

similar in nature, though not in degree, to those present in *tabes dorsalis*.

The *macroscopic changes* found on opening the cranial cavity are thickening and adherence of the dura mater, especially along the middle line and anteriorly, the well-known "false membrane" between the dura and pia, with sometimes a hæmatoma in it, a tough, thick and adherent pia, which tears the cortex when an attempt is made to strip it, and an excess of turbid cerebro-spinal fluid, both on the surface and in the ventricles. The brain is atrophied, especially in the frontal region, where also the pia changes are most pronounced. The cortex is thin, opaque, hard and injected. The white matter is irregularly injected, and may shew patches of softening.

The *microscopic changes* may be divided into those that can be studied under the low power magnification and those that need a high one. They are all most marked in the frontal and Rolandic regions. Under the low power the most striking feature is the remarkable disorderly arrangement of the cortical nerve cells. The normal division into different layers is here disturbed to a degree found in no other disease. The atrophy and disappearance of considerable numbers of nerve-cells, sometimes of whole layers, also at once attracts the attention. An extraordinary number of blood-vessels are noticed, there being evidently present a great proliferation of them. With appropriate methods of staining can also be made out the disappearance of myelin-sheaths, which proceeds to a higher degree and in a more widespread manner than in any other disease, the secondary degeneration of nerve fibres, and the extensive overgrowth of glia tissue. The glia-increase takes place especially in the superficial layers of the cortex and along the vessel sheaths. The pial changes will be presently indicated.

Under the high power these processes can be studied in greater detail. The thickening of the *pia* is seen to be due, not to hyperplastic changes, as in alco-