A new genus named *Oshitea* is described from the marine Nabuto Formation (early Miocene), the Boso Peninsula. It is distinctive in having a set of five silicified girdle bands that constitute as a whole a tight system of bilayered wall. In this respect *Oshitea* differs from any other naviculoid pennates inclusive of *Pleurosigma* to which it is close by the loculate wall of the valve. *Oshitea* consists of two new species, *O. longelanceolata* and *miniprolongata*. The affinities as well as the morphologic and functional significances of the particular girdle are briefly discussed together with another nature of the genus, a siphonic tubular raphe.

Key index words