

complex. It is usually marked by the somewhat dumb-bell-like constriction of the nucleus as a whole; without complex preliminaries or manœuvres, one cell becomes two. In the great majority of cases it seems to be a secondary process, and it certainly is not the usual mode of cell-multiplication. In the usual mitotic process there is an intricate interaction between nucleus and cell-substance, and a complex co-operation of the different members of the "cell-firm",—the centrosomes, the chromosomes, the achromatin, and the general cell-substance. One might compare it to the legal complexities observable in the dissolution of partnership in an old-established firm of several members with somewhat ravelled interests.

According to Wilson's recent summary, in which he seeks to strike a balance-sheet of many opinions and observations, the centrosome is the organ of division *par excellence*, "under its influence, in some unknown manner, is organized the astral system, which is the immediate instrument of division", its rays becoming associated with the chromosomes, which are certainly of great importance, if they are not so exclusively essential as some would make out. "Mitosis is due to the co-ordinate play of an extremely complex system of forces which are as yet scarcely comprehended." Its end, however, is clear; it is "*to divide every part of the chromatin of the mother-cells equally between the daughter-cells*". There are many peculiarities in different cases; there seem to be even individual variations; there are certainly abnormalities here and there; but in plant and animal there is a fundamental similarity both of process and result.

The central corpuscles in animal cells *seem* to act as if they were centres of force, and the indescribably fine threads which pass from around them to the chromatin bodies and elsewhere have been credited with motive powers. But the cell-divisions in higher plants seem to be accomplished without the presence of centrosomes. The whole subject is beset with uncertainties. At the same time, it can hardly be doubted that such suggestions as Heidenhain's "tension-law" hold out some