specific ways (each working on successively larger bodies of evidence), which I refer to as the *three questions of style*.

The sensibility towards style delivers (on average) reliable tacit social intelligence by -

1. *assessing data delivered by interrogating the physical make-up of the artefacts ('What does its physical make-up tell me about the maker? - the first judgement of style);*
2. *using the tacit social intelligence from 1, a judgement is arrived at as to its degree of consonance with proposed symbolic-narrative meanings (To what extent is the sense of the character of the maker from the sensory-kinetic-affective mode in agreement with the symbolic or narrative meaning I am being asked to ascribe this artefact? - resulting in the second question of style);*
3. *finally, by making a judgement as to the degree of consonance running through all levels, that is: the sensory, the affective and the symbolic-narrative level ('Am I persuaded that this is a reliable, convincing whole? - resulting in the third question of style).*

These workings are sequential to the extent that neither the second nor third question can be made without the first, but then either or both may follow. Once again, I do not mean to imply that we are consciously aware of its workings, or that we are normally necessarily aware of this as a sequence of events. On the contrary, I suggest that parts of them work at the level of the subconscious, occasionally breaking through into conscious thought; and that, to the extent that we are aware of them, their workings can sometimes seem instantaneous and at others, a long-drawn-out process.

I claim that this model evolved among our ancestors, for whom individual craft production was the norm. However, I further argue that, so deep-rooted is it in our psyche, we have come to deploy it in appraising artefacts which are the products of collective endeavour, or of machine-made origin, and of some aspects of the natural environment. In each such case, *even though there is no such individual maker* we appraise as if there were. We respond positively or negatively

in all three circumstances, where we gain an impression of an individual to whom we would respond positively.

Thus, even where we make artefacts which self-consciously celebrate their machine-made origins, the aesthetic judgements we apply continue to operate *as if* the artefact were made by hand, and *as if* interrogating them will deliver tacit social intelligence. This is so, because it does: the cues to behaviour continue to be prized in artefacts, and are thus favoured and incorporated into our designing; when we appraise, we continue to scrutinise the physical make-up of the artefact for just such signs. The workings of this mechanism are poorly understood at the theoretical level - which this study seeks to begin to correct - but very well understood at the level of practice and everyday life.

I further claim that this model accurately describes contemporary human practices, irrespective of culture or location; that it has worked in these ways since the emergence of the modern human mind (capable of consciousness, abstract and symbolic thought) some 50,000 to 100,000 or more years ago; and that all of its mechanisms and some of its content can best be understood as products of our evolutionary history.

To support this assertion, I have established plausible evolutionary accounts for the origins of each one of the elements described. Thus, in chapter two, I outline something of the debates surrounding the origins of our kinetic sense and technical appreciation of artefacts (our origins as tool makers and tool users); in chapter three I give accounts of the origins of all of the other sensory means by which we apprehend artefacts, as well as of our aesthetic sensibilities; in chapter four I introduce the concept of tacit social intelligence and begin to explain the workings of the sensibility towards style, as a preliminary to making the case for thinking of the symbolic and narrative uses of artefacts as yet another evolved faculty.

Finally, in chapter five, I make the case for believing that the manner in which each half of the model operates, no less than that of the model as a whole, can partly be explained by the sequence in which they emerged, relative to each other, and to the other two evolved social mediatory phenomena: behaviour and

language. I argue that each arose from and was informed by its predecessor; and that each made possible and informed that which followed it. Thus, it is argued that behaviour is the oldest social-regulatory medium and remains to this day the most reliable guide to the character and therefore likely guide as to the behaviour of others in the future. Behaviour is, in that sense, the 'gold standard' for predicting behaviour, with all other methods - such as this one, or language - being derivative, inferior, or both.

Artefacts may degrade or otherwise age, and these altered physical states will deliver modified or quite different tacit social data (as the changes also represent behaviour) and this can be used to support symbolic or narrative meanings quite other than those the artefact may have had ascribed to them when new.

However, symbolic practice may be arbitrary. This is true in language (which this symbolic use of artefacts may have preceded and prefigured, or with which it co-evolved) or in the negotiation of relationships by means of artefacts. Symbolic meaning in artefacts - as in language - is a product of the interaction of the object (or word) with context, where context includes both physical and social. Thus at the symbolic-narrative level, which meaning is ascribed to what, need not be constrained by this other mode of engagement, nor indeed, by anything else; which is why, as noted, any *thing* can mean anything.

Perhaps the largest claim I make with regard to theory, is that all others which make no reference to our evolved history, yet seek to explain the *mechanism* by which humans attribute significance and meaning to artefacts, must convincingly rest on this, the evolved substratum, or be judged wanting. I do not make this claim lightly, nor do I seek to antagonise. However, I argue that if these arguments are accepted, then this is *inevitably* the corollary. By way of illustration, I have conducted a limited exercise with regard to semiology as espoused by Barthes, in his study *Mythologies*.

### **6.18 Some concluding remarks**

I will offer some final observations.

