when a man is dosed with alcohol, nitrite of amyl, hypodermic injections of ether, digitalis, atropine, and other powerful agents; faradized, slapped, douched, stood on his head, subjected to chest movements for artificial respiration, and to various other measures too numerous to mention; who can tell, if by chance he recover, why he has done so? or who can point out, if by chance he die, what is the remedy whose omission or commission has led to the fatal result?

The problem is a very complex one, not to be worked out amidst the excitement and responsibilities of the amphitheatre. Only in the physiological laboratory can its various elements be separated and studied each by itself, without regard to the individual life which is at stake.

In the physiological laboratory two distinct paths open, each promising to lead to some positive knowledge. We may, on one hand, enter upon the study of the minimum fatal dose of the anæsthetic, and of the results by the concurrent or subsequent administration of its supposed physiological antagonist; or we may investigate the effect of remedies upon functions that are failing under the influences of the anæsthetic.

The objections to the first of these methods have been, in the present instance, overwhelming. The accidents seem to be independent of the amount of anæsthetic inhaled; and such a method of investigation would have required far more time than was available after I had had the honor of being asked to address this body. Death is produced by chloroform and ether through paralysis of the respiration and the heart, and the method of experimental study which I have employed consisted in a study of the action of powerful agents upon these functions when oppressed by chloroform. I have selected chloroform chiefly because it is the more powerful agent of the two anæsthetics, and the more certain in its lethal results.—*Med. News.*

(To be Continued.)

ON THE PRINCIPLES OF THE TREATMENT OF DIABETES MELLITUS.

The first point to be considered in discussing the treatment of diabetes is the rationale upon which it should be conducted. A certain deviation from health resulting in the escape of sugar with the urine constitutes the condition that has to be combated, and something requires to be said regarding the nature of the deviation before we are in a position to approach the question of how it should be treated.

The observable phenomena are that, whilst in the healthy subject the food ingested is disposed of in such a manner within the system as not to lead to the exit of sugar from it, in the diabetic subject the food fails to be similarly disposed of, but in part passes out as unconsumed and wasted material with the urinary excretion. It is with the carbohydrate principles that the faulty action lies. These, instead of passing in the direction that results in their consumption and utilisation, and thus disappearance within the system, as occurs in health, do not follow such a course, but remain in the state of carbohydrate, and are eliminated as such. The chemistry of the body with regard to these principles is at fault. The proper changes do not take place to lead to their being employed as they ought to be, and thereby lost sight of. Represented in other words, through defective assimilative action these principles do not pass on, it may be said, to their proper destination.

Thus much is learnt by simply looking at the matter through the light of ingress and egress.

There is no theoretical consideration involved in stating that the carbohydrates in the system of the diabetic fail to undergo those right chemical changes which, in health, lead to their disappearance, and that consequently, whether ingested from without, or formed from the splitting up of nitrogenous matter within, they become disposed of by egress with the urine.

It may further, I consider, be stated that, as a result of the faulty action, the carbohydrate, in the form of sugar, reaches the general circulation in a manner it ought not. No one with any ground of support can contend that the sugar eliminated is formed by the kidney. Whatever appears in the urine has previously existed in the blood flowing to the organ, and osmosis suffices to account for the escape that takes place. I am of opinion it has satisfactorily been made out that healthy urine contains a certain small amount of sugar, and this stands in accord with what is observed as regards the condition of the blood under natural circumstances.

With regard to the presence of sugar in ordinary urine, I conducted a series of observations some years ago, in which I precipitated the sugar by means of lead acetate and ammonia, after previous separation of the uric acid by lead acetate alone. The compound of sugar and lead oxide was then decomposed by sulphuretted hydrogen, and the sugar estimated gravimetrically by boiling with the copper test liquid, collecting the precipitated cuprous oxide, and subsequently, by the aid of a galvanic current, depositing the copper upon a weighed platinum cylinder. The amount found varied from 0.96 to 0.533 parts of sugar per 1,000 parts of urine.

The condition of the blood, as regards sugar, can be with precision defined by the application of a satisfactory analytical procedure which exists at our command. There is no difficulty, with the exercise of proper attention, in securing the full extraction of whatever sugar is present in a given