(Max 1995). During rendering, optical properties are accumulated along each viewing ray to form an image of the data (see Figure 39-2).

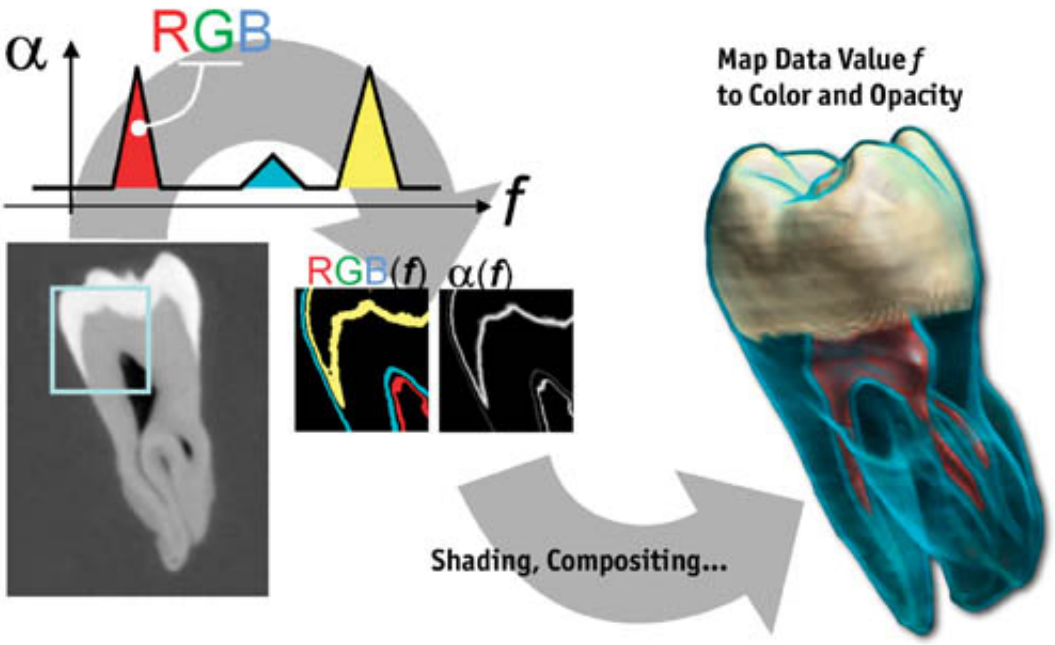

Figure 39-2 The Process of Volume Rendering

Although the data set is interpreted as a continuous function in space, for practical purposes it is represented by a uniform 3D array of samples. In graphics memory, volume data is stored as a stack of 2D texture slices or as a single 3D texture object. The term *voxel* denotes an individual "volume element," similar to the terms *pixel* for "picture element" and *texel* for "texture element." Each voxel corresponds to a location in data space and has one or more data values associated with it. Values at intermediate locations are obtained by interpolating data at neighboring volume elements. This process is known as *reconstruction* and plays an important role in volume rendering and processing applications.

In essence, the role of the optical model is to describe how particles in the volume interact with light. For example, the most commonly used model assumes that the volume consists of particles that simultaneously emit and absorb light. More complex models incorporate local illumination and volumetric shadows, and they account for light scattering effects. Optical parameters are specified by the data values directly, or they are computed from applying one or more *transfer functions* to the data. The goal of the transfer function in visualization applications is to emphasize or *classify* features of