syringes. The piston tube should fit the glass tube very loosely before the end of the latter is constricted (b).

To make, cut the parts the desired length, hold the end of the glass tube in the flame until the melting of the glass contracts the lumen at the end of the tube sufficiently to constrict slightly the rubber piston tube when it is introduced; draw a piece of glass in the flame, make two small plugs or beads with which stop the ends of the piston tube, insert the piston tube in the glass tube and connect to the pipette with the soft rubber tube.

To use it, turn and draw out gently the piston tube, which will fill the pipette as gradually as desired, the liquid remaining stationary in the pipette when letting go of the piston tube, making it easy to stop at any desired graduation mark, and the liquid may be forced out or taken in easily and accurately with perfect control of the column of fluid in the pipette when filling or emptying. It can be used with one or both hands. It is easily cleaned, if necessary, by pulling the piston entirely out. The one illustrated will fill a 1 c.c. pipette and it could be made with a greater or less capacity by

A device for filling or emptying pipettes or droppers; approximately actual size.—a, glass tube, 7 cm. long, 6 mm. diameter, 5 mm. lumen; b, end of glass tube slightly constricted; c, piston, 8 cm. long, 4 mm. diameter, 1 mm. lumen; d, cross-section piston; e, connecting tube, 2 cm. long, 7 mm. diameter, 2 mm. lumen; f, cross-section of connecting tube.

cutting the parts longer or shorter, or by using larger or smaller glass and rubber tubes. The soft rubber connecting tube is readily connected to pipettes with ends from two to six mm. in diameter. It may be adapted to any pipette in which perfect control of the liquid is desired or to any dropper when accuracy in dropping is wished. I have used it satisfactorily on blood pipettes, tuberculin pipettes and droppers for various purposes.

The special advantages which I have found in this device are its simplicity and cheapness of construction, its adaptability to various pipettes, the ease with which it can be cleaned and the perfect control of the column of liquid which it assures.

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ENDOTHELIOMA OF SCAPULA WITH REMOVAL OF ENTIRE BONE.

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Patient. X., aged 36, a carpenter, married, was first seen Jan. 18, 1908, when he complained of a painful growth on the shoulder.

History.—The family history was negative, there being no history of cancer in the family. He had had malaria and pneumonia, from both of which he recovered perfectly; he had had no other illness. He first noticed the growth about April 1, 1907, when it began as a small lump, "painful from the beginning." It continued to increase in size and the pain continued, and about Nov. 1, 1907, he began to lose weight. During the first part of January he began to have a little

fever, felt weak and could not work, so he came to the doctor.

Examination.—Man was of average height, well built and slightly cachectic. Examination of the heart and lungs was negative. Pulse, 100; temperature, 99 F.; respiration, 24. There was a tumor on the scapula, with the larger portion below the spine, but covering outer portion. It was round, hard and painful to pressure and measured 10 cm. (4 in.) in the widest diameter and 13 cm. (5 in.) in length. It was firmly attached to the underlying bone. Examination of the urine showed: Reaction, acid; sp. gr., 1020; albumin, slight trace; sugar, absent; a few hyaline and granular casts; granular urates and epithelial cells. Blood examination showed: Red cells, 3,500,000; leucocytes, 7,000, and hemoglobin, 60 per cent.

Diagnosis.—The clinical diagnosis was: Probably sarcoma. Microscopic examination by Dr. Martland of the Russell Sage Institute of Pathology, New York, showed an atypical endothelioma. "Many of the lymphatics are plugged with large endothelial cells. Some places tumor has apparent spindle-shaped cells simulating sarcoma."

Operation.—This was performed Jan. 25, 1908. An incision was made along the vertebral and spinal borders by the usual technic, tying the main arteries as they were reached. The wound closed by primary union, the patient leaving the hospital in three weeks.

Examination of Tumor.—The neoplasm was round, hard and of straw color; it possessed a thin capsule. A cut section showed jelly-like consistency, with but few blood vessels.

Postoperative History.—The patient has gained to date about 30 pounds. He can use his forearm perfectly and has complete control of the hand movements. His arm is improving all the time and he is holding the position of night watchman.

Therapeutics

CARBONIC ACID.

Dr. Thomas E. Satterthwaite, New York (post-graduate January, 1908) discusses the medical uses of carbonic acid gas. He reminds us that "carbonic acid is a normal constituent of the body, entering it as carbon, it is converted by an excess of oxygen into carbonic acid or urea, which in decomposing gives off carbonic acid." It is a normal constituent of the blood, and in arterial blood is about twice as abundant as oxygen, the latter being present in about 20 per cent. by volume. In venous blood there is a still larger amount of carbonic acid, viz., 48 per cent. by volume. He states that in arterial blood about all the oxygen present is found in the red corpuscles, while less than 1 per cent. is in the serum; in venous blood the serum contains the largest amount of carbonic acid, while perhaps about one-third is in the corpuscles. "One per cent. of carbonic acid gas in the atmosphere is recognized by its peculiar odor, and is intensely disagreeable to the one inhaling such air, but 3 per cent. produces no permanently deleterious effect, while 5 per cent. causes dyspnea and 10 per cent. narcotism. Water takes up hardly 3 per cent. of the gas."

Satterthwaite does not discuss the effervescing drinks or the value of effervescing waters from the carbonic acid standpoint, but he describes the advantages of the carbonic acid baths, especially as used for disturbed conditions of the circulation. These baths, the so-called Nauheim baths, contain carbonic acid, "which decreases the pulse rate and at the same time regulates the circulation in gout and rheumatism by dilating the capillaries and smaller vessels and by directly and indirectly stimulating the nervous centers, while the peripheral nerves are soothed." This brings more blood to the