sue. (c) Again, in type 3 cultures, with concentrations of antiseptic allowing both bacteria and cells to grow, the bacteria soon overran the entire medium and the cells died.

An antiseptic that would kill the bacteria at concentrations that would not harm the cells would have a ratio $[A_b]/[A_c]$ (an index of relative toxicity) of 1.0 or greater. Although merthiolate is the least toxic of the group as tested by us with this method, it is not an "ideal" antiseptic.

The technique here described makes it possible to obtain rather consistent results on the relative toxicity of antiseptics on bacteria and living tissues, especially if some standard antiseptic is run as a check on the method. In stating the toxicity index, the organism used should be named, as is done in the case of the phenol-coefficient, as described by Reddish,[4] and also the tissue. If other types of bacteria are used, it is possible that the method here described or some modification of it will produce an index that will be more useful than the present phenol-coefficient, which does not consider the effects of the antiseptic upon the tissue cells.

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Effect of Hypertonic Solutions on Cerebrospinal Fluid Pressure with Special Reference to Secondary Rise and Toxicity.

GEORGE MILLES AND PAUL HURWITZ. (Introduced by W. F. Petersen.)

From the Department of Pathology, University of Illinois College of Medicine.

The effect of hypertonic solution on the spinal fluid pressure is of vital importance from a clinical standpoint, since Weed and McKibben[1] show that the cerebrospinal fluid volume could be reduced by intravenous injection of hypertonic solution. Cushing and Foley[2] and Foley and Putnam[3] applied this observation to clinical cases of increased intracranial pressure and it was immediately recognized of importance in the treating of head injuries. However, Browder[4] among others pointed out from clinical ob-

[4] Reddish, G. F., "The Newer Knowledge of Bacteriology and Immunology," ed. Jordan and Falk, 1928, Ch. XXII. Chicago.

[1] Weed and McKibben, *Am. J. Physiol.*, 1919, **48**, 512.

[2] Cushing and Foley, PROC. SOC. EXP. BIOL. AND MED., 1920, **17**, 217.

[3] Foley and Putnam, *Am. J. Physiol.*, 1920, **53**, 464.

[4] Browder, Jefferson, *Am. J. Surg.*, 1930, —? 1213.

servations: first, the toxicity of NaCl solution, and second, the occasional deaths that occur after a short period of clinical improvement after intravenous administration of hypertonic solution in cases of head injuries with symptoms of increased intracranial pressure.

Our experiments were carried out on a series of 10 dogs and one man. We used various concentrations of NaCl and of glucose. The results were uniform. First, it was demonstrated that hypertonic saline has a definitely toxic effect, which in concentrations of 10% is manifested after immediate injection by a primary drop in blood pressure, associated with a rise in cerebrospinal fluid pressure; and in concentrations of 30% uniformly resulted in the death of the animal in doses of 75 cc.

Glucose under no circumstances show toxic effect. From the standpoint of spinal fluid pressure, the primary drop was demonstrated varying in extent, depending on the concentration and volume of the injected material, and persisting for periods varying with same factors. With 10% saline the total period of depression of the spinal fluid pressure was about 50 minutes. With 50% glucose the total period of depression was as long as 4 hours. In every instance, however, a secondary rise followed the primary drop which reached the levels from 20 to 100 mm. of water above the control level. On the basis of this secondary rise which was seen in every instance, we feel that hypertonic solutions of either salt or glucose carry a very great hazard in the presence of intracranial pressure.

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Excretion of Organic Phosphorus in Urine.

OLIVE SCHREGARDUS AND HAROLD A. BULGER.

From the Department of Internal Medicine, Washington University School of Medicine, and Barnes Hospital.

Surprisingly large quantities of organic phosphorus in the urine have been recorded in certain pathological conditions. Amounts approaching 1 gm. in 24 hours have been reported and numerous determinations varying from 0.1 to 0.3 gm. may be found. The excretion of so much organically combined phosphorus would constitute a striking abnormality and would bare careful investigation in the light of recent advances in our knowledge of the rôle played