

THE HEIGHTS OF THE PUBLIC SCHOOL PUPILS OF SAN MARCOS,
TEXAS, COMPARED WITH THOSE OF THE
BURGESS NATIONAL SCALE

Approved:

D. F. Votaw
J. H. Gruesen
J. M. Rodey

Approved:

J. L. Rogers
Executive Secretary, Graduate Council

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Milton Jowers
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Milton Jowers

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Chapter I

THE PROBLEM OF CONSTRUCTION OF TWO HEIGHT CHARTS
FOR SAN MARCOS CHILDREN

1. Introduction

It is the purpose of this study to compare the age-height distributions of San Marcos children to an accepted study of the age-height distribution for the children of the nation. To make such a comparative study between these heights and the heights for the child population of the United States it was necessary to find a suitable criteria. Although numerous studies dealing with the heights of children of all ages have been made, few of these may be used to determine the height of a child in comparison with the general average of children of that same age.

The average height chart records that a boy or girl of X-years and Y-months should have reached a definite number of inches in height. Few children of that particular age would be of that definite height, thus a large majority of children would be either above or below the standard accepted for purposes of measurement. Mrs. Burgess states:

Hundreds of height studies have been published and many of them have been made under careful

scientific guidance. Yet when the parent or teacher or physician wishes to know whether an individual child is taller or shorter than would reasonably be expected and whether his rate of growth is normal or abnormal, he finds the question difficult to answer. The same child may be regarded as far below average in another. What appears to be needed most is not another field of study of stature but a merging of the results of many studies to produce a practical device for recording the growth records of children and making judgments concerning their significance.¹

 1. May Ayres Burgess, "The Construction of Two Height Charts", Journal of the American Statistical Association, Vol. 32, p. 290, (June 1937).

In the light of these considerations, two height charts representing summarizations of sixty previous studies have been prepared by Burgess.² These charts shall serve as the

 2. Ibid., p. 303.

criteria in comparing the heights of San Marcos children with the national average.

2. The Scope of this Study

A number of the age-height studies of the past have been made with the aim of showing the effect of nutrition and the social-economic level upon the child's growth. It is not the purpose here to delve into the causes of any discrepancies that may occur in any of these scales. Neither is it the aim of the writer to cite causes for or beliefs for any facts brought out in the course of this study.

This is a normative study of the heights of five hundred and thirty-four children who were attending grades

one through nine of the San Marcos, Texas, Public Schools during the spring semester of 1940. The data were considered from the following standpoints:

(1) A series of comparisons of the mean heights at different ages for the two sexes for the purposes (a) of discovering such differences as might exist at various ages between boys and girls, (b) of observing the rates of growth in height for the periods under observation and comparing this rate to the national average, and (c) of comparing the results obtained through this study to the aforementioned criteria.

(2) The degree of variation in height at each age for either sex in term of the standard deviation and the variability as compared to the accepted scale which is serving as the criteria.

(3) The construction of two age-height charts showing the percentile paths for both boys and girls with the aim of graphically comparing these scaled heights of San Marcos boys and girls to these same accepted scales prepared of the youth of the nation.

Burgess has this to say concerning her two charts for the nation's children:

When an individual child's record is plotted on the chart it is therefore possible to note not only whether he is taller than the average, but what height level he is on as compared with the typical level for his social-economic groups, what percentile path he is most closely following, and whether the amount he makes over a given period is the same

as, or more or less than, the amount of growth usually made by other children of his level. ³

 3. Ibid., p. 309.

It is the aim of this study to produce height charts of the San Marcos children which show material in a similar manner, as well as charts comparing these heights to the national average. This should make it possible to determine the position of each individual child, in relation to the average in San Marcos as well as to the average over the nation.

3. Weaknesses and Limitations of this Study

Certain weaknesses of a study of this nature are obvious. The information gathered would probably have been more consistent if taken over a period of several years, however, the number of children of both sexes of ages six to fifteen, inclusive, are sufficiently large to constitute a reasonably fair sample of the child population of the city.

The height standards for the total child population of San Marcos would possibly vary slightly if those in attendance at the colored school had been measured, however, in order to be consistent with the accepted criteria, since colored children were not considered in the Burgess Survey, only those attending the white schools were measured.

The value of this study should be considered in the light of such weaknesses and limitations as those pointed out above.

Chapter II

SIMILAR INVESTIGATIONS

The ensuing information taken from a survey of a number of studies along a similar line to the one pursued by the writer is not to be considered as a part of the text of this study. The findings noted here represent a summarization of the conclusions arrived at by the authors of the several surveys and are offered here for the purpose of further clarifying the purposes of this study as well as the procedure to be followed. In no instance may these conclusions be considered the product of the writer, as they are only a restatement or summary of the interpretations made by the directors of the original surveys.

Studies of a similar nature to the one made in this thesis were observed to follow three general lines of development. In no instance other than in the case of the criteria were charts of the percentile paths of heights prepared. The three general lines of development of previous height studies observed by the writer were:

- (1) Observations of the effect of nutrition upon the physical and mental development of children,
- (2) comparative observations of heights of boys and girls of given ages over a definite section of the nation,
- (3) physical development of children studied with determinate factor being the geographic area in which the children resided.

With reference to studies attempting to determine the effect of nutrition upon physical growth, Clark writes:

---- A number of so-called standards of the physical development of children are in more or less general use in this country, largely for determining the state of nutrition. For the most part these standards represent averages of measurements made by different observers in widely separated communities, without reference to racial stock or geographical distribution.¹

1. T. Clark, E. Sydenstricker, and S. D. Collins, Heights and Weights of School Children, p. 5.

Concerning the relationship existing between the better hygienic feeding of young children and the increments in height of these children, Holt says:

---- It is my own observation, corroborated by most of the physicians with whom I have discussed the subject, whose experience entitles their opinion to weight, that among the most intelligent classes, the generation of American boys and girls, now fully grown, is larger and heavier than their parents. Newsholme states that the same thing has been observed in England in the boys at Rugby. This result is due, I believe, to better feeding in infancy and early childhood, and no doubt to increased attention given to out-of-doors interests during the period of growth. As yet, however, these influences have affected only a small fraction of the children of the country.²

2. L. E. Holt, Food, Health and Growth, p.21.

Holt³ also observed that Russian Jews emigrating

L. E. Holt and J. Howland, Growth and Development of the Body. Diseases of Infancy and Childhood. p. 126.

to the United States as adults were in the most part scarcely taller than the Italians, but the children of the more successful and prosperous ones, those who have become to a considerable degree Americanized, are almost as large

as those of our native born population; the children are frequently four or five inches taller than their parents.

In order to compare results from several widely separated studies and to present anthropometrical observations for groups that are fairly homogeneous with respect to race stock and geographical location in the United States, Clark⁴ made his study of 14,335 white children

 4. T. Clark, E. Sydenstricker, and S. D. Collins,
op. cit., p. 7.

of native parentage in representative communities in Maryland, Virginia and North and South Carolina. The observation was made that for the ages of eleven to fourteen, inclusive, the mean height of girls was in excess of the mean height of boys. While this excess in the average heights of girls over those mean heights of boys was not great, it was significant. Stiles and Wheeler⁵ noted that from the ages of ten to thirteen, inclusive, the girls grew more rapidly

 5. C. W. Stiles and C. A. Wheeler, Heights and Weights of Children, p. 19.

and exceeded the boys in height for ages of eleven and twelve, and especially for the thirteenth year. Stiles and Wheeler⁶ noted also that girls of six years of age

 6. Ibid. p.26.

averaged nearly an inch more in height than boys of that age; at seven, eight, and nine years of age the boys and girls were practically of the same height, though there was

a very slight difference in favor of the boys; at the tenth year the boys were distinctly taller than the girls.

According to Clark⁷ the height at which the average

7. T. Clark, E. Sydenstricker, and S. D. Collins,
op. cit., p. 12.

of the girls exceeded the average of the boys was at approximately fifty-three inches and the girls maintained this height advantage until they reached the approximate height of sixty inches. Stiles and Wheeler⁸ maintain that from

8. C. W. Stiles and G. A. Wheeler, op. cit., p. 31.

the ages of thirteen to seventeen, inclusive, and especially from fourteen to seventeen, the growth of the boys exceeded that of the girls. From the above information it may be deduced that sometime during the tenth year and at the approximate height of fifty-three inches the height growth of girls exceeds that of boys, and that this advantage is maintained over a period of about three years at which time the rate of growth of boys is in excess of that of girls in sufficient amount to make the average height of boys above that for girls.

Clark⁹ finds that the differences in the shape of

9. T. Clark, E. Sydenstricker, and S. D. Collins,
op. cit., p. 23.

height curves are quite marked when the ages are compared. in general, the older the age, the flatter is the curve and hence the greater the degree of dispersion. This means

that the children of a given age differ more widely in height as they grow older. This statement should be qualified, however, for a closer study of the graphs affords the suggestion that the greatest dispersion or difference occurs at the time of puberty. Differences of this character are exhibited by both boys and girls.

Stiles and Wheeler¹⁰ hold that there are two rather

 10. C. W. Stiles and S. A. Wheeler, op. cit., p. 40.

striking interruptions in the growth of boys and girls. At the age of eleven there is a rather striking decrease of the increment of height of boys and a less marked decrease of the increase in height of girls. At fourteen there is a sudden and very pronounced decrease of the height increment of girls. The change in the rate of growth of boys is less noticeable at this age. The increase in the height of boys, after eleven, is rather uniform until the beginning of the seventeenth year at which time the height curve begins to flatten out but shows a greater range of dispersment.

Palmer and Collins¹¹ made independent studies of the

 11. C. E. Palmer and S. D. Collins, Variations in Physique and Growth of Children in Different Geographic Regions of the United States, p. 346-380.

average growth of boys and girls in four distinct and separate sections of the United States. These four geographic divisions were as follows:

(1) Northeastern section--including New England and Middle Atlantic States,

(2) North Central section--those states bordering the western Great Lakes,

(3) South Central section--those states ranging from Kentucky to Texas, and

(4) Western section--including states of Utah and Nevada.

Some 30,000 boys and girls between the ages of six and fifteen residing in these four regions were measured. An analysis of the data in age and sex specific classes for each section shows consistent differences between the mean measurements of children in the various geographic divisions. In general it may be said that those children of the northeastern section were found to be the largest, those of the north central region were second in size, those boys and girls of the south central region were third largest in size, while those children of the western division were consistently smaller than those of the first three regions. A study of the growth increments, calculated as the differences between averages of successive age classes, shows no consistent differences in mean increments for children in the various sections.

Somewhat conversely to the findings of Palmer, Holt¹²

 12. L. E. Holt, Food, Health and Growth, p. 12.

contends that owing largely to a climate which affords greater opportunity for out-of-door life, the children of

California and the west are taller and heavier than those children of corresponding ages living in the east and middle west.

The writer had occasion to review a number of other independent studies. In a study of the physical status and its relation to mental abilities in children, Kempf and Collins¹³ measured and tested several thousands of

 13. G. A. Kempf and S. D. Collins, A Study of the Relation Between Mental and Physical Status of Children in Two Counties of Illinois, pp. 201-220.

children living in two counties of Illinois. It was noted that children of native stock possessed the highest height levels and at the same time had the highest I. Q. levels. Through this segregation of children according to racial families, it was observed that races possess different physical as well as mental characters.

Schwartz¹⁴ and collaborators studied the effect of

 14. L. Schwartz, R. H. Britten, and L. R. Thompson, Studies in Physical Development and Posture, pp. 520-526.

continuous and adequate exercise upon the height of boys. 118 boys of the same age were observed over a period of four months. The control group, of fifty boys, was given no special exercises and the members were requested to take as little exercise as possible. The boys of this group gained on the average about two-thirds of an inch in height. The experimental group, of sixty-eight boys, which took an adequate amount of exercise gained on an average of one

inch during the four months. Only four boys in the control group gained as much as one and one-half inches, while eighteen boys of the experimental group gained that much. While it is recognized that this rate of increase could not be maintained indefinitely it probably would be a considerable factor over a period of time.

A summarization of the findings of the previous studies may be grouped into three major generalizations:

(1) Nutrition is a major factor in the physical and mental development of the child. The effects of malnutrition are more noticeable in children from the time of infancy to the approximate age of six years.

(2) Height growth of girls exceeds that of boys from the ages of eleven to thirteen, inclusive. Height curves for girls tend to flatten out at the beginning of the fourteenth year, while height increments of boys show a decided decrease at the beginning of the sixteenth year.

(3) In general, the heights of children residing in the New England and North Central sections of the United States are in excess of those children living in the South Central and Western sections of this nation.

Chapter III

METHOD OF COLLECTING AND TREATING DATA

1. Sources of the data

In a study of this nature two points of information concerning each individual are essential. (1) The correct heights of the subjects at a given time must be determined, and (2) the exact ages, on the day of measurement, of these same students must be ascertained.

Height data for this study were secured by an individual measurement of the height of each of 300 boys and 234 girls in attendance at San Marcos Public Schools during the spring semester of 1939-40. These height measurements were taken at the nearest one-fourth inch interval. Each student was required to remove shoes before being measured, and every effort was made to see that a normal stance was maintained. These measurements were taken on the sixth and seventh days of May of that year.

The second essential point of information about each individual child was secured by cross checking the census and enrollment cards of the public schools. This information was obtained from the office of the superintendent of this school system. In only two cases did the information found in these two files fail to confirm the same age. The parents of these two children were consulted in order to make it possible that these two pupils be considered in the study.

Although it is not the purpose of this study to make a survey of the weights of these same students, the writer felt that it would be desirable to get this information, because accessibility to such information would make possible, at some future time, a separate and independent study. Each pupil was weighed and the weights recorded to the nearest pound. Raw data on this order for each child may be found in Appendix I of this study. A compilation of these weights according to age intervals of one year may also be found in the appendix of this thesis.

2. General Procedure

With these data at hand, the actual study of their relationships to each other and to the national average as ascertained by Burgess¹ was begun. This called for a

 1. May Ayres Burgess, "The Construction of Two Height Charts", Journal of the American Statistical Association, Vol. 32, p. 290-309, (June 1937).

number of compilations in the form of age-height distributions for both sexes. Throughout the entire procedure the two sex groups, so far as was feasible, were treated separately and independently. However, in a number of instances it was thought beneficial to consider the relation between changes in the two groups, as well as to notice the differences and similarities existing between the two sex groups in San Marcos in the light of differences noticed in the sex groupings of the criteria for this study.

An age distribution chart for each sex was prepared. To best study the particular distributions of each group, intervals of six months each were used. In consideration of the principal interest and purpose of this study, this particular distribution may seem superfluous, however, the reason for such introduction was for verification of those distributions that follow.

Height distributions were prepared for each sex. In each instance an interval of one-half inch was used. These charts are to be considered as supplemental evidence, along with the age distribution charts, in support of the age-height scattergrams for both groups.

In consideration of the number of subjects involved in each study, it was thought inadvisable, in the construction of age-height scattergrams, to use an age interval of one-half year. Such a procedure would have necessitated so many divisions as to cause the number in each section to be quite small. To prevent the existence of such a condition the ages were considered at annual instead of semi-annual intervals. This change was possible by the addition of the number of cases in each of the two six months intervals which constituted each year. The height interval was maintained as one-half inch thus facilitating the computation of the nearest exact height for each age interval.

These age and height distributions and the age-weight scattergrams were compiled so that a basis for comparison

and further study might be obtained. Once they had been prepared, definite comparisons along the following lines could be made:

- (1) The percentage of San Marcos children in each of the percentile ranks of the Burgess National Scale.
- (2) Mean heights of San Marcos boys and girls compared to the mean heights of boys and girls of the nation.
- (3) The standard deviation in heights of the children of San Marcos could be compared to the standard deviation of the height of the children of the nation.

Two methods were used in the presentation of such evidence. Charts were produced to cover some comparative points, while other comparisons were graphically represented.

