three or four folds of soft flannel, extending the whole length of the limb, should be applied between the short splints and the limb.

5th. Two long bolsters, extending the whole length of the long splints.

6th. Two long splints; one on the inside of the limb, extending from near the perineum to the bottom of the foot,—the other, from the spine of the ileum to a distance of five or six inches below the foot. Both of these splints are furnished with a joint at the knee, which corresponds, in its flexure, with that of the knee joint. At the lower end of the longest splint is a piece of iron, turned at a right angle, with an aperture and screw, to make extension. The iron is made to slide on to the end of the splint, and is retained by a light fixture, so as to be easily changed from a right to a left limb, when necessary. The screw has, at the end, towards the bottom of the foot, a small eye, to receive a strap for the purpose of extension, and a nut at the other end, so constructed as to be easily turned with the thumb and finger. The upper end of the long splint may be secured to the belt around the pelvis as directed by Desault; or, which is preferred, by two ligatures passed through the belt, and two apertures at the upper end of the splint, and thus confining it on the outside of the belt.

7th. A bandage or belt, about five or six inches wide, to be secured around the pelvis, having two straps passing from the hinder to the fore part, for the purpose of counter-extension.

8th. A short crutch, to extend from the axilla to the ligatures which confine the upper end of the splint. Where the fracture is situated in the lower portion of the

femur, and where muscular resistance is not strong, this part of the apparatus may be dispensed with altogether.

9th. A junk cloth, to fold around the long splints, extending from the perineum to near the heel.

10th. Seven or eight tapes, to confine the splints.

VI.

OVERSHOES FOR CHILDREN.

To the Editor of the Boston Med. and Surg. Journal.

SIR,—It is a subject of regret that there is so great a demand, in this part of the country, for children's India-rubbers; and as your Journal is probably taken by every physician in New England of any distinction, I am desirous of enlisting, through its pages, their influence against so pernicious a custom. Are not parents sensible that they cannot well do their children a greater unkindness, than thus cautiously to protect their feet from external dampness, and parboil them in perspiration? The feet of children should be well bathed in the coldest water every morning throughout the year, and they should then be protected by nothing thicker, warmer, or more impervious to water, than leather shoes. If, in wet weather, the soles of these shoes are soaked through, no injury can come of it, if the child have never been made tender and susceptible of cold by the practice I feel it a duty to discourage. On the contrary, he will run and sport about more briskly, and lay the foundation of a firmer constitution, and more vigorous and uniform good health.

I have noticed several families of children whose feet are thus ha-

bitually guarded, and find them looking puny and pale, kept at home from school oftener by colds, than other children by bad walking, and in sickness offering much less resistance to disease than those whose systems have been fortified by more hardy management. Let a child, after three or four years of age, be accustomed to reasonable exposure of every kind, and exercise as much as he will, and he will be better and happier in his early years, and grow up with a vigor of health and elasticity of mind which I have seldom seen surmounting a pair of children's India-rubbers.

Yours, most respectfully,

THE CHILDREN'S FRIEND.

MEDICAL JOURNAL.

BOSTON, MARCH 15, 1831.

PHYSIOLOGY OF RESPIRATION.

WE mentioned, in our last number, some researches of Dr. Christison, of Edinburgh, which go to prove, in opposition to the views entertained by Dr. Davy, that certain mutual actions take place between venous blood and atmospheric air out of the body, by which both become altered in their sensible and chemical characters; the former changing its color to a brighter red, and the latter, while it diminishes in volume, presenting a difference in the proportion of its constituents. We avoided, at that time, touching on the question as to the precise nature of the changes induced, and of the actions which gave rise to them; reserving these topics for separate consideration. As, however, Dr. Christison extended his inquiries to these points,

and as we have accounts of similar researches, within a few months, by several eminent chemists, we deem the opportunity a fortunate one for inquiring what approaches have been made to any positive results in this intricate subject.

By examining the ingenious experiment of Dr. C., it will appear, that although the volume of the air acted on by the blood was diminished, the amount of carbonic acid gas contained in it was slightly augmented. Now, according to Dr. C., this acid was always formed at the expense of the oxygen of the original air. This, he says, appeared from the fact that its volume was either less than, or precisely equal to, that of the oxygen in the original air, diminished by that contained in the residual air, and also by the amount of absorption; which last indicated the quantity of acid which, after being formed, was absorbed by the serum of the blood. To understand this calculation, it is necessary to keep in mind that oxygen, in passing into the state of carbonic acid, suffers no change of bulk; and that the carbon it receives merely augments its specific gravity. Supposing this calculation exact, it proves only that, in place of the oxygen which had disappeared, a somewhat smaller bulk of carbonic acid was furnished to the air; and that the difference between these two amounts was absorbed, or disappeared. This fact is reconcileable with very different theories, and entirely so with that which we shall presently mention. As the blood was not analyzed, the assumption that the gas absorbed by