

multiply the last two figures of the specific gravity by 2. For example, if one takes 1000 grains of urine with a specific gravity of 1020, that amount, roughly, will contain forty grains—that is to say 20 multiplied by 2—of solid matter. But it must be remembered that the density of the urine varies greatly from hour to hour, according to the amount, or the kind, of nourishment, and in health according, also, to the amount of exercise which is taken. So that it is a good rule to collect the urine for twelve hours, and then take the specific gravity of the whole. If this is very low, it is proof either that an excessive amount of urine is being passed, or that there is a great diminution in the amount of the solid matter excreted. The former may be a matter of no importance, and, for example, it is very common in the case of patients suffering from nerve exhaustion—or what is called *neurasthenia*—and also in patients after an hysterical attack, or even in persons who are suffering from great temporary nervousness, to find that the action of the kidneys is greatly increased, and that a large amount of very pale urine is passed—with a specific gravity, perhaps, of only 1005, or even less. On the other hand, as has already been said, when the urine contains much solids, of course the specific gravity is much higher than normal, and so patients suffering from gout or rheumatism, or with a strongly marked gouty or rheumatic tendency, especially after a chill or a cold, may have urine with a specific gravity of perhaps 1030, or even higher, the fluid being loaded with *urates*, and, on cooling, becoming thick and turbid, with a reddish deposit or sediment. Then, again, if there be an excessive quantity of sugar in the urine—that is to say, if the patient is suffering from *Diabetes*—the urine will almost certainly have a specific gravity of more than 1030. The cardinal points, therefore, to remember are that it is the function of the urine to remove from the blood and the system, solid matters—the retention of which in the system would be dangerous to the patient. A low specific gravity, then, shows that the Kidneys are not performing their work, adequately, in freeing the blood from such solid material. And, on the other hand, a high specific gravity shows either that too much solids are being excreted by the Kidneys, or that some material, like Sugar, which the system can ill afford to lose, is being thrown off in the urine.

From these facts, the importance of care-

fully taking the specific gravity of the urine will be evident. In the next place, it is always well to measure the quantity of urine passed in twenty-four hours. In some diseases, the amount of fluid excreted by the Kidneys is very small; in others, it is very large; and when one remembers that, on the one hand, a diminution of the natural amount of urine shows that the Kidneys are not performing their work properly, and, on the other, that an excessive amount of water means that the tissues are being deprived of the moisture which is essential to their good health, the importance of knowing precisely how much urine is passed each day becomes quite plain. The average quantity of urine excreted by a healthy adult is about sixty ounces, or three pints; and it is therefore a good rule that in health, and equally in disease, three pints of fluid should be drunk in each twenty-four hours. In many diseases, this is even more important, because the flushing of the Kidneys by considerable quantities of fluid means the carrying off from the body of a large amount of solids which would otherwise accumulate, clogging the excretory organs, and thus tending to increase the illness of the patient.

In cases of obstruction of the bowels, it is most important to know the amount of urine excreted within the twenty-four hours, for a simple physiological reason. You will remember that we saw, when discussing the processes of Digestion, that the watery part of the diet assisted in the passage of the food until it reached the large intestine, when the water itself became absorbed. If, therefore, there be an obstruction in the small intestine, so that the fluid chyme is not able to pass into the large intestine at all, and its water is therefore prevented from becoming absorbed, we should naturally expect that the blood, absorbing less water, would be able to give less to the Kidneys, and, therefore, that the quantity of urine excreted would be much less than normal; and this is so, as a matter of practical fact, and supplies thereby a symptom of the greatest importance in diagnosing the precise position at which the bowel is obstructed. Because, if the quantity of urine passed in twenty-four hours is greatly less than natural, the presumption is that the seat of stoppage is in the *small* intestine; if the quantity of urine is about the same as normal, the seat of obstruction is almost certainly in the *large* intestine.

(To be continued.)

[previous page](#)

[next page](#)