

sustained considerable disturbance. The tunnel through the Surrey chalk hills is now entered, and its transit occupies three minutes and a half. At Merstham the chalk, marl, and firestone, are intersected, and the Shanklin sand of Red Hill appears; and from thence to Horley station, the lower sands and clays of the Chalk formation are passed over or cut through; affording sections of sandstone, ironstone, and fuller's earth.

All the strata we have hitherto traversed are of marine origin, and contain fossil shells, fishes, crustacea, &c., and remains of other inhabitants of former oceans. But we now enter upon the series of river deposits which form the Wealden, and contain only the relics of terrestrial or fresh-water animals and plants.

At Horley the weald clay appears, and is succeeded by sand, sandstone, and shale, to Crawley. Passing through the tunnel of the Wealden strata, we arrive at Balcombe, where sandstone in laminæ and in thick beds, having the surface at the lines of junction covered with ripple marks, is seen on each side the railroad; the dip of the strata is to the *north-east*. After crossing the deep valley at Balcombe, over the magnificent viaduct, the line runs along alternations of sand and clay, dipping *south-west*; we have thus passed over what is termed the anticlinal axis of the Wealden (*Wond.* p. 342.). Arriving at Hayward's Heath station, the tunnel exposes a good section of the Wealden sand, sandstone, shale,