

ment is greatly swelled and softened, while the cartilage cells themselves, surrounded by this excess of serous fluid, are greatly distended by endosmotic action, until they increase so that they burst and are destroyed, and their nuclei are liberated. During the last efforts of the cartilaginous structure to form bone, these cartilage cells were arranged in strait rows, extending from the last formed bone towards the free circumference of the cartilage; hence we find that in these cases, that as cell after cell suffers from this destructive influence, many are hereby destroyed; those which remain are enlarged, and their nuclei escape, the cavity filled with serous fluid now left in the cartilaginous structure; into these cavities so formed, the distended ampullæ or loops of blood vessels in connection with the bone, or lying between the cartilage and the basement membrane of the synovial tissue, are pressed; these vessels now distended with red blood, fill the cavities so formed in the cartilaginous structure; so that when on dissection we separate these several structures, numerous nipple-like projections are observed upon the vascular apparatus, and minute cavities on the diseased cartilage will be found to correspond with them; to so great a length is the process sometimes carried, as we shall presently see, that the naturally firm connection between these several parts seems almost severed. As this state of things progresses, it will frequently happen that the basement membrane, and even the epithelial cells of the serous membrane, may be submitted to a similar action, a slow dissolution in the serous fluid may take place; the consequence is, that the nutritive vessels of the cartilage and also of the serous membrane, are left on the surface of the denuded cartilage, completely free within the joint; this is the structure that has been described by Mr. Keys as a new formation of vessels, which had been produced for the purpose of causing ulceration of the cartilage. It is clear that this collection of blood vessels is the result, not the cause, of the ulceration. This vascular structure, which was first described by Mr. Goodsir, being now unsupported by the fibrous element on either surface, and hanging free in the joint, will after a time cease to perform its function of carrying red blood, and as soon as this function has ceased, will die. These vessels themselves will be dissolved in the serous fluid now free in the joint, and by degrees their dissolution and destruction will be complete, so that they will be entirely removed from the part, leaving the surface of the cartilage bare. At this period the surface of the cartilage will present the appearance of elongated