

the dilated end of the convoluted tubule and forming with the latter the Malpighian body; the second, of the capillary net-work formed by the splitting up of the afferent vessel after it leaves the Malpighian capsule and closely embraces the convoluted tubules. The area of this is great, and the movement of the blood slow. As a consequence, a condition favorable to increasing the blood-pressure in the Malpighian body exists. Such pressure is obtained by increasing the force of the heart's contraction, or increasing the arterial pressure by the introduction of fluids within the blood-vessels. The effect of this is to produce a more rapid filtration; that is more water is squeezed out from the blood-vessels into the Malpighian capsules, whence it is carried downward in the tubules. Now whatever remedies increase the force of the heart's action or the arterial pressure by absorption of fluids will increase the amount of water thus filtered out. Such remedies are digitalis, the salines, and diluent drinks generally,—digitalis by increasing the force of the heart's action, the salines and diluents by increasing blood-pressure through their absorption. Digitalis is certainly the diuretic most to be relied upon, and, when combined with the salines, freely diluted, affords a powerful lever for good. It is necessary, however, to have a reliable preparation, and unless one is sure of the quality of the tincture it is best to use a freshly-prepared infusion. At the same time it is also true that much smaller doses of the tincture are usually given than of the infusion. Thus, of the latter,  $\frac{f3}{ss}$  is often administered, equivalent to three and three-quarter grains, while eight minims or sixteen drops of the tincture, equivalent to one grain of the powder, are considered a full dose, a discrepancy which must account for at least a portion of the diminished effect of the tincture. Digitalis should therefore be given in sufficient quantity,— $\frac{f3}{i}$  of the infusion to children, and  $\frac{f3}{ss}$  to adults,—repeated every three hours until an appreciable effect is produced on the rate of the pulse, when it should be diminished. Not until then can you look for a diuretic action. Digitalis, when thus administered, should, of course, be watched, and the patient should be seen twice a day until an effect is produced. Of the alkalies with which it may be combined, acetate of potassium and citrate of potassium are to be preferred. Their diuretic action doubtless depends upon the impetus they give to the osmosis of fluids which hold them in solution, thus increasing the arterial tension and contributing to the flushing of the kidney. Half a drachm of the potash should be given every two or three hours to adults, and ten grains to children. There can be no doubt that an increased filtration of water into the Malpighian capsules aids the separation of the organic constituents in the second capillary net-work referred to, both by facilitating osmosis on the principle of the more rapid current, and by washing out of the secreting cells of the convoluted tubules the organic matter already excreted by them.

By such means as these, after the unloading of the blood-vessels by the action of a purge, we may great-

ly serve our patient through diuretics. On the other hand, turpentine, cantharides, copaiba, and the class of diuretics which produce a congestion and stagnation of blood in the second or venous capillary net-work, are mischievous, and should not be employed.

It should not be omitted to mention that fomentations of a strong infusion of digitalis ( $\frac{3}{i}$  to a pint) applied to the abdomen or lumbar region are often efficient in producing diuresis when other means fail.

*Treatment of chronic Bright's disease.*—There is always an intermediate stage between that of acute nephritis and the condition of the large white kidney from which recovery often takes place, which calls for a modification of or an addition to the treatment described for the acute, and which is indicated by an impaired quality of the blood, due partly to the gradual accumulation of effete matter, and partly to the drain upon the system which a copious albuminuria certainly induces. But, as it is a condition growing out of the prolonged presence of the disease, it is practically covered in the treatment of the chronic form, and requires therefore not to be separated from it.

The chief indications in the treatment of the chronic forms of Bright's disease are two: *first*, to improve the quality of the blood, which has become anæmic and loaded with urea and allied organic compounds; and, *second*, to combat the symptoms and complications which form a source of great inconvenience, and even danger, to the patient.

The first of these indications is chiefly fulfilled by the use of iron, quinia, and strychnia, nourishing food, and proper hygienic influences; and also by depurating the blood of its retained urea. The well-known Basham's mixture, really a solution of acetate of iron, made by adding to tincture of the chloride, acetic acid and the solution of the acetate of ammonia, has the advantage of at least tending to eliminate, while it also restores. But the tincture of the chloride alone is a powerful agent which is always accessible, and, when combined with the sweet spirit of nitre, is perhaps as efficient as the Basham's mixture. To either, the quinia and strychnia may be added if desired; while to the latter the infusion or tincture of quassia makes a compatible addition.

With regard to *food*, while it is true that an abundance, and of good quality, is desired, a question has properly arisen as to the propriety of using the highly nitrogenized substances, as animal flesh. It is now well determined that the urea formed in the blood and eliminated in the kidneys is derived chiefly from the azotized elements of the food, and that the more nitrogenous food we consume the more work is thrown upon the kidneys; although here too the question is somewhat different if we suppose the separation of the urea a matter of mere filtration, or one of elaboration. But either supposition involves an increased flow of blood to the organ; and, although I cannot speak from any certain knowledge that disadvantage results from the free use of nitro-