to the stone. This pellicle, when once formed, seems to be comparatively little affected by the chemical activity of rain-water. Hence the conservation of the even surface of the marble. It is liable, however, to be cracked by an internal expansion of the stone, to which I shall immediately refer, and also to rise in small blisters, and, as I have said, its rupture leads at once to the rapid disintegration of the stone.

The cause of this disintegration is the next point for consideration. Chemical examination revealed the presence of a slight amount of sulphate in the heart of the crumbling marble; but the quantity appeared to me to be too small seriously to affect the cohesion of the stone. I submitted to microscopic examination a portion of a crumbling urn of white marble in Canongate Churchyard. The tomb bears a perfectly fresh date of 1792 cut in sandstone over the top; but the marble portions are crumbling into sand, though the structure faces the east, and is protected from vertical rain by arching mason-work. A small portion of the marble retaining its crust was boiled in Canada balsam, and was then sliced at a right angle to its original polished surface. By this means a section of the crumbled marble was obtained, which could be compared with one of the perfectly fresh stone (see Fig. 24, B). From the dark outer amorphous crust, with its carbonaceous and other miscellaneous particles, fine rifts could be seen passing down between the separated calcite granules, which in many cases were quite isolated. The black crust descends into these rifts, and likewise passes along the cleavage planes of the granules. Towards the outer surface of the stone, immediately beneath the crust, the fissures are chiefly filled with a yellowish, structureless substance, which gave a feeble glimmering reaction with polarised light, and enclosed