The God of the Artefacts

On the task of the designer: to create bearers of qualities

by Björn Linn

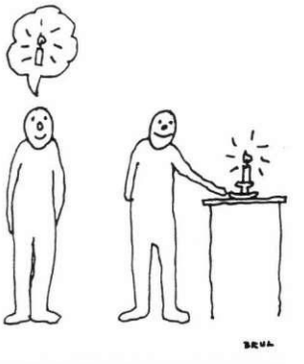
A DESIGN THEORY which focusses on conscious, deliberate design work, step by well-defined step, partly misses the point. We have to achieve a theory which will grasp work on the unconscious, second-class, routine level, as this will always be the bulk of it.

Knowledge is here a more relevant concept than *intelligence*, as the former also includes higher human faculties like judgment. We always have to choose during the design process, a moment which cannot be automatized.

When discussing design, you have to look not only at the objects to be designed, but also at the relation of these – and of yourself – to the world, even seen in a very large perspective.

In *The Man Without Qualities*, Robert Musil points to a change in the relations between individual and environment which was beginning to be felt before the first World War, in the prototype of modern society which was Vienna of those days. Experiences were losing their deeply personal meaning and appeared as connected with one another into sets which seemed ready-made. You met these more as a non-committed spectator, noting them like information, than in the role of somebody deeply concerned. What was right with regard to circumstances was more apparent than what was right when related to the person, and so responsibility was more circumstantial than personal, says Musil. Qualities seemed to be floating about, without any permanent attachment. Musil's hero, Ulrich, felt himself a man without qualities, consisting of qualities without a man.

Qualities are the basic matter of all our experiences. We perceive them immediately, while quantities have to be processed intellectually (and there are continuing problems in handling them, as all attempts at comprehensive planning show). It is a well-known fact that a monotonous environment, where nothing different can be seen



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whether you turn your head or wait, acts destructively on the mind. This has been exploited in different kinds of maltreatment of people, like hard prison and brainwashing. We depend for our health on being able to experience ever varying qualities in our environment.

In the man-environment relation, qualities thus are a key concept. The great process of adapting the environment to human use – or as it could be described, *humanizing* it – continuously involves modifying or preserving qualities. But where do we *locate* these qualities? This is a question far from being as simple as it sounds. It is of fundamental importance to architects and designers, whose tasks concern these qualities.

Now the English term *quality* is much less expressive than its German counterpart, *Eigenschaft*. "Eigen" denotes a *property*, something *owned* by somebody or something. This is the heart of the matter. Every quality must have a bearer. Only through studying how an object meets different conditions and reacts to manipulation can you understand its distinguishing qualities. Observation and testing methods are all directed to bringing out the inherent characteristics of the quality bearer. The task of the designer is the inversion of this: to design an object such that it will bear *specific intended qualities*.

Long ago, in the starting phase of the humanization process, the qualities inherent in the world itself "as given" dominated the picture. These qualities were highly dependent on time and place. Lighting and climatic conditions varied with time of day and of year. Seasonal variations decided when different fruits, certain foods, and flowers were available. As for the non-homogeneity of space, some places were clearly perceived to have special characteristics. This could be noticed in certain natural sites already before man had begun to construct permanent landmarks of his own – in itself an important activity to facilitate spatial orientation. The quality of special "density" could be felt as *holiness*; there was something of the terrible in it. Erich Isaac (1969) says that perhaps nowhere is the holy more bound up in spatial categories than in early Greek thought. The sanctity of the spatial order was fundamental. A sacred enclosed tract was called *nemos* and was guarded by a powerful and threatening force, *Nemesis*, which avenged trespass. The development of monotheistic religion severed the connection between the place and its deity (*genius loci*), contributed to the slackened sensitivity for spatial density, and was in general one more fateful factor for our culture's policy regarding the respect for the qualities of sites.

Uniform time and space are *constructs*, in the terminology of the physicist-philosopher Henry Margenau (1950). They are not *experienced* as uniform. Simultaneity in places widely apart is a conception which makes the character of construct clear: as every communication takes time, however small, absolute simultaneity can never be experienced. It crept in "the back way" as a conception

through the need for *coordination* which appeared with time-table running on railways. The idea of a world surveyable as a whole became, however, very powerful. This may be a fateful consequence of our power of mental levitation", which enables us to picture the world as if seen from points which we have not experienced. Take for instance 16th-century bird's-eye views of European towns drawn in a realistic way when flying – for humans – was still just a flight of fancy.

Two inventions served to fix the idea of homogeneous, isotropic time-space in people's minds: the clock and the perspective. The concept of time and space as evenly divided and continuous, without any special densities, put analysis and reasoning before immediate experience. Instead of *here and now*, the world was understood in terms of what was valid *always and everywhere*. Alberti's perspective paved the way for Copernican cosmology, and *to observe* was ousted by *to know*. The Swedish mathematician Alfred Liljeström, a brilliant pedagogue with a deep understanding of what knowledge is, once pointed out how

> "small children, who have not yet even observed the path of the sun among the stars of the zodiac, and still less have any idea of the *visible* movements of the planets, have the Copernican world model so impressed upon them with the help of schoolroom models and suitable persuasion, that they will never during their whole lives be able to form any idea of the *real, visible spectacle of the sky*."