From the age-height scattergrams it was comparatively easy to determine the percentile height rankings for each age. It will be noticed that the height charts used as the criteria for this study are divided into percentile scales of 99, 95, 90, 80, 70, 60, 50, 40, 30, 20, 10, 5, and 1. However, these charts were prepared from a study of some sixty² other studies involving several thousand children.

2. Ibid., p. 297.

With such a large number of children under consideration percentile groups could easily be made quite small. In this study of San Marcos children the number of principals was much less, and the writer deemed it advisable to use a fewer number of percentile ratings. Although the number of

percentile groupings were less than in the case of the criteria, the writer felt that a more reliable comparison could be had if the percentile intervals covered the heights of more children. Consistent with this policy, percentiles of 90, 70, 50, 30, and 10 were established. These ratings were then illustrated graphically in order to compare them to the ratings of the established criteria. To further compare these conditions with the nation's averages, separate line graphs of the ninetieth, fiftieth, and tenth percentiles were constructed on which are to be found a comparison of the percentile lines of San Marcos children to those of the average in the nation.

The mean height of San Marcos children at each age interval was found, so that a comparison of these heights could be made to the mean heights of the nation's children. The formula used in the computation of these mean heights is as follows:³

$$M = AM + \left(\frac{\sum fd}{n} \right) h$$

3. Karl J. Holzinger, Statistical Methods for Students In Education, p. 104.

For purpose of further comparison between these heights of San Marcos children and those of the criteria, the standard deviations of San Marcos children for each one year interval were arrived at by use of the following formula:⁴

$$S.D. = \left(\sqrt{\frac{\sum fd^2}{N} - \left(\frac{\sum fd}{N} \right)^2} \right) \pm$$

 4. Ibid., p. 109.

The position of each child of this study was then located on the Burgess National Scale. To ascertain this position it was necessary to know the age and height of each student and then to locate the percentile rating on the proper national scale of each of these San Marcos boys and girls. The mean percentile point of San Marcos students as per Burgess Scale was then found.

It is to be remembered that in the aforementioned comparison sex lines were strictly observed. Boys and girls were considered as separate entities. In one instance, however, the annual increments of San Marcos boys and girls were compared, and then this comparison was in turn examined in light of a comparison made between the annual height increments, at yearly intervals, of boys and girls, throughout the nation.

3. Results and Interpretations

It will be noticed from Charts I and II that approximately ninety percent of the boys involved in this study were between the ages of seven and fifteen years. Similarly a large number of girls were found between the ages of seven years and fourteen years six months. The distribution between these ages was large enough to make a fair sample, however, the number involved in other age intervals were too few for graphic information to be considered fully reliable for these intervals. The charts prepared by Burgess were made from a fair sampling of children at all age levels, so the comparisons made in this study may be thought of as being the most reliable at the ages of from seven to fifteen.

The bulk of the boys measured during the course of this study had a height measurement of between forty-six and sixty-eight inches. This information may be verified by a glance at Chart III and Chart IV.

By a survey of the age-height scattergram for boys, Chart V, it will be ascertained that the groupings of these boys according to age and height followed a normal distribution. A similar observation may be made after a study of the age-height chart for girls, Chart VI. The chief advantage derived from the construction of such a scattergram is that it facilitates the computation of the various percentile levels. These levels were computed for each age by counting the number of cases to fall below each percentile line.

TABLE I

AGE DISTRIBUTION FOR SAN MARCOS BOYS

Age Interval	f
17-6 to 17-11	3
17-0 to 17-5	2
16-6 to 16-11	1
16-0 to 16-5	4
15-6 to 15-11	5
15-0 to 15-5	7
14-6 to 14-11	11
14-0 to 14-5	15
13-6 to 13-11	25
13-0 to 13-5	24
12-6 to 12-11	14
12-0 to 12-5	15
11-6 to 11-11	21
11-0 to 11-5	16
10-6 to 10-11	23
10-0 to 10-5	18
9-6 to 9-11	17
9-0 to 9-5	17
8-6 to 8-11	15
8-0 to 8-5	11
7-6 to 7-11	13
7-0 to 7-5	14
6-6 to 6-11	8
6-0 to 6-5	1
TOTAL	300

TABLE II
AGE DISTRIBUTION FOR SAN MARCOS GIRLS

Age Interval	f
16-6 to 16-11	2
16-0 to 16-5	
15-6 to 15-11	
15-0 to 15-5	3
14-6 to 14-11	6
14-0 to 14-5	21
13-6 to 13-11	21
13-0 to 13-5	15
12-6 to 12-11	21
12-0 to 12-5	12
11-6 to 11-11	14
11-0 to 11-5	15
10-6 to 10-11	9
10-0 to 10-5	8
9-6 to 9-11	10
9-0 to 9-5	16
8-6 to 8-11	15
8-0 to 8-5	16
7-6 to 7-11	8
7-0 to 7-5	15
6-6 to 6-11	5
6-0 to 6-5	2
TOTAL	234

TABLE III
HEIGHT DISTRIBUTION FOR SAN MARCOS BOYS

Height Interval	f
$72 - 72\frac{1}{2}$	1
$71 - 72\frac{1}{2}$	1
$70 - 70\frac{1}{2}$	2
$69\frac{1}{2} - 69\frac{3}{4}$	2
$68 - 68\frac{1}{2}$	4
$67\frac{1}{2} - 67\frac{3}{4}$	2
$67 - 67\frac{1}{2}$	2
$66\frac{1}{2} - 66\frac{3}{4}$	5
$66 - 66\frac{1}{2}$	4
$65\frac{1}{2} - 65\frac{3}{4}$	4
$65 - 65\frac{1}{2}$	5
$64\frac{1}{2} - 64\frac{3}{4}$	1
$64 - 64\frac{1}{2}$	4
$63\frac{1}{2} - 63\frac{3}{4}$	2
$63 - 63\frac{1}{2}$	7
$62\frac{1}{2} - 62\frac{3}{4}$	5
$62 - 62\frac{1}{2}$	11
$61\frac{1}{2} - 61\frac{3}{4}$	6
$61 - 61\frac{1}{2}$	5
$60\frac{1}{2} - 60\frac{3}{4}$	5
$60 - 60\frac{1}{2}$	8
$59\frac{1}{2} - 59\frac{3}{4}$	8
$59 - 59\frac{1}{2}$	6
$58\frac{1}{2} - 58\frac{3}{4}$	8
$58 - 58\frac{1}{2}$	13
$57\frac{1}{2} - 57\frac{3}{4}$	7

TABLE III (cont.)

57 -57 $\frac{1}{2}$	13
56 $\frac{1}{2}$ -56 $\frac{3}{4}$	10
56 -56 $\frac{1}{2}$	13
55 $\frac{1}{2}$ -55 $\frac{3}{4}$	13
55 -55 $\frac{1}{2}$	12
54 $\frac{1}{2}$ -54 $\frac{3}{4}$	9
54 -54 $\frac{1}{2}$	7
53 $\frac{1}{2}$ -53 $\frac{3}{4}$	7
53 -53 $\frac{1}{2}$	6
52 $\frac{1}{2}$ -52 $\frac{3}{4}$	6
52 -52 $\frac{1}{2}$	8
51 $\frac{1}{2}$ -51 $\frac{3}{4}$	7
51 -51 $\frac{1}{2}$	5
50 $\frac{1}{2}$ -50 $\frac{3}{4}$	1
50 -50 $\frac{1}{2}$	10
49 $\frac{1}{2}$ -49 $\frac{3}{4}$	3
49 -49 $\frac{1}{2}$	8
48 $\frac{1}{2}$ -48 $\frac{3}{4}$	7
48 -48 $\frac{1}{2}$	7
47 $\frac{1}{2}$ -47 $\frac{3}{4}$	5
47 -47 $\frac{1}{2}$	4
46 $\frac{1}{2}$ -46 $\frac{3}{4}$	4
46 -46 $\frac{1}{2}$	2
45 $\frac{1}{2}$ -45 $\frac{3}{4}$	2
45 -45 $\frac{1}{2}$	2
43 $\frac{1}{2}$ -43 $\frac{3}{4}$	1
TOTAL	300

TABLE IV
HEIGHT DISTRIBUTION FOR SAN MARCOS GIRLS

Height Interval	f
$60\frac{1}{2} - 60\frac{1}{2}$	2
$60\frac{1}{2} - 60\frac{3}{4}$	1
$65\frac{1}{2} - 65\frac{3}{4}$	4
$64\frac{1}{2} - 64\frac{3}{4}$	3
$64 - 64\frac{1}{2}$	3
$63\frac{1}{2} - 63\frac{3}{4}$	5
$63 - 63\frac{1}{2}$	9
$62\frac{1}{2} - 62\frac{3}{4}$	6
$62 - 62\frac{1}{2}$	13
$61\frac{1}{2} - 61\frac{3}{4}$	6
$61 - 61\frac{1}{2}$	10
$60\frac{1}{2} - 60\frac{3}{4}$	4
$60 - 60\frac{1}{2}$	14
$59\frac{1}{2} - 59\frac{3}{4}$	4
$59 - 59\frac{1}{2}$	9
$58\frac{1}{2} - 58\frac{3}{4}$	6
$58 - 58\frac{1}{2}$	4
$57\frac{1}{2} - 57\frac{3}{4}$	7
$57 - 57\frac{1}{2}$	4
$56\frac{1}{2} - 56\frac{3}{4}$	4
$56 - 56\frac{1}{2}$	8
$55\frac{1}{2} - 55\frac{3}{4}$	5
$55 - 55\frac{1}{2}$	3
$54\frac{1}{2} - 54\frac{3}{4}$	7

TABLE IV (cont.)

54 -54 $\frac{1}{2}$	6
53 $\frac{1}{2}$ -53 $\frac{3}{4}$	2
53 -53 $\frac{1}{2}$	7
52 $\frac{1}{2}$ -52 $\frac{3}{4}$	8
52 -52 $\frac{1}{2}$	3
51 $\frac{1}{2}$ -51 $\frac{3}{4}$	6
51 -51 $\frac{1}{2}$	8
50 $\frac{1}{2}$ -50 $\frac{3}{4}$	3
50 -50 $\frac{1}{2}$	4
49 $\frac{1}{2}$ -49 $\frac{3}{4}$	6
49 -49 $\frac{1}{2}$	5
48 $\frac{1}{2}$ -48 $\frac{3}{4}$	3
48 -48 $\frac{1}{2}$	6
47 $\frac{1}{2}$ -47 $\frac{3}{4}$	9
47 -47 $\frac{1}{2}$	7
46 $\frac{1}{2}$ -46 $\frac{3}{4}$	3
46 -46 $\frac{1}{2}$	2
45 $\frac{1}{2}$ -45 $\frac{3}{4}$	1
45 -45 $\frac{1}{2}$	1
43 -43 $\frac{1}{2}$	1
42 $\frac{1}{2}$ -42 $\frac{3}{4}$	1
42 -42 $\frac{1}{2}$	1
41 $\frac{1}{2}$ -41 $\frac{3}{4}$	1
TOTAL	234

TABLE V

AGE-HEIGHT SCATTERGRAM FOR SAN MARCOS BOYS

Age Interval	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
72 - 72½												1	1
71 - 71½									1				1
70 - 70½									2				2
69½ - 69 3/4								1				1	2
68 - 68½								2		1	1		4
67½ - 67 3/4					1			1					2
67 - 67½									2				2
66½ - 66 3/4								1	1	1	1		5
66 - 66½							1	1	1			1	4
65½ - 65 3/4								1	1	1			4
65 - 65½								2	2	1			5
64½ - 64 3/4									1				1
64 - 64½								4	1				5
63½ - 63 3/4							1			1			2
63 - 63½					1		1	1	2	1	2		7
61½ - 61 3/4							1	2	3				6
61 - 61½						1	1	2	1				5
60½ - 60 3/4						1	2	1		1			5
60 - 60½							3	3	2				8
59½ - 59 3/4							2	5	1				8
59 - 59½					1		2	2	1				6
58½ - 58 3/4					1	2	3	2					8
58 - 58½					2	4	4	2	1				13
57½ - 57 3/4					1	3	1	2					7
57 - 57½				1	1	5	5	1					13
56½ - 56 3/4				1	4	1		4					10
56 - 56½				1	4	6	1	1					13
55½ - 55 3/4				3	6	1	1	1					12
55 - 55½			1	1	6	1		1	1				12
54½ - 54 3/4				2	3	3		1					9
54 - 54½				3	3	1							7
53½ - 53 3/4				2	3	2							7
53 - 53½				1	1	2							6

TABLE V(Continued)

Age Interval	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
52½-52 3/4			2	4									6
52 -52½		1		3	3	1							8
51½-51 3/4			1	4	1	1							7
51 -51½			4	1									5
50½-50 3/4		1											1
50 -50½		3	6	1									10
49½-49 3/4		2		1									3
49 -49½		4	1	2		1							8
48½-48 3/4	1	4	2										7
48 -48½	2	2	2	1									7
47½-47 3/4		3	1	1									5
47 -47½		1	5										4
46 -46½	2												2
45½-45 3/4	1	1											2
45 -45½	1	1											2
43½-43 3/4		1											1
TOTAL	9	27	26	34	41	37	29	49	26	12	5	5	300
MEAN	46.8	46.72	50.36	52.82	55.46	57.06	59.21	60.61	63.20	65.54	66.76	68.53	
S.D.	1.16	2.20	2.16	3.33	2.03	3.12	2.24	3.17	3.15	2.60	1.87	2.01	
P ₉₀	49½	50½	53½	56	58½	61	62	65	68½	70			
P ₇₀	48	49½	51½	54½	56½	59	60½	62½	65½	67	67¾	68½	
P ₅₀	46¾	48¾	50½	53	55½	57	59	60½	62¾	65½	66½	67½	
P ₃₀	46½	47¾	49	51¾	54¾	56	59½	59	61½	64½	65½	66½	
P ₁₀	45½	46½	47½	49½	53	54½	56	57½	59½	62½			

TABLE VI
AGE-HEIGHT SCATTERGRAM FOR SAN MARCOS GIRLS

Age Interval	6	7	8	9	10	11	12	13	14	TOTAL
68 - 68 $\frac{1}{4}$								1	1	2
66 $\frac{1}{2}$ - 66 $\frac{3}{4}$									1	1
65 $\frac{1}{2}$ - 65 $\frac{3}{4}$							1	2	1	4
64 $\frac{1}{2}$ - 64 $\frac{3}{4}$								2	1	3
64 - 64 $\frac{1}{4}$								1	2	3
63 $\frac{1}{2}$ - 63 $\frac{3}{4}$							1	2	2	5
63 - 63 $\frac{1}{4}$							1	4	4	9
62 $\frac{1}{2}$ - 62 $\frac{3}{4}$							4	2		6
62 - 62 $\frac{1}{4}$							4	4	5	13
61 $\frac{1}{2}$ - 61 $\frac{3}{4}$						2	2	1	1	6
61 - 61 $\frac{1}{4}$							1	5	4	10
60 $\frac{1}{2}$ - 60 $\frac{3}{4}$							2	1	1	4
60 - 60 $\frac{1}{4}$						3	4	3	4	14
59 $\frac{1}{2}$ - 59 $\frac{3}{4}$						1	2	1		4
59 $\frac{1}{2}$ - 59 $\frac{3}{4}$			1			2	1	2		6
58 - 58 $\frac{1}{4}$				1	2	2		1		4
57 $\frac{1}{2}$ - 57 $\frac{3}{4}$						5	2			7
57 - 57 $\frac{1}{4}$					3		1			4
56 $\frac{1}{2}$ - 56 $\frac{3}{4}$				1	1	1	1			4
56 - 56 $\frac{1}{4}$					3	3	1	1	1	8
55 $\frac{1}{2}$ - 55 $\frac{3}{4}$				1	3	1				5
55 - 55 $\frac{1}{4}$						1		2		3
54 $\frac{1}{2}$ - 54 $\frac{3}{4}$			1	4	1		1			7
54 - 54 $\frac{1}{4}$				2	2		1	1		6
53 $\frac{1}{2}$ - 53 $\frac{3}{4}$						2				2
53 - 53 $\frac{1}{4}$				1	3	3			1	8
52 $\frac{1}{2}$ - 52 $\frac{3}{4}$		1	1	4	1					7
52 - 52 $\frac{1}{4}$				1	1	1				3
51 $\frac{1}{2}$ - 51 $\frac{3}{4}$		1	5							6
51 - 51 $\frac{1}{4}$		1	7							8

