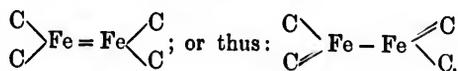


in oil of cloves and mounted in balsam. The preparations so made are permanent, and as infinitesimal traces of inorganic iron compounds are thus revealed, the method is much more advantageous than that of Prussian blue, which is apt to fade out when exposed to light, and demonstrates much less readily very minute traces of inorganic iron compounds.

The explanation for the differences in the action of inorganic and organic iron compounds on hæmatoxylin may possibly be found in the different relations of the units of affinity of the iron atoms in the two classes of compounds. A ferric salt converted into ferric ferrocyanide or a ferrous salt converted into ferrous ferricyanide becomes incapable of affecting the hæmatoxylin. The ferrous or the ferric elements are probably attached to the carbon atoms thus<sup>1</sup>:



If a direct attachment to the carbon atoms of all its bonds of union robs the iron atom of its power to affect hæmatoxylin, it is not unreasonable to suppose that in such compounds as hæmoglobin, hæmatin and chromatin, the iron atoms are similarly united.

The action of inorganic compounds of iron on hæmatoxylin would appear to be that of oxidation<sup>2</sup>.

#### *Results of the Application of the Method.*

The application of this test has shown that there are inorganic iron compounds in the chorionic and placental villi of the human subject, in the foetal liver and spleen and in the placenta of the cat, rabbit and guinea-pig. These compounds do not react immediately with ammonium sulphide, probably owing to the slow penetration of the reagent.

The existence of inorganic iron compounds in the human chorionic villi of the seventeenth day would seem to indicate that there is a transference of inorganic iron from the maternal to the foetal tissues.

Ferratin artificially prepared always affects hæmatoxylin, and it must therefore be an inorganic compound of iron. On the other hand the ferratin which is derived from the ox liver does not bring about

<sup>1</sup> Roscoe and Schorlemmer. *Treatise on Chemistry*, II. Part 2, p. 112.

<sup>2</sup> Mayer. *Mitth. aus der Zool. Stat. zu Neapel*, x. p. 170.