

Lilliput.

(For Abraham A. Moles, the teacher in minimisation.)

The models which inform the experiences, desires, visions, and therefore the acts and sufferings of a given society, and which do so in part unconsciously, are relatively constant. They last longer than individual life, and even longer than the life of several generations. This is why they are sometimes called "eternal values" and "unchangeable forms". In fact: the relative stability of models renders them trustworthy, and it is this trust in models, (this "faith"), which forms the basis of a given culture. But of course: models are subject to change, and we know that they are changeable better than any civilisation before us. This knowledge of ours as to the plasticity of models is what makes us "modern": modernism, as opposed to classicism, is the conviction that "theory" is not a contemplation of eternal models, (as it is for the classics), but a modelling of models. In sum: that models may be improved on, that there is such a thing like "progress".

If models change in the course of a life time, people get upset: they no longer know what to trust. And if a whole set of models changes within a life time, (as it happened over and over again during the last three or four generations), the very foundation of life seems to tremble. But this sort of earth quake may have different meanings. If it is the models of knowledge that change, (if what happens are "scientific revolutions"), the resulting earth quake is experienced as progress. If it is the models of experience that change, (if what happens are "artistic revolutions"), the resulting earth quake makes itself felt unconsciously, and the radicality of it is not immediately realized. If it is the models of behavior that change, (if what happens are "socio-political revolutions"), the resulting earth quake is experienced as a catastrophical event.

Now of course: the models of a given society form a sort of system and imply each other. Thus the Einsteinian, the Dadaistic and the Russian revolutions imply each other somehow. Still: epistemological models may be changed independently from changes in aesthetic or ethical models, and the above mentioned three revolutions may be considered as separate events. It is only when the whole system of models, the whole "mythology" of a society changes under the unbelieving eyes of a generation like ours, that one may speak of "total revolution", namely of a crisis of the faith which no longer permits any orientation within the world: no trustworthy model.

Such a total change of models does not need to be a brutal substitution of values, ideals or theories by others, (it does not need to be a Nietzschean Goetzendaemmerung), but it may manifest itself as an apparently simple shrinking of all models. This paper will defend the thesis according to which it is precisely this that is happening: a general shrinking of all our ideas, visions, values, ideals, theories, in sum: all our models

This tendency toward the very small, the minimal, the microscopic, is all the more surprising, since it follows upon a tendency of all our models to expand into gigantic dimensions. The boundless expectations of the previous generation, its desire for illimited knowledge, unlimited consumption, pleasures without end, is followed by a curious insistence on limited aims, on being content with small results, on frugal ways of living. And the change in the dimension of our models may be observed all over.

In astronomy the Newtonian model of an infinite and eternal world is being substituted by models of limited spaces which are curved into ever smaller pockets of gravitation. In physics interest concentrates upon the smallest and most ephemeral of phenomena, and in biology it deals with molecular structures. The importance of very small groups within society, (like terrorist gangs, pressure groups and élite and pilot groups), is playing the revolutionary role played earlier by mass movements. In politics, it is the regional movements, like the Basque or the Flemish separatists, and religious sectarianism like the Californian or the Persian fanatics, which seem to point to the future. In art phenomena like minimal art, the ephemeral happening, the diminutive compositions of dodekaphonal music, seem to denote a new esthetic awareness. And such examples for the shrinking of all models may be multiplied. Slogans like "think small", "small is beautiful", and "less is more" articulate this feeling that Lilliput is the future.

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A good example for the shape of things to come are the tools which grow ever smaller, cheaper and more intelligent. A short time ago it looked like handicraft was archaic, and "do it yourself" seemed to be a nostalgic feeling of the kind "back to nature". Now it seems more likely that post-industrial society is going to be based on tiny household production. It is worth while to consider this example.

The difference between production by handicraft and industrial production may be described thus: The craftsman possesses a material, (for instance leather), a model, (for instance the idea of a shoe), and a tool, (for instance a hammer). He tries to force the model into the material and the material into the model by using his tool. The material is for him the world which must be changed, because it is not like it ought to be, (it is not a shoe). The model is for him an idea which must be put into the world (into leather). The tool is for him an extension of his body, (the hammer is his extended fist). What he does is trying to change the world according to an idea, and he is committed to that idea. He can do so because his idea (his model), has human dimensions: he himself is the measure of models, (anthropos metron panton).

In industry there is a machine which has several openings. Through one of the openings materials flow in, through another one energies come in, through a third one models come in, and through a fourth one products flow

out. The materials, (for instance leather), come in from the market, (for instance import market). The energies, (for instance workers), come in from the market, (for instance the labor market). The models are special tools, (for instance steel shaped like a shoe). And the products ~~fit~~ flow out into the market. Thus the material is no longer the world, (as it was for the craftsman), but it comes in from a world which lies outside the machine horizon. The worker is not a craftsman, but part of the machine, which is no longer an extension of a body, but an organism composed of simplified and improved imitations of body organs. And what the machine tries to do is not to change the world according to an idea, but to apply a model to a material in order to change it into a product. This it can do because the model it applies has superhuman dimensions.

If one looks at a shoe produced by a machine one does not see ~~it~~ that it is based on a superhuman model. But this becomes clear if one considers it more closely. The shoe is the product of a process which is far too complex to be understood fully. The machine is a link between several markets the dynamics of which lie outside the horizon of the industry it is part of. Nobody, (not the owner, nor the manager, nor the engineer or technician, not the economist, let alone the worker), can see fully through the production process. The best way to understand such complex processes is cybernetics, (concentrate upon input and output of the machine, and let its several parts in ignorance). But of course: the model which is applied to the leather to produce the shoe must be understood, if we want to know what a shoe is.