Variations over time were (at least partly) levelled out when man had learnt to extract energy from natural sources for controlled use in artificial lighting and modification of climate (heating, later also cooling). Preservation methods and refrigerated transport have in recent time made seasonal food available the year around. By such means and others, the variable qualities of the world have been increasingly neutralized, like those of a stage which has to serve only as a background. Instead, the *Eigenschaften* have been transferred to the objects on the stage. In modern society, the quality-bearers above others are the *artefacts* – the man-made objects.

One of the really important processes in the physical environment of modern times is thus the transferring of qualities from the world at large to artefacts, enormously multiplied by industrial production. The humanizing of the world, its adaptation to human use, is nowadays being carried out mainly by introducing manufactured objects for different purposes into it. This has created an immense field of work for designers. But the understanding of the implications of the procedure is far from complete.

Heliocentric cosmology had, as we just said, made educated people understand the world primarily in terms of a palpable model. More recent development of communications, first mechanized, then

electrical, made *the instant world* – where everything can be reached at once – into a potent image. All this made for reduction of actual observation.

Anyway, it made for action. This instant world, with its space-time qualities set at zero, could ideally be regarded like a small shop or warehouse where everything should be within immediate reach. Delays must be understood as technical imperfections. A costly consequence of this world picture was the urge to speed up travel. Visual and electronic communication over distances present no great environmental problems, but moving people at very high speeds is another matter. People are fragile goods. Lots of mobile protective mass, and thus lots of energy, are required to move them fast, in addition to the energy needed to neutralize seasons and darkness.

All this is intended to point out that the large-scale idea of the world sets very important preconditions for the designing of artefacts.

How thoroughly does the architect/designer understand his (her) task? In landscape architecture and in rebuilding and restoration, there can be no doubt that the task is one of modifying an existing piece of environment. But in other kinds of architecture and design work, even in city planning, it is all too easy to concentrate on the artefact itself and see the site as a virgin square of paper or plaster. The task is understood as starting from zero, and the probability that the artefact realized will stand there in all its glossiness as a strange implant is great; you will see it confirmed all around you.

Professor Stuart Pugh, head of the Design Division at the University of Strathclyde, in his book on *Total Design* (1990) stresses the need for what he calls a *Product Design Specification* (PDS). This means a written document, a description of the preconditions set up for the intended product. The document should be comprehensive and unambiguous to form a basis for the design independent of the personal experience and feelings of the designer; it should also be dynamic in the sense that, as Pugh says: "If, during the design of a product, there is good reason for changing the basic PDS, then change it." If agreement has been reached on such a specification, many questions will have been clarified, and a base for comparison between different possibilities has also been obtained.

Professor Pugh starts his discussion of the total design process by pointing out the necessity of identifying "user needs". But what are these needs really? They are formed in a complex process where expectations, comparisons, imagined possibilities, etc, are involved. Can they ever be obtained in a pure form? And should the needs be transformed into a PDS at all?

Before a PDS is set up, there are some questions that should be asked. The first one is: What is the design aim? In other words: How do we want the environment to be changed? This will lead to a subsequent question: Should these aims be translated into a product

– or would there be any other ways of achieving them?

More than twenty years ago, the Swiss sociologist Lucius Burckhardt, then editor of the architectural magazine *werk*, touched upon these questions in a little book which is worth looking up again (Burckhardt & Förderer 1968). The architect and the politician have a common interest in meeting the "user needs" with a new building, Burckhardt says. An alternative might be the multiple use of an existing building, but this is much more difficult to handle through political decisions which might have to be repeated every year. Once the new building stands there, it has to be used, and both the architect and the politician responsible may show it as a monument to themselves.

Rationality, then, will look quite different dependent on from what angle you see it or how wide this angle is. *Competence* I would like to define as the capacity of solving problems such as they are set. And our competence is very great. Look around you, and you will see it exercised everywhere to the full. We are literally being suffocated by the products of our own competence.

What is urgently needed is the capability of questioning the tasks as set, and of reformulating them. For this you need a different kind of knowledge. The German term for it is *Bildung*, which might be translated into English as *culture*. You must be able to view the problems in a context which has both width and depth.

Artefacts may play very different roles in the man-environment relation. An artefact may fit in with existing behaviour, or it may be used to enforce changed behaviour – a wellknown example is offered by the repeated attempts of architects and politicians to change people's living habits during the history of modernism, when the age-old habit of letting a room stand solely for representative purposes was to be abolished for the sake of efficient use of space. An artefact may also function as a medium shaping the knowledge of people using it, deciding what knowledge they may be able to utilize, and what kinds of knowledge will be made obsolete and edged out. Tools, machines and other aids in work are typical examples. In recent years, computerization has got a lot of attention from this angle.

