

holic, senile and arterio-sclerotic conditions, but to an enormous cellular infiltration. This infiltration differs from that which occurs in tertiary syphilitic lesions in being very diffuse and not distributed in foci or following the lines of the nerves and blood vessels, and in being exceedingly heterogeneous. Whereas in tertiary lues it is made up almost entirely of lymphocytes, in general paralysis it comprises all kinds of cells. Plasma cells of all ages may be seen, mast cells, lymphocytes, etc. The pial changes in lues are primary to the cerebral ones and the two can be closely correlated; this is not the case in general paralysis.

The changes in the *nerve cells* are very pronounced, but are not peculiar to this disease. Almost all kinds of degeneration may be seen, such as fuscous changes, vacuolation, tigrolysis, sclerosis, chromatolysis, as well as complete atrophy. In tertiary lues many swollen cells may be seen, but they do not disappear as a result of atrophy in the way they do in general paralysis. The degeneration of the nerve fibres has already been mentioned. It is greatest in the association tangential fibres of the cortex, but is also marked in the efferent projection fibres. In the senile psychoses degeneration of the myelin sheath occurs but there is no secondary degeneration of the axis cylinders, as in general paralysis.

The *glia* overgrowth is very diffuse. Characteristic is the presence of giant spider cells, and a rich formation of thick fibres which are attached in bundles to the blood-vessels. One never sees the plaques of fine unicellular fibres so characteristic of the senile psychoses.

The changes in the *blood-vessels* are of the greatest importance in making a differential diagnosis. The extensive new formation of vessels, which was previously referred to, takes place mainly by a process of budding from the walls of the old ones. It is found also in tertiary lues, and to a less extent in arterio-sclerosis, though in the latter case not apart from focal lesions, such as hæmorrhages. There is a great overgrowth of the intima with proliferation of the endothelial cells.