

what an immense blessing to ourselves! what pathological consequences would be avoided! One may, therefore, venture to prowl about, and into old and well-beaten tracks.

What do we mean when we speak of sensitive dentine? If you examine dentine, you will discover that, strictly speaking, we do not mean what we say. Macroscopically we observe that it is a structureless matrix impregnated with lime salts, and that if the enamel and cementum were entirely removed, the tooth would still retain its form and character. Any pretence that the matrix *per se* is living protoplasm, or that it can in any way display vital phenomena, is a hypothesis incapable of proof. When now we examine the tissue microscopically, we see that from the pulp cavity to the periphery, the entire dentine is perforated with numberless small tubes or canals, having distinct walls; each tube starting by an open circular mouth upon the surface of the pulp cavity, radiating in an undulating course, giving off many branches which freely anastomose or communicate with each other, something like the arteries and veins of the body; but which do not reach the periphery of the dentine, as each tube becomes smaller and breaks up into branches at a little distance beneath the surface of the dentine. Sometimes, as an anomaly, these tubes pass into the enamel and cementum. Each tube has a definite wall or lining that may be demonstrated, even in fossil teeth. The tubes are not mere bony canals or ducts in the matrix, like pipes put through chalk, but each tube is lined with a definite and delicate, and yet indestructible structure, the "dentinal sheath of Neumann." You may boil dentine in caustic alkali; you may reduce it by concentrated hydrochloric acid; you may submit it to putrefaction, and though you destroy the cartilage, and leave it a slimy and shapeless mass, the sheaths of Neumann remain intact. But neither of these structures explain the so-called sensitiveness of dentine. The tubes were once supposed to be solid fibres: afterwards it was thought that they were the conveyers of a nutrient fluid; but Tomes proved that they are occupied by little soft fibrillæ, which, like nerve-filaments, conduct sensory impressions to the pulp. The fibrils are processes, or prolongations of the odontoblasts, which are situated upon the periphery of the pulp, lining the pulp-chamber. No true nerves, or nerve fibrils have ever been demonstrated in dentine; but fine nerve filaments are