## 90 EVANS AND MOORE-PERIODIC VARIATIONS IN NORMAL URINE.

c. The color was yellow in S, reddish yellow in 18, yellowish red in 3, and red in 7 samples. The color was nearly proportional to concentration, the average gravity of yellow samples being 1024, of reddish yellow 1026, of yellowish red 1027, and of red 1027.

d. The gravity varied from 1020 to 1031, with an average of 1026; the averages for the different periods beginning with that ending at 7.30 a.m. were in order, 1024, 1025, 1024, 1026, 1026, 1028; the average for periods of gastric digestion was 1024, that for other periods 1026.

c. The solids per hour varied from 1.40 to 3.26, with an average of 2.34 grams, or 56.2 grams in 24 hours. The averages for the different periods beginning with that ending at 7.30 a.m. were, in order, 2.03, 2.30, 2.63, 2.44, 2.23, 2.42; the average for periods of gastric digestion was 2.39, that of other periods 2.30.

f. The urea per cent. varied from 1.70 to 3.50, with an average of 2.40 per cent.

g. The urea per hour varied from 0.50 to 1.50, with an average of 0.95 grams, or 22.8 grams in 24 hours; the averages for the different periods beginning with that ending at 7.30 a.m. were, in order, 0.87. 0.89, 1.03, 0.96, 0.91, 1.03; the average for periods of gastric digestion was 0.96, for other periods 0.94 grams.

h. The solids not usen per hour varied from 0.76 to 1.89, with an average of 1.39 grams, or 33.4 grams in 24 hours; the averages for the different periods, beginning with that ending at 7.30 a.m. were, in order, 1.16, 1.40, 1.60, 1.48, 1.32, 1.39; the average for periods of gastric digestion was 1.42, for other period 1.36 grams.

. In this series also the forenoon periods show the maximum volume per hour, least acidity, lowest gravity, maximum solids per hour, and maximum solids not urea per hour; the urea per hour was equally high in the evening. No marked differences are shown between periods of gastric digestion and other periods.

## SUMMARY OF RESULTS.

A critical examination of the results presented shows the very wide variations in the urine of a single normal individual even within short time intervals; also, that some constituents differed widely in quantity from the figures commonly accepted as normal; and, further, that certain regularities obtained between properties and time of day.

a. The volume per hour varied from 20.0 to 90.0, with averages of 35.3, 38.6, 38.5, 39.7 in the four series—a grand average of 37.9 c.c., or 910 c.c. in 24 hours. This is decidedly less than the quantity usually accepted as normal—about 1500 c.c. in 24 hours. It may be stated that