This is all too apparent when writers attempt a comprehensive definition of design. What sort of designer might have offered the following definition?

> The optimum solution to the sum of the true needs of a particular set of circumstances.

Is it more likely that such a definition is the idea of an engineer or an interior designer? Is it meaningful to talk of 'optimum solutions' or 'true needs' in connection with interior design? In fact Matchett who defined design this way, comes from an engineering background (Matchett 1968). This definition suggests at least two ways in which design situations can vary. Matchett's use of 'optimum' indicates that the results of design as he knows it can be measured against established criteria of success. This may well be the case for the design of a machine where output can be quantified on one or more scales of measurement, but it hardly applies to the design of a stage set or a building interior. Matchett's definition also assumes that all the 'true needs' of a circumstance can be listed. More often than not, however, designers are by no means sure of all the needs of a situation. This is because not all design problems relate to equally purposeful activities. For example, it is much easier to define the needs to be satisfied in a lecture theatre than in a domestic living-room.

Some pronouncements about design would have us believe that these differences are not really very important. This is taken to an extreme by Sydney Gregory (1966) in his early book on design methodology:

> The process of design is the same whether it deals with the design of a new oil refinery, the construction of a cathedral or the writing of Dante's Divine Comedy.

Perhaps what Gregory was really telling us, was that when he designed or wrote he personally used a similar process. Whilst this might have worked for Sydney Gregory it seems unlikely that it would have worked for Dante, who showed no interest as far as we know in chemical engineering! It is more likely that design involves some skills which are so generic that we could reasonably say they apply to all forms of design practice, but it also seems likely that some skills are quite specific to certain types of design. It would also seem reasonable to suggest that the balance of skills required by each type of designer is different.

Certainly all designers need to be creative and we will deal with creative thinking in a later chapter. Some designers, such as

architects, interior and product designers need a highly developed visual sense and usually need to be able to draw well. We deal with designing by drawing in another chapter. Other designers at the more engineering end of the spectrum are likely to need higher numeracy skills and so on.

Of course it is possible to arrive at a definition of design which allows for both the disparate and the common features. Chris Jones (1970) gives what he regarded as the 'ultimate definition' of design:

> To initiate change in man-made things.

All designers could probably agree that this applies to what they do, but does it really help? Such a definition is probably too general and abstract to be useful in helping us to understand design. Do we really need a simple definition of design or should we accept that design is too complex a matter to be summarised in less than a book? The answer is probably that we shall never really find a single satisfactory definition but that the searching is probably much more important than the finding. Chris Jones (1966) had already recognised just how difficult this search is in his earlier description of design: 'The performing of a very complicated act of faith.'

Some maps of the design process

Many writers have tried to chart a route through the process from beginning to end. The common idea behind all these 'maps' of the design process is that it consists of a sequence of distinct and identifiable activities which occur in some predictable and identifiably logical order. This seems at first sight to be quite a sensible way of analysing design. Logically it seems that the designer must do a number of things in order to progress from the first stages of getting a problem to the final stages of defining a solution. Unfortunately, as we shall see, these assumptions turn out to be rather rash. Indeed Lewis Carroll's Queen may well have made rather a good designer with her apparently ridiculous suggestion that the sentence should precede the evidence!

However, let us proceed to examine some of these maps in order to see how useful they are. The first map we might examine is that laid out for use by architects in the RIBA *Architectural Practice*