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THE ORIGIN OF THE BLOOD CELLS: A REVIEW OF THE LITERATURE.

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In discussing the embryological and post-natal origin of the blood cells we are confronted with a question, which, although the literature is most extensive, leads us as yet to no absolute conclusion. Nevertheless, there have been many observations recorded which have determined greater and lesser points on the subject, but whose interpretation is not universally accepted in the same light. In collating the literature of this subject, I have been forced to disregard the comparative investigations on the development of the blood on account of the extensive writings thereon.

Red blood cells.—The question of the origin of the blood forces us to distinguish between the primary and secondary blood-forming sites,—that is, between the sites of earliest development of blood cells in the embryo and those locations existing in post-natal life. It is now accepted that the blood cells arise from the mesoderm. At a very early period in the embryo, and long before the heart has commenced to beat, there are developed outside of the embryo, in the area vasculosa, scattered clusters of nucleated cells which early develop the hæmoglobin colour. At first these vessels are laid down as solid strands of cells, which later become hollowed out, and anastomose with other nearby capillary tubes. In these tubes are to be found clusters of cells presenting the hæmoglobin colour, which are still attached to the endothelial walls. Before the heart begins beating, and before the vessels become linked to one another, these tinted cells lie free in a fluid within the vascular tubes. It has been noted that the vasoformative cells show a rapid division of their nuclei without a corresponding division of the protoplasm. Each one of the new nuclei then acquires