the bile salts.[10, 11] One might expect the very high activity found in the salivary and lachrymal glands to be related to the fact that these tissues respond strongly to cholinergic stimulation.

*Summary.* The choline-esterase activities of various swine organs and tissues were measured, and particularly high activities were observed in the cases of the lachrymal and salivary glands, the fallopian tubes, alimentary mucosa, and the medulla oblongata.

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**10297 P**

## Comparative Therapeutic Effects of Sulfapyridine in Experimental *Staphylococcus aureus* Infections in Mice.*

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It has been shown that sulfanilamide has a slight therapeutic effect in the treatment of experimental staphylococcal infections in mice.[1, 2, 3] However, its efficacy has not been great and the drug has been of little value in the treatment of staphylococcal infections in man, in which the tissues or blood stream have been seriously invaded by these organisms. Recently Whitby[4] without giving details of his experiments has shown that sulfapyridine has a definite chemotherapeutic effect in experimental staphylococcal infections in mice.

We have been testing the comparative therapeutic effects of sulfapyridine and sulfanilamide in experimental staphylococcus aureus

10 Sobotka, H., and Antopol, W., *Enzymologia*, 1937, **4**, 189.

11 Antopol, W., Schifrin, A., and Tuchman, L., PROC. SOC. EXP. BIOL. AND MED., 1938, **38**, 363.

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1 Buttle, G. A. H., *Proc. Roy. Soc. Med.*, 1937, **31**, 154.

2 Mellon, R. R., Shinn, L. E., and McBroom, J., PROC. SOC. EXP. BIOL. AND MED., 1937, **37**, 563.

3 Feinstone, W. H., Bliss, E. A., Ott, E., and Long, P. H., *Bull. Johns Hopkins Hosp.*, 1938, **62**, 565.

4 Whitby, L. E. H., *Lancet*, 1938, **2**, 1095.

TABLE I.

Comparative Therapeutic Effects of Sulfapyridine and Sulfanilamide in the Treatment of Experimental *Staphylococcus aureus* Infections in Mice.

| No. of Mice | Drug | Size of Inoculum | Deaths—Day of Infection | | | | | | | | | | | | | Survivals 15 days |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | |
| 15 | S.P. | 780 Mil. | | | | | | 1 | | | 1 | | 2 | 2 | | 1 | 8 |
| 15 | S. | " " | 2 | | 2 | 1 | 1 | | | 1 | 1 | | 2 | 1 | | | 4 |
| 10 | Controls | " " | 2 | 5 | 3 | | | | | | | | | | | | 0 |
| 15 | S.P. | 1.35 Bil. | 1 | | | | | | 1 | | 2 | 2 | | 1 | | 4 | 4 |
| 15 | S. | " " | | 1 | 3 | 1 | 5 | 1 | 1 | | | 2 | 1 | | | | 0 |
| 10 | Controls | " " | | 7 | | 1 | 1 | 1 | | | | | | | | | 0 |
| 19 | S.P. | 16 Bil. | 2 | 2 | 2 | | | 2 | 2 | | 3 | | 2 | | | | 4 |
| 20 | S. | " " | 7 | 1 | 3 | 1 | 1 | 2 | | 2 | 1 | | | | 1 | 1 | 0 |
| 10 | Controls | " " | 4 | 4 | 2 | | | | | | | | | | | | 0 |

S.P.—Sulfapyridine.
S.—Sulfanilamide.
Mil.—Millions of organisms.
Bil.—Billions of organisms.
Treatment Plan—10 mg *per os* twice a day for 5 days, then 10 mg *per os* once a day for 5 days.

infections produced in mice by the intravenous injections of varying numbers of organisms. The technic of producing such infections and the time and method of treatment have been described previously by us.[3]

It is to be noted that in each experiment, the untreated control mice were dead by the sixth day, and at the end of the first week of treatment 73.5% of those mice treated with sulfapyridine were still alive while only 34% of the mice treated with sulfanilamide were surviving. At the end of the second week (4 days after the termination of therapy) 32.6% of the mice treated with sulfapyridine were alive while only 8% of those treated with sulfanilamide were living. The surviving mice are being held for an indefinite period, to determine their eventual fate.

It seems from these results, that the chemotherapeutic effect of sulfapyridine in staphylococcal infections in mice is definite enough to warrant careful clinical trials of the drug in severe staphylococcal infections. We are conducting such trials and to date we have noted dramatic clinical results in 2 patients suffering from severe staphylococcal sepsis.

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## Sulfonamide Therapy of Experimental Peritonitis Due to *E. coli, B. proteus* and *B. pyocyaneous.*

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While sulfanilamide therapy of urinary tract infections due to *E. coli* is universally recognized as effective, application of this therapy to similar infections in other sites has received scant attention. For this reason, experiments were undertaken to test the efficacy of sulfanilamide* and of 2-(sulfanilamido)-pyridine† (sulfapyridine) in *E. coli* peritonitis of mice and thereby furnish an experimental basis for possible clinical application. At the same time experiments were also set up to test the value of these drugs in peritoneal infections of *B. proteus* and *B. pyocyaneous* in mice.

* Synthesized and donated to us by the Monsanto Chemical Company, St. Louis, Missouri.

†Synthesized and donated to us by the Maltbie Chemical Company, Newark, New Jersey.