

the acids precipitate the mucus and increase the secretion of pepsin. The disappearance of the alkaline salts from the stomach is followed by a decided increase of the hydrochloric acid secretion. This does not occur, or only to a slight degree, in the case of acids. Both the acids and salts, in large quantities in continued use, have the same effect in lowering the activity, and finally in destroying the function of the glands secreting hydrochloric acid.

BACTERIOLOGICAL NOTES.

COMPILED BY E. B. SHUTTLEWORTH.

Death Point of the Cholera Spirillum.—It has occurred to the writer that some of the information afforded by Dr. Sternberg's exhaustive paper on Disinfection at Quarantine Stations—to which allusion was made in our last number—may serve a useful purpose, for reference, if put into tabular form. The figures herewith appended give the death point of the spirillum, after exposure to the agents indicated:

| DIRECT SUNLIGHT. | |
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| Bouillon culture, in test tubes. (Sternberg) | 5 hours. |
| Bouillon culture, on writing paper. (Wilson) | 2 " |
| DESICCATION. | |
| Culture, spread on glass. (Koch) | 3 " |
| Culture on blanket, in sun and air. (Sternberg and Wilson) | 4 " |
| Culture on blanket, in dark closet. (Sternberg and Wilson) | 48 " |
| MOIST HEAT. | |
| Bouillon on cotton, at 52° C. (125.6° F.). (Jenkins and Sternberg) | 10 min. |
| Bouillon on cotton, at 60° C. (140° F.). (Jenkins and Sternberg) | very brief |
| DRY HEAT. | |
| Bouillon on blanket, at 60° C. (Wilson) | 45 min. |
| Infected woolen garments, at 80° to 100° C. (Sternberg) | 30 " |
| VARIOUS MEDIA. | |
| White wine. (Imp. B'd Health, Germany) | 5 " |
| Red wine. " " " " | 15 " |
| Cider. " " " " | 20 " |
| Cold coffee. " " " " | 2 hours. |
| Pilsener beer. " " " " | 3 " |
| Tea, 4 per cent. " " " " | 1 " |
| Tea, 3 per cent. " " " " | 24 " |
| Tea, 2 per cent. " " " " | 96 " |
| Milk, unsterilized. " " " " | 24 " |
| Smoked and salted herring. " " " " | 24 " |
| Confectionery, chocolates, almonds. " " " " | 24 " |
| Strawberries. " " " " | 48 " |
| Dried fruits. " " " " | 48 " |
| Fresh fish and shell fish. " " " " | 5 days. |
| Pears. " " " " | 7 " |
| Cucumbers. " " " " | 7 " |
| Cherries, sweet. " " " " | 7 " |
| Cherries, dry. " " " " | 5 " |
| Cherries, sour. " " " " | 3 hours. |

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| Bouillon, containing 50 per cent. beet sugar. (Sternberg) | 48 " |
| Bouillon on cotton between sacks beet sugar. (Sternberg) | 4 days. |
| Bouillon on cotton placed in beet sugar. (Sternberg) | 48 hours. |
| Copper and silver coins. (Uffelmann) | 30 min. |
| Dry hand. " " | 2 hours. |
| Fabrics, apparently dry. " " | 4 days. |
| Pages of printed book. " " | alive after 17 hours. |
| Writing paper in envelope. " " | 23½ " |
| Dry hand. " " | 1 " |
| Smoked fish. " " | 4 days. |
| Butter, slightly acid. " " | 6 " |
| Roasted meat, under bell jar. " " | 7 " |
| Rye bread, under bell jar. " " | 7 " |
| Moist fabrics. " " | 12 " |
| Cocoa, infusion, 1 or 2 per cent. (Imp. B'd Health, Germany) | 7 " |
| Milk, sterilized. " " | 9 " |

It is needless to point out the many applications that may be made of the details afforded by the above table. One fact may, however, be emphasized—the low thermal death point of the cholera spirillum. It is definitely stated, by Drs. Jenkins and Sternberg, that the organism is destroyed by exposure, for a very brief period, to a moist heat of 140° F., and in thirty minutes by a dry heat of 176° to 212° F. Prolonged contact with steam under pressure, as commonly used, is needless, provided the heat penetrates the articles to be disinfected. A high dry temperature, which in most cases utterly destroys clothing, is also unnecessary. The employment of this agent, as commonly directed, is a waste of energy. As Dr. Sternberg says, it is like using a sledge-hammer for the purpose of killing a mosquito. The practice originated in the experiments of Koch and Wolffhugel, in 1881, who found a temperature of 284° F., maintained for three hours, to be necessary for absolute sterilization. It must, however, be remembered that these gentlemen experimented on spore forming organisms, as *B. anthracis*, *B. tuberculosis*, or *B. subtilis*, which are exceedingly resistant, though not to the same degree. The assertions in regard to these have been made generally applicable, and, apparently, unnecessarily so. The writer, when in the United States during the epidemic, last year, had the pleasure of seeing some of the experiments then being carried on by Drs. Sternberg and Wilson, in the Hoagland Laboratory, Brooklyn. The investigation was continued for some months, and has been very thorough. Dr. Sternberg's position, as Deputy-Surgeon General of the U. S. Army, and his high reputation as an authority on bacteriology, give additional weight to his assertions, which, though contrary to the notions entertained by some, are entitled to be received with confidence.