The book has been finished with great care, and its appearance, both without and within, is all that can be desired.

Lectures on Bright's Disease of the Kidneys, delivered at the School of Medicine of Paris. By J. M. CHARCOT. Translated by HENRY B. MILLARD, M.D., New York. London: Baillière, Tyndall & Cox. 1879.

ANY work by Professor Charcot, bearing on a subject within the domain of Pathological Anatomy, is sure to be worthy of consideration, especially as his views may be regarded as representative of the most advanced French school. At the outset, it may be stated that the views concerning Bright's Disease enunciated here are avowedly those which are prevalent in England, and familiar to English readers, in the works especially of Dickinson, George Johnson, Grainger Stewart, and others.

After a discussion of the normal anatomy and physiology of the kidney, and a brief description of the infarctions and casts met with in the urinary tubules, he considers Bright's Disease under three forms—namely, interstitial nephritis, parenchymatous nephritis, and amyloid kidney, giving descriptions of these various forms with which most readers are familiar. He adds a short paragraph on scarlatinous nephritis.

There is one subject considered in these lectures to which we shall more particularly refer, as it seems to us that the author's views stand in need of some modification. This subject is, the exact locality of the secretion of the various urinary constituents, with special reference to the secretion in cirrhosis of the kidney. We believe that the study of this disease is calculated to throw important light on the question referred to. In the part of the work devoted to the normal secretion of urine the author refers to the views of Professor Ludwig, which are briefly these:—he believes that the entire urinary constituents existing preformed in the blood, pass into the uriniferous tubules at the Malpighian capsules. In the urine which thus transudes there is a great excess of water, and in its passage through the various sections of the tubules water is absorbed and the urine concentrated. Ludwig supports his view by a consideration of the arrangement of the blood-vessels and otherwise; but to this we shall not further advert. The view opposed to this is, that only the water transudes at the Malpighian tufts, while the urea and uric acid are separated from the blood by the epithelium, and added to the water afterwards. This view has received apparent corroboration by

an important series of experiments by Heidenhain. He found that sulphate of indigo transfused into the blood of an animal passes into the urine, and does so not through the Malpighian tufts, but through the secreting epithelium cells. This result was obtained by means of experiments, in which the secretion of the watery portion of urine was prevented, the indigo, nevertheless, being still secreted, so to say, by the epithelium cells. It is to be noted that this secretion takes place in special parts of the apparatus—namely, in the tubules supplied with large cloudy epithelium, that is to say, in the convoluted tubules, and the ascending branches of Henle's loops. Heidenhain has also shown by experiments, in which the secretion of water has been interrupted and urate of soda injected into the blood-vessels, that this substance is secreted in the same way as indigo—namely, by the epithelium. It is inferred that the same applies to urea; but as this substance is highly soluble in water, and cannot be procured in the solid form in the tubules, no confirmation has been obtained as to it.

If we turn now to the condition of matters in cirrhosis of the kidney, we believe that light will be thrown on this question of the secretion of urea. It is well known that in this disease, the urine is frequently in great excess and watery, while, as Charcot points out here, the urea is usually in normal amount in the twenty-four hours. Now, in cirrhosis, there is, as is well known, and as Charcot frequently asserts, a great destruction of the uriniferous tubules, especially the convoluted ones, which, even when a few of them persist, are devoid of the proper cloudy secreting epithelium, whose place is taken by dwarfed embryonic epithelium cells. In fact, in an advanced cirrhosis there is very little of the proper secreting epithelium left, and yet, as has been pointed out above, the amount of urea secreted is on the average normal. It is to be remarked in this connection that Garrod has pointed out that, in gouty cirrhosis, while the urea remains normal the uric acid greatly diminishes.

