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PHYSICAL GROWTH

— OF —

STUDENTS

DURING THE COURSE AT AMHERST COLLEGE

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Physical Growth of Students during the Course at Amherst College.

The question of the physical growth of the students in Amherst College has been studied for several years in our Anthropometric Laboratory, and accurate records made of it for this period of time.

But as the use of all these records would require an immense amount of tabulation, we have thought best to select several of the later years for this publication, and use only a few of the more prominent and available items of measure and test. The items chosen are Weight, Height, Chest Repose, Pull Up, Grip and Lung Capacity. These we have taken from the Classes of 1885 to 1901, inclusive. The gains shown are those of 742 different men who were measured on entering college, and again at the end of their college course.

The table is arranged by YEARS OF AGE from 16 to 25 inclusive. This has been done in each class, and then the averages found for each year of age, and the total average of all the Classes.

The study is made to ascertain the *actual amount of each gain* by the men of the selected year, *and the per cent.* of the same, and finally the actual gain and gain per cent. of the whole number of the men examined and tabulated.

Considerable interest always attaches to the final stages in the attainment of bodily stature and strength. It is important to know how long growth should continue and the normal gradation of its last steps, as well as the facts connected with its beginning, and its early progress. Physical maturity is a relative term from the standpoint of anthropometry as of physiology—not all the bodily dimensions and powers attaining it at the same time—but data showing what the final increments are, in the representative items already referred to, cannot but be instructive. Quetelet, Bowditch, Roberts, Boas, Grigoresce, Porter, and others, have shed much light on the growth of the human body, but most of their data is from the earlier years of development. The measurements of college students offer unusual facilities for investigating the later years, as their ages (16 to 25 years) cover nearly the “tapering off” period. The identical men in the table on page 8 were re-measured, and by the results we see what was the average gain in each item, and, what is more accurate, the per cent. of gain for the 3 1-2 years. Naturally, the figures are too few to accurately

indicate the grading down of the per cents., but from 16 to 19 years in all except "pull up," it is roughly shown.

It is quite as important, moreover, to know the normal variations which occur in growth during these periods; hence, the growth of the men from 16 to 20 years has been graphically shown in the six charts which follow. They have been plotted according to age by the individualizing method. Those losing in these items have, for accuracy, been recorded. In all but height the ordinate represents whole per cent of gain or loss; in height tenths of per cent. The abscissae show the number of men who made that particular percentage of increase.

To take a concrete example of what practical use may be made of the charts, let us suppose that a student comes to college at 18 years of age. He wishes to know what he can expect to gain in weight, height and strength. By the table he finds the average gain in weight for the next 3 1-2 years is 4.56 kilos (10.3 lbs.), or 7.4%. Plate I shows him more, namely, that, while those figures are an average, the largest group, 43 out of a total of 244 men, gain 8%, quite a large number gain 14%, some even 20%, while a few do not gain at all or even lose a little. Thus by going on to use the other plates he may get a complete display of his physical expectations, under normal conditions, for the college course.

