

the seventeenth century. The Hebrews thought that coitus during menstruation produced monsters. At the present time the opinions seem to be divided between two theories—one that double monsters are caused by fission of blastoderm; the other a cleavage of blastoderm. The latter seems to be in favor. The cause of this cleavage is as yet unknown.

Windle believes that there is first unity followed by fission. Fission takes place probably at the very earliest stage of differentiation. He gives various explanations as to cause, such as overstimulation, faulty relation between embryo and zona pellucida, superabundance of formative material, entrance of two or more spermatozoon, faulty spermatozoon, and finally what the author is inclined to believe the probable cause, a retention of the whole or part of the second polar body. Klausseur deals very fully with this subject.

After taking up the different theories, he advocated the following: Firstly, the multiple form may arise from primitive plurality of the formative substance, this condition leading to twins, etc. Secondly, from fission with post-germination, the valves of the embryo forming their missing portions, not from themselves, but from the neighboring material, in which case double monsters are the result.

Wilson showed in his experiments that by complete separation of the blastoderms he caused each to enter on an independent development and produced twins.

Incomplete separation of blastoderms gave rise to double embryos of all varieties.

Hereditary and maternal impressions are small factors in the cause of monsters.