

About Christmas time these symptoms were aggravated and her feet began to swell; she had headache, frequent micturition, and amenorrhœa, and notwithstanding the fact that she had good food, took iron, and was well cared for, her blood became more and more impoverished.

She was before you two weeks ago to-day, in a wretched state of health, anæmic to an extreme degree; with murmurs in the vessels of the neck and in the heart; without appetite, weak and pallid; she had not menstruated for three months. It was evident that she needed iron, but we found on several trials of the ordinary chalybeate preparations that they produced disturbance in the stomach and bowels. I then decided upon introducing iron into the system by a method adapted to insure its entrance into the blood in the most perfect and speedy manner. We commenced this treatment by throwing under the skin of the upper extremities fifteen minims of the ordinary solution of dialysed iron, but this daily dose was soon increased to thirty minims, without the slightest bad effect, local or general. The punctures have produced neither inflammation nor discoloration. In fact, she has grown so accustomed to the hypodermic needle that she makes no complaint whatever of its introduction. No disturbance of digestion has occurred, even in the slightest degree, in our patient, by this method of administration of the remedy; on the contrary her appetite has steadily improved.

A more marked evidence of real benefit, even than her improved appearance, is given by the fact that while she has been under this treatment she has menstruated during this last week, and she now wishes to leave the hospital and return home. I do not say that she is no longer anæmic, but, although she is still pale, there is evidence of a very much better condition of the blood. Another striking demonstration of her improvement is this: that the marked venous hum, which, when she was last in this room, was remarked to be so loud as to be almost heard before I placed the stethoscope over the vessels of her neck, has now nearly vanished; I do not say that it does not exist at all, but that it is much fainter and less distinct than before. She says that she feels well; her appetite is good; the bowels are regular; she has no headache; and does not suffer in the least from the secondary disturbances of the remedy. Now, since the case has reached this point of almost entire recovery, the question arises, whether to continue this treatment, or to give her the iron through the stomach, since her digestion is now so good? Under present circumstances I think it will be well to order her twenty drops of the tincture of iron three times a day. I do this, because I believe that she is almost well, and because she is going out of the hospital, and it will be necessary to give her treatment that she can carry on herself. I would not have you understand me to say that we might not have been able to obtain these beneficial results from the internal administration of iron, had her stomach always been in a condition to allow its introduction

in this way. And looking beyond the present illustration we know that there are many cases in which we wish to give this remedy, but where it causes those secondary effects of iron on feeble digestion, with disturbance of stomach and constipation, to such a degree as to absolutely prohibit its use; cases, perhaps, of anæmia, following exhausting hemorrhages, post-partum, traumatic, or in the hemorrhagic diathesis. In such patients the hypodermic method will yield all the advantages, without the disadvantages. Nor is it necessary to restrict ourselves to one method of administration, because in certain cases, where it is essential to have a rapid and positive influence on the blood, we can give small doses by the mouth at the same time that we give the bulk of the remedy by the skin.

Having learned by this case the practicability and advantages of this method of giving iron, we are led to consider it in especial connection with the subject of gastric ulcer, and of pernicious anæmia and pseudo-leucæmia. In mentioning the effect of iron upon these maladies, we recall the fact that hitherto it has not been very favorably noticed in this connection chiefly, perhaps, because of the great disturbance of digestion caused by the iron, and also on account of the imperfect absorption and defective assimilation that attends these disorders. We may, however, introduce it directly into the circulation through the absorbents, by injecting this preparation under the skin, and I think with prospects of a better result than by any other method of administration.

Let me state that, for years, I have tried to use iron hypodermically, to obtain its constitutional effects in instances in which it was desirable to introduce it rapidly into the system, or in which the state of digestion made it a remedy badly tolerated when given by the mouth. But using various salts, among them the soluble potassio-tartrate and ammonio-citrate, I found them often occasioning so much irritation that they had to be abandoned. Dialysed iron, if pure, promises well. It is, of course, essential that it should not contain acid; indeed, solution of dialysed iron for hypodermic use should be neutral in reaction. It is perfectly clear, of a deep wine or garnet color, by transmitted light, and is not astringent to the taste. The standard solution of Graham contains 24 grains of solid matter to the ounce; it is free from hydrochloric acid, and the proportion of the ferric chloride to the ferric oxide should not be greater than 1 to 27.*

*[The following note was made of her condition when she left the hospital, February 28th 1878: "The venous hum has sensibly declined; it is very faint; the throbbing of the carotids and of the jugular veins is less marked. Her color is coming back; the lips and cheeks are more natural." She had also become constipated, which was not the case while taking the hypodermics of iron.

* The solution of dialysed iron used in this experiment was manufactured by John Wyeth & Bro., which fully meets the requirements indicated.