The hypoglycemia, therefore, was temporary rather than continuous.

Acute suprarenal insufficiency is suggested as the immediate cause of the sudden death in status thymo-lymphaticus.

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Comparative study of action of antiseptics on staphylococci and body cells by tissue culture method.

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Experiments begun in 1916 by one of the authors[1] to test *in vitro* by the tissue culture method the comparative action of certain bacterial substances on tissues and on bacteria have been continued. In the previous studies human tissues were used and a uniform exposure of one hour was employed. In the present experiments rabbit tissue (spleen) was used throughout, and the time of exposure in the first series of experiments was twenty minutes. The antiseptics tested have included alcohol, iodine, mercuric chloride, mercurochrome, acriflavine, protargol, albargin, gentian violet, neosalvarsan, and hexylresorcinol.

The spleen of a freshly killed rabbit was divided into pieces of about 1 mm. in diameter. After washing in physiological salt solution, one lot of the fragments was placed one minute in a suspension of *Staphyloccoccus aureus,* and then put in graded solutions of the antiseptic for 20 minutes. Tissue cultures were then prepared in hanging drops of homologous plasma, following two washings of the tissue in salt solution. A second set of cultures were made from non-infected tissues similarly exposed with appropriate controls of untreated tissues. The comparative effect of these antiseptics on splenic cells and staphylococci is shown in the following table.

It is seen that in the majority of instances, particularly in the case of several of the newer antiseptics, bacteria proved decidedly

[1] Lambert, R. A., *J. Exp. Med.*, 1916, xxiv, 683.

	Cells survive	Staph. survive	Cells killed by	Staph. killed by
Alcohol	20 per cent	33 per cent	33 per cent	50 per cent
Iodine	1:2500	1:2500	1:1000	1:1000
Mercuric chloride	1:10,000	1:20,000	1:2500	1:10,000
Mercurochrome	1:1-2000	1:500	1:500	1:250
Acriflavine	1:20-40,000	1:10-20,000	1:10,000	1:5000
Protargol	1:500	1:250	1:250	1:100
Albargin	1:1000	1:500	1:500	1:250
Gentian violet	1:250,000	1:25,000	1:100,000	1:10,000
Neosalvarsan	1:1000	1:2000	1:500	1:1000
Hexylresorcinol	1:5000	1:2000	1:2000	? *

* Owing to the slight solubility of hexylresorcinol in water (*i. e.*, physiological salt solution) it was not possible to complete these tests.

more resistent than cells. The most favorable results were obtained with iodine, mercuric chloride, and neosalvarsan. It is possible, however, that even in these cases the surviving tissue cells may have come from the center of the small fragments where they were partially protected.

A second series of experiments was carried out in which the antiseptic was added directly to the plasma culture medium. The preparations were divided into two lots, one of which was infected with staphylococci. As was expected, a toxic effect against both cells and bacteria was obtained with considerably higher dilutions than in the first series, exposed only twenty minutes. In the second series neosalvarsan was the only agent which appeared definitely less toxic for cells. Inhibition of bacterial growth was seen in dilutions of plasma of 1 :30-40,000, while the cells were only slightly damaged by these dilutions. The findings with acriflavine and mercurochrome were quite as unfavorable as in the twenty-minute tests.

The two chief types of cells in the cultures—large mononuclears and fibroblasts—seem to be about equally resistent to the various agents. In a few treated preparations fibroblasts were seen without mononuclears, while in several the reverse was noted.

In general the tests suggest that in so far as the direct action on cells and staphylococci are concerned, some of the classic antiseptics, such as iodine and mercuric chloride, approach nearer the ideal than certain of the newer preparations, and that neosalvarsan might be hopefully employed in generalized bacterial infections as well as in certain protozoan diseases.