

3. The sum total of the energies of these lesser units constitute cellular life.

4. Differentiation is caused by specific irritation of certain kinds or elementary units, instigating these to multiplication and therefore to supremacy over the other units.

5. The cell does not lead a double life; it leads only one life, namely, an independent life. There is, in fact, only one life that we know of.

6. The axiom that a function presupposes cellular structure is not proved. Structure presupposes function is more acceptable, as it may be supported by direct evidence. Cellular structure becomes more complicated if the function of the cell is more energetic.

7. Structure is a side product formed during the exchange between stimulus and reaction. (Was supported by examples from the organic and inorganic world.)

8. The elementary units of the cell are partly demonstrated in the microsomes, chromatin granules and centrosomes. The microsomes are of different kinds, some of which were demonstrated by slides.

1. *Origin of the Centrosomes in the Unfertilized Egg of Chætopterus.*
2. *The Behavior of the Centrosomes during the Maturation and Fertilization of Chætopterus.*  
A. D. MEAD.

There is in the egg of Chætopterus a definite body, the centrosome, which is not an artifact, and which is not identical with the centrosphere or astrosphere, though the latter is sometimes present.

In the 'oöcite of the first order,' *i. e.*, the unmaturation egg, the centrosomes arise by a modification of pre-existing cytoplasmic structures. Those of the first and succeeding cleavage spindles are identical with, or derived directly from, the male centrosomes, which are probably brought into the

egg with the middle-piece of the spermatozoon.

The centrosomes, whatever their origin, are capable of growth and multiplication and persist through at least several cell generations.

There is no union of male and female centrosomes during fecundation—no 'quadrille of the centers.' The female centrosomes entirely degenerate, and therefore cannot be considered a special means for conveyance of hereditary qualities.

The centrosphere, a differentiated region about the centrosome, gives a different reaction from the centrosome, on the one hand, and the rest of the cytoplasm, on the other, both in point of color and resistance to certain reagents. Corrosive-acetic and certain other reagents will sometimes completely destroy the centrosphere, though the rays and other structures are fairly well preserved.

The centrospheres, unlike the centrosomes, appear and disappear with each succeeding karyokinesis. When they are present the cytoplasmic rays of the aster are not so strongly developed as when they have disappeared and the rays diverge directly from the centrosomes themselves.

The centrosomes divide and move apart within the centrosphere for a considerable distance without altering the spherical shape of the latter structure.

*On the Origin of the Centers of the First Cleavage Spindle in Unio Complanata.* F. R. LILLIE.

After the formation of the second polar body the inner centrosphere and a large part of the aster become converted into archoplasm, against which the egg nucleus lies. The archoplasm is vesicular (or reticular) in structure, and contains the centrosome, though the latter cannot be distinguished on account of the entire disappearance of radiations. The sperm nucleus