When assessing the validity of any therapeutic procedure, two areas of information require close examination. The first relates to the practical effectiveness of the therapy. Here the questions are essentially empirical. Does the therapy work? The last five chapters dealt with the empirical justification for psychosurgical procedures. The second area for scrutiny concerns the theoretical underpinnings of the therapy. Is the therapy based on an adequate scientific rationale? In this chapter we shall examine the theoretical rationales offered for psychosurgery. To what extent do they constitute a secure base from which to embark on surgical excursions into the brain for the purpose of adjusting behaviour? Are the rationales offered consistent with current knowledge about brain functional organization?

At the outset it is important to appreciate that the manner in which the brain controls our behaviour continues to belie easy comprehension. Nevertheless, important clues to the workings of the brain continue to emerge from a wide variety of sources: neurophysiology and neuropsychology, the experimental psychology of humans and other animals, psychiatry.

Before delving into the rationales offered for psychosurgery, it might be profitable to chart the progress and development of ideas about the functional organization of the brain. This should provide a general context within which to consider psychosurgical theory.

The brain was first credited the role of orchestrating our perceptions, thoughts and actions some 25 centuries ago by Alcmaeon of Croton. In
addition, Alcmaeon argued that the brain was far from undifferentiated with regard to psychological functions. Each sense modality was considered to have its own territory or localization within the brain. Thus, since the brain was first implicated in the control of behaviour, the idea of specificity or localization of function, i.e. that different brain regions housed different psychological functions, was prevalent. Clearly, any systematic account of brain functional organization would have to address itself to the question of specificity.

The first account of specificity to gain widespread acceptance was the theory of ventricular localization. Here, the psychological functions of memory, imagination, etc. were sited in the brain's ventricular spaces. It was with Gregor Reich at the end of the fifteenth century that ventricular theory received its first comprehensive description. His depiction of functional localization within the brain (Figure 8.1) indicates that the ventricles were suitably enlarged to accommodate their new status. The theory of ventricular localization held sway throughout the sixteenth and seventeenth centuries. However, the theory was without a shred of empirical support.