vestigation the figures which were obtained are somewhat lower than those which have been reported by others. A gradual rise to normal adult values is observed before the second year of life.

3. Adult fatty acid values obtain throughout infancy.

108 (2340)

The relationship of virulence of hemolytic streptococcus to heat resistance.

By T. D. BECKWITH and E. J. ROSE (by invitation).

[*From the Department of Bacteriology and Experimental Pathology, University of California, Berkeley, Calif.*]

The Department of Bacteriology and Experimental Pathology of the University of California possesses a strain of hemolytic streptococcus which has been maintained constantly for a period of years by culture upon blood agar in test tube and by passage *in vivo* through rabbits. Intrapleural injection is used and the organism has been stored in the pleural exudate produced. This fluid exudate between passages is kept at icebox temperature. Injections are made from the previous pleural fluid after three to five weeks. To date this *in vivo* strain has passed through sixty-five animals or "generations".

The virulence of the passage portion of this strain is such that 1/100,000 to 1/1,000,000 cc. of this fluid is lethal to a 3,500 gm. rabbit. On the other hand, one cubic centimeter of the portion which has been propagated in test tube culture does not induce death in an animal of similar weight. The numbers of organisms per cubic centimeter in each inoculated fluid are comparable.

An interesting difference in heat resistance has developed between these two portions of this strain of *S. hemolyticus.* Using exposure to heat in a water bath and with all conditions as nearly similar as are experimentally possible, including numbers of organisms in the inoculum, the diluting medium and with properly controlled thermometers it has been determined that the more virulent organisms are more susceptible to the lethal

effects of heat than are those the virulence of which is decreased.

This difference in thermal death point amounts to approximately five degrees centigrade with like exposure periods. This difference is the same whether the suspending medium be skimmed milk or 50 per cent rabbit serum in physiological saline. A more complete report will be given at a later date.

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A statistical study of the form and growth of Bacterium coli.

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In previous studies[1] of the form and growth of bacteria, the length of the cells has been taken as a measurement of size because apparently the width did not vary nearly so much, and because the width could not be determined accurately with the technique used. In the present study which has had for its purpose the establishment of the normal variations in size and form of *Bacterium coli* when grown on standard beef extract agar, a somewhat different technique was used. Photomicrographs were made from slides prepared by the negative staining method of Benians, and the photographic negatives were again projected so that the final magnification was 30,000 diameters. The projected image was traced on paper and from these tracings the length and area were determined. The growth curve was obtained by counting the cells by a technique which has been previously published.[2]

1 Henrici, A. T., PROC. SOC. EXP. BIOL. AND MED., 1921, xix, 132; 1922, xx, 179.

2 Henrici, A. T., PROC. SOC. EXP. BIOL. AND MED., 1923, xx, 293.