

BOLOMETRIC INVESTIGATIONS; A CORRECTION.

PROF. JOSEPH LE CONTE has kindly called my attention to an error in the above article. On page 175, 7 lines from the bottom of first column, it should read million instead of thousand, and after line 5 insert million, that is, the limits are four hundred million million and seven hundred million million times per second. The error was made in transcribing the original manuscript and was not caught in my proof reading.

WILLIAM HALLOCK.

SCIENTIFIC LITERATURE.

The Growth of U. S. Naval Cadets. By HENRY G. BEYER. (Proceedings of the United States Naval Institute, Vol. XXI., No. 2. Whole No. 74).

In this paper Dr. Henry G. Beyer discusses measurements of U. S. Naval Cadets. These measurements form an exceedingly valuable material for the study of growth. The character of the material may be judged from the following remarks of the author:

"It has been the custom at the Naval Academy for the last thirty years or more to make an annual physical examination of every cadet in training at that school, and, at the same time, to keep a record of certain anthropometric measurements of every cadet undergoing such examination. * * * Up to a few years ago the height standing, perineal height, circumference of chest, waist measure and the lung capacity were the only items recorded. Within recent years the height sitting, span of arms, strength of squeeze, acuteness of vision and hearing have been added to these records; the number of observations under the first-named items is, consequently, much larger than that under the last named. * * * The cadet who stays the full term of four years at this school leaves on the books the records of five successive examinations taken one year apart; after graduation two years are spent at sea, after which time the cadet returns to the Academy for his final examination, leaving the records of another physical examination. This makes six in all. Since the age for entrance into the Academy is limited to from 15 to 18 years, and taking six years as the time necessary to elapse between the first and last examinations, the period of growth

covered by these records ranges all the way from 15 to 24 years of age."*

The most important part of the investigation is the discussion of individual growth which proves beyond a doubt that the assumption which was made by Bowditch and Porter, namely, that on the average individuals of a certain percentile rank retain this rank through life does not hold good. Dr. Beyer considers boys of 15 years of age and representing the 25th and 75th percentile grades. It appears from the tables given by the author that the average statures of both classes approach more and more the 50th percentile grade. I have computed the rank of these boys from year to year from the statements given by Dr. Beyer, and obtained the result that boys who ranked at 15 years 26% and 73% ranked in the following years:

Years.....	15	16	17	18	19	20	21
Grade.....	26	28	26	34	27	38	38
Grade.....	73	74	69	69	68	65	—

It appears that the approach of the lower grade towards the middle is greater than that of the higher grade. In the consideration of weight the approach of the lower grade toward the middle grade appears even stronger, while the higher grade even exceeds the corresponding normal grade. It is difficult to understand the reason of this phenomenon. It would seem likely that when we select a certain grade at a certain age, and follow the development of the individuals composing the grade, that the conditions of life during the following years are favorable in some cases, unfavorable in others, but, on the whole, correspond to the average conditions. When, therefore, the initial age is remote from the adult stage, we should expect a gradual approach to the average. This phenomenon is observed in the case of stature, but does not appear clearly in the case of weight. As Dr. Beyer does not give his original observations, it is impossible to judge what may be the cause of this curious fact.

The same subject is treated in a small but useful table (XVII.), which proves that when a small group of individuals whose statures at

* In addition to these data we should like to know the restrictions governing the selection of cadets which are of great importance in interpreting the observed distribution of measurements.