destroyed that they disappear. And when the achromatic figure has been formed from the centrioles, it is possible not only to see that the daughter chromosomes are connected to the centrioles, but also to demonstrate such a connection by pulling either of the centrioles away from the nucleus, the chromosomes moving with the centriole as it is pulled. Such a procedure also demonstrates the elasticity of the extranuclear chromosomal fibers and those of the central spindle, for unless the centriole is pulled a considerable distance (far enough to break the fibers) from the nucleus, it and the chromosomes pulled with it immediately spring back into position when the tension is released. Thus, in these organisms, there is not the slightest doubt regarding the existence of the centrioles, the formation of the achromatic figure from the centrioles, the fibrillar nature of the achromatic figure, and the rôle of the achromatic figure in nuclear division.

The question naturally arises: Are all centrioles like those of hypermastigote flagellates and do they function in the same manner? As already noted hypermastigote centrioles vary considerably in size and in the type of achromatic figure that arises from them. In some genera the central spindle is flat and band-like, in some it is cylindrical, in some it is compact, and in some it is dispersed. In certain genera the astral rays are fine and can not be seen so readily as in others, and in those with fine astral rays the extranuclear chromosomal fibers are more difficult to see. In brief, there is every gradation beginning with genera having large centrioles and a large achromatic figure which may be seen with a 16 mm objective and a 10X ocular, and ending with those where the centrioles and achromatic figure may be seen only faintly with oil immersion objectives. So that it is only a short step from hypermastigotes of the last category to the cells of other forms of life where, in fixed and stained material, the centrioles and the achromatic figure have the same appearance as those of hypermastigotes in living material. In this connection it should be noted that in the polymastigotes *Saccinobaculus* and *Pyrsonympha* the intranuclear achromatic figure may be seen in living cells, but the centrioles from which it arises can not be seen, and in fixed and stained material the centrioles can be seen in only one of the three species of *Saccinobaculus*. There are evidently all gradations of centrioles, from the large, dense ones of certain hypermastigotes to the less dense and diffuse ones of other cells, and whether a centriole can be seen in living or in fixed and stained material depends on its nature and that of the cytoplasm or nucleoplasm in which it lies. The same is also true of the achromatic figure. But the ability to demonstrate a centriole only under certain conditions of fixation and staining does not indicate that it is an artifact; nor does the inability to demonstrate it at all indicate that it is not present. It merely means that its nature is such that it can only be seen under certain conditions or that it can not be seen at all with the aid of any known technique. In any cell —and this includes practically all cells—where some type of an achromatic figure is formed, centriolic material must be present; it may be congregated into a large, dense, extranuclear body as in some hypermastigotes or, on the other hand, it may be rather generally scattered through the nucleus as in the cells of many vascular plants. There is no reason why the centriole and the achromatic figure should be less variable in different types of cells than other organelles. And the fact that the centriole in certain animal and plant cells give rise to flagella, as well as to the achromatic figure, does not appear to be sufficient reason for regarding it as another organelle, since in some generations (cell divisions), both in animals and plants, the centriole gives rise only to the achromatic figure, while in other generations it gives rise to flagella and the achromatic figure. In such organisms, then, which are by no means few in number, the same body sometimes would be considered a centriole and at other times something else. What appears to be the best explanation of the situation is that in certain forms the centriole still possesses the ability to give rise to locomotor organelles in addition to the achromatic figure, while in other forms either it has never performed this dual function or this ability has been lost, or there is no longer any need for the centriole to produce locomotor organelles. If there are cells where the locomotor organelles arise from a body that does not produce the achromatic figure, the term blepharoplast appears applicable to this body.

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