were traceable to the original cases excluded from school accordingly, and absentees were reduced to a minimum.

It is interesting to note here that the contagiousness of the disease in the foregoing families averaged 65 per cent. in contradistinction to that in the classroom, 12 per cent. No person should be released from quarantine without being clear of complications, and particularly until all glandular enlargement, the most consistent symptom, has disappeared.

Clinical Notes, Suggestions, and New Instruments

AIDS IN THE USE OF DAKIN-CARREL TREATMENT

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A GLASS AUTOMATIC SIPHON, FOR DELIVERING A DEFINITE AMOUNT OF FLUID TO THE WOUND AT A DEFINITE PERIOD OF TIME

This apparatus¹ is blown entirely of glass and fused into one compact piece. It is clean, handy and dependable. It can be made in different sizes, depending on the quantity of flushing required. The periodicity of flushing is regulated by a Hoffman pinch-cock on the tubing between the solution tank and the apparatus.

Two bells (*A* and *B*) annealed one to the other are connected by a siphon tube (*C*). A drip point is annealed into the upper end of the upper chamber. Both chambers have air vents.

The apparatus works as follows: Solution from an irrigating bottle or bag is allowed to pass a pinch-cock at a fixed rate. It accumulates in the upper chamber until it reaches the highest point of the siphon, when it suddenly is emptied by the siphon into the lower chamber. Here, by virtue of its height and its weight, it forces its way through the holes in the Carrel tube and flushes the wound. The flushing is periodic and eliminates the inconstant human element which is so often the cause of failure in the Dakin-Carrel technic.

A SUCTION DRAINAGE BELL FOR APPLYING DAKIN-CARREL TREATMENT IN EMPYEMA

This apparatus can also be applied, without the suction, in sterilization and drainage of the urinary bladder.

It consists of a flattened bell of glass, resting on a wide flange (*A*), where it comes in contact with the skin around the wound opening. At the upper end of one diameter are two small tubular openings (*B*) for transmitting the usual Carrel tube into the wound cavity. One of these may be used for flushing the bell and for cleansing. On the opposite side is a large tubular opening (*C*) for carrying off drainage, by means of a rubber tube into a waxed or rubber bag. Also, to this latter opening may be applied vacuum suction in empyema cavities by connecting with a vacuum water suction pump. The apparatus is held in position by a rubber dam fitted on the

Fig. 1.—Glass automatic siphon, for delivering a definite amount of fluid to the wound at a definite period of time: *A* and *B*, upper and lower chambers; *C*, siphon tube; *D*, tube leading to solution tank; *E*, tube leading to Carrel tube; *F*, drip point.

flange and by adhesive. By its use one can save large quantities of dressings, a very important item. It prevents second-

dary contamination of the wound, and permits instillation of neutral solution of chlorinated soda. It allows for drainage which seeps out beside the Carrel tube; and in the urinary bladder, it does away with that constant overflow of foul smelling urine. In empyema it permits the use of negative pressure to expand the lung and hastens obliterations

Fig. 2.—Suction drainage bell, for applying Dakin-Carrel treatment in empyema: *A*, flange on which bell rests; *B*, tubular openings for transmitting the usual Carrel tube into the wound cavity; *C*, large tubular opening for carrying off drainage; *D*, Carrel tube.

of the empyema cavity. A Furniss rubber empyema spool is a valuable aid. It is made of glass; can be removed easily for cleansing and boiling, and can be as easily reapplied.

SUCTION DRAINAGE OF SUPRAPUBIC BLADDER WOUNDS: DESCRIPTION OF A NEW PUMP

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One of the most unpleasant features of suprapubic bladder drainage is the constant saturation of the dressings with urine, together with the all-pervading odor, not to mention the present high cost of dressings. The patient's skin becomes excoriated, and he also suffers the discomfort of frequently lying in a puddle if the attendants do not promptly change the saturated pads.

Numerous attempts have been made to remedy this with various ingenious suction devices, the first of which I believe was Dawbarn's. Davis¹ uses a vacuum bottle arrangement; Hume, Logan and Kells² an electric pump with an alarm clock switch; Wallace³ an apparatus invented by Edmund White, resembling the Dawbarn. All of these appliances have faults which I have tried to obviate. Dawbarn's and White's require the bringing of several gallons of water to the pump daily and the removal of an equal amount. Davis¹ requires an air pump to produce the vacuum, and a very tiny perforation in the rubber tubing puts the pump out of commission. The pump of Hume, Logan and Kells is dependent on the electric current and costs four times as much as mine. So far as I know, Dawbarn's has been abandoned.

As the diagram shows, my apparatus consists of 2 gallon carboys held necks opposite with the long axis in the same line by a frame pivoted at the middle to a stand. The top bottle, *A*, is filled with water to which 1 teaspoonful of

1. Davis, E. G.: Vesical Drainage, THE JOURNAL A. M. A., May 27, 1916, p. 1680.

2. Hume, Logan and Kells: An Improved Automatic Suction Apparatus for Suprapubic Cystotomy Operations, Am. Jour. Surg., June, 1916.

3. Wallace, Cuthbert: Prostatic Enlargement, p. 150.

1. An apparatus improvised of syringe barrels and rubber tubing was described by Lillenthal in the February issue of the Military Surgeon.