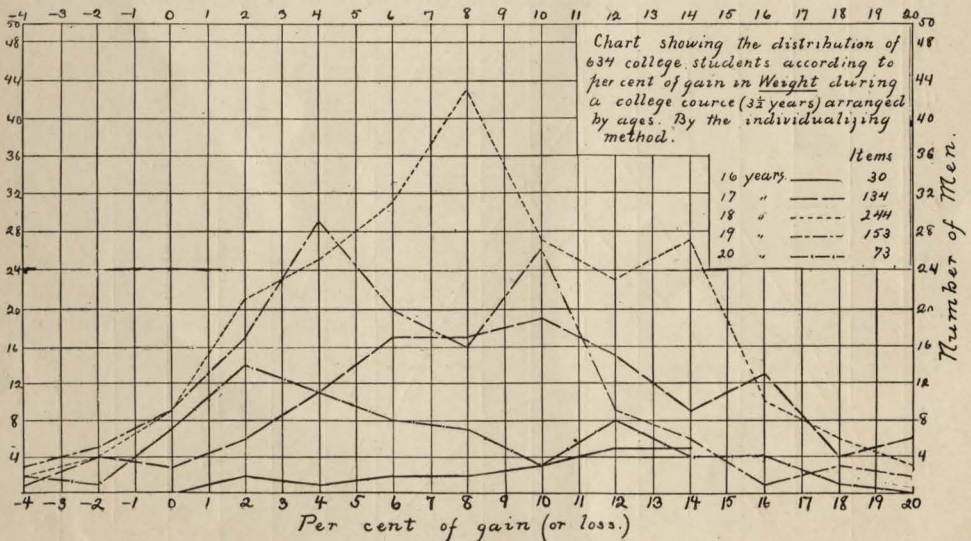


Plate I.

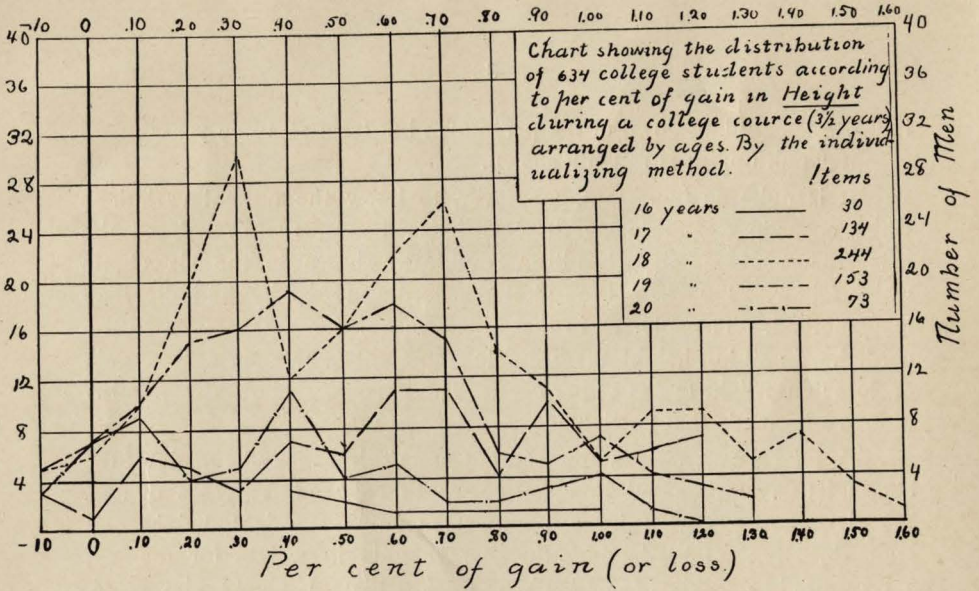


Plate II.

