The Role of Iron in the formation of Blood and the Nature of Chlorosis.

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Hofmann has detailed the results of a long series of investigations with reference to the role of iron in the formation of blood. The investigations which were made upon 98 rabbits comprise the histologic examination of organs ordinarily looked upon as hematogenic :—the enumeration of the blood corpuscles ; the estimation of the hemoglobin ; the study of the pathway whereby the iron reaches the organs ; the utility of the different preparations of iron ; the action of the latter in healthy and in anæmic animals ; etc. He concludes that the iron, no matter in what form it is administered, is absorbed from the duodenum.

Being taken up by, and combining as an albuminate with, the leucocytes which act as carriers, it circulates in the blood.

In this form the iron has no toxic action. It can be found in abundant quantity, not only in the ordinary store-houses,—the spleen and the liver,—but also and especially in the bone-marrow. Here, in consequence of the delayed circulation of the blood, iron-laden cells are present in large numbers, not only in the parenchyma of the marrow, but also in the wide blood channels that form a network between them. After loss of blood the bone-marrow only presents a corresponding regenerative activity, rendered evident by a very marked hyperplasia of its parenchyma. The replacement of the red blood corpuscles is more rapid and the marrow is richer in all its constituents in animals to which iron has been given than in those that have received none ; the spleen and lymph glands, however, present no differences. In addition, in animals in which there has been no loss of blood, the exhibition of iron results in a moderate increase in the number of blood corpuscles in the circulating blood. The bone-marrow, however, presents no marked proliferation of cells, but it does reveal an

increase of fat. The replacement of the hemoglobin is less rapid than that of the corpuscles; but whether or not iron has been administered, it occurs paripastic with that of the corpuscles, that is, an independent increased production of hemoglobin does not result from the administration of iron. From this it follows that the action of the iron, as such, is to stimulate the physiologic activity of the marrow, to hasten the ripening of young forms of blood corpuscles produced in the marrow, and expedite their entrance as non-nucleated corpuscles into the circulating blood. From investigations undertaken with various so-called organic preparations of iron, and with preparations of hemoglobin, it was determined that the effects of iron therapy depend not upon the preparation of iron, but upon the quantity of the metal absorbed.

From this specific action of the iron to stimulate the physiologic activity of the bone-marrow we may gain an insight into the nature of chlorosis, in which disease the administration of iron is attended by unerring success. This disease in all probability consists either in a transitory functional capacity of the blood-forming organs (the bone-marrow) developing only at puberty, or in a congenital hypoplasia of the marrow that renders itself more or less evident throughout the life of the individual. In severe cases these are associated with the hypoplasia of the vascular apparatus, to which Virchow directed attention, also at times with hypoplasia of the sexual organs. This weakness of the blood-forming organs manifests itself in the production of diseased erythrocytes, erythrocytes defective in form and hemoglobin. While all other theories concerning the nature of chlorosis are inconsistent with this specific action of iron, that here given finds support in the result of venesection, which is likewise a stimulant to the blood-forming bone marrow. (This theory of chlorosis is by no means new, and has been maintained by Van Noorden and others).

Phillips says in regard to Iron:—"Much difference of opinion exists not only as to the relative advantages as

therapeutical agents of proto-and per-salts, but also as to the comparative merits of organic and inorganic iron preparations. In this association it may be pointed out that many of the so-called organic preparations have no claim to that title, being simply combiuations of iron salts with albuminoids and thus differing but little from the iron acetate or carbonate. The standard now adopted for a definite chemical organic combination of iron is that known as Maccallum's test. There is a tendency founded on some clinical observations made many years ago, to underestimate the value of organic iron, but I have always found organic compounds agree better than the inorganic. Iron was at one time considered a panacea for all forms of anæmia, but in reality if prescribed injudiciously it may not only fail to cure, but may produce bad results; and observation of such instances has led some to depreciate a remedy of the very highest value. Direct anæmia dependent upon excessive hemorrhage; or the indirect anæmia which follows loss of animal fluids generally (such as in obstinate leucorrhœa, empyema, and suppurations, seminal losses, profuse perspiration, diarrhœa, prolonged lactation, or too frequent pregnancies); also the anæmia produced by acute disease such as rheumatism, and that connected with dyspepsia and inanition when the albuminous constituents of blood are really most deficient,—all these forms, though complicated with extreme debility and general hydræmia, may gradually improve with good food, rest, pure air (especially if the cause be removed); but iron, given in suitable doses so as not to disorder the stomach, will greatly assist and hasten recovery. In other cases, the best dietetic measures alone are insufficient, and iron is indispensable for cure; in the congenital anæmia of children born after profuse uterine hemorrhage, or whose parents were affected with anæmia, tuberculosis, constitutional syphilis or other exhausting diseases, iron is of special value; also in strumous and rachitic cases, but it requires to be continued for a long time,

