immediately after a period of severe alcoholic intoxication and that the testes did not show interstitial or vascular fibroid changes such as might be expected if a severe intoxication of any sort had been long operative. The testes of these five cases all showed abnormal spermatogenesis. Vacuolar degeneration of the germinal epithelium, often showing a zonal distribution in the tubules; hyperchromatic spermatogonia, atypical division figures with hyperchromatic nuclei; retardation of spermatogenesis with relative increase in the number of spermatids and the formation of multinuclear forms attached to the wall or free in the tubular lumina, were noted in varying degrees in the different cases. These changes are not specific for alcohol but resemble those experimentally produced in laboratory animals by alcohol and lead, and those described as resulting from certain acute infections in man (typhoid fever, influenza and pneumonia). Whether, in the five cases here studied, the testicular changes were a direct or an indirect result of the acute alcoholism can not now be stated. A causal relationship of some sort seems evident from the constancy of the changes and from the supporting experimental evidence. The changes found are in excess of those which it is necessary to produce in the testis experimentally in order to demonstrate a blastophthoria by breeding experiments. It seems quite certain that in an earlier stage spermatozoa must have been produced still capable of fertilization, but incapable of producing normal offspring. The observation here recorded is therefore considered an additional contribution to the subject of human alcoholic blastophthoria.

66 (1813)

A statistical study of the form and growth of a spore-bearing bacillus.

By ARTHUR T. HENRICI.

[*From the Department of Bacteriology and Immunology, University of Minnesota, Minneapolis, Minn.*]

The rate of growth of *Bacillus megatherium* has been measured by direct counting of the cells, using a hæmocytometer; and the average length of the cells has been determined by measurements

made at the same time. In agar cultures inoculated from a 12-hour agar culture (which has nearly reached the maximum of growth but has not yet formed spores) it was found that the cells began to increase in size during the lag phase and reached a maximum length, about six times that of the inoculated cells, shortly after the beginning of the maximum growth phase, then rapidly becoming shorter. During the period of increase in length, frequency curves showed a tendency towards bimodality, indicating that possibly a process of selection of rapidly growing cells may occur during the lag phase, as has been suggested by some investigators.

Two series of broth cultures inoculated from a 7-hour agar culture (during the period of maximum growth) showed no lag phase; nevertheless an increase in the size of the cells was observed beginning two hours after inoculation. The cells did not become so large as did those on agar, and the variation was not so great, bimodality being present in but one of the frequency curves. One series was inoculated with 10 times as many bacteria as the other, and the series receiving the lesser amount of inoculum showed a slightly greater increase in the size of the cells over a slightly longer period of time.

67 (1814)

On the weight increments of premature infants as compared with those of fetuses of the same gestation age and those of full-term children.

By RICHARD E. SCAMMON.

[*From the Department of Anatomy, University of Minnesota, Minneapolis, Minn.*]

One method of approaching the problem of the effect of birth and the postnatal environment on the course of human growth is by the comparison of the rates of growth of premature infants with the growth rates of fetuses of the same gestation age and with those of full-term children. If the environmental factors are the all-important ones it might be expected a priori that the rate of growth of prematures would agree, in the main, with that