TABLE VI(Continued)

Age Interval	6	7	8	9	10	11	12	13	14	TOTAL
50 $\frac{1}{2}$ -50 $\frac{3}{4}$				3						3
50 -50 $\frac{1}{4}$		1	3							4
49 $\frac{1}{2}$ -49 $\frac{3}{4}$		3	2	1						6
49 -49 $\frac{1}{4}$		3	1			1				5
48 $\frac{1}{2}$ -48 $\frac{3}{4}$			1	1	1					3
48 -48 $\frac{1}{4}$	1	2	1	2						6
47 $\frac{1}{2}$ -47 $\frac{3}{4}$	1	5	3							9
47 -47 $\frac{1}{4}$		3	3	1						7
46 -46 $\frac{1}{4}$	2	1								3
45 $\frac{1}{2}$ -45 $\frac{3}{4}$		2								2
45 -45 $\frac{1}{4}$							1			1
43 -43 $\frac{1}{4}$	1									1
42 $\frac{1}{2}$ -42 $\frac{3}{4}$	1									1
42 -42 $\frac{1}{4}$		1								1
41 $\frac{1}{2}$ -41 $\frac{3}{4}$	1									1
TOTAL	7	24	30	26	17	29	33	36	32	234
MEAN	45.40	48.21	50.49	52.13	55.15	57.20	59.78	61.47	61.79	
S.D.	2.55	2.09	2.42	2.44	2.26	2.68	3.65	2.85	2.70	
P ₉₀	48	51 $\frac{1}{2}$	52 $\frac{1}{2}$	55 $\frac{1}{4}$	58	60 $\frac{1}{2}$	63	64 $\frac{1}{2}$	64 $\frac{3}{4}$	
P ₇₀	47 $\frac{1}{4}$	49 $\frac{1}{2}$	51 $\frac{1}{2}$	54	56 $\frac{1}{2}$	59 $\frac{1}{4}$	62	63 $\frac{1}{4}$	63 $\frac{1}{2}$	
P ₅₀	46 $\frac{1}{4}$	48	51	53	55 $\frac{1}{2}$	57 $\frac{3}{4}$	60 $\frac{1}{2}$	62	62 $\frac{1}{2}$	
P ₃₀	43	47 $\frac{1}{2}$	49 $\frac{1}{2}$	51 $\frac{3}{4}$	54 $\frac{1}{2}$	56 $\frac{1}{4}$	59	60 $\frac{1}{2}$	61	
P ₁₀	42 $\frac{1}{4}$	45 $\frac{3}{4}$	47 $\frac{1}{2}$	48 $\frac{1}{2}$	52	53 $\frac{1}{4}$	55 $\frac{3}{4}$	57 $\frac{3}{4}$	59 $\frac{1}{4}$	

TABLE VII

COMPARISON OF THE AGE-PERCENTILE LEVELS FOR BOYS IN SAN MARCOS
WITH THOSE OF THE NATION

AGE	90th %ile		70th %ile		50th %ile		30th %ile		10th %ile	
	S.M.	Nat.	S. M.	Nat.	S.M.	Nat.	S.M.	Nat.	S.M.	Nat.
6	48½	48¾	46	47½	46¾	46	46½	45	45½	43½
7	50½	50¾	49½	49½	48¾	48	47¾	47	46½	45½
8	53½	53	51½	51½	50½	50	49	49	47½	47½
9	56	54¾	54½	53½	53	52	51¾	50¾	49½	49
10	58½	56¾	56½	55	55½	53¾	54¾	52½	53	50¾
11	61	58¾	58	56¾	57	55½	56	54½	54½	52½
12	62	61	60½	59	59	57½	58½	56	56	54
13	65	63¾	62½	61½	60½	59¾	59	58	57½	56
14	68½	66¾	65½	64	62¾	62½	61½	60½	59½	58
15	70	69	67	66½	65½	64½	64½	62¾	62½	60
16			67¾	68	66½	66½	65½	64¾		
17			69½	69½	67½	67	66½	65½		

TABLE VIII

COMPARISON OF THE AGE-PERCENTILE LEVELS FOR GIRLS OF SAN
MARCOS WITH THOSE OF THE NATION

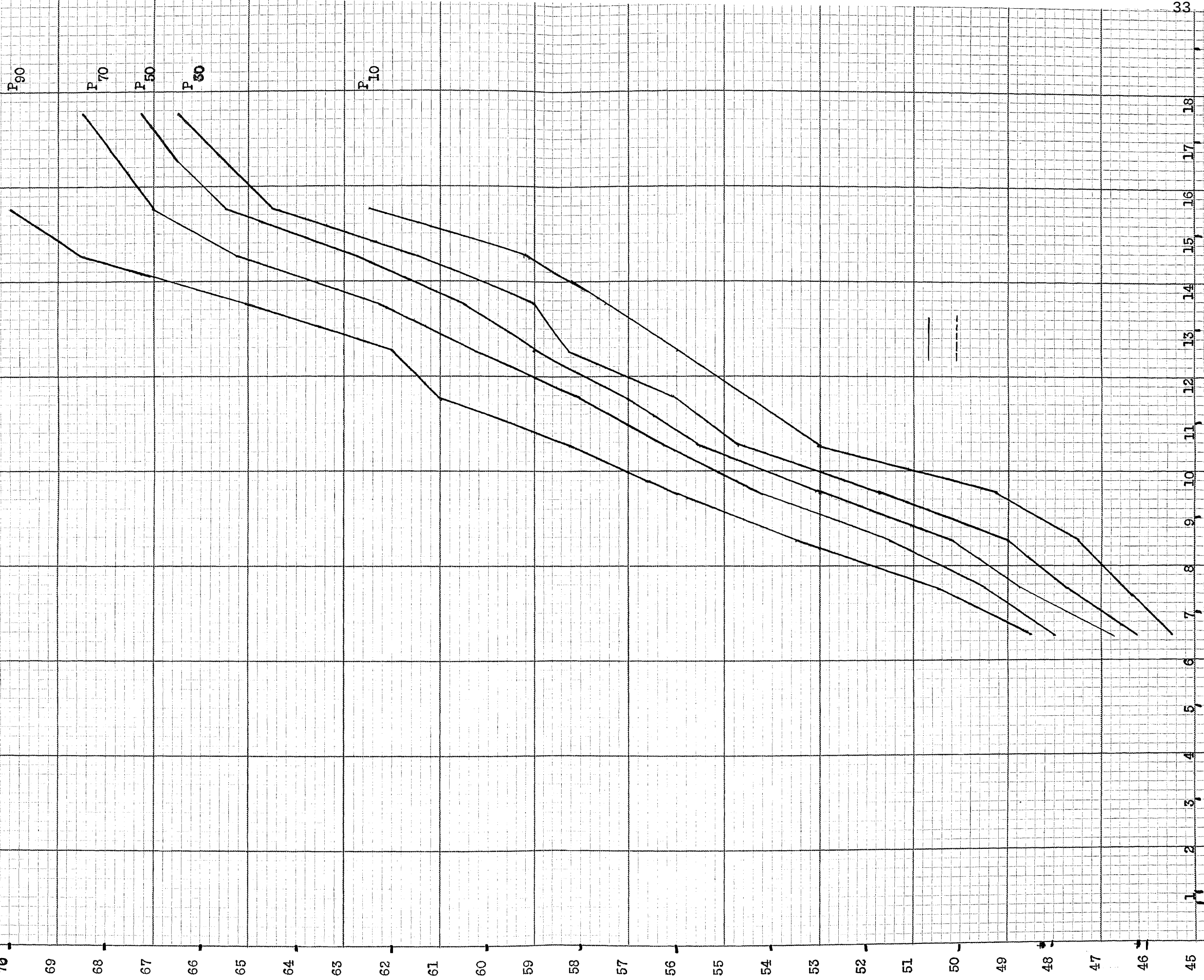
AGE	90th %ile		70th %ile		50th %ile		30th %ile		10th %ile	
	S.M. Nat.		S.M. Nat.		S.M. Nat.		S.M. Nat.		S.M. Nat.	
6	48	48½	47½	46¾	46½	45½	43	44½	42½	43
7	51½	50½	49½	48¾	48	47½	47½	46½	45¾	45
8	52½	52½	51½	51	51	49¾	49½	48½	47½	47
9	55½	54½	54	52¾	53	51¾	51¾	50½	48½	48¾
10	58	56¾	56½	55	55½	53½	54½	52½	52	50½
11	60½	59½	59½	57½	57¾	56	56½	54½	53½	52½
12	63	62½	62	60	60½	58½	59	56¾	55¾	54½
13	64½	64	63½	62	62	60½	60½	59	57¾	56½
14	64¾	65	63½	63	62½	61¾	61	60½	59½	58½

Tables VII and VIII give the numerical levels for each percentile group. The increment of San Marcos boys and girls is consistently as much as that increase made by children observed in the preparation of the criteria. Only at the percentiles of ten and ninety may the children of the city of San Marcos be observed, from the standpoint of comparative measurement, in an unsatisfactory position. Boys of six and seven years of age of the ninety percentile line have a lower level than the nation's average. San Marcos girls of an age of six and seven years were found, also, slightly below the accepted average for girls over the nation at the ninetieth percentile level. The writer is of the opinion that this unfavorable observation would perhaps not have been possible had the number of San Marcos pupils for these two ages been larger. The number of children of these two ages was small compared to the number at other age intervals.

Chart I was constructed of the heights of the male pupils of San Marcos. Age intervals of one year were used along with height intervals of one inch. Each of these intervals is divided into five sub-divisions. The level of each percentile line was thought of as that height on the X-axis below which the designated percentages of the heights of the total number of pupils were grouped. The position of this point on the X-axis was set as the mid-point of each age interval, i.e., $6\frac{1}{2}$, $7\frac{1}{2}$, $8\frac{1}{2}$, etc. The height interval

CHART I

PERCENTILE SCALE FOR SAN MARCOS BOYS



used in the measurement of San Marcos pupils was one-fourth inch, however, for purposes of graphic illustration intervals of one inch were used. Each of these one-inch intervals consisted of five sub-divisions. In order to establish the proper percentile level on the Y-axis in terms of fifth's of an inch, each fractional part of an inch (established in terms of fourths) was multiplied by 1.25. These operations were performed so that the levels of the percentile paths could be more accurately determined on the types of graphing paper consistently used in studies of this nature. Once these conversions were made it remained but to find the point of the X and Y-axes representing the percentile levels for each age. The points in each path were then connected to form the lines of the five percentile levels.

The lines in Chart I show in inches the heights of San Marcos boys from the age of six years up to eighteen years. These age intervals are indicated by the numbers six to seventeen, inclusive, running along the bottom of the chart, and the percentile paths include ages from six years six months to seventeen years six months. This interval is divided into one-fifths by the light vertical lines paralleling these heavier lines. The numbers running along the left side of the graph represent the inches of height from forty-four through seventy-two. These intervals are also divided into fifths. The five heavy lines across the

face of the graph show the percentages of American boys as short or shorter than each indicated height. These percentage paths are shown at the right-hand ends of the lines. For example, suppose that a boy, X, is 55.5 inches tall on his eleventh birthday. Follow the heavy vertical line marked eleven up until it crosses the horizontal position of 55.5 inches. This point will be found on or slightly above the forty percentile line. This means that forty percent of the boys of San Marcos with an age of eleven years are as short or shorter than X. Suppose this same boy, on his eleventh birthday, had a height measurement of sixty inches. This point will be found on or slightly above the ninetieth percentile line, which means that he would be as tall or taller than ninety percent of San Marcos boys of that age. A study of the graph will prove that the levels of height of San Marcos boys is consistently higher each year and at no time is there a downward trend in height levels. The increments per year for each percentile path are fairly uniform. The writer is of the opinion that this uniformity would be more noticeable if more pupils had been measured.

Chart II is a representation of the percentile paths of San Marcos girls from ages six to fourteen, inclusive, and the paths will cover ages from six years and six months to fourteen years and six months. This graph was prepared under exactly the same conditions as was Graph I.

CHART II

PERCENTILE SCALE FOR SAN MARCOS GIRLS

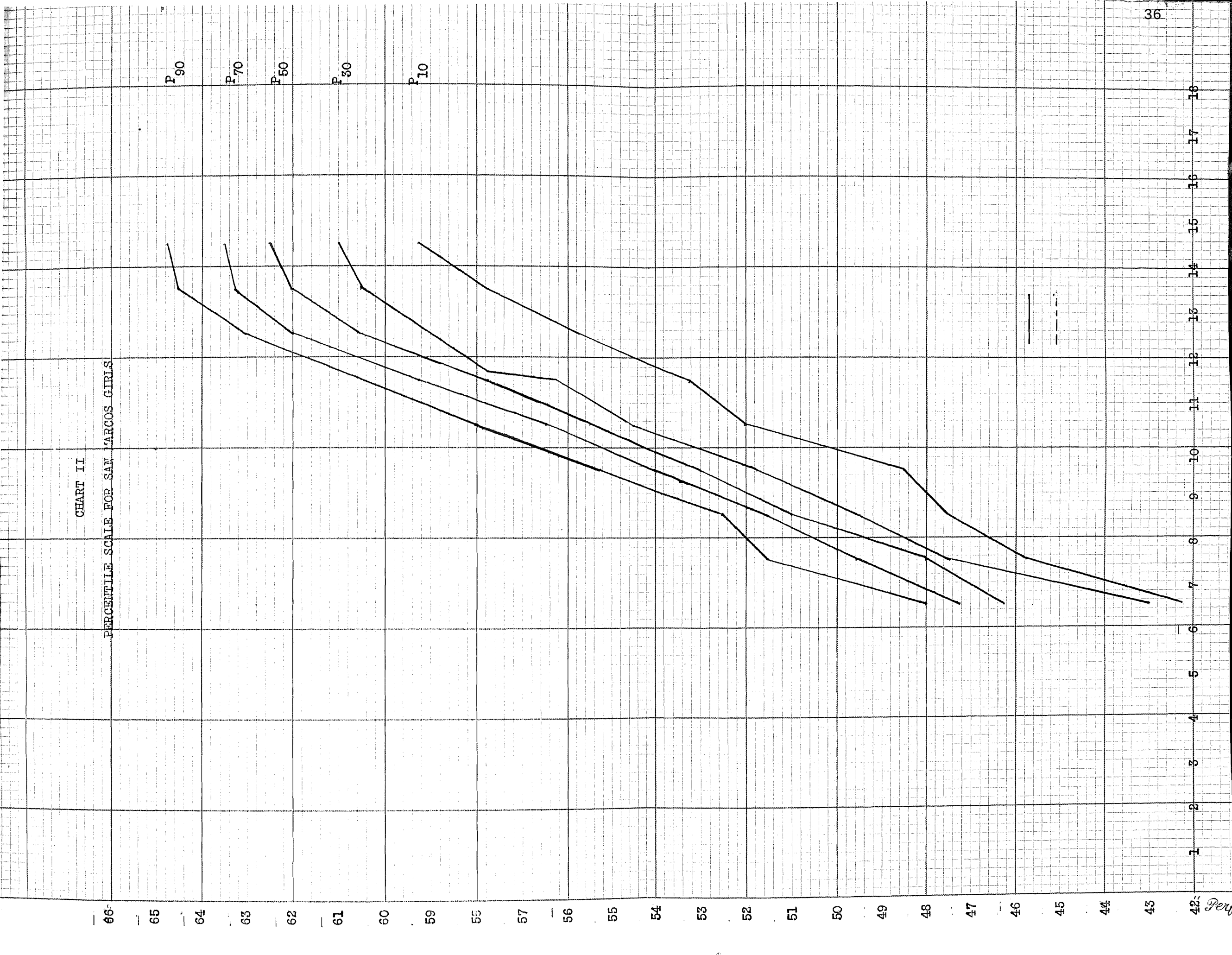
P₉₀
P₇₀
P₅₀
P₃₀
P₁₀

66
65
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
48
47
46
45
44
43
42

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

—

Per



It may be observed that the range between the tenth percentile line and the thirtieth percentile line is larger than that between any two other lines, indicating that there was a big increase in height between the shorter and the average children of the group. It will also be noticed that there was a distinct tendency for the upper percentile lines to flatten out between the ages thirteen years and six months and fourteen years and six months.

