

patches are formed is really situated between the tunica intima and the tunica media; it is semi-cartilaginous in consistence, and is formed by an abnormally rapid multiplication of the deeper cells of the intima, the new growth pushing up this tunic with its super-imposed endothelium, and so causing a bulging into the interior of the vessel. The process is of the nature of an inflammatory change—that is, it consists in the proliferation of cellular elements, in consequence of some influence which has excited them to unnatural growth. (b) In the second stage, the cellular elements of which the new growth is composed, undergo a process of fatty degeneration; and in consequence it becomes yellowish in color and pasty in consistence; this pasty appearance caused the name atheroma to be originally given to the disease. It not infrequently happens that the whole of the internal coat with its endothelium is involved in the softening, and gives way under the pressure of the blood, leaving an excavation, the so-called atheromatous ulcer, the floor of which is formed by the media and adventitia. (c) In other instances, the pasty mass, instead of being washed away, becomes the seat of calcific deposit; this being the so-called third stage of the process. The appearance of a vessel in which atheromatous disease has reached this stage is very striking; plaques which present to the naked eye the appearance of bone, but do not show its minute structure, are observed at intervals on the walls of the vessel, and their comparatively sharp spiculae project into the interior; in the aorta it is not uncommon to find such plates an inch long and half an inch broad, and in the smaller arteries the calcific deposit sometimes forms a ring round the vessel. In the latter the calcareous particles appeared to be deposited in the patch while it is still firm, so that the second stage of the process is wanting.

Some authors have divided cases of arterio-sclerosis into nodular, senile and diffuse forms. The macroscopic appearances of the nodular variety are quite characteristic. The aorta presents in the early stages, from the ring to bifurcation, numerous flat projections yellowish or yellowish white in color, hemispherical in outline, and situated particularly about the orifices of the branches. In the early stage these patches are scattered, and do not involve the entire intima. In more advanced grades the patches undergo atheromatous changes. The material constituting the patch softens and breaks up into granular material consisting of molecular debris. Here the primary alteration consists in a local infiltration in the media and adventitia, chiefly about the vasa vasorum, the affection being really a mesarteritis and a periarteritis. These changes lead to weakening of the wall in the affected area, at which spot the proliferative changes commence in the intima, particularly in the subendothelial structures with gradual thickening and the formation of an atheromatous patch of nodular arterio-sclerosis. The researches of Thoma show that this is really a compensatory process, and that before its degeneration the nodular patch, which post-mortem projects beyond the lumen, during life fills up and obliterates what would otherwise be a depression of the wall in consequence of the weakening of the media. This condition is one which may lead to dilatation or aneurism in the early stage before the weakened spot is thickened by the internal changes. In the second of this division, viz., *Senile Arterio-Sclerosis*, the larger arteries are dilated and tortuous, the walls thin but stiff, and often converted into rigid tubes. The subendothelial tissue undergoes degeneration, and in spots breaks down, forming the atheromatous abscesses. The greater portion of the intima may be occupied by