

ance. When the deposit is constant, and in large quantity, the formation of the mulberry calculus may be feared. This sediment is said to be associated with a dyspeptic and hypochondriacal condition, sometimes termed the "oxalic acid diathesis."

PHOSPHATES.—The phosphates are only separated from very feebly acid, or alkaline, urine; and they are always deposited when the urine undergoes the alkaline fermentation; they consist of the ammoniaco-magnesian phosphate and the phosphate of lime.

Under the microscope the ammoniaco-magnesian phosphate appears in beautiful right rhombic prisms, which disappear immediately on the addition of acetic acid, and are thus distinguished from the oxalate of lime, with which an inexperienced observer might, perhaps, confound them.

The phosphate of lime chiefly occurs as an amorphous deposit, soluble in acetic acid; it is precipitated by heat in flakes resembling albumen, which are at once, however, dissolved by a drop of acid.

Clinical Import The deposit of phosphates indicates an alkaline reaction of the urine, a condition favorable to the formation of phosphatic calculi.

If the least doubt be left upon the observer's mind after the microscopical examination of a sediment, he must use the assistance of reagents in determining its nature. The following scheme will be found useful; a drop of strong acetic acid should be placed on the glass slide, near the thin covering glass, so that the acid may run in between the two pieces of glass, but it should be carefully prevented from wetting the upper surface of the cover, as this will produce an obscurity over the object. Should the deposit be phosphatic, the acid quickly dissolves the crystals, or amorphous sediment; but if the sediment consists of urates, crystals possessing the well-known shape of uric acid are formed. If no effect upon the sediment is produced by acetic acid, it consists of either uric acid, or oxalate of lime. Liquor potassæ added with the same precautions as acetic acid, brings about a solution of the crystals of uric acid, but the alkali has no effect upon oxalate of lime, which will be dissolved by the action of hydrochloric acid.

CYSTIN.—Cystin is a rare deposit in the urine; it occurs in colorless hexagonal plates, united by their flat surfaces, and overlapping one another. When dissolved in the urine, cystin may be thrown down by the addition of acetic acid, and the precipitate examined under the microscope. It may be distinguished from uric acid, which sometimes crystallizes in hexagonal plates, by the absence of color in the crystals.

Urine which contains cystin is usually feebly acid, of a yellowish green color, and of a peculiar odour, compared to sweet briar, but which sometimes resembles that of putrid cabbage. The urea and uric acid are diminished in most cases. The ammoniaco-magnesian phosphate often accompanies the crystals of cystin.

Cystin contains a large quantity of sulphur, and Liebig has proposed a test which is founded on this fact. A solution is made by adding, to a small quantity of solution of acetate of lead, liquor potassæ or liquor sodæ until the precipitate first formed is

redissolved; about equal parts of this solution and of urine are boiled, when black sulphide of lead is formed from the combination of the sulphur with the lead. This test is, however, by no means a good one, since many bodies frequently present in the urine, e.g. albumen, contain enough sulphur to give the reaction.

Of the *Clinical Import* nothing is known.

The appearance of cystin in the urine is believed by some to be hereditary and to be connected with calculous disorders. Other observers have found it in the urine of chlorosis.

LEUCIN AND TYROSIN.—Leucin and tyrosin are very rare deposits in the urine. Under the microscope leucin appears in dark globular forms, which have been compared to masses of fat cells; tyrosin, however, crystallises in beautiful bundles of delicate needles, sometimes arranged in a stellate form.

These two bodies have been detected in the urine in cases of acute yellow atrophy of the liver, of small pox, and of typhus fever. The clinical value of their presence is, however, unknown.

DIET AND THE DIGESTIBILITY OF FOOD.

By JABEZ HOGG, Esq., F.R.C.S.

In the treatment of many diseases, attention to diet is of the utmost importance. It is very necessary in disorder of the digestive and urinary functions, in chronic or long-continued diseases of the assimilating or converting organs in which the appetite is impaired or even decreased. The patient should be very particular in the employment of a diet neither improper from the quantity nor quality, as this would retard the best-directed efforts of medical aid.

Several kinds of diet are usually recommended in the various forms of disease, the most important being:—

Animal Diet.—This term is applied to a diet composed principally of animal food; but, in speaking of a diet of this kind, it is usual to permit the use of eggs, cheese, new milk, beef tea, mutton broth, and such like articles to be taken with a proportionate amount of animal food. There are but few diseases requiring a diet exclusively of this kind; the most important are—diabetes, scrofula, and those cases wherein it is desirable to combine a highly stimulating and nutritious diet.

Vegetable Diet is termed spare diet. This is used to indicate the employment of vegetable substances principally, not exclusively. It in general includes the use of fish, with a small quantity of poultry and butter. In full habits this diet is ordered, if apoplexy or gout is threatened; and by its adoption we diminish the quantity of nutritive matter supplied to the system, while we keep the digestive organs actively employed.

Milk Diet.—Besides cow's milk, this diet includes the use of farinaceous substances, such as arrowroot, sago, tapioca, rice puddings, and bread. Milk diet is ordered when it is necessary to support the system with the least possible stimulus or