Suppose a girl, Y, is fifty-nine and one-fourth inches tall with an age of eleven years and six months. This girl would fall on the seventy percentile line which would mean that she was as tall or taller than seventy percent of San Marcos girls of her age.

Charts III and IV are charts produced by Burgess and are those serving as the criteria for this study. They are introduced in this study at this point so that, if desired, the height position of any child may be determined with reference to the nation's children as well as to those of San Marcos. Let us again consider the case of the boy, X, with a height of 55.5 inches on his eleventh birthday. This point on the Burgess scale is slightly above the sixty percentile line which means that he is as tall or taller than at least sixty percent of the boys of the nation at that age. This same boy, however, fell on the fortieth percentile line of the chart made for San Marcos boys. He is taller than forty percent of San Marcos boys of that age,

the experimental stage and subject to slight revision later.

HEIGHT CHART—BOYS

NAME

DATE OF BIRTH

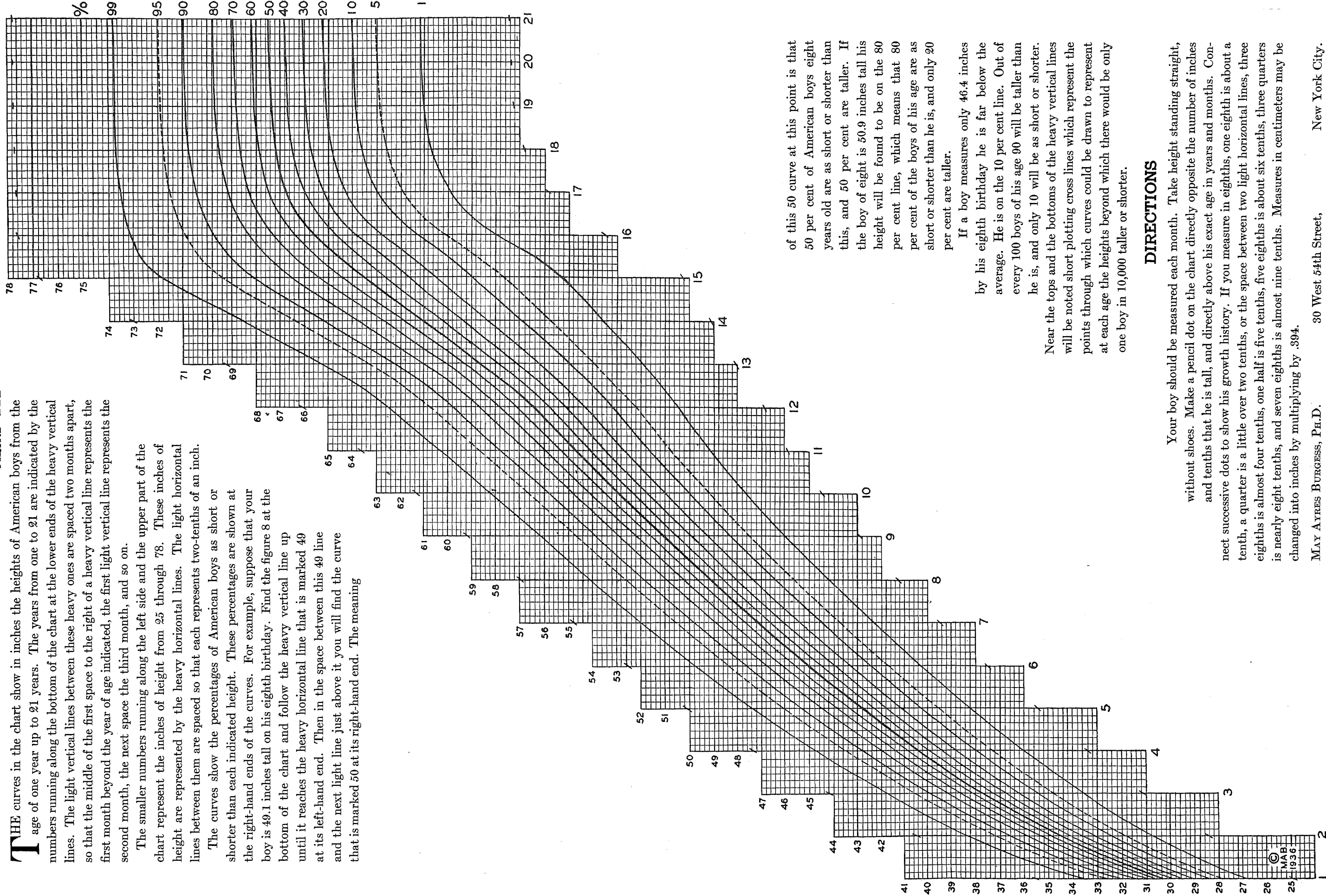
ADDRESS

CHART III

THE curves in the chart show in inches the heights of American boys from the age of one year up to 21 years. The years from one to 21 are indicated by the numbers running along the bottom of the chart at the lower ends of the heavy vertical lines. The light vertical lines between these heavy ones are spaced two months apart, so that the middle of the first space to the right of a heavy vertical line represents the first month beyond the year of age indicated, the first light vertical line represents the second month, the next space the third month, and so on.

The smaller numbers running along the left side and the upper part of the chart represent the inches of height from 25 through 78. These inches of height are represented by the heavy horizontal lines. The light horizontal lines between them are spaced so that each represents two-tenths of an inch.

The curves show the percentages of American boys as short or shorter than each indicated height. These percentages are shown at the right-hand ends of the curves. For example, suppose that your boy is 49.1 inches tall on his eighth birthday. Find the figure 8 at the bottom of the chart and follow the heavy vertical line up until it reaches the heavy horizontal line that is marked 49 at its left-hand end. Then in the space between this 49 line and the next light line just above it you will find the curve that is marked 50 at its right-hand end. The meaning



of this 50 curve at this point is that 50 per cent of American boys eight years old are as short or shorter than this, and 50 per cent are taller. If the boy of eight is 50.9 inches tall his height will be found to be on the 80 per cent line, which means that 80 per cent of the boys of his age are as short or shorter than he is, and only 20 per cent are taller.

If a boy measures only 46.4 inches by his eighth birthday he is far below the average. He is on the 10 per cent line. Out of every 100 boys of his age 90 will be taller than he is, and only 10 will be as short or shorter.

Near the tops and the bottoms of the heavy vertical lines will be noted short plotting cross lines which represent the points through which curves could be drawn to represent at each age the heights beyond which there would be only one boy in 10,000 taller or shorter.

DIRECTIONS

Your boy should be measured each month. Take height standing straight, without shoes. Make a pencil dot on the chart directly opposite the number of inches and tenths that he is tall, and directly above his exact age in years and months. Connect successive dots to show his growth history. If you measure in eighths, one eighth is about a tenth, a quarter is a little over two tenths, or the space between two light horizontal lines, three eighths is almost four tenths, one half is five tenths, five eighths is about six tenths, three quarters is nearly eight tenths, and seven eighths is almost nine tenths. Measures in centimeters may be changed into inches by multiplying by .394.

HEIGHT CHART—GIRLS

NAME _____

DATE OF BIRTH _____

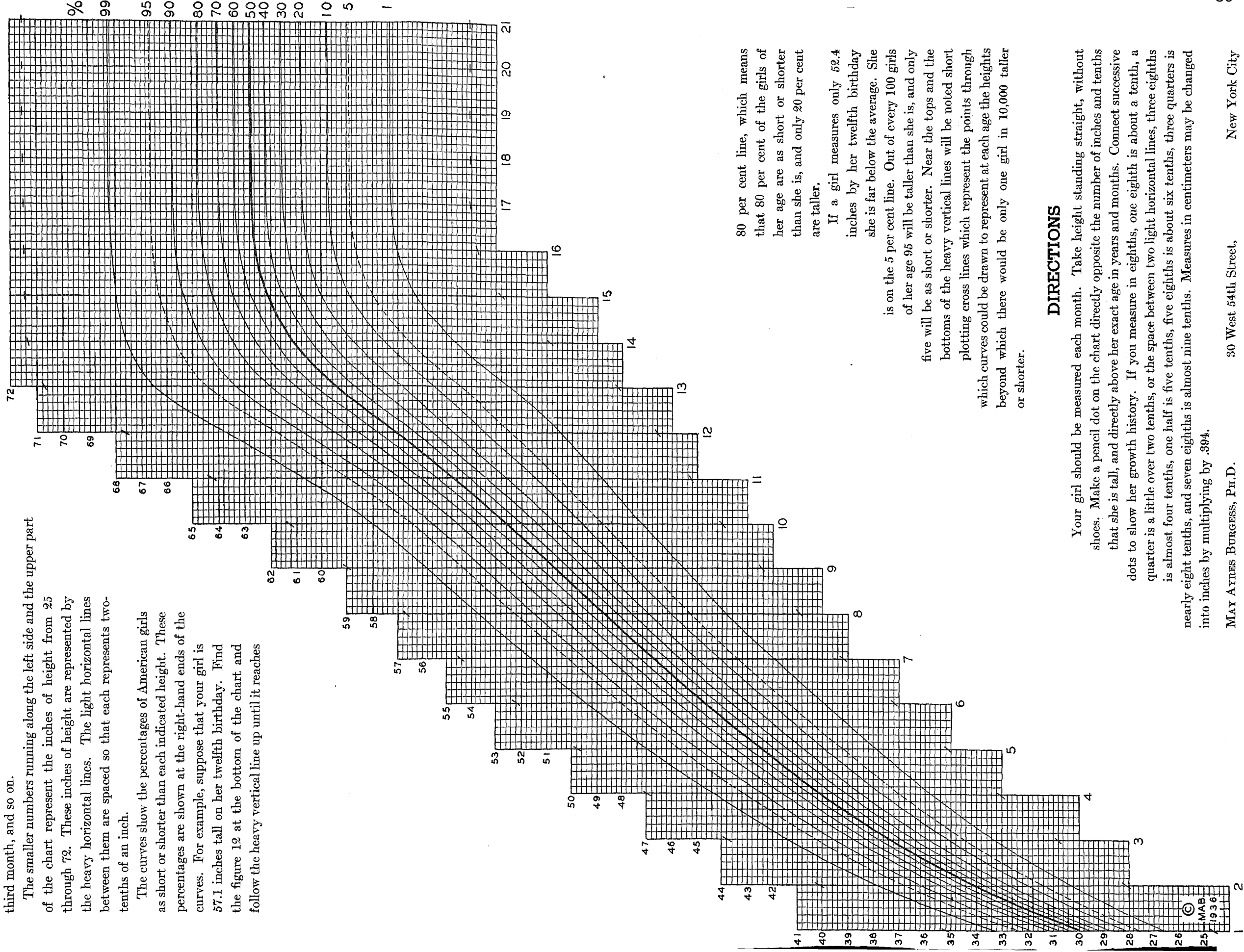
ADDRESS _____

THE curves in the chart show in inches the heights of American girls from the age of one year up to twenty-one years. The years from one to twenty-one are indicated by the numbers running along the bottom of the chart at the lower ends of the heavy vertical lines. The light vertical lines between these heavy ones are spaced two months apart, so that the middle of the first space to the right of a heavy vertical line represents the first month beyond the year of age indicated, the first light vertical line represents the second month, the next space the third month, and so on.

The smaller numbers running along the left side and the upper part of the chart represent the inches of height from 25 through 72. These inches of height are represented by the heavy horizontal lines. The light horizontal lines between them are spaced so that each represents two-tenths of an inch.

The curves show the percentages of American girls as short or shorter than each indicated height. These percentages are shown at the right-hand ends of the curves. For example, suppose that your girl is 57.1 inches tall on her twelfth birthday. Find the figure 12 at the bottom of the chart and follow the heavy vertical line up until it reaches

the heavy horizontal line that is marked 57 at its left-hand end. Then in the space between this 57 line and the next light line just above it you will find the curve that is marked 50 at its right-hand end. The meaning of this 50 curve at this point is that 50 per cent of American girls twelve years old are as short or shorter than this, and 50 per cent are taller. If the girl of twelve is 59.5 inches tall her height will be found to be on the



80 per cent line, which means that 80 per cent of the girls of her age are as short or shorter than she is, and only 20 per cent are taller.

If a girl measures only 52.4 inches by her twelfth birthday she is far below the average. She is on the 5 per cent line. Out of every 100 girls of her age 95 will be taller than she is, and only five will be as short or shorter. Near the tops and the bottoms of the heavy vertical lines will be noted short plotting cross lines which represent the points through which curves could be drawn to represent at each age the heights beyond which there would be only one girl in 10,000 taller or shorter.

DIRECTIONS

Your girl should be measured each month. Take height standing straight, without shoes. Make a pencil dot on the chart directly opposite the number of inches and tenths that she is tall, and directly above her exact age in years and months. Connect successive dots to show her growth history. If you measure in eighths, one eighth is about a tenth, a quarter is a little over two tenths, or the space between two light horizontal lines, three eighths is almost four tenths, one half is five tenths, five eighths is about six tenths, three quarters is nearly eight tenths, and seven eighths is almost nine tenths. Measures in centimeters may be changed into inches by multiplying by .394.

MAY AYRES BURGESS, Ph.D.

30 West 54th Street,

New York City

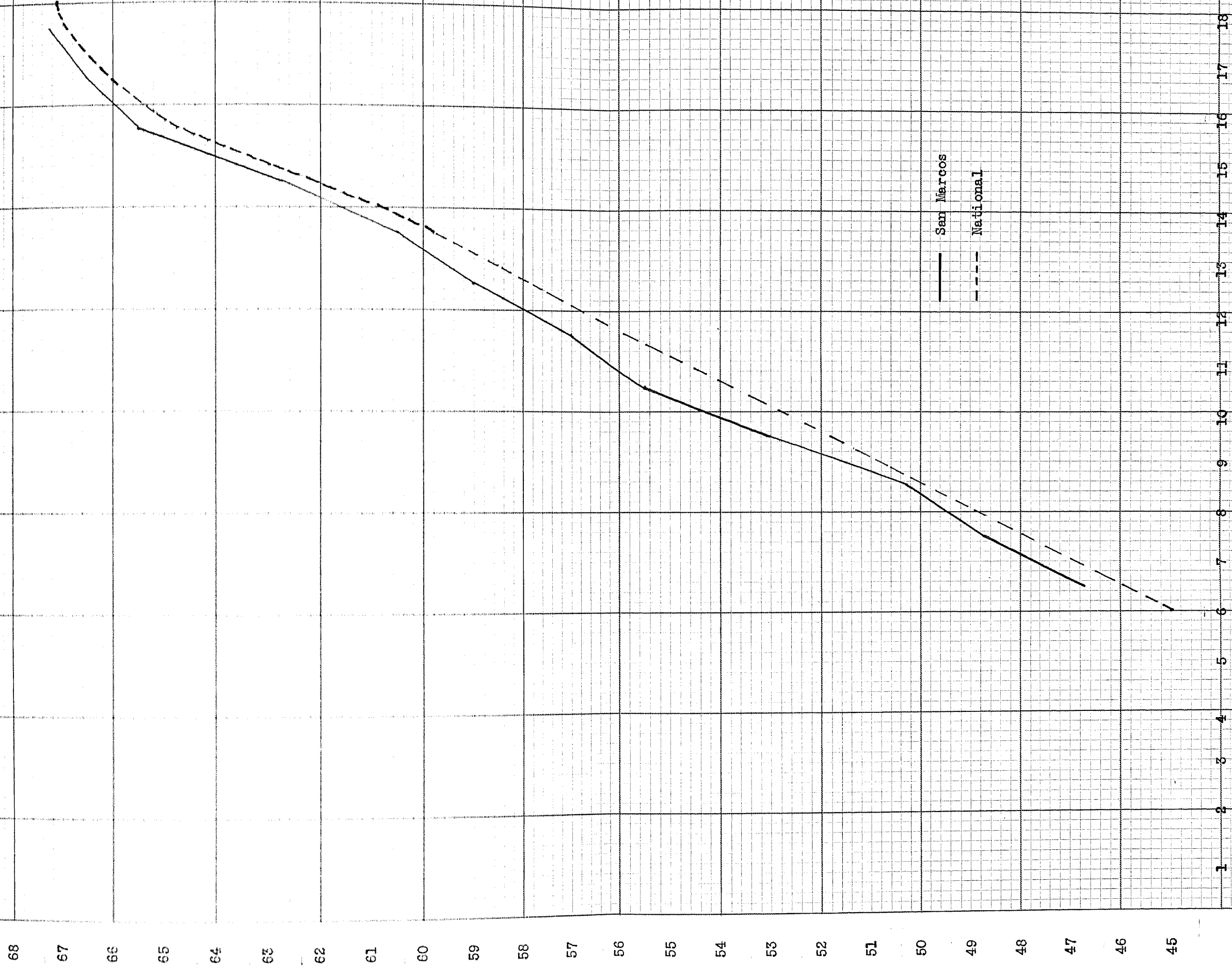
but he is taller than sixty percent of the boys of the nation of that same age. The heights of any boy or girl falling within the age limits of the respective series of charts may be plotted on said charts, and the position of that child with reference to children of that sex in San Marcos and the nation may be determined.