I have concentrated in some detail on the ways in which, I believe, we use artefacts to mediate social relationships. In doing so, I have acknowledged the primacy of witnessed behaviour and the dividends and shortcomings of language. It must be clearly understood that the operation of this mechanism of attributing significance and meaning to artefacts does not occur in a vacuum; that the social intelligence it delivers, the signals it may send, and therefore the relationships to which it gives expression happen in social environments where these other channels of social mediation also operate. In such circumstances, the data an engagement with artefacts delivers will always be but one factor amongst a host of other social clues from alternative - and in the case of behaviour, superior - sources; as such, it may not only modify the intelligence from those alternatives, but itself be subject to confirmation, qualification or outright contradiction. As one commentator on mass production and its fruits wrote towards the end of the last century:

Objects, products, goods purchased help us define ourselves to ourselves and to others; the things with which we surround ourselves help to tell us and others who we think we are. In design, as in home photography, mechanical replication has the potential to assist in the creation of authentic realities, authentic accounts of the self. And it should be noted that authentic in this context means legitimate, but not superior and not complete.<sup>37</sup>

Of the avenues as yet unexplored, I acknowledged two important ones in the introduction: that of our bodies as artefacts, and food. Similarly, I allowed that large-scale artefacts - buildings, cities, cultivated landscapes and so on - received scant consideration here, and the workings of created interiors might be added to that list. Further work extrapolating the ideas articulated here so as to apply them to the analysis of these environments (which, I would

argue, embody *ambient social intelligence*) would be fascinating. There are more: I have barely touched on what happened to spoken language once it became written down, in other words, once language became turned into artefacts and escaped the temporal inflexibility of spoken language to join its temporally more fluid, tangible counterparts in the mediating of relationships across time and space, with profound consequences for the accumulation of knowledge and understanding. On the theoretical front, post-modernism may warrant further attention (although the edifice is now so shaky, the debate may not take place in time). Finally, given the emphasis I believe we must accord both to the influence on ourselves of the physical character of our ancestors' engagement with their successive evolutionary environments, and the critical contribution of millennia of fashioning artefacts using craft skills, in our own age, there is much scope for reflection on the consequences of developing the virtual and of our inhabiting it. If, because of the legacy of our shared, evolutionary past, machine-made artefacts are - in the way described in this study - paradoxical reiterations of craft conventions, how will these pertain if the artefact slips out of the realm of physical reality and, perhaps, ourselves with it?

One further thought: it may be that the model described here - with or without modification - could be applied with advantage in any other spheres of human activity in which humans act, and where there is an expression of that action. This might include dance, or music, or even conversation - anything, in fact, where the expression or record of the action may be subject to scrutiny; in short, where judgements of style are made.

I digress. If the reader has wearied of protestations that much lies in the future, my only defence is that I have been wholly pre-occupied with the magnitude of the task in hand. That which I have omitted cannot properly be addressed, I suggest, until this essential, preliminary work is completed. As I conceded at the outset of this study, any work which embraces many different disciplines will inevitably leave some specialists unsatisfied. As I conclude it, I am conscious that there will certainly be those who will identify a further



nuance I might have acknowledged and, just as certainly, yet another source from which I might have benefited. In mitigation, I repeat: I conceived of this work as a necessary initial foray, into what I hope will turn out to be a fruitful field of inquiry. I sincerely hope those nuances and those further sources will be attended to; and I look forward to undertaking some of this work myself. Pleasure, as I have indicated, is broadly adaptive, and whilst I have tried to be thorough, diligent and rigorous, I have also much enjoyed myself on the way. If, as I believe, there is a great deal more to be gained from such reflections, then no one discipline - nor indeed, individual point of view - can claim a monopoly of insight. I set out from the discipline of design history and theory and moved towards others with which I was not then familiar. Even now, there are areas I have left untouched. I have done what I can.

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<sup>1</sup> Dissanayake, E., 'Sociobiology and the Arts; Problems and Prospects', in Bedaux, J. B. B. and Cooke, B., (eds.) *Sociobiology and the Arts*, Editions Rodopi, Amsterdam/ Atlanta, GA, 1999, p.37

<sup>2</sup> Voland, E., 'Aesthetic Preferences in the World of Artifacts', in Voland, E., and Grammer, K., (eds.) *Evolutionary Aesthetics*, Springer, Heidelberg, 2003, p. 243

<sup>3</sup> Veblen, T., *The Theory of the Leisure Class*, Prometheus Books, New York, 1998 (orig. 1899), p. 128

<sup>4</sup> Veblen, p. 151

<sup>5</sup> Coss, R. G., 'The Role of Evolved Perceptual Biases in Art and Design', in Voland, E., and Grammer, K., (eds.) *Evolutionary Aesthetics*, Springer, Heidelberg, 2003, p. 88

<sup>6</sup> How many people have found pebbles and stones more attractive at the beach when wet, than when they get them home and they are dry? The polishing of gemstones - arguably - is a process designed to re-create that wetness, and make it permanent, rather than transient.

