

least four ounces should be sent, if possible. Take the sample from the mixed urine voided during the night; or, if the patient has retained his urine in the bladder all night, send what he passes first in the morning. Drop into this quantity of urine eight or ten drops of carbolic acid or a few crystals of thymol. This will prevent decomposition and any change in the organic formed elements it may contain. If only a microscopical examination is desired, obtain the urine as above directed and let it stand in a cool place, securely covered, until the sediment falls. It is well to add the carbolic acid or thymol to the urine before sedimentation. It takes about twenty-four hours for the sediment to fall. Then pour off *nearly* all the supernatant fluid, place the remainder together with the sediment into a clean bottle. Add a little thymol.

Sputum.—Place a clean, small, wide-mouthed bottle and its cork in boiling water for half an hour, and, without rinsing it out with cold water, cork it up and let it cool in the air. Send the sputum that is expectorated in the morning. Very little is necessary. Let the patient spit directly into the bottle.

Contents of Cysts, Abscesses, etc.—These may be prepared in the same way as sputum. Care should be taken to evacuate the abscess, cyst, or cavity under strict aseptic rules.

In every case the *name, age and sex* of the patient should be given, as well as the location of the diseased condition. Any other information bearing directly upon the diagnosis should accompany the material.

It might seem an omission not to speak of the bacteriological examination of the fauces for the germs of diphtheria, and the intestinal discharges for those of typhoid fever. In these cases it is best for the bacteriologist to make the examination, or, rather, procure the specimen, himself. The extra cost of his trip to the residence of the patient will not add much to the fee charged.

Where diphtheria is suspected, and the patient does live so far away that the specimen will not reach the examiner the same day it is procured, the attending physician can obtain a tube of blood-serum and directions to use it from the nearest bacteriologist.

Intestinal discharges may be inclosed in a bottle prepared in the same way as for sputum.

By faithfully following these directions the physician sending specimens may rely upon a prompt and satisfactory reply.—*Louisville Med. Jour.*

LONDON now claims to be the healthiest of the large cities, the death-rate being only 16.3 per thousand persons. The death-rate in other large cities are, Berlin, 18.2; Paris, 20.5; Vienna, 22.5; New York, 19.6.

BLOOD SERUM THERAPEUTICS.

A very recent communication on this interesting subject appeared in the *Berl. Kl. Wochenschrift*, from the pen of one of the most distinguished workers in it (Professor Bebring). Although too long for a letter, an abstract I have thought would be useful and interesting. The communication is arranged under 15 numbered heads, each of which contains a definite conclusion on some part of the subject. The Professor says:

1. Blood serum treatment is antitoxic treatment. By means of it we endeavor to combat such infectious diseases as we know are produced by parasitic poison. Besides the infectious diseases there are also poisonings with vegetable and animal poisons, for example, snake poisons that are accessible to blood serum treatment. The specific anti-toxines which represent the active principles of treatment by blood serum have hitherto only been found in the blood of immunised animals.

2. The specific blood antitoxins have hitherto only been prepared in such concentration, and in such quantities as to make them available in the treatment of human disease as regards one disease only, viz, diphtheria.

3. For the treatment of diphtheria of the human subject two different preparations are manufactured by the Höchst Farbwerken. The first (No. 1, price 5 marks) contains in 10 ccm. a single curative dose; the second, (No. 2, price 15 marks) contains in 11.5 ccm. two and a half doses. The simple curative doses contains rather more than 600 antitoxin normal units according to the Behring-Ehrlich calculation. The control experiments as regards the efficacy and innocuousness of the preparation issued by the above named works have been made by Messrs. Behring and Ehrlich themselves.

4. No. 1, or that containing blood serum 60 times the normal strength, is most recommended on account of the great difficulty in the way of preparing the remedy in greater strength.

5. The cheaper kind will answer well in the majority of cases, and it is only in the case of adults and in children under 10 years of age in whom the disease has lasted more than two or three days that the simple dose will be insufficient, in these cases the dose must be repeated.

6. Although he thinks therapeutic observation should be made known, he considers it inadvisable to record individual cases, whether for or against the treatment, but statistical results such as have been published by Prof. Heubner and Dr. A. Kossel are desirable.

7. For prophylactic purposes 60 normal units will, as a rule, suffice for either children or adults. A flask of ten ccm. therefore (of No. 1) will be