

each case are but exaggerations in one or other direction of the latter; nor need I point out the importance of a knowledge of the development of each tissue in arriving at a determination of the modifications which may be undergone by that tissue. In his Middleton-Goldsmith lecture in New York, Minot* has during the last year treated this latter subject in so masterly a manner, that anything I could say would be but a feeble reflection of his admirable presentation of the bearing of embryology upon pathology. What I wish now to point out more especially is that we pathologists—and we are not by any means the only ones to blame—have during these years continued to hold fixed and stereotyped views with regard to the exact nature and development of the different germinal layers, and it has been this misconception of these layers and the changes undergone by them, and of the mode in which the various tissues have been derived from them, that has brought us to this stage of discarding classifications constructed along embryological lines.

We have, that is, held as a body, that from a given layer, as, for example, the epiblast, only tissues, and tumors, of one general type are developed, and in practice we have found that this is not wholly the case. We have concluded that embryogenesis is a broken reed, and this despite our willingness to discover in it the basis for sound classification.

In order to indicate how a classification, which is primarily embryological, can be developed, it will be necessary for me to indicate rapidly what are the leading facts with regard to the earlier stages in the development of the different types of tissue, and I must recapitulate matters of a most elementary nature; nevertheless, if by doing this I can make my argument clear, I trust that I shall be forgiven.

The earliest stage to be recognized in the development of the fertilized ovum, once it has proceeded to segment, is the production of a morula, in which the blastomeres form a cluster or group of cells of the same order, with almost entire lack of differentiation. Rapidly this gives place to a second stage in which the component cells arrange themselves into two layers, the epiblast and the hypoblast, so that, at a singularly early stage, the future epiderm and endoderm are recognizable. The next stage to be noted is that the hypoblast, or internal of the two primitive layers, gives rise by proliferation of its cells to a group or mass of cells which now lie intermediate between the primitive epiblast and the hypoblast, and form the anlage of the mesoblast and of the organs derived from that layer, the hypoblast itself still remaining as a distinct lining membrane.

* "On the Embryological Basis of Pathology," *Science*, U.S., 1901, vol. xiii, p. 481.