It should be stressed that while the fiftieth percentile lines on each of the San Marcos charts conform to the average height of those children measured, they do not necessarily represent the normal for all San Marcos children. These results must be observed in the light of those limitations mentioned elsewhere in this study. One of the purposes which these charts may serve is to define what may be expected as a reasonable rate of growth for children of this city.

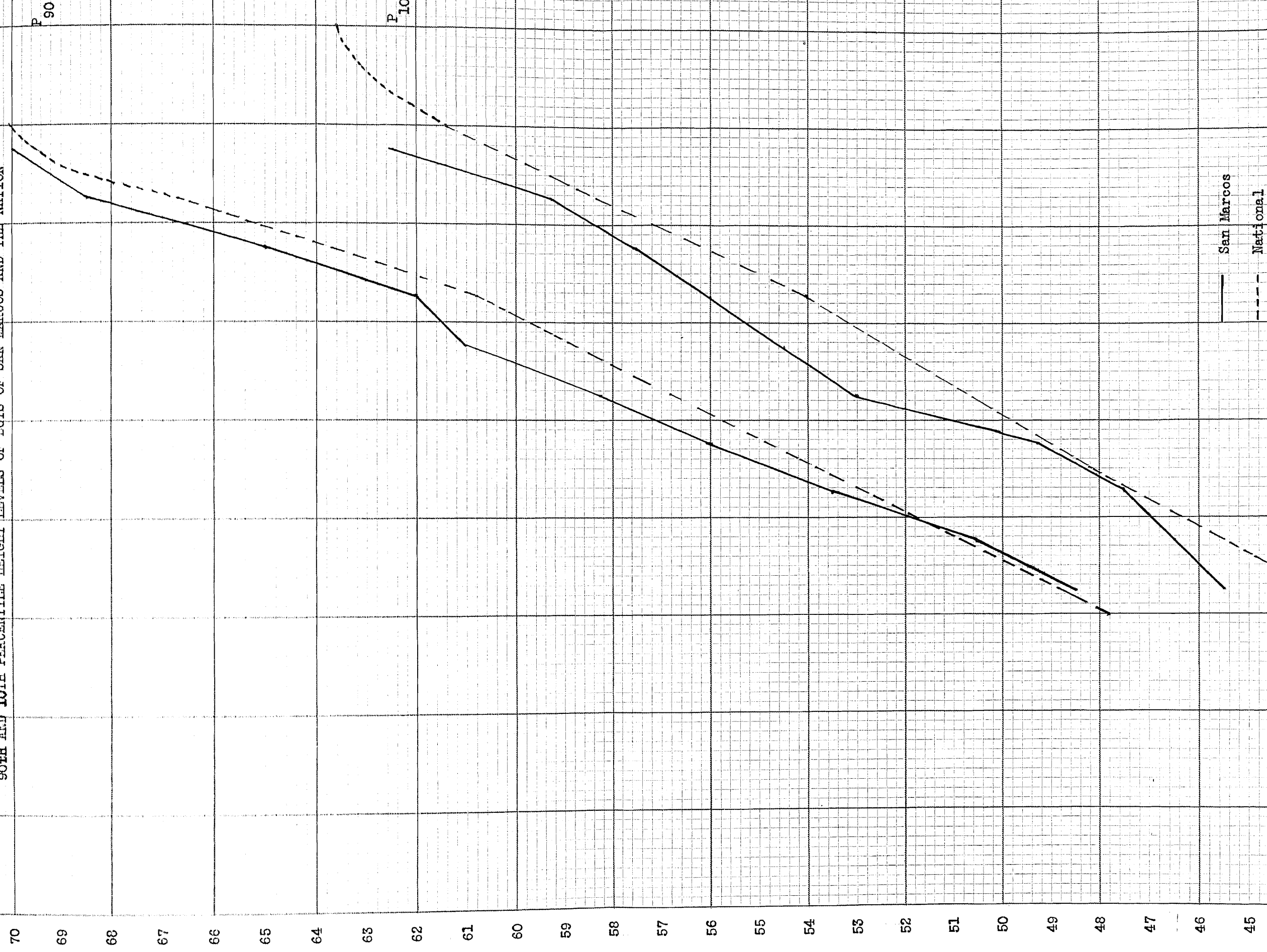
Charts V, VI, and VII represent, respectively, the national average, as determined by the Burgess scale and the average in San Marcos, as determined by the results of this study, for boys of the ninetieth, fiftieth, and tenth percentile paths. Two features of the distributions are easily discernible, and these same two conditions are, with the exception of two instances, consistently true on each of the three graph structures. The percentile path levels for San Marcos boys are higher than those for the nation. Boys of the ages of six and seven years in San Marcos falling in the ninetieth percentile are shorter than those of the same ages and level on the Burgess Scale. This

CHART VI

50TH PERCENTILE HEIGHT LEVELS OF BOYS OF SAN MARCOS AND THE NATION



50TH AND 10TH PERCENTILE HEIGHT LEVELS OF BOYS OF SAN MARCOS AND THE NATION

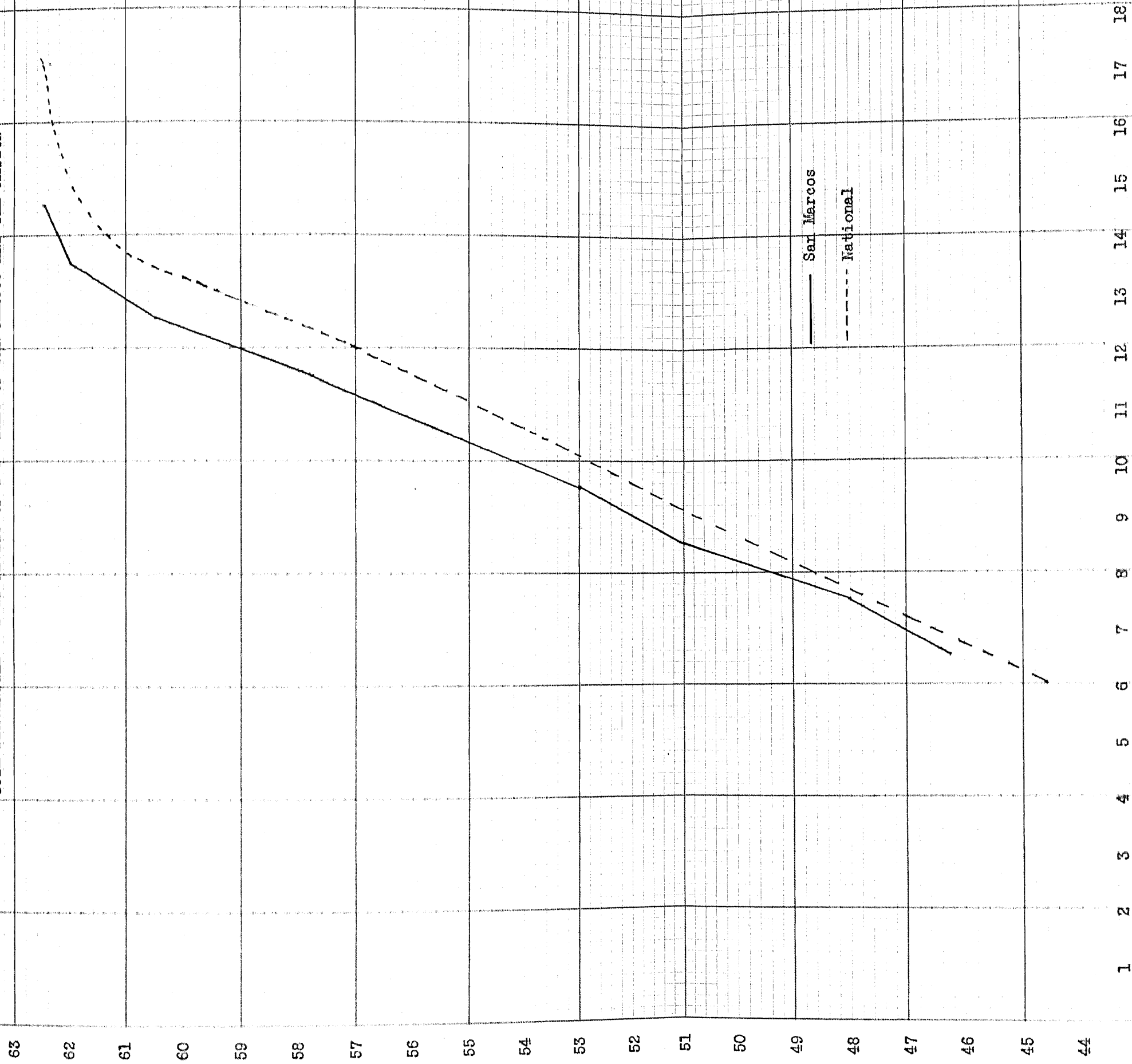


condition, perhaps, may be partially explained by the fact that at this level the cases of San Marcos involved were quite few. There was a noticeable similarity between both the San Marcos and Burgess Scales in that they both tended to flatten out in the upper age levels. This tendency became quite noticeable at about the age of fifteen years and six months for San Marcos boys and at approximately the sixteenth birthday for the children scaled by Burgess. Due to the lesser number of children involved the San Marcos scale did not present the curved features of the criteria, but both showed a period of continuous, and almost equal, growth from the ages of six to fifteen and six months, inclusive.

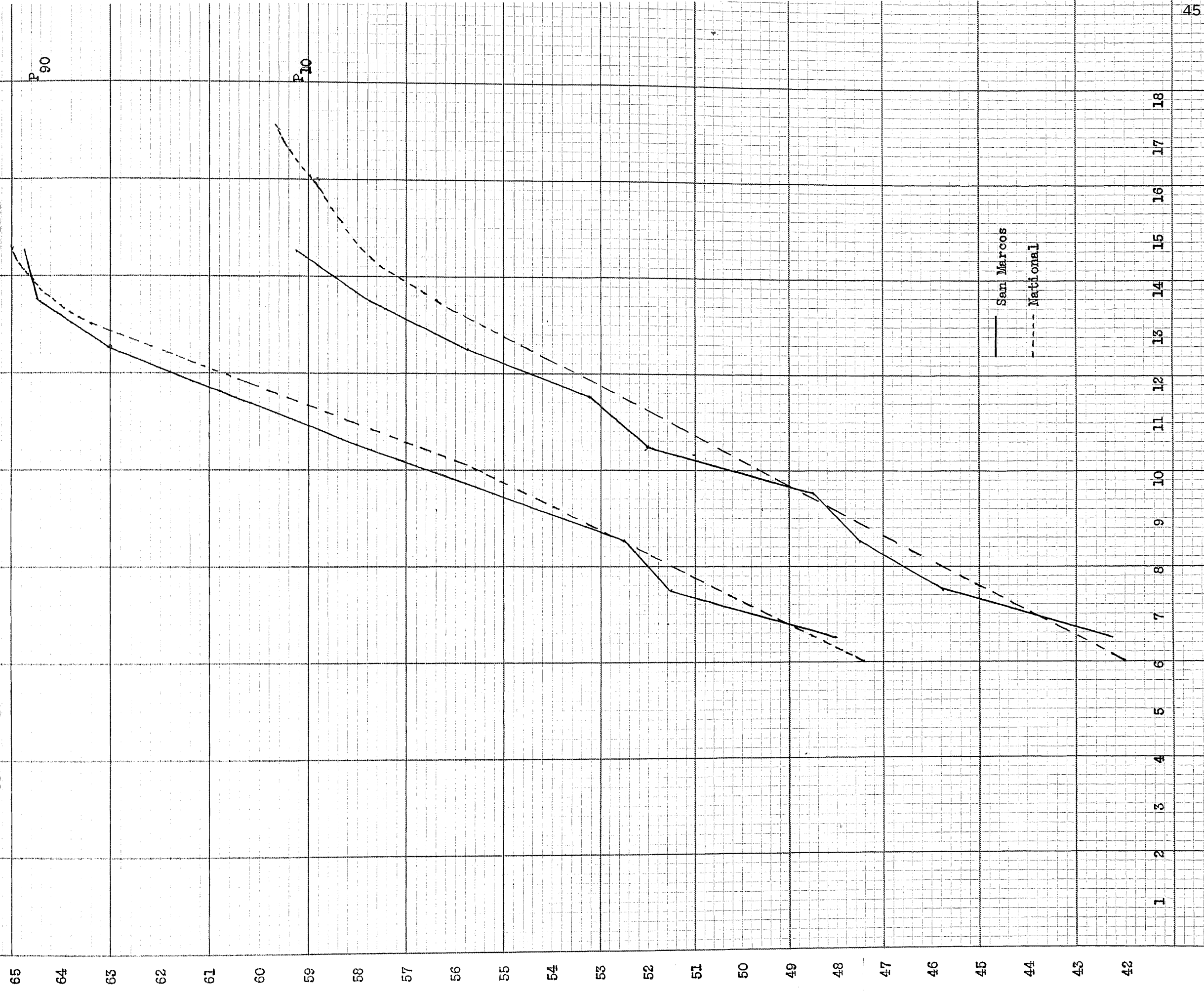
Charts VIII, IX, and X represent, respectively, the national average, as determined by Burgess, and the average in San Marcos for girls of the ninetieth, fiftieth, and tenth percentile paths. The levels as established for the children of San Marcos are consistently higher than those established as the average of the country. The levels for the ninetieth and tenth percent paths are very irregular and in a number of instances are lower than those of the criteria, but this is not the case for the fiftieth percentile levels. Chart IX, giving the levels for the average in the two studies, shows those children of San Marcos to be consistently taller than the average child of the nation. There is a definite trend for the national curve

CHART IX

50TH PERCENTILE HEIGHT LEVELS OF THE GIRLS OF SAN MARCOS AND THE NATION



90TH AND 10TH PERCENTILE LEVELS OF THE GIRLS OF SAN MARCOS AND THE NATION



to flatten out at the approximate age of fourteen years and six months, while the San Marcos scale begins this characteristic at a period of about six months earlier.

This trend toward earlier development of San Marcos boys and girls by an average interval of about six months may be noticed on all six of the comparative charts. At the same time it may be pointed out that at the age of six years the average San Marcos boy and girl has a height equal to that of about seven years for the normal of the nation. The causes for this increase at a young age and the decrease at an older age, from the standpoint of results of these two studies, are not available. The personal belief of the writer is that climatic conditions as well as a better play and physical education facilities for children of this area are the underlying causes for this earlier development of San Marcos children. The writer would, however, reiterate that the above statement is only his personal assumption and not based on any scientific survey or observations.