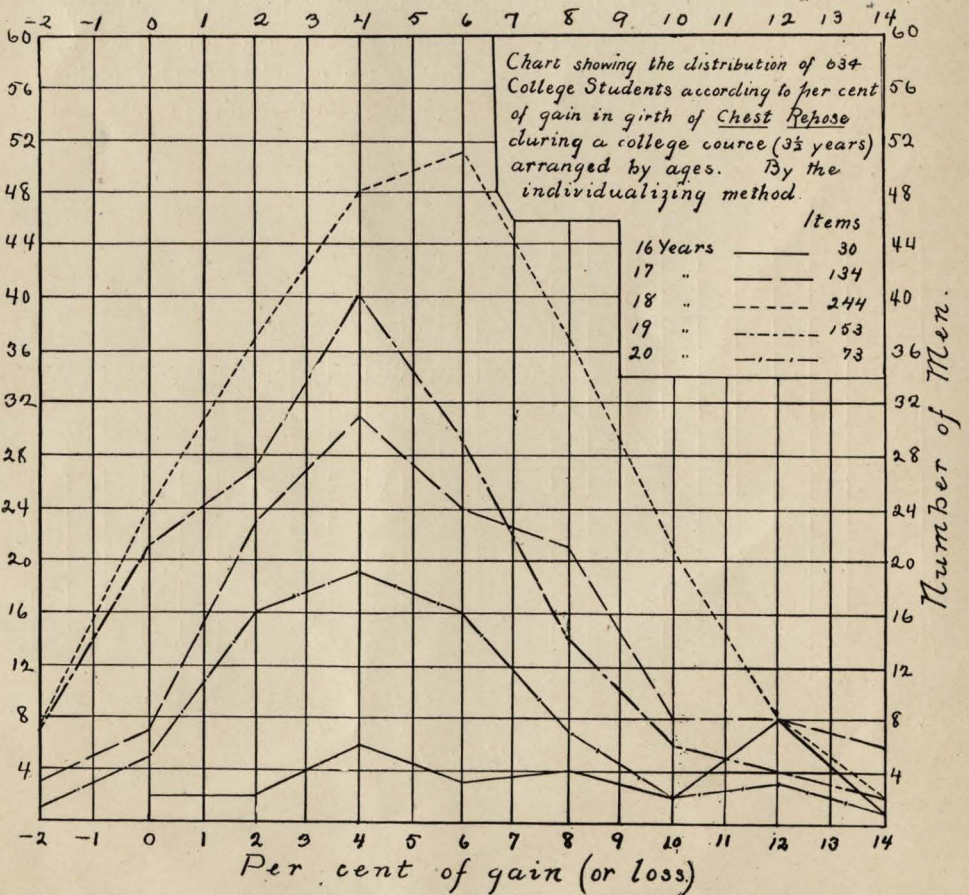


Plate III.

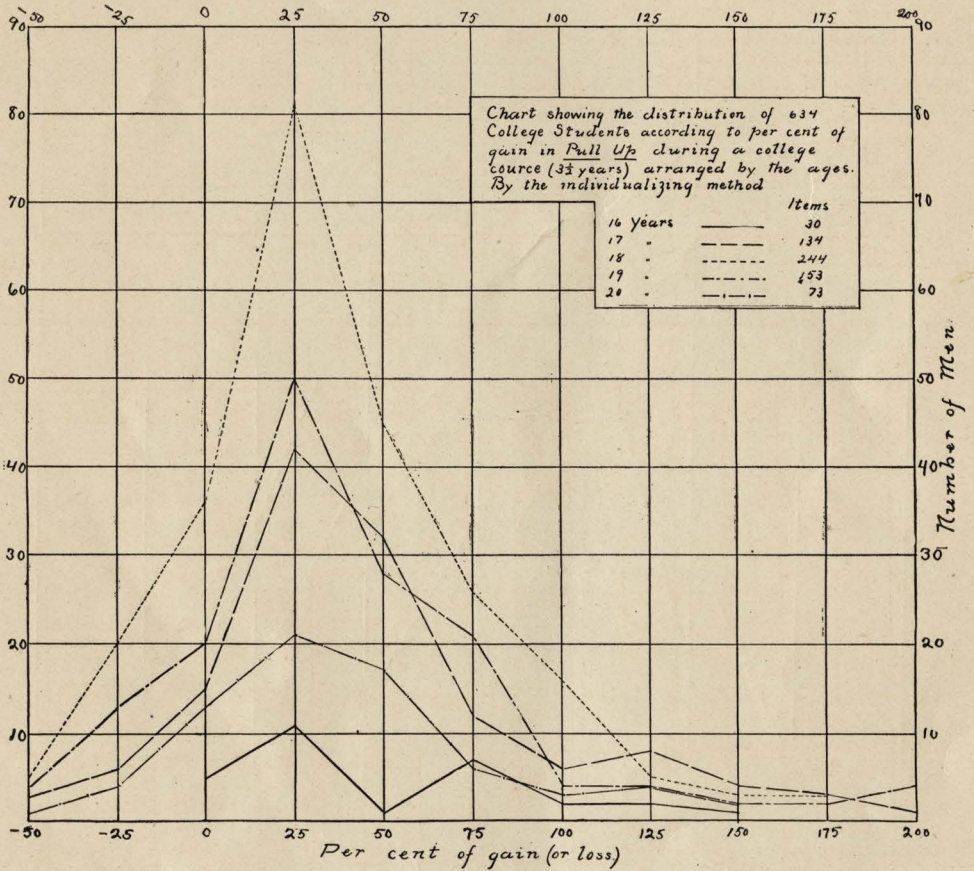


Plate IV.

