THE GROWTH OF TORONTO CHILDREN.

inued.

years and-

11 hs.	0 to 11 months.
8 1 5 	18 4 11 2 5
1 1 1 1	1 2 1 1
1	1
203 2.4 .46	$\begin{array}{r} 834 \\ 120.63 \\ \pm 5.50 \end{array}$

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1 t, then

If we assume t as continuous, and carry out the addition between the limits,

$$+0.5 > t > -0.5$$

thus covering the whole year, we find . . .

$$\mu^{2} = \int_{-0.5}^{+0.5} \frac{(C+at+bt^{2}) \left[\mu_{0}^{2}\left(1+a_{1}t+b_{1}t^{2}\right)+a_{2}t+b_{2}t^{2}\right]}{n} dt.$$

$$\mu^{2} = \mu_{0}^{2} \left[C+\frac{1}{13}\left(b+b_{1}C+aa_{1}\right)+\frac{1}{130}bb_{1}\right]+\frac{1}{132}\left(Cb_{2}+aa_{2}\right)+\frac{1}{300}bb_{1}$$

When a, b; a_1 , b_1 ; a_2 , b_2 ; are computed from the values of the year under consideration, and the preceding and following years, which may be designated by the marks -1, 0, +1, we find

$$C = 1 - \frac{1}{12}b,$$

$$a = \frac{n+1 - n-1}{2},$$

$$b = \frac{n+1 + n-1 - 2 n_0}{2},$$

$$a_1 = \frac{\mu^2 - \mu^2_{-1}}{2 \sigma^2},$$

$$b_1 = \frac{\mu^2_{+1} + \mu^2_{-1} - 2 \mu_0^2}{2 \mu_0^2},$$

$$a_2 = \frac{d^2_{+1} - d^2_{-1}}{2},$$

$$b_2 = \frac{d^2_{+1} + d^2_{-1}}{2}.$$

From these data the final corrected values of average statures and of their variabilities have been computed (see also pp. 1555, 1556.)

Average statures and variabilities.¹

	Age.													
	5.5	6.5	7.5	8.5	9.5	10.5	11.5	12.5	13.5	14.5	15.5	16.5	17.5	18.5
Boys:														
Average stature	105,90	111.58	116.83	122.04	126.91	131.78	133.20	140.74	146.00	152, 39	159.72	164.90	168.91	171.0
Variability Girls:			4.93	5.34	5.49	5.75	6.19	6.66	7.54	8.49	8.78	7.73	7.22	
Average stature	104.88	110.08	116.08	121.21	126.14	131.27	136.62	142.52	148.69	153, 50	156.50	158.03	159, 14	
Variability														

It might seem that this correction could be better made by adding the proportionate amount of growth to the measurement of each individual, i. e., for those of 6 years 0 months, for instance, the amount of 6 months' growth if the measure-ments are to be reduced to the period of 6 years 6 months. This, however, must not be done, as small children grow differently from tall children, and therefore the amount of growth to be added differs for the various values of the measurement. That this is the case has been proved by Dr. Henry G. Beyer.⁹ I collected some statistics on this subject in Worcester, Mass., the results of which are briefly given here. I am indebted to Dr. G. M. West for many of the measurements, while others were taken by myself. The first series was taken in May, 1801. The second series was repeated in May, 1892. I give first the series of annual increases which were obtained in Worcester.

¹ Figures in parentheses denote approximate values. ²"The Growth of United States Naval Cadets" (Proc. U. S. Naval Institute, Vol. XXI, No.2, whole No. 74).