For the craftsman the model was an idea of how the world should be, an imperative, a value, an ideal, (the "ideal shoe"). He was committed to that ideal, he tried to materialize it as perfectly as possible in the leather. This is why political and aesthetic criteria may be applied to the crafts, why one may speak of masterworks, of "chefs-d'oeuvres". In industry the model is a special tool, produced by a tool maker according to a prototype. The prototype is the result of sketches and calculations made by engineers and designers. And behind the ^{calculation} ~~prototype~~ there is an idea of how a shoe should look like. The various steps which lead from the idea to the steel tool are made with regard to the raw material market, the energy market, the consumer market, the structure of the machine, the requirements of the administrative apparatus of the industry itself and of the context within which the industry is located, and with some regard to the aesthetic aspects of the product. But what is important in all this is that the model may be improved on: prototypes can be substituted, calculations re-made, designs perfected, new tools made. Thus the model becomes ever better adapted to the various markets, to the machine, to administrative requirements: it becomes ever more "perfect".

It now becomes obvious that the essential difference between handicraft and industry is not technical or economical, but anthropological:

the Industrial revolution has produced a new man. One who no longer tries to materialize an ideal, but one who manipulates models. Industrial man is one who is no longer committed to ideas, but to the elaboration of ideas. He is not a shoe maker, but a tool maker, and it is because his tools are changed that his shoes get ever "better". But of course: after the discovery that models are changeable the meaning of the term "better" becomes a problem.

Thus Industrial man may be said to be the result of models having lost their human dimensions. As man became aware that he can change his models, he not only began to modify them, but he also extended them beyond his own understanding. A shoemaker's model is a human shoe, (although it may have a divine origin). A toolmaker's model is a transhuman shoe, one the functions of which no man really sees through, (although it is a purely human product). Industrial revolution was megalomaniacal, not because it was anti-mythological, (it showed the human origin of models), but because it was unhuman, (it rendered models transhuman). It does not take too much of futurological imagination at present to guess how the Industrial revolution will be overcome within the near future and how post-industrial man may look like. It suffices to consider the shrinking of models.

Imagine a tool the size of a cigarette box, meant to manipulate leather, and equipped with a memory containing the models of several shoes, belts, coats, bags, and tyrolese trousers. Imagine that such a cybernetic memory will permit the permutation of models: the manufacture of shoelike bags, beltlike shoes and so forth. Imagine that the manipulation of such a tool is easily learned, and that its cost is modest. Imagine a garage with a tool box full of tools like this: one for glass manipulation, one for metals, one for textiles and so forth. You will have imagined post-industrial society, because you will have imagined a store of minute, tiny models: minute, tiny models for motorcars, typewriters, smoking pipes, oil paintings, costume jewelry, which may be instantly applied to materials to result in the true product. If you have imagined such a store of minute models in every garage, (like there is a car in every garage and a TV set in every sitting room), you will have imagined a situation which is probably technically feasible within a few years, but which is nonetheless very difficult to think through.

The relatively easy part is to try and imagine this Lilliputian production. (What is called the "chip revolution"). Every household would be equipped with the tools for the manufacture of all the objects it needs. It would buy the necessary raw materials on the market. It would buy more intelligent tools as they appear on the market. Every member of the household would take part in the production of objects in the garage: the division of labor would be over. But society would not look like a neolithical village for various reasons. One is that models would not be supplied by mythology,

after several generations of giants, (great men, great powers, great conquests, great wars, great ideas, great expectations), a first generation of dwarfs is dawning, (one of atomic energy, molecular research, miniskirts, minimal art and minimum effort, one of sects, of ingroups, of family planning). And that this is the reason for our crisis: that we no longer trust big ideas, but have not yet learned to live with the small ones.

The example this paper has taken to illustrate its thesis, the "chip revolution", may not be the most characteristic one, nor even the most important one, for the general shrinking of aims and of prospects. Possibly examples from other fields, like the limits of economical growth, the impossibility to extend scientific knowledge, or the futility of trying to expand "democracy", (decision participation), would have been more convincing. But the example here offered has the advantage of concreteness: we already possess some of the micro-instruments with their micro-memories, and can therefore feel the shrinking of models while handling those objects.

Post-industrial civilisation will no doubt develop not only new types of disciplines, (a post-industrial science, and art, and politics, and economics), but also post-industrial methods. It is of course far too early to speculate about those methods, but there are even now tendencies which seem to point to the direction in which those methods will develop. They will probably^{be} of the type "strategies", and they will aim at combining simple elements into complex structures. They will be game-like, and the theory of games will possibly play the role which dialectics played for industrial methods. And this will be so, because the models of post-industrial civilisation will be atom-like, very small and hard, units. This smallness of models will lead to a pulverisation of all phenomena, (be they "natural" or "human"), and an effort to later integrate this atomic powder. But since what has been dis-integrated can never be fully restored again, the whole scene of post-industrial civilisation will be somehow ghost-like. And this is, at bottom, what is meant by "game-like": life will be a sort of play like the Malay shadow theatre is. An amusement for Lilliputians.

Unless, of course, some big wind from outside should blow all this spectral spectacle away, and make an end to our civilisation. But this is a different sort of consideration.