Burgess has this to say concerning the evidence as shown by her charts:

After reviewing the evidence now available, it was decided that for practical measuring purposes the most reasonable assumption is that for either sex at any exact age the heights of children are distributed in something very nearly approaching the normal distribution. A chart based on that assumption may be slightly misleading in its extreme outer ranges, when the measures of

dwarfs and giants are being considered, but, in the light of present information, it will probably be less misleading than if skewed distributions for the adolescent period were arbitrarily adopted.⁵

 5. May Ayres Burgess, op. cit., p. 300.

Along this line the same thing may be said for the distribution of San Marcos boys and girls at the various age and height intervals. Something approaching a true curve would about cover these various age distributions with always a few cases in the two extremities of the group.

A comparison between the mean heights of San Marcos boys and girls at each age and the mean heights⁶ of those

 6. Ibid., p. 297.

covered by the Burgess survey now seemed feasible.

The average heights of the boys considered in this study for each of the age intervals of six to seventeen, inclusive, was more than the average of those of the Burgess survey. A comparison of the height increments over these years would, perhaps, serve to further clarify the existing situation.

An observation of Table IX will show that the average heights of boys in San Marcos are consistently higher than those given for the criteria. However, Table XI will show that the height increase of the average San Marcos boy over a period of eleven years is only .05 of an inch more than that of the average boy of the nation. Such conditions could exist only in case the average height at the sixth

TABLE IX

COMPARISON OF THE MEAN HEIGHTS OF SAN MARCOS BOYS WITH THE

MEAN HEIGHTS OF THE BOYS OF THE NATION

AGE		No.	Mean	S.D.	P.E. [*]	Mean ^{**} Diff.	Critical Ratio	Is Difference ^{***} Significant?
6	San Marcos Nation	9	46.60 45.08	1.66	.45	+1.77	3.93	Yes
7	San Marcos Nation	27	48.72 47.15	2.05	.27	+1.59	3.81	Yes
8	San Marcos Nation	26	50.36 49.18	2.12	.28	+1.23	4.40	Yes
9	San Marcos Nation	34	52.82 51.05	2.19	.25	+1.77	7.00	Yes
10	San Marcos Nation	41	55.48 52.91	2.39	.24	+2.57	10.71	Yes
11	San Marcos Nation	37	57.06 54.71	2.41	.27	+2.35	5.70	Yes
12	San Marcos Nation	29	59.21 56.45	2.59	.32	+2.76	5.63	Yes
13	San Marcos Nation	19	60.61 58.61	2.60	.29	+2.00	7.14	Yes
14	San Marcos Nation	26	63.20 61.08	2.27	.42	+2.15	5.12	Yes
15	San Marcos Nation	12	65.54 63.52	3.52	.68	+2.02	5.00	Yes
16	San Marcos Nation	5	66.76 65.52	5.21	.97	+2.24	2.31	No
17	San Marcos Nation	5	68.53 66.71	5.00	.90	+1.82	2.03	No

(*) $P.E._n = \frac{.6745 \times \sigma_{pp}}{N}$ in which σ_{pp} is the standard deviation of the

parent population and N is the number of cases in the sample.
 C. T. Gray and D. F. Votaw, Statistics Applied to Education and Psychology.

(**) The + sign denotes that the height of San Marcos boys is greater than those heights of the nation's boys. The - sign denotes the reverse.

(***) A critical ratio of 3.00 or more is generally considered significant.

TABLE X
COMPARISON OF THE MEAN HEIGHTS OF SAN MARCOS GIRLS WITH THE
MEAN HEIGHTS OF THE BOYS OF THE NATION

AGE		No.	Mean	S.D.	P.E. _m *	Mean ** Diff.	Critical Ratio	Is Difference *** Significant
<u>6</u>	San Marcos Nation	7	45.04 44.68	2.00	.51	+ .36	.71	No
7	San Marcos Nation	24	48.21 46.78	2.06	.26	+ 1.43	5.11	Yes
8	San Marcos Nation	30	50.49 48.78	2.13	.27	+ 1.71	6.33	Yes
9	San Marcos Nation	26	52.13 50.70	2.22	.29	+ 1.43	4.53	Yes
10	San Marcos Nation	17	55.15 52.64	2.36	.39	+ 2.51	6.44	Yes
11	San Marcos Nation	29	57.20 54.70	2.58	.32	+ 2.50	7.21	Yes
12	San Marcos Nation	35	59.78 57.11	2.88	.34	+ 2.67	7.56	Yes
13	San Marcos Nation	36	61.47 59.45	2.99	.34	+ 2.02	5.94	Yes
14	San Marcos Nation	27	61.79 61.11	2.73	.35	+ .68	1.94	No
15	San Marcos	3	61.83 62.11	2.55	.11	- .48	4.36	Yes

(*) $P.E._m = \frac{.6745 \times \sigma_{pp}}{N_s}$ in which σ_{pp} is the standard deviation of the parent population and N_s is the number of cases in the sample.
C. T. Gray and D. F. Votaw, Statistics Applied to Education and Psychology.

(**) The sign + denotes that the mean height of San Marcos girls is greater than the mean height of the girls of the nation. The - sign denotes the reverse.

(***) A critical ratio of 3.00 or more is generally considered significant.

TABLE XI
ANNUAL HEIGHT INCREMENTS FOR BOYS AS DETERMINED BY
THE SAN MARCOS AND BURGESS SURVEYS

Age intervals	Inches of increment in San Marcos	Inches of increment in the nation
6		
7	1.92	2.10
8	1.64	2.00
9	2.46	1.92
10	2.66	1.86
11	1.58	1.80
12	2.15	1.74
13	1.40	2.16
14	2.59	2.44
15	2.34	2.47
16	1.22	2.00
17	1.77	1.19
	-----	-----
TOTAL	21.73	21.68

year, which is the first age at which a comparison was possible, for San Marcos boys are higher than that for the average boy of the national survey. This observation was pointed out elsewhere in the course of this study.

The conclusion may be drawn from a study of Table X that, with the exception of the fifteenth year, the average height of the San Marcos girls, for each interval of one year, is higher than that of the girls of the nation as determined by the Burgess Scale.

TABLE XII
ANNUAL HEIGHT INCREMENTS FOR GIRLS AS DETERMINED
BY THE SAN MARCOS AND BURGESS SURVEYS

Age intervals	Inches of increment in San Marcos	Inches of increment in the nation
6		
7	2.81	2.10
8	2.28	2.00
9	1.64	1.92
10	3.02	1.94
11	2.05	2.12
12	2.58	2.35
13	1.68	2.34
14	.32	1.66
	-----	-----
TOTAL	16.39	16.43

A study of Table XII will show that the increase in height over a period of eight years was .04 of an inch less for the average San Marcos girl than for the average girl in the nation. The height advantage of the average San Marcos girl of six years was maintained over this period of years. It was at about the middle of the thirteenth year that the decrease in height increment of San Marcos girls was most noticeable, while the decrease for the nation's girls began at a period approximately six months later.

The writer thought it of benefit to study the comparative range of heights of San Marcos children with those of

the average as ascertained by Burgess. In line with this consideration the standard deviations for the boys and girls studied by Burgess⁷ were obtained and studied along with the

 7. This information was obtained from Mrs. Burgess through personal correspondence.

standard deviations of the heights of the children of this study. Table XIII shows in condensed form this information in comparative analysis for boys while Table XIV shows material similarly analyzed for girls.

A glance at these tables will reveal that the range of heights for San Marcos boys and girls and those of the children of the nation are similar to a great degree. Only at the ages of fifteen, sixteen, and seventeen years was the range of heights for San Marcos boys less than the range for the average boy of the nation. This may be explained by the earlier physical maturity of the San Marcos boy as delineated by Chart I, which showed a definite tendency for the height curve of San Marcos boys to flatten out at the upper age levels. In all other cases the ranges for both boys and girls was very similar to that for the children over the nation. The average standard deviation for San Marcos boys was found to be 2.337 inches as compared to 2.63 inches for the boys studied in the formation of the criteria. The average standard deviation of San Marcos girls was determined as 2.62 inches as compared to 2.45 inches for the girls involved in the study made by Burgess.

TABLE XIII

COMPARISON OF THE STANDARD DEVIATIONS OF THE HEIGHTS OF SAN MARCOS BOYS
WITH THE STANDARD DEVIATIONS OF THE HEIGHTS OF THE BOYS OF THE NATION

Age		N	S.D.	P.E.* 6	DIFF. OF S.D.**	CRITICAL RATIO	IS DIFFERENCE SIGNIFICANT?
6	San Marcos Nation	9	1.16 1.99	.18	-.33	4.61	Yes
7	San Marcos Nation	27	2.20 2.05	.20	+ .15	.75	No
8	San Marcos Nation	26	2.16 2.12	.20	+ .04	.20	No
9	San Marcos Nation	34	2.33 2.19	.19	+ .14	.74	No
10	San Marcos Nation	41	2.03 2.29	.15	-.26	1.73	No
11	San Marcos Nation	37	3.12 2.41	.25	+ .71	2.34	No
12	San Marcos Nation	29	2.24 2.59	.20	-.35	1.75	No
13	San Marcos Nation	49	3.17 2.88	.22	+ .29	1.32	No
14	San Marcos Nation	26	3.15 3.27	.29	-.12	.41	No
15	San Marcos Nation	12	2.60 3.52	.36	-.92	2.36	No
16	San Marcos Nation	5	1.87 3.21	.41	-1.34	3.27	Yes
17	San Marcos Nation	5	2.01 3.00	.44	-.99	2.25	No

(*) $P.E. = \frac{.6745}{\sqrt{2N}} \sigma_s$ in which σ_s is the standard deviation of the sample.

$\sqrt{2N}$

C. T. Gray and D. F. Votaw, Statistics Applied to Education and Psychology, p. 128, Formula (26a).

(**) The + sign denotes that the standard deviation of the heights of San Marcos boys is greater than the standard deviation of the heights of the boys of the nation. The - sign denotes the reverse.

(***) A critical ratio of 3.00 or more is generally considered significant.

TABLE XIV

COMPARISON OF THE STANDARD DEVIATIONS OF THE HEIGHTS OF SAN MARCOS GIRLS
WITH THE STANDARD DEVIATIONS OF THE HEIGHTS OF THE GIRLS OF THE NATION

AGE		N	S.D.	P.E.*	DIFF. OF S.D.**	CRITICAL RATIO	IS DIFFERENCE*** SIGNIFICANT?
6	San Marcos Nation	7	2.55 2.00	.45	+ .55	1.22	No
7	San Marcos Nation	24	2.09 2.06	.20	+ .03	.15	No
8	San Marcos Nation	30	2.43 2.13	.21	+ .30	1.43	No
9	San Marcos Nation	26	2.42 2.22	.23	+ .20	.85	No
10	San Marcos Nation	17	2.26 2.36	.26	- .10	.38	No
11	San Marcos Nation	29	2.68 2.58	.24	+ .10	.42	No
12	San Marcos Nation	33	3.65 2.88	.30	+ .77	2.57	No
13	San Marcos Nation	36	2.85 2.99	.23	- .14	.61	No
14	San Marcos Nation	27	2.70 2.73	.25	- .03	.12	No
15	San Marcos Nation	3	3.10 2.55	.83	+ .55	.66	No

(*) $P.E. = \frac{.6745}{\sqrt{2N}} \sigma_s$ in which σ_s is the standard deviation of the sample.

C. T. Gray and D. F. Votaw, Statistics Applied to Education and Psychology, p. 128, Formula (26a).

(**) The + sign denotes that the standard deviation of the heights of San Marcos girls is greater than the standard deviation of the heights of the girls of the nation. The - sign denotes the reverse.

(***) A critical ratio of 3.00 or more is generally considered significant.

Table XV was prepared from the groupings of the San Marcos boys as per age interval of one year in accordance to their percentile path placement on the Burgess Scale. The position of each boy of this study was determined on the scale of the criteria and a recording made as to the percentile path in which he fell. Tabulations of these children at each percent interval were made. More cases fell above the fifty percent line than below it, which means that the gradation lines for San Marcos boys are high in comparison.

Near the top of the Burgess charts is to be found a broken line. This line represents points at each age level above which only one child in every 10,000 will fall. At the bottom of this same chart is a similar line representing points below which only one boy in 10,000 will fall. A very unusual condition exists among San Marcos boys in this respect, for four out of the 300 boys measured either equal or better that height for their respective ages. G. B. Rush, aged ten years and seven months with a height of sixty-two inches, Pat Storey, aged twelve years and three months and measuring sixty-six and one-fourth inches, and Pat Kelley, with an age of eleven years and ten months and a height of sixty-two and one-half inches, all fall on or slightly above this point established on the Burgess Scale. Allen Baldwin, aged eleven years and ten months and measuring sixty-seven and one-fourth inches in height, is one and

TABLE XV

PERCENTILE GROUPINGS OF SAN MARCOS BOYS AS PER BURGESS

NATIONAL SCALE

Age	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
99		1			1*	2*	1*		1				8
					1	1							
95			2	4	4	2	1	8	2			1	24
90		1	2	3	5	1	3	3	3	2			23
80	2	1	3	4	5	7	5	8	3	1	1	1	41
70	1	5		4	11	6	6	3	1	2			39
60	1	6	4	2	6	4	6	6	4		1	1	41
50	2		2	6	1	5	2	4	4	4			30
40	1	5	4	5	2	3	2	3	1	1		1	28
30	1	2	1		4		3	2	2	1	1	1	18
20	1	4	6	3		2		5	2		1		24
10		1	2	2	1	3		3	2	1	1		16
5		1		1				4					6
1						1			1				2
TOTAL	9	27	26	34	41	37	29	49	26	12	5	5	300

(*) Those pupils whose positions are identified by an asterisk are in the 1 in 10,000 class. For this particular age only 1 in every 10,000 boys in the United States is as tall or as short as this San Marcos boy.

one-half inches taller than the point above which only 1 in 10,000 boys in the nation of his particular age will fall.

The cases in Table XIV besides which an asterisk are to be noted, are representatives of those boys within the height levels of only 1 in 10,000 as determined by the Burgess survey.

The mean percentile of San Marcos boys grouped in this manner is 55.43 percent. This means that the boy of average height in San Marcos, or one as tall as or taller than fifty percent of San Marcos boys, is as tall or taller than 55.43 percent of the boys studied by Burgess in producing the height scales for boys of the nation.

Table XVI was made in exactly the same manner as Table XV with the exception that it was made for San Marcos girls rather than boys. Here, too, the majority of cases are found to fall above the fiftieth percentile line.

The cases on Table XVI beside which an asterisk may be noted are representatives of these girls within the height levels of only 1 in 10,000 as determined by the criteria. Norma Dell Welge, aged eight years and ten months and measuring fifty-eight and three-fourths inches, is above the point for 1 girl out of 10,000. Barbara Tramel, with an age of twelve years and nine months and measuring forty-five inches in height, was the only child measured in this study to fall below a point on the Burgess chart designated as the 1 in 10,000 line.

TABLE XVI
PERCENTILE GROUPINGS OF SAN MARCOS GIRLS AS PER BURGESS

NATIONAL SCALE

File	6	7	8	9	10	11	12	13	14	15	16	TOTAL
99			1*	1		1	2	1	1	1		8
95		3	1	2	3	2	2	3				16
90		1	2	3	3	3	6	2	1			21
80	1	3	4	2	2	7	7	6	4			36
70	1	3	4	7	3	2	3	7	4			34
60		4	7	3	2	6	4	3	3			32
50	2	3			2	2	3	4	1		1	18
40		1		2			3	3	5	1		15
30		2	2			1		2	3			10
20		2	7	2		2		2	3		1	19
10	1	1	2	1	1	1	2	2		1		11
5	1			3				2				6
1	1	1			1	1	1*	1	1	1		8
TOTAL	7	24	30	26	17	29	33	36	27	3	2	234

(*) Those pupils whose positions are identified by an asterisk are in the 1 in 10,000 class. For this particular age only 1 in every 10,000 girls in the U. S. is as tall or as short as this San Marcos girl.

