some of these abnormalities may exist in a very small degree, such as albumen after slight nervous exhaustion, mucus after the urine has been standing, sugar after the administration of chloroform.

Normal urine is a clear, watery, amber-coloured fluid, acid, having a sweet-smelling odour. Sp. gr. about 1020.

The average amount passed by an adult in 24 hours is 50 oz., and this contains about 400 gr. of urea, and from 10 to 12 gr. of uric acid. Chlorides, phosphates, and sulphates are generally present in greater or lesser degree.

(*a*) *In Fevers* the urine becomes affected in various ways. It is scanty, is highly coloured, sometimes even like a deep mahogany, strong smelling, and having a high specific gravity. On testing with litmus paper it is found to be very acid. On further examination albumen may be present, and by means of the urinometer it will be seen that the amount of urea and uric acid are both increased, and that solid constituents are relatively and absolutely in excess.

Malaria.—Certain fevers have certain peculiar characteristics, as in the three stages of malaria :—(1) Cold stage, urine pale and abundant; (2) hot stage, urine darker, with higher specific gravity; (3) sweating, urine diminished, and deposits urates on standing.

Black Water Fever.—Urine is dark or porter coloured, loaded with albumen, and deposits of dark red sediment, many casts and few blood-cells, and the disease may terminate fatally with suppression.

In Typhoid Fever, the great source of infection lies in the urine, laden with typhoid bacilli.

(*b*) *Bright's Disease.*—In nephritis the urine is scanty, turbid, abnormally dark or smoky in colour, due to the presence of blood, has a high specific gravity, and contains a large quantity of albumen, but diminished amount of urea. It deposits on standing a copious sediment, found, under microscopical examination, to consist of blood-cells, loose renal epithelium, with hyaline granular or blood casts.

(*c*) *Diabetes Mellitus* is characterized by persistent presence in urine of grape sugar or glucose. The quantity passed may be increased to 5 to 12 pints in the 24 hours. It is pale, clear, and remarkably bright in appearance. Sp. gr. 1030 to 1060, and may contain as much as from 3 per cent. to 6 per cent. of sugar. Urea is increased, and albumen may be present.

In severe cases oxybutric acid, diacetic acid, and acetone appear, the latter being detected by the peculiar æthereal odour of the breath.

In the condition known as diabetic coma the quantity of urine tends to diminish, an unfavourable sign, as it often leads to total suppression and a fatal termination.

(*d*) *Diabetes Insipidus* shows some slightly different changes in the urine. It is clear and paler, but specific gravity is only about 1003, neutral or feebly acid, and in exceptional cases may contain a trace of albumen. Quantity passed is about 10 to 15 pints. The total amount of urea is at first normal or increased, but in later stages tends to be diminished.

The same fatal termination may occur as in diabetes mellitus.

(*e*) *Cystitis,* or inflammation of the bladder, may arise from various causes, attributed largely to retention and decomposition of urine in the bladder, or may be due to infection brought on by neglect of asepsis when passing the catheter.

Every nurse should be impressed with the necessity of having her instrument and her hands sterile for this purpose, and should be taught the methods of rendering them so.

The urine in this disease is characteristic, can be easily recognized by its thick, ropy consistence and intensely offensive and ammoniacal smell, due to the presence of pus or muco-pus, sometimes mixed with blood.

Although it scarcely bears on "characteristics of urine," it should be remembered that without a perfect specimen of urine it is impossible to make a perfect examination, and therefore certain points should be emphasized :

1. Urine chosen for specimen should be taken from the total quantity passed in 24 hours, and should be stirred up well to avoid any deposit being left behind.
2. The receptacle for the urine should be of glass, perfectly clean and free from any antiseptics.
3. The receptacle should be covered to prevent admission of dust or foreign bodies, and the escape of offensive odours.

HONOURABLE MENTION.

The following competitors receive honourable mention :—Miss C. McLennan, Miss M. D. Hunter, Miss Amy Phipps, Miss Margaret McLagan, Miss M. Punchard, Miss Jessie Martin, Miss E. Gunn, Miss F. Sheppard, Miss J. C. Gilchrist, and Miss M. Oliver.

Miss M. Oliver writes that the urine in acute Bright's disease is scanty and bloody; sometimes it is so diminished in quantity that only a few drachms are passed in the twenty-four hours. The presence of blood is indicated by the brownish-red colour of the urine.

QUESTION FOR NEXT WEEK.

How would you nurse a rest-cure patient?

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