An experienced designer will be very much aware of the fact that qualities never appear solely. If you design for a certain function, part of the qualities of the object will be directed toward that aim, but you will unavoidably have to take some additional ones into the bargain. If you have met with similar products before, this will probably reduce the field of surprise, but great steps into new territory will increase the risk of "infant maladies". Experience may to some extent be replaced with imagination, an invaluable quality for a designer.

Predominantly, existing design theory tends to treat artefacts of different dimensions on the same pattern. But they can be divided into several types for which different conditions obtain. Rather naturally we can distinguish between artefacts on three different main scales or

levels of increasing complexity: those of the simple *thing*; the *building* (with its *rooms*); and the *city*. Each is subject to its special type of conditions which make important starting-points for design work.

The simple *thing* in its pure form is something you can grasp practically in one moment. You may be able to walk around it (or even perhaps lift it up and turn it about) and perceive it in a negligible amount of time. If it is movable, it can be placed in any environment. This has come to be a fundamental condition for industrial production. It may presuppose more or less explicitly a neutral space-time, a world without special qualities. This does not exclude that the thing must be able to co-exist with a supposed environment of distinct characteristics.

The *building* cannot be grasped in one moment. You have to walk around and through it. It means that memory plays a larger part in its perception, not least in relating outside and inside to each other. The building may be used for different purposes at the same time. It is also bound to its place, which it defines more or less permanently. Clearly, it must be designed under other conditions than the thing.

The *city* is still more of a space-time concept. An overall picture of a city as a whole has generally very little to do with how it is experienced. Many planners have tended to over-emphasize an ordering of the elements – houses, streets, etc – which is actually experienced as very simplistic. The really important perception takes place from the inside, and all parts of the city will never be of the same importance to an individual user. Everybody uses the city selectively. It functions as a lot of superimposed networks, systems of paths which intersect and will have to be used partly in common, but are never completely identical for you and me, different people with different interests. A city (or district) designed as a monoculture will never be able to achieve this kind of superimposed multifunctionality which has developed in the historical city.

Lack of understanding of these different types and their conditions has made for a fatal process which I will call "slipping down". Artefacts have been treated as if they belonged to lower levels than their proper ones. The case of the city has been especially evident. Modernism started from the less complex levels of the thing and the building, and the complexity of the city with its superimposed functions could not be fitted into that framework. So the city was never understood on its own terms, but was treated as a matter of buildings, with rather fatal consequences. In recent years, even buildings have been allowed to slip down in a corresponding way, being treated as prefabricated boxes for which the ground should be put into "zero degree" as far as possible. The American "mobile home" is of course one more step in the same direction. As with other large-scale things, there may be some importance in their relation to that world which is still formed by nature. The rather shocking colour

scheme which the Swedish State Railways have recently adopted touches this crucial point. It is a typical desktop product, giving the impression that the designer has never been out-of-doors and pondered the possibility that these trains and stations would have to co-exist with a natural environment.

This "slipping down" may be an instance of a "law of mental economizing", meaning that in design work it is attractive to lessen the effort. This is a natural law which we have to consider as an important precondition for design work. Models, which show the processing of a design task as proceeding from a thorough analysis phase to just as conscious a synthesis one, all seem more or less unrealistic. Should we try to picture a real designer, we will find a good chance that his first question would be: "Has anything similar been done before?" The secondary use of the products of primary knowledge, meaning that recipes and patterns already existing are used, saves lots of energy compared with working out a "solution" in the first place, and thus would in all probability be preferred whenever possible. Through the enormous growth of information as a transferrable product of knowledge, this simplification is much facilitated. *Thinking from the beginning* is rather rare, and so we have lots of stereotyped products which function rather unsatisfactorily – the ordinary vacuum cleaner is a favourite instance – and where the manufacturers innocently state that they have not been able to catch any strong criticism.

The concepts of "problem" and "solution" are being generally used in a much too facile way. We will have to differentiate them into a number of subconcepts, several types of "problems" and "solutions", with very different characteristics depending on whether we talk about a "problem of computation" (as in elementary mathematics or crossword puzzles), a "problem of explanation" (as in science) or a "problem of choice and decision" (as in design). All this forms a meta-problem by itself.

Let us sum up. We live with a cosmic model which shows us an "instant world" where we try to overcome natural space-time conditions at enormous costs, and we modify this world by introducing implants (often very strange bodies) into it. The perspective we have developed is that of a God, everywhere present simultaneously, and we try to approach that ideal. But the state of our knowledge does not quite permit us to take up divine responsibility. We have to *design for uncertainty*. The need for more realistic models of the design process and the roles of the artefacts in the man-environment relation is evident.

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