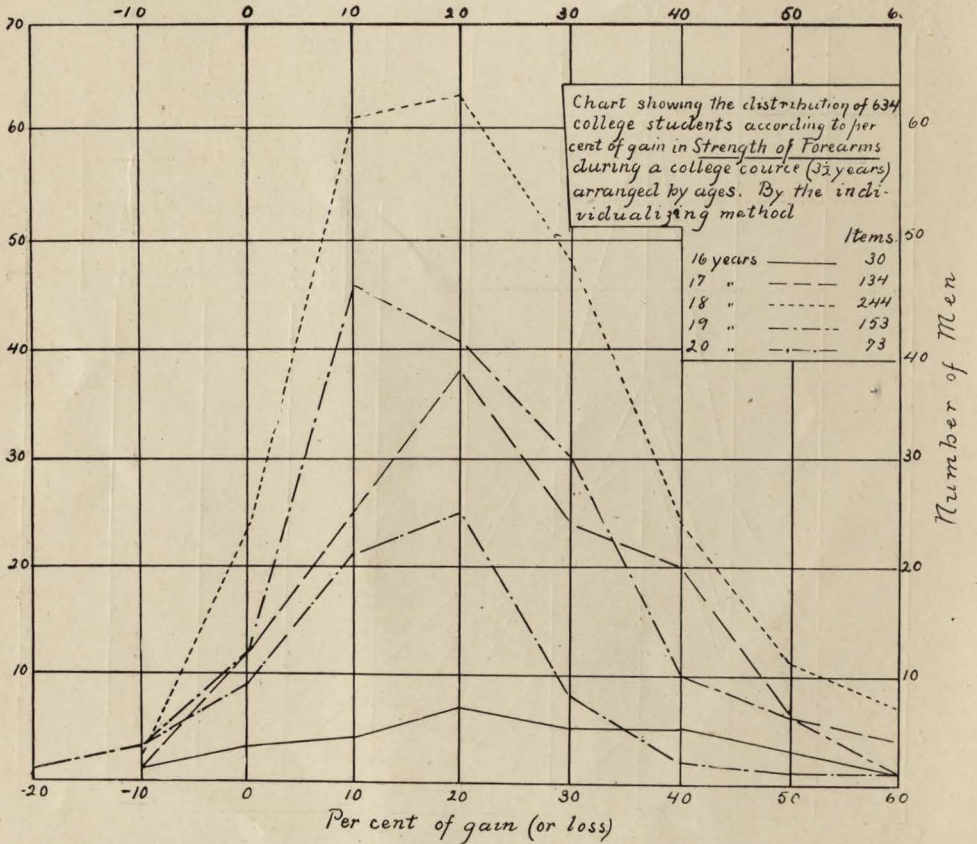


Plate V.

