

the name of *diabetes insipidus*. We have had frequent opportunities, and shall have again, to refer to these curious facts in some other of these clinical lectures.

The next constituent of the urine that I wish to draw your attention to is the phosphoric acid, or phosphates, given off in disease and in health.

Now you will do well to remember that of the phosphoric acid contained in the urinary secretion, one-third to one-half, though no doubt it has some special function to perform in the system, is obtained directly from the food. If patients suffer from insufficient food, as amongst children badly nursed, or our poor-law patients and dispensary patients, then the phosphoric acid in the urine is diminished or disappears nearly altogether. The phosphoric acid in the urine usually exists in combination as acid phosphate with potash, sometimes with soda, lime, and magnesia, but not with ammonia. You know already that there is a large amount of phosphate of magnesia in common bread, also in meat, but this, as well as phosphate of lime, requires acids in the stomach to dissolve it. You know, also, the old distinction of alkaline and earthy phosphates in the urine; the proportion of these are as five to one, and the total amount of phosphate for an adult may vary, so much as from a drachm and a half to five drachms, given off in the urine, but depending in a great measure on the quantity and character of the food.

The phosphoric acid, on the opposite hand, formed in the system itself, comes directly from the disintegration of certain tissues in the body, such as the disintegration of nerve tissues in particular; and this brings us to the consideration of a most important subject—the phosphoric acid formed in nervous or convulsive diseases from the exercise of the brain and nerves; and I may also add, from the disintegration also of muscular tissues; but before we come to that subject I may say a few words to make more clear what I mean by phosphatic deposits, and I may begin by saying that what one reads even yet in what are thought to be “standard books,” as the phosphatic DIATHESIS in patients is altogether a mistake, there is no such thing as this diathesis. But if we place some urine, which is feebly acid, over the flame of a spirit lamp, and boil it a change takes place in some remote manner, like what is seen in what is called the phosphatic diathesis. The neutral phosphate of lime is divided into two parts—a basic phosphate is thrown down and an acid phosphate remains in solution. The same occurs to the magnesia phosphatic salt; these basic compounds fall down, but on the urine standing, they partly redissolve again. It is said, as a theory to explain the change, carbonic acid is driven off by the boiling, or urea decomposed; but be this as it may, the fact of the de-