In the anæmia due to mal-hygiene, to sedentary pursuits, prolonged residence in a town atmosphere, or continued exposure to carbonic acid, iron compounds are also markedly useful. The causes of anæmia are as numerous as the diseases which affect the human body, the blood being so intimately associated with every organ and tissue that it inevitably reflects every change in them. Setting aside cases of "accidental anæmia", those caused by hemorrhage, toxæmia, or other similar causes, the anæmias naturally fall into two categories, those in which there is a pronounced reduction in the percentage of hemoglobin in the blood, but not a corresponding diminution in the number of red cells, and those in which the erythrocytes fall well below 2,000,000, and are sometimes but little over 1,000,000. In all these cases, except the last, which are examples of pernicious or essential anæmia, iron is the one and only remedy. I am satisfied that in anæmia, whether the ordinary chlorosis or the secondary anæmia of hemorrhage, iron is the only drug to which curative properties can be assigned, and that both Arsenic and Manganese in all forms are valueless in this connection. Dr. Ralph Stockman has shown by a series of masterly researches that Arsenic alone is absolutely useless in the treatment of Chlorosis, and that Manganese is equally valueless in all forms of anæmia. It may be affirmed without hesitation that the use of Manganese in the treatment of anæmia is a thing of the past. Combinations of Iron with Arsenic or with Manganese are an anomaly; each drug has its own particular use and sphere of action, and polypharmacy is usually an admission of a faulty or incomplete diagnosis. Otto Jallase treated a number of chlorotic girls at first by rest in bed and a suitable diet, and later by iron in addition, and found that though the subjective symptoms improved, the percentage of hemoglobin in the blood remained stationary until iron was added, when it immediately rose, at least 5 per cent. each week. In malarial anæmia, on the other hand, the percentage of hemoglobin rose steadily

after the malaria was cured, whether iron was given or not.

[Thanks to dear Dr. Dey for his labours. But these things are quite out of place in a Journal devoted to pure Homœopathy. We have better guide than those so called researches. Our proving gives indications which are unerring, and the symptom-similarity is the only things necessary to know if a particular case of Chlorosis or Anæmia is to be treated with Iron or Manganese or any other remedy in our armamentarium. We do not treat diseases in the abstract but only the diseased individuals in the concrete.—Ed.]

Only a few weeks ago a gentleman called for medicine for his wife. Knowing he had been under homœopathic treatment for a catarrh of long standing, I asked him how he got along. "Oh, finely, but your little doses won't do, they are too slow for my case ; they are the thing for my wife, but they didn't do up my catarrh. I went to an allœopathic doctor and have had two injections of nitrate of silver, pretty severe, but my catarrh is most well". I congratulated him and thought that if that old catarrh was being so suddenly stopped, such speedy *cures* are impossible, he would have trouble. Not long after, he returned to the slow method ; he had become frightened, for after three or four applications he began to grow deaf. There is not one here but has noted the production of tubercles in the lungs following the suppression of nasal or laryngeal catarrh ; the treatment drives it down out of reach as well as the patient. Intelligent persons are learning that it is dangerous to suppress hæmorrhoids, scrofulous glandular swellings, etc., etc. They are finding out the same things as regards catarrhs and, in fact, all local manifestations. We must keep in advance of our patients—T. F. ALLEN, 1865,

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To reason from diseased conditions we need hundreds of cases—absolute knowledge of a drug from the healthy needs but comparatively few provers.—T. F. ALLEN.