The bearing of these facts appears to us to be obvious, and it seems strange that it has not occurred to Professor Charcot. The facts seem to us strongly confirmatory, so far, of the view of Ludwig, in that they indicate that urea, as well as water, passes from the blood at the Malpighian tufts. The increase in the amount of water in the urine is accounted for in two ways: there is great obstruction of the capillaries, causing an increased pressure in the vessels of the Malpighian tufts, and a consequently increased transudation, while, at the same time, the absence of the epithelium prevents the concen-

tration of the urine. Charcot accounts for the increased watery secretion by the increased arterial tension which he seems to ascribe to hypertrophy of the left ventricle. But, it is known, on the one hand, that the left ventricle is not hypertrophied in every case, and on the other, that the thickening of the internal coat of the renal arteries known to exist in cirrhosis will, by friction, more than counterbalance any increased force of the heart. In fact, the condition of the kidney in advanced cirrhosis is pretty much as if nothing remained but Malpighian tufts and collecting tubes, all the intervening secreting tubes having their epithelium so altered as to be in the condition of collecting tubes. If this be the case, then the urine which passes into the bladder will be very much like the urine which comes from the Malpighian tufts.

Taking this view of it, it is clear that a great additional secretion must take place in the persisting Malpighian tufts, there being in advanced cases a very great destruction of tufts. As the amount of urea secreted is normal, the remaining tufts must bear the additional stress of the secretion. We have already referred to the fact that this additional stress is equivalent to an increase of pressure in the blood-vessels of the tufts, it being a well known fact that the amount of urine secreted depends on the amount of blood pressure here. As above indicated, we believe that the increase of pressure is of local origin, being due to the obstruction of the capillaries of the kidney, which are mainly, if not entirely, formed from the efferent vessel, and whose obstruction would have a direct effect in the way of increasing the tension within the tufts. This view is confirmed by injections of the kidney from the renal artery in cirrhosis, when it is found that on the one hand the capillaries are, for the most part, uninjected, and on the other, the injection material has to a considerable extent escaped from the Malpighian tufts into the tubules, thus indicating a great excess of pressure in the tufts.

The author treats very briefly of scarlatinous nephritis, and adopts the view that the disease in the kidney is an acute or sub-acute interstitial nephritis.

We regret that we are unable to compliment the translator of this work on the style of his English. We are astonished to find Germans, French, and English indiscriminately called "Mr." (evidently a slavish translation of the French *Monsieur*). One is astonished to meet with Professor Ludwig under the designation of Mr. Ludwig, and so on. The translator is surely unaccustomed to ordinary medical phraseology when he uses the expression "great enlargements" in referring to high mag-

nifying powers of the microscope. We have marked many similar peculiarities, but these will suffice.

Student's Primer on the Urine. By J. TRAVIS WHITTAKER, M.D. London: J. & A. Churchill. 1880.

OF the numerous special studies which, of recent years, have received the attention of physicians, none has undergone more complete elucidation, and none has been found more pregnant with important results, than a study of the urine. The urine is very rich in effete material, the result of histo-genetic and other changes going on in the body, and thus affords great scope, through its chemical and microscopical examination, for obtaining valuable information as to the normal physiological processes going on in the system, and the deviations therefrom.

Although the literature of the subject is tolerably rich, yet the student must often find the need of a handy reliable work, like the one under review, to guide his examination of the urine, and to show him the forms and names of the numerous objects he sees in the microscopic field. Treatises on the urine are much too cumbersome for ward use, and some of the best of them are sadly deficient in plates, a want which this primer faithfully supplies.

The first twenty-nine pages are devoted to the physical condition of the urine, with the quantitative and qualitative analysis of its principal constituents. In a very succinct and clear manner, the author deals with the conditions influencing the amount voided; the variations in hue, and the circumstances under which they occur; the normal odour, and how it is affected by certain drugs and states of the system, or of the urinary tract; the specific gravity, and how it is affected by certain diseases. The acidity and alkalinity of the urine; the cloudiness, turbidity, and sediments, are explicitly stated, and merit special commendation.

The quantitative analysis of the urine does not generally receive the attention which it deserves, owing to the unavoidable trouble consequent on the necessary manipulation, but, in the present advancing state of medical science, no well educated physician can neglect such means of obtaining valuable information in important cases, and therefore it is incumbent on students to make themselves well acquainted with volumetric analysis, the value of which they will more fully appreciate in after years. We are sorry to say that this is, in our opinion, the least satisfactory part of the book. The brevity which,