called dicotyledonous. In these stems the cellular tissue forms a central column, or pith (*Lign.* 1, fig. 2, *a.*) and an external band, or cylinder, called the bark (fig. 2, *b.*); the two being connected by thin vertical plates, termed medullary rays, which are also formed of cells (fig. 2, *c, c.*). The diagram, *Lign.* 1, (from Dr. Lindley's *Introd. Bot.*) exhibits this arrangement. The interval between the pith and the bark, and the interspaces of the vertical radiating plates (fig. 2, *d.*), are filled up by woody fibre or vascular tissue, consisting of spiral and other vessels. The ligneous structure of exogenous stems, therefore, consists of a cylinder, surrounded by the bark, formed of wedge-shaped processes, that extend between the medullary rays to the pith. A new zone of woody fibre is added annually between the bark and the former cylinder, and from this mode of increase the term *exogenous* is derived. A transverse section of a branch of oak or ash will show this structure. The rings, or concentric circles, are the annual zones of wood; the fine lines radiating from the centre, or pith, to the circumference, or bark, are the medullary rays (*Lign.* 1, fig. 2, *c.* See also Plate V. fig. 4.).

The organization above described, will be found more or less manifest in fossil wood, stems, and branches. The monocotyledonous structure is beautifully preserved in the silicified stems of palms from Antigua (Plate V. fig. 1, 1^{a}.): and the dicotyledonous, in petrified trees from Egypt. The