the survival of ingested bacteria. The manual manipulation of the intestinal tract seems to be an important factor in these experiments in inhibiting the bactericidal power. Free acid as high as 60 was observed in some of the last recorded experiments with viable *B. prodigiosus* after 2 hours.

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Influence of Broth Cultures and Media upon the Self-Disinfection of the Skin.

B. E. MONTGOMERY. (Introduced by Lloyd Arnold.)

From the Department of Bacteriology and Preventive Medicine, University of Illinois College of Medicine, and State Department of Public Health, Chicago.

Arnold, Gustafson, Hull, Montgomery and Singer[1] reported upon the disappearance of viable bacteria from the skin when applied in 1:200 saline dilution. This suspension was chosen after varying concentrations had been applied to the skin. Pease, and Himebaugh[2] reported some observations using undiluted broth cultures of bacteria under certain conditions. These workers overloaded the skin with the foreign solids in the broth. The air drying of the skin causes a concentration of the protein and other materials in the broth upon the skin and delays its self-disinfecting power. The undiluted 24-hour-old broth cultures contain more bacteria than the skin can remove in 15 minutes, but the foreign substances covering the cornified layer are more important in the reaction than the concentrations of the bacteria.

The middle finger of both hands was submerged in the various fluid media indicated in the table. Immediately after removal the

TABLE I.

24-hour Broth Culture	% of Viable Bacteria Destroyed.
Undiluted	25
Diluted 1:10 (saline)	35
" 1:200 "	90
Sterile broth, air dried, submerged in 1:200 (saline)	32

Fingers submerged in suspensions of *B. prodigiosus*. Dried in air for 15 minutes and palmar surface pressed against agar plate.

[1] Arnold, L., Gustafson, C., Hull, T. G., Montgomery, B. E., and Singer, C., *Am. J. Hyg.*, 1930, **11**, 345.

[2] Pease, H. D., and Himebaugh, L. C., *Am. J. Pub. Health*, 1930, **20**, 820.

palmar surface of one finger was pressed against the surface of a sterile agar plate and smeared with a bent glass spreader. After holding the finger of the other hand free and allowing it to dry for 15 minutes, the same procedure was followed. The first culture was taken as the initial contact dose. Healthy subjects must be used for these experiments. If female subjects are used, care must be taken to avoid certain periods during the menstrual cycle, inasmuch as the disinfecting power of the skin can vary 10 to 15% at times. The skin of diabetic patients has approximately half of the disinfecting power of normal skin.

Care must be exercised in testing the physiological variations in self-disinfecting power of the skin to avoid placing a layer of foreign material over the cornified epithelium and prevent contact of bacteria with this layer. The results reported here substantiate earlier publications from this laboratory.

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Optimum Bacterial Suspension for Testing Skin Disinfection.

R. KARNS AND LLOYD ARNOLD.

From the Department of Bacteriology and Preventive Medicine, University of Illinois College of Medicine, and State Department of Public Health, Chicago.

Singer and Arnold[1] and Arnold, Gustafson, Hull, Montgomery and Singer[2] used 1:200 dilutions of broth cultures of bacteria in saline for testing the self-disinfecting power of the skin. We have found that this is not the optimum concentration to be used for this purpose. The 1:200 suspension is too dilute to test this function. We have found that it is necessary to increase the concentration of bacteria in the suspension and to extend the period of the test over 60 minutes instead of 30 minutes. The 1:200 suspension is so dilute that there can be a considerable variation in the relative self-disinfecting power and still show a 100% destruction of the test bacteria. The accompanying table gives the results of 250 experiments, 50 experiments for each dilution are averaged. The variations for each dilution are on the average of less than 5%. The technic was the same as that used by Arnold, *et al.*[2]

[1] Singer, C., and Arnold, L., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 364.

[2] Arnold, L., Gustafson, C., Montgomery, B. E., Hull, T. G., and Singer, C., *Am. J. Hyg.*, 1930, **11**, 345.