TABLE XVII
DIFFERENCES IN HEIGHT INCREMENTS OF THE SEXES AS
DETERMINED BY THE SAN MARCOS AND BURGESS SURVEYS

Age intervals	Differences in San Marcos	Differences in the nation
6	1.40	.35
7	.51	.35
8	- .13	.35
9	.69	.35
10	.33	.27
11	- .14	- .05
12	- .57	- .66
13	.14	- .84
14	1.41	- .06

The mean percentile path for San Marcos girls with a placement on the Burgess Scale was found to be 55.495 percent. This means that the girl who is as tall as or taller than fifty percent of the girls measured during the course of this study is as tall as or taller than 55.495 percent of the girls considered by Burgess in arriving at her scale for the nation's girls.

The writer, observed, also, the differences in the height increments of San Marcos boys and San Marcos girls at each age interval. These differences were recorded in order to compare them with such differences as existed between the height increments of the boys and girls comprising the criteria for the study. Table XVII is a

record of these differences. In the case of the differences between San Marcos heights, the range was very irregular, however, in consideration of the number of children studied this was to be expected. The only significance of this particular study is to note the ages at which the increase of height per year was more for girls than for boys.

Throughout the nation girls at the ages of eleven to fourteen, inclusive, show more height increase per year than do boys. This same tendency was noted in San Marcos girls of ages from eleven to thirteen, inclusive. The fact that this higher increase ceases at the approximate age of thirteen years and six months suggest the earlier maturation of girls than boys in San Marcos. This observation may also be made of the children of the nation.

Chapter IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

1. Summary

The main problems of this investigation were to make line percentile height charts of San Marcos pupils and to compare these with charts similarly prepared for the children of the nation. These national charts, prepared by Burgess, served as the criteria of this study.

The data used in the preparation of the charts for San Marcos boys and girls were the individual height measurement of some 300 boys and 234 girls. These pupils were attending the San Marcos, Texas, Public Schools, grades one to nine, inclusive, during the second semester of the 1939-40 school year.

Once these compilations of the heights of the children of this study had been made, several comparisons were made between these charts and those prepared by Burgess in her study of the boys and girls of the nation. These comparisons were made along the following lines:

(1) The mean heights of San Marcos boys at each age level were compared to the mean heights of the boys of the Burgess survey at the same age level. The significance of the differences were determined.

(2) The mean heights of San Marcos girls were compared to the mean heights for the girls of the nation. A determination was made of the significance of the differences.

(3) The standard deviation of the heights of San Marcos

boys and girls of each age interval were compared to the standard deviation for the children of the Burgess study at the same age levels. These differences, if any, were noted and recorded in terms of their significant relationships.

(4) Percentile paths for San Marcos pupils were graphically compared to the percentile paths for the nation's children.

(5) A determination was made of the percentile path location of each San Marcos pupil on the charts prepared by Burgess. The mean heights of this distribution was determined.

(6) Annual height increments for San Marcos children were arrived at for each age interval and these increments were studied in the light of the height increments over the nation for boys and girls of those ages.

2. Conclusions

On the basis of the findings in this study, the following conclusions seem valid:

(1) The mean heights of San Marcos boys and girls at each age level are consistently higher than the mean heights of the boys and girls studied by Burgess. In a majority of instances this difference is enough to be considered of significance.

(2) Standard deviations of heights of San Marcos pupils varied more than those for the children of the Burgess

study, however, this variety may be partially attributed to the comparatively small number of boys and girls falling within some of the age intervals.

(3) Percentile paths for San Marcos boys from ages six to sixteen, inclusive, were consistently higher than those for the nation. Percentile paths for San Marcos girls from ages six to fifteen, inclusive, were, in a majority of instances, higher than those percentile levels of the national scale.

(4) When the percentile height levels of San Marcos boys and girls were tabulated on the Burgess scale and the mean heights of these tabulations found, it was found that the boy and girl of San Marcos with an average height is taller than approximately fifty-five percent of the boys and girls of the nation.

(5) The height increment of San Marcos boys over a period of eleven years was found to be approximately the same as that for the boys over the nation over the same period of time. A similar conclusion concerning the height of San Marcos girls in comparison to the girls of the Burgess study was made. Existing data show that the increase in height over the children of the nation of the San Marcos children was made during the first six years of growth.

3. Recommendations

To make this study of more value to the faculty and to the student body of the San Marcos Public Schools, the

writer offers the following recommendations and suggestions:

(1) Weight data for each San Marcos boy and girl were secured during the course of this study. These data may be found in the appendix of this study. A comparison of these weights to the weights of boys and girls of the nation would be of value.

(2) The present study should be completed; that is, further height data should be collected on these same students at a future time. Their height levels at maturity could then be viewed in light of the same criteria as used in this study.

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APPENDIX

WEIGHT DISTRIBUTION FOR SAN MARCOS BOYS

Weight Interval	f
210-219	1
200-209	
190-199	1
180-189	
170-179	1
160-169	3
150-159	4
140-149	3
130-139	6
120-129	12
110-119	20
100-109	23
90-99	32
80-89	40
70-79	49
60-69	44
50-59	44
40-49	18
TOTAL	300

WEIGHT DISTRIBUTION FOR SAN MARCOS GIRLS

Weight Interval	f
160-169	
150-159	2
140-149	1
130-139	4
120-129	8
110-119	23
100-109	24
90-99	25
80-89	24
70-79	28
60-69	33
50-59	42
40-49	18
30-39	2
TOTAL	234

AGE-WEIGHT SCATTERGRAM OF SAN MARCO'S DUCS

HEIGHT	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
210-219									1				1
200-209													
190-199							1						1
180-189													
170-179												1	1
160-169						1	1					1	3
150-159									2	1		1	4
140-149				1					1		1		3
130-139								3		3			6
120-129								2	7	1		2	12
110-119					2	2	5	6	2	2	1		20
100-109				1		1	4	10	3	2	3		23
90-99					1	6	5	11	6	3			32
80-89					2	7	7	10	10	4			40
70-79				3	7	16	11	3	7				48
60-69			2	7	15	12	7		1				44
50-59		2	13	12	6	3	2						44
40-49	6	7	4	1									18
TOTAL	9	27	26	34	41	37	29	49	26	12	5	5	300

AGE-WEIGHT SCATTERGRAM OF SAN MARCO STARS

WEIGHT	6	7	8	9	10	11	12	13	14	15	16	TOTAL
160-169												
150-159						1			1			2
140-149									1			1
130-139							1	3				4
120-129					1		1	5	1			8
110-119						2	6	3	10	4	4	23
100-109						1	5	9	8	1	1	25
90-99				1		5	8	9	1	1		25
80-89				2	1	7	6	3	5			24
70-79		2	6	6	4	5	4					27
60-69		1	7	11	6	8	1					34
50-59	1	14	17	5	3	1						41
40-49	5	6	5	2								18
30-39	1	1										2
TOTAL	7	24	30	26	17	20	33	36	27	3	2	234

APPENDIX

	Age*	Height	Weight	Percentile Level
San Marcos Boys				
Section 11				
Dailey, David	7-4	48 $\frac{1}{4}$	48	60
Gary, Roger	7-4	50 $\frac{1}{4}$	53	70
Hardinge, Harry	7-6	43 $\frac{1}{2}$	41	5
Henson, Billy	7-3	47 $\frac{1}{4}$	48	30
Johnston, Blue	6-10	46	49	40
Jones, Calvin	6-11	46 $\frac{1}{4}$	49	50
McMulline, Lee Roy	8-2	48	50	20
Miller, Bert	6-9	48	48	70
Murph, Sam H.	6-8	48 $\frac{1}{2}$	57	80
Richards, Jimmie	7-5	49 $\frac{1}{4}$	52	70
Rutledge, Gene	8-9	50	53	40
Steakley, John	7-5	49	54	60
Tiller, Dickie	7-8	50	53	70
Walker, Robert	7-2	49 $\frac{1}{2}$	56	70
Watkins, Gary	8-3	47	47	10
Younger, Lynton	7-0	46 $\frac{1}{2}$	51	20
Zimmerman, Frank.	7-4	45	46	10
Section 12				
Dry, Randall	9-0	47 $\frac{3}{4}$	52	5

* Age was determined to the nearest complete year and month as of May 1, 1940.

** Percentile levels on which pupils of San Marcos would be plotted on the Burgess National Scale.

	Age	Height	Weight	Percentile Level
Hale, Athal	7-11	52	60	90
Herring, Charles	7-2	49	51	70
McClesky, Jack Norris	6-9	48	53	80
Mauldin, Robert G.	7-4	48	51	40
Pappas, Jimmy	6-10	46 $\frac{1}{2}$	50	60
Rector, Melvin	7-3	47 $\frac{1}{2}$	55	40
Singleton, Joe Gordon	9-4	52 $\frac{1}{2}$	70	60
Singleton, Sherman	7-5	45 $\frac{3}{4}$	43	20
Smith, Robert Lee	6-3	45 $\frac{1}{2}$	47	30
Townsend, Buell Ray	7-1	46 $\frac{1}{2}$	46	20
Williamson, Leroy	6-11	45 $\frac{1}{4}$	43	20

Section 21

Acrey, Glenn	9-3	52	56	50
Alexander, Roy	10-2	53 $\frac{3}{4}$	54	50
Cowan, Calvin	10-3	52 $\frac{1}{4}$	53	30
Ellis, J. P.	8-10	51	62	50
Fannin, Ernest Ray	7-9	50 $\frac{3}{4}$	56	80
Gary, Andrew	7-11	49 $\frac{3}{4}$	53	60
Gary, Billy	7-11	47 $\frac{3}{4}$	53	30
Hunnicuttt, W. D.	9-4	49 $\frac{3}{4}$	61	20
Jungers, John	9-4	51 $\frac{3}{4}$	60	50
McGeehe, Alex	8-5	49 $\frac{1}{4}$	57	30
McKinnon, Edward	7-11	48 $\frac{3}{4}$	50	40
Murphy, James Edward	8-11	48 $\frac{1}{2}$	47	20
Noble, David	7-10	47 $\frac{1}{2}$	51	20
Petty, Jack	7-4	48 $\frac{1}{2}$	49	60

	Age	Height	Weight	Percentile Level
Rice, Wilburn Doyle	8-10	47 3/4	48	20
Rogers, Charles Eddie	8-5	52 3/4	62	80
Scheel, Franklin D.	7-6	49	58	60
Smith, Larry	8-6	50 1/4	57	50
Wood, Vernon	8-8	51 1/4	58	60

Section 22

Benson, Vernon	9-0	48	48	10
Brown, Ailyn	7-6	55	62	99
Burt, William Henry	8-2	48	50	20
Derrick, Gus	8-5	51 1/2	66	80
Inglet, Billy	8-1	47	46	20
King, James Edward	9-9	57	142	95
Leinneweber, Stedman	9-7	52	62	40
Miller, James Thomas	6-9	46 1/2	48	50
Morris, Billy Ray	7-9	48 1/2	50	40
Netherland, Thomas E.	8-7	51	58	60
Priem, Harold	8-5	53 1/2	68	95
Rutledge, F. J.	9-8	54	75	70
Ryan, Billy	7-10	50	57	60
Wimberley, Homer	7-10	48 1/2	50	40

Section 31

Burt, Robert Henry	10-10	55 1/2	68	60
Champion, Zanty L.	8-8	50 1/4	55	40
Cozart, Earl	9-7	52 1/2	64	50
Davis, David	8-3	50 1/4	55	60

	Age	Height	Weight	Percentile Level
Fairey, Gordon	9-3	52	67	50
Galbreath, Donald H.	9-8	52 3/4	64	50
Greene, William E.	9-4	53 $\frac{1}{2}$	102	80
Henk, Eugene	8-8	50	56	40
Henry, Lois Lee	10-7	54	72	70
Johnston, Harlen	8-7	50	64	40
Noble, Stephen	10-6	56 3/4	80	80
Rector, Cody	8-1	53	70	90
Weatherford, David	8-4	52 $\frac{1}{2}$	63	80
Wiede, George	9-1	55 3/4	63	95
Williamson, Keith	9-2	55 $\frac{1}{4}$	69	90

Section 32

Acrey, Ray	9-4	51 3/4	64	40
Cooper, Edwin H.	9-8	54 $\frac{1}{2}$	77	80
Cox, James	9-6	51 $\frac{1}{2}$	64	40
Cozart, Henry Gene	9-4	53 $\frac{1}{2}$	60	70
Dedeke, Walter Carl	8-10	53 3/4	72	90
Dry, Donald	9-0	49 $\frac{1}{4}$	52	10
Hale, Agee	11-0	54 $\frac{1}{2}$	73	40
Henderson, Rueden	8-6	55	75	95
Jackson, Marcus	9-5	53	72	60
Moseley, William	11-2	51 $\frac{1}{2}$	63	10
Oliver, Roger	9-7	50	54	20
Pappas, Miky	8-7	51	60	60

	Age	Height	Weight	Percentile Level
Teeler, Roy Levi	8-7	47 $\frac{1}{4}$	54	10
Wilson, Ronald	9-6	56 $\frac{1}{2}$	78	95
Wood, Robert	10-8	55 $\frac{3}{4}$	70	70
Wright, Clarence K.	8-9	48 $\frac{1}{2}$	53	20
Wimberley, Oran	9-5	49 $\frac{1}{4}$	59	20

Section 41

Bailes, Homer	10-1	52 $\frac{1}{4}$	50	30
Cochran, Chester	10-10	54 $\frac{3}{4}$	88	30
Dobbins, Edward B.	9-7	54 $\frac{3}{4}$	88	80
Feltner, Fred W.	9-8	56	81	90
Ferguson, Herbert P.	10-4	57 $\frac{1}{4}$	76	90
Galbreath, Clyde	10-8	55 $\frac{1}{4}$	64	60
Hamilton, Wilton H.	10-4	56 $\frac{1}{2}$	88	70
Laidley, C. C.	10-5	54 $\frac{3}{4}$	66	60
Leath, Lee	13-1	59 $\frac{3}{4}$	82	60
Leffingwell, Rudolph	10-2	55 $\frac{1}{2}$	77	80
Lowery, Obediah	10-8	53 $\frac{1}{4}$	61	30
McMullin, Raymond	11-1	52 $\frac{1}{4}$	66	10
McNiel, George W.	9-2	55 $\frac{3}{4}$	70	95
Owen, James	10-7	56	75	80
Pappas, Tommy	10-8	53 $\frac{3}{4}$	60	70
Rector, Thomas	12-2	58	88	60
Rowland, Rugal	10-7	59	83	95
Schlather, K.	10-0	56 $\frac{1}{4}$	79	90
Watkins, Bobbie	11-2	49	51	1

	Age	Height	Weight	Percentile Level
Section 42				
Acrey, Jack	11-0	57 $\frac{1}{2}$	67	80
Bane, Archie	10-5	55	71	70
Butcher, Jackie	9-11	52 $\frac{3}{4}$	64	50
Davis, John Albert	10-6	55 $\frac{1}{2}$	66	70
DeVinney, Charles A.	10-9	53 $\frac{1}{4}$	67	40
Dry, Thomas	10-7	54 $\frac{1}{2}$	71	60
Hall, Bobby Gene	10-0	55 $\frac{3}{4}$	74	90
Henk, Milton	10-1	51 $\frac{1}{2}$	61	30
Hudler, Tony D.	10-4	54 $\frac{1}{2}$	77	70
Hughes, Bruce	10-2	54	64	60
Leineweber, Milton	11-11	57 $\frac{1}{2}$	74	60
Mauldin, James E.	11-1	56	61	70
Minza, Billie	11-2	53 $\frac{1}{4}$	63	20
Rex, George Andrew	9-5	54	64	80
Stephenson, Allen	9-8	54	65	70
Storey, Jack Edward	10-6	57 $\frac{3}{4}$	78	95
Straus, Leon	9-5	51	58	40
Turner, Jimmie	9-7	55 $\frac{1}{2}$	74	90
Walker, Howard Lee	10-1	58	83	99
Wendt, Kimble	11-2	55	71	50
Williams, Billy Glyn	9-8	53 $\frac{1}{2}$	72	70
Williamson, George E.	9-9	51 $\frac{1}{2}$	67	40