<sup>7</sup> Suggested in conversation by Evelyn Edwards. I recently bought - for my own use at home - a new Apple iMac. it is finished in white and chrome, with the Apple logo placed conspicuously at the front of the domed base, on which the hinged flat screen is mounted. It has the slightly disconcerting effect of presenting one with a lively mirror image of one's own face framed by the logo. I have no idea if this is an intentional effect or not.

<sup>8</sup> Batchelor, R., *Henry Ford: Mass production, Modernism and design*, Manchester University Press, Manchester, 1994

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<sup>9</sup> Barthes, R., *Mythologies*, selected and translated from the French by Annette Lavers, Vintage, London, 1993 (orig. French, Edition du Seuil, Paris, 1957)

<sup>10</sup> Williamson, J., *Decoding Advertisements*, Marion Boyars, New York, 1979

<sup>11</sup> A review from *The Times*, London, cited on the cover of this edition of Barthes' study.

<sup>12</sup> Barthes, p. 110

<sup>13</sup> Barthes, p. 110

<sup>14</sup> Barthes, p. 126

<sup>15</sup> Barthes, p. 134, n. 12

<sup>16</sup> Barthes, p. 62

<sup>17</sup> Barthes, p. 90

<sup>18</sup> Barthes, pp. 88-89

<sup>19</sup> The Historical and Critical Studies strand to courses offered by the Faculty of Design at Buckinghamshire Chilterns University College represents one approach to this practice. Some maintain that theory was only introduced onto design courses in order to lend them some academic credibility (in the narrow, superficial sense) when they 'graduated' from vocational to degree courses. While this may have been among the reasons for the innovation, I would argue such theoretical elements have now proven their practical worth.

<sup>20</sup> Some older, less alert members of the educational profession still do.

<sup>21</sup> Discussed by Lawson, B., *How Designers Think*, Architectural Press, Oxford, 2000, pp. 31-35

<sup>22</sup> Quoted by Lawson, p. 154

<sup>23</sup> I am familiar with the work through Wilson's own, later abridgement (omitting much technical material): Wilson, E. O., *Sociobiology: The Abridged Edition*, The Belknap Press of Harvard University Press, Cambridge, Massachusetts, USA and London, 1998

<sup>24</sup> Herrnstein, R. J., and Murray, C., *The Bell Curve: Intelligence and Class Structure in American Life*, Free Press, New York, 1994; reviewed by Bouchard Jr., T. J. and Dorfman, D. D., 'Two Views of *The Bell Curve*', *Contemporary Psychology*, vol. 40 issue 5, May 1995

<sup>25</sup> Thornhill, R., and Palmer, C. T., 'Why Men Rape', *The Sciences*, New York Academy of Sciences, New York, January/February 2000, reproduced on website <http://iranscope.ghandichi.com/Anthology/Women/rape.htm> visited 02.10.04

<sup>26</sup> Thornhill and Palmer

<sup>27</sup> Episodes of the kind referred to - replete with occasional wilful misrepresentation on the part of some advocates and genuine misunderstanding on the part of sections of the public and press - help explain why this is so. It cannot last. Some measure of scepticism (as *The Bell Curve* furore demonstrated) is healthy; yet if the feminist agenda, for example, is a legitimate one (substantially, I think it is), it cannot be fought for on the basis of wilful rejection of inconvenient knowledge.

<sup>28</sup> Laland, K. N., and Brown, G. R., *Sense and Nonsense: Evolutionary Perspectives on Human Behaviour*, Oxford University Press, Oxford, 2002

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<sup>29</sup> That is, 'sensory', as defined at the end of chapter three, including reflexes and perceptions as well as senses as such.

<sup>30</sup> Found things can also bear tacit social intelligence, provided an *action* or *intention* have been brought to bear on them. Thus shells might be arranged on a bathroom shelf, or a loved one may be taken to an 'unspoilt' tropical beach.

<sup>31</sup> Others (such as Thornhill, to mention just one) have produced other agendas and while I stand by this one as plausible, I allow that further work may well be needed accurately to pinpoint just what these objectives may be. Thornhill, R., 'Darwinian Aesthetics Informs Traditional Aesthetics', in Voland, E., and Grammer, K., (eds.) *Evolutionary Aesthetics*, Springer, Heidelberg, 2003, pp. 27-30

<sup>32</sup> It could be argued that what we are now witnessing is the playing out of a rivalry between two adaptations which once delivered adaptive advantages, but which have come to be mutually incompatible: male aggression and the capacity to imagine what another is thinking, and therefore, what it is like to be another. When such ingenuity and political capital invested in warfare are combined with such wholesale failures of the imagination, it is by no means certain how this conflict will ultimately end.

<sup>33</sup> L. Cosmides, J. Tooby, and J. H. Barkow, 'The Psychological Foundations of Culture', J. H. Barkow, L. Cosmides, J. Tooby, *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*, Oxford University Press, New York and Oxford, 1995, (orig. 1992), p. 24

<sup>34</sup> Ridley, p. 365

<sup>35</sup> Thornhill, p.13

<sup>36</sup> Ridley, M., *Evolution*, Blackwell Science, London, 1996 (CD-ROM)

<sup>37</sup> Batchelor, p. 142.