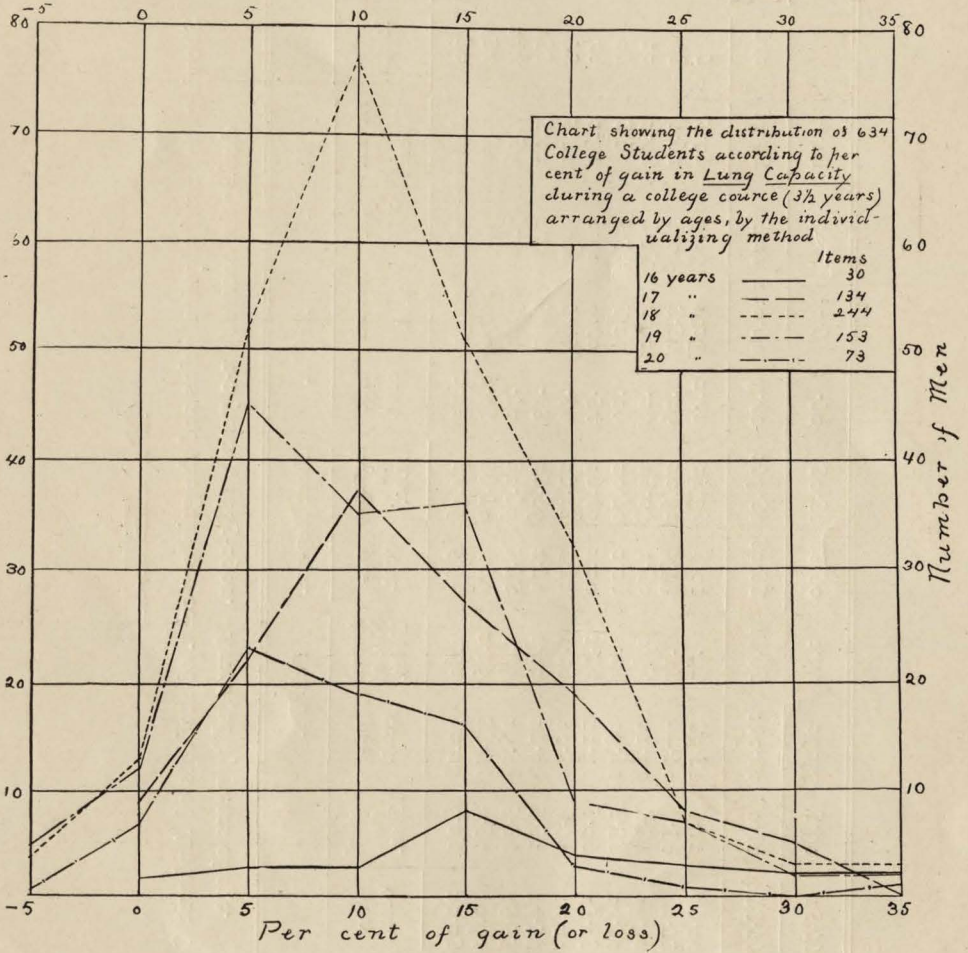


Plate VI.

TABLE

Showing the actual physical gains and the gain per cent. of students of Amherst College during the course (3 1-2 years), 1885-1901. Arranged by years of age.

Age.	Items.	Weight.		Height.		Chest Repose.		Pull Up.		Grip.		Lung Capacity.	
		Actual in Kilos.	Per cent.	Actual in M. M.	Per cent.	Actual in M. M.	Per cent.	Actual No. of Units.	Per cent.	Actual in Kilos.	Per cent.	Actual in Liters.	Per cent.
16 Yrs	30	8.01	14.51	37.23	2.15	54.46	6.63	1.60	32.28	6.23	21.23	.59	17.37
17 "	134	5.30	9.23	20.76	1.15	39.70	4.76	2.16	33.74	6.50	10.80	.43	11.81
18 "	244	4.56	7.41	13.12	.70	31.76	3.73	1.48	26.56	5.74	15.53	.32	8.30
19 "	153	3.18	5.49	7.99	.43	23.56	2.71	1.50	27.69	5.32	14.77	.29	7.22
20 "	73	3.31	5.29	7.69	.50	29.13	3.32	1.79	20.32	4.72	14.24	.26	6.78
21 "	49	2.87	5.60	6.40	.34	19.46	2.20	1.34	21.61	5.29	13.15	.15	3.82
22 "	27	3.98	5.34	5.22	.29	20.70	2.29	1.25	18.51	5.33	14.30	.15	3.61
23 "	12	2.03	3.15	4.92	.26	13.08	1.50	1.83	21.88	7.37	18.82	.11	3.43
24 "	13	1.92	3.02	3.30	.16	20.61	2.18	.15	— .70	.50	1.73	.13	3.39
25 "	7	3.67	6.18	4.28	2.42	25.85	3.01	.85	38.51	3.42	9.20	.26	6.86
Grand Total.	742	38.83	65.22	110.91	8.40	278.31	32.33	13.95	240.40	50.42	133.77	2.69	72.59
Ave.		4.19	8.45	12.76	.70	30.39	3.50	1.61	26.68	5.62	15.77	.31	8.36