	Age	Height	Weight	Percentile Level
Section 51				
Claybourn, Havard	10-8	56 $\frac{1}{4}$	80	80
Gary, J. W.	10-7	55	75	70
Gary, John H.	11-4	57 $\frac{3}{4}$	87	80
Massey, Joe	11-2	56 $\frac{3}{4}$	116	70
McNiel, James Riley	11-3	57	76	70
Moeller, William F.	11-6	58	76	70
Mosely, Lewis	11-3	54 $\frac{1}{2}$	64	40
Richter, Marvin Carl	12-1	60	98	90
Schlather, Clarence	10-5	58 $\frac{3}{4}$	85	95
Stoepler, Otto	11-5	56	92	60
Williams, Roger	13-5	62	91	80
Wills, Marvin	11-0	57	84	80
Wood, Dayton	12-7	60 $\frac{1}{2}$	92	80
Section 52				
Acrey, Jimmie	12-3	58	91	60
Baker, Herman	11-6	56	72	50
Beecroft, Bertram	11-7	55 $\frac{1}{4}$	53	10
Clayton, Charles E.	10-11	52	61	10
Cockrill, Warren	11-11	57 $\frac{1}{4}$	86	60
Estes, Wilburn	10-6	55 $\frac{1}{4}$	68	70
Finnie, Herbert	10-2	56 $\frac{1}{2}$	110	90
Galbreath, J. C.	10-10	56	75	70
Garland, Jimbo	10-5	55 $\frac{3}{4}$	98	80

	Age	Height	Weight	Percentile Level
Hall, Joe	12-9	58 $\frac{3}{4}$	91	60
Hoch, Frank	10-10	54	75	40
Holterman, Alfred L.	10-9	58 $\frac{1}{2}$	83	95
Jackson, Tommie	12-1	59 $\frac{1}{2}$	88	80
McNemar, Murry	10-10	55 $\frac{1}{2}$	70	60
Rush, G. B.	10-7	62	111	99
Stephenson, Billy	11-9	55 $\frac{1}{2}$	70	40
Sowell, Rugel Jr.	11-0	54 $\frac{3}{4}$	69	50
Williams, Jack Jr.	10-5	56 $\frac{3}{4}$	74	90

Section 61

Baker, Barnett	11-10	57 $\frac{1}{4}$	87	70
Bauerschlag, W. H.	11-5	58 $\frac{3}{4}$	93	90
Bingham, Harvey G.	12-3	55 $\frac{1}{2}$	78	30
Blair, Jimmie	11-8	60 $\frac{1}{2}$	89	95
Colindres, Mike	13-8	58	83	20
Dagher, Charles	14-3	62 $\frac{1}{4}$	97	60
Gaona, David	16-4	63	103	10
Gary, Jack R.	11-8	58	91	80
Garza, Reynaldo	13-5	62 $\frac{3}{4}$	107	80
Hal e, Melvin	12-8	59 $\frac{1}{4}$	87	70
Hall, Thomas Jr.	13-10	62 $\frac{1}{4}$	99	70
Harris, Charles	11-7	57 $\frac{1}{2}$	74	70
Kohut, Kenneth	11-10	58 $\frac{1}{2}$	78	80
Lester, Frank	13-4	56 $\frac{1}{2}$	70	10

	Age	Height	Weight	Percentile Level
McElroy, Hayden	13-2	61 3/4	88	80
Oliver, Edward	13-2	56 3/4	66	20
Ortiz, Joe	14-1	61 $\frac{1}{2}$	91	50
Payne, Oscar Lee	13-8	57 3/4	75	20
Storey, Pat	12-8	66 $\frac{1}{4}$	112	99
Turner, Waymond	12-2	57	76	50
Yetts, Gene	12-10	61 $\frac{1}{4}$	88	80
Younger, Billy Ray	13-3	64	115	95
Ybarra, Albert	14-0	62 3/4	106	70

Section 71

Adare, Elmer J.	12-8	57	112	40
Bragg, Aaron	13-0	61	101	80
Derrick, Leland	12-3	59 3/4	111	80
Estes, Thomas Edgar	15-2	64 $\frac{1}{2}$	93	50
Hall, Mortimer Lee	12-0	57	77	60
Hallmark, W. C.	11-7	58	90	80
Lowery, Robert	11-8	58 $\frac{1}{4}$	90	80
Petty, Floyd	12-3	58 $\frac{1}{2}$	80	70
Petty, Lloyd	12-3	58 $\frac{1}{2}$	80	70
Pollard, Harris	11-9	56	73	50
Schuler, David	12-10	60	83	70
Thorp, Harvey	13-0	58 $\frac{1}{2}$	83	50
Turner, Karl	11-7	58	99	80
Williams, Ryle Jr.	12-6	57 3/4	87	50

	Age	Height	Weight	Percentile Level
Section 72				
Baldwin, Allen	11-10	67 $\frac{1}{2}$	160	99
Carson, Otis Jr.	11-8	54	78	20
Dobbs, Billy	12-1	57 $\frac{1}{4}$	84	60
Kelly, Pat	11-10	62 $\frac{1}{2}$	110	99
Key, Bruce	13-9	59 $\frac{1}{2}$	88	40
Martin, Haldon	11-10	63	102	99
Rush, Rufus	12-1	59 $\frac{1}{2}$	100	80
San Miguel, George	11-11	56 $\frac{1}{4}$	86	50
Smith, James	13-10	62	96	60
Tatch, Elmer Ray	13-9	56 $\frac{1}{2}$	74	10
Weatherford, Jack	12-1	58	84	70
Weide, Harry Jr.	12-10	62	104	90
Section 81				
Acrey, Ace	13-7	64 $\frac{1}{4}$	94	90
Boucher, Howard	13-11	60 $\frac{1}{4}$	101	40
Contreras, Raul	17-6	68	128	60
Coon, Aaron	13-9	64 $\frac{1}{2}$	111	90
Cosart, Billy Owen	13-1	59 $\frac{3}{4}$	98	60
Ferrer, Eugene	14-10	63	110	50
Jackson, Charles C.	12-9	60	90	70
Lindsey, Bobby Lee	11-10	61	87	95
Massey, Ed	17-4	66 $\frac{1}{2}$	167	40
Rogers, Bobby	13-2	59 $\frac{3}{4}$	94	60
San Miguel, Raul	14-9	66	125	80

	Age	Height	Weight	Percentile Level
Smith, Willie B.	13-6	57	84	20
Wimberley, Charles R.	13-11	56 $\frac{1}{2}$	74	10

Section 82

Bailes, Earl	14-8	58 $\frac{1}{4}$	120	10
Brown, Preston	12-7	56 $\frac{1}{4}$	101	30
Cowan, Cecil	14-0	61	88	50
Drumm, Milton	14-9	55	106	1
Guerrero, Paul	17-2	66	126	30
Hageman, Billy Jo	12-6	58 $\frac{1}{4}$	107	60
Hallmark, Lovell	13-2	55	90	5
Kerby, Kay	13-0	54 $\frac{3}{4}$	114	5
McMullin, Willard	16-2	63 $\frac{1}{4}$	100	20
McNiel, John	13-7	66	111	95
Rios, Noel	15-1	62 $\frac{1}{2}$	116	30
Rugel, Charles	12-11	57	112	30
Steffens, John	12-9	63 $\frac{1}{2}$	138	95
Villalpondo, Jones	15-6	70	138	90
Vinyard, James	13-3	65 $\frac{1}{2}$	124	95
White, Billy	13-11	61 $\frac{1}{2}$	90	60

Section 83

Avey, Ralph	14-5	59 $\frac{1}{4}$	90	10
Bauerschlag, Henry	13-3	62	115	80
Bingham, James	15-10	65 $\frac{3}{4}$	100	50
Cavasos, Leo	13-3	62	100	80

	Age	Height	Weight	Percentile Level
Cuevas, Felipe	15-11	67 $\frac{1}{4}$	134	70
Damerau, Norman	14-2	59 $\frac{3}{4}$	122	30
Paris, Jerry	13-3	60 $\frac{1}{4}$	90	60
Frazier, Billy	13-5	58	79	30
Keenon, James	12-5	60 $\frac{1}{2}$	164	90
Lavendar, Howard	13-9	55 $\frac{3}{4}$	76	5
Lucas, Billy	13-3	61 $\frac{1}{2}$	139	70
Merio, Raymond	13-2	65 $\frac{1}{4}$	111	95

Section 91

Boggus, Billy	14-7	71	155	99
Butcher, Billie	14-11	60 $\frac{1}{4}$	90	20
Coers, Ray	14-3	62	95	50
Dees, W. C.	15-0	67	130	80
Milligan, James	13-1	59	85	50
Parman, Carroll	13-9	60 $\frac{3}{4}$	101	50
Renteria, Robert	15-6	65	116	50
Rice, Glenn	13-7	59	91	40
Spindle, Floyd	13-7	60 $\frac{1}{4}$	91	50
Weldon, Charles	13-2	62	102	80
Wills, Marion	13-2	64	106	95

Section 92

Bales, Bobby	13-11	63 $\frac{1}{4}$	102	30
Harris, Ford	14-4	68	144	95
Higgs, Wilburn	13-9	66 $\frac{1}{2}$	134	95

	Age	Height	Weight	Percentile Level
Martin, Lloyd	14-1	65	121	90
Mouse, Daniel	13-9	56	73	5
Quaite, Henry	14-10	61 $\frac{1}{2}$	87	30
Schubert, Harvey	15-0	63 $\frac{1}{4}$	107	50
Steubing, Billy	14-0	65 $\frac{1}{2}$	120	90
Walder, William Albert	14-9	64	107	60
Winberloy, Jessie Glenn	15-3	60 $\frac{1}{2}$	99	10
Worthy, James	13-8	62 $\frac{1}{4}$	95	70

Section 93

Autry, Lloyd	14-10	68	152	90
Bond, Kendall Ray	14-5	65 $\frac{1}{4}$	128	90
Carter, Chester	14-0	66 $\frac{1}{2}$	124	95
Gomez, Lisandro	13-9	57 $\frac{1}{2}$	81	20
Gordon, Edgar	13-2	64 $\frac{1}{4}$	100	95
Greene, Malbone	14-0	64 $\frac{3}{4}$	214	90
Hall, Ernest	14-7	60	86	20
Heard, Roger	13-11	65	130	90
Heath, Victor	13-10	59 $\frac{1}{2}$	88	40
Leffingwell, Thomas	13-10	67 $\frac{1}{2}$	120	95
Lester, James	14-6	61 $\frac{1}{2}$	85	40
Massey, Alton	17-7	69 $\frac{3}{4}$	178	90
Massey, Ted	13-2	66 $\frac{3}{4}$	148	60
McGee, Jack	12-8	61 $\frac{3}{4}$	118	90
McRae, Charles	15-9	70 $\frac{1}{4}$	153	90

	Age	Height	Weight	Percentile Level
Minze, Lonnie	15-3	63 3/4	91	40
Parish, Hoyt	17-7	72	155	95
Payne, Bobby	14-2	62 3/4	91	60
Porter, Preston	16-1	68 1/4	106	80
Posey, Ermon	14-5	63	114	60
Posey, Horace	15-4	66 1/2	127	70
Rios, Raymond	16-10	65 1/2	115	30
Smith, Leroy	13-11	58 3/4	85	30

SAN MARCOS GIRLS

Section 11

Glasgow, Anne	7-4	48	51	60
Johnson, Mary Lee	7-3	49 1/2	46	80
Martin, Patsy	6-10	46 1/4	46	50
Satterwhite, Jo Ann	7-1	49 1/4	53	80
Smith, Polly Ann	6-5	41 3/4	39	1
Steffens, Margaret	8-0	47	53	20
Tombaugh, Dixie Lee	7-2	47 1/2	46	60
Walker, Ollie Faye	7-0	42	36	1
Weatherford, Catherine	6-8	48	49	80
Williams, Bobbie Jean	7-3	49	50	80
Wimberley, Dorothy N.	6-1	42 1/2	40	10

Section 12

Butcher, Margaret R.	7-1	45 1/2	52	20
Callan, Jimmie Marie	7-3	50	54	90

	Age	Height	Weight	Percentile Level
Cozart, Mary Louise	7-2	47	46	50
Eledge, Mavis Delores	6-10	43	41	5
Galbreath, Peggy Dell	7-5	45 $\frac{1}{2}$	42	10
Henry, Norma Jo	7-5	47 $\frac{3}{4}$	51	50
Loftis, Thelma	6-9	47 $\frac{3}{4}$	51	70
Nesbitt, Betty June	6-10	46 $\frac{1}{4}$	48	50
Rodrigues, Rachel	7-6	48	55	50

Section 21

Beauchamp, Isabell	8-4	51	59	70
Bolton, Minnie	8-3	51 $\frac{3}{4}$	57	80
Boulin, Patsy	7-2	47 $\frac{1}{2}$	52	60
Brubaker, Lou Ellen	7-9	47	46	30
Cheaney, Nancy Boone	7-11	47 $\frac{1}{2}$	54	30
Flooge, Nancy Lee	8-3	48 $\frac{1}{4}$	50	20
Hamilton, Hattie	8-9	47 $\frac{1}{2}$	50	10
McMullin, Elizabeth	7-11	59	52	60
Moon, Larry Jean	7-6	51 $\frac{1}{4}$	77	95
Waldrip, Martha Anne	8-3	47 $\frac{3}{4}$	47	20
Williams, Betty V.	8-5	48 $\frac{1}{2}$	53	30
Worthy, Virginia Nell	8-7	51 $\frac{1}{2}$	54	70

Section 22

Cloud, Jean Fisher	8-0	51 $\frac{1}{2}$	69	90
Davis, Florence	7-10	49 $\frac{1}{2}$	54	70
Ellis, Hazel	8-4	50	45	60
Frazier, Helen	8-4	50	57	60

	Age	Height	Weight	Percentile Level
Galbreath, Virginia	8-3	50	53	60
Hayden, Helen	9-2	55 $\frac{1}{2}$	62	95
Laidley, Viola	8-1	47 $\frac{1}{2}$	46	20
Loffingwell, Berta	8-2	49 $\frac{1}{2}$	53	60
Logan, Ann	7-10	49 $\frac{1}{2}$	59	70
Martin, Peggy Jean	8-1	47 $\frac{1}{2}$	50	20
McRae, Melvaree	8-6	53	62	90
Meyer, Rose Lee	9-1	52 $\frac{1}{2}$	53	70
Rangel, Mimi	8-1	47 $\frac{1}{2}$	46	20
Rex, Ellene	7-4	46	46	20
Simon, Alva Jean	7-5	51 $\frac{3}{4}$	76	95
Smith, Dorothy Mae	8-5	51 $\frac{1}{4}$	62	20
Tomblin, Peggy Jean	8-3	47	47	10
Williams, Charlotte	7-8	52 $\frac{1}{2}$	57	95
Williams, Jacqueline	7-4	47	49	40
Williams, Nona Mary	8-8	52 $\frac{1}{2}$	60	80

Section 31

Baker, Shirley Diane	8-8	51 $\frac{1}{4}$	60	70
Ferguson, Margie Rae	9-3	54 $\frac{1}{2}$	71	90
Glasgow, Jean	9-2	53 $\frac{1}{2}$	61	80
Merrill, Ann	8-6	54 $\frac{1}{2}$	69	95
Murff, Thelma Beth	9-4	52	73	60
Posey, Brunette	8-11	49 $\frac{1}{2}$	59	20
Posey, Maurine	8-11	51 $\frac{1}{4}$	62	60
Rice, Alma Lou	10-1	48 $\frac{1}{2}$	52	1

	Age	Height	Weight	Percentile Level
Schaefