sitting, and standing pulses reveal that the reclining pulse is the least variable. When the rate attained a steady level it was recorded as the resting rate. The exercise instructions were given and demonstrated by the operator. The subject then assumed the starting position and, when he was ready, the exercise was performed.

The cardiotachometer was started at the end of the last movement of the exercise and the subject was directed to lie on the bed and remain quiet. A continuous recording of the reclining pulse was made until the rate returned and remained at the resting level.

Stool-stepping and weight-lifting were the exercises employed. The stool-stepping was performed as described by Tuttle.[2]

A 25-lb. bar-bell was employed in the weight-lifting exercise. The technique was to have the subject stand erect with the weight supported by both hands, at arm's length. At the proper signal, the subject lifted the weight over his head, arms fully extended, lowering it then to the original position of support. The designated number of trials was performed rhythmically with the beat of a metronome.

## THE POST-EXERCISE PULSE

*The Effect of the Strenuousness of an Exercise on the Reliability of the Post-Exercise Pulse Rate.*—In order to study the relationship of the strenuousness of an exercise to the reliability of the post-exercise pulse, two separate post-exercise pulse readings following four intensities of stool-stepping exercises were made, and coefficients of correlation were computed. Twenty men acted as subjects. Each subject came to the laboratory and reclined until his pulse rate reached a steady level. He then performed twenty steps on a stool after which his post-exercise reclining pulse was recorded. After his pulse returned to the resting level, it was again recorded after thirty, and similarly after forty and fifty stool steps per minute. Only eleven of the twenty subjects tested could perform fifty steps per minute. Subsequent tests, one to five days later, were made on all subjects.

The reliabilities at the various intensities are as follows:

| *Steps* | *Reliability* |
|---|---|
| 20 | .070 |
| 30 | .205 |
| 40 | .720 |
| 50 | .781 |

The correlation of two observations of pulse rates following forty and fifty stool steps per minute is high enough to be significant at the 1 per cent level; that is, a coefficient as high as that obtained would occur by chance less than once in a hundred times for samples from an uncorrelated population. The more intense exercises are

2 W. W. Tuttle, "The Use of the Pulse-Ratio Test for Rating Physical Efficiency," *Res. Quart.* 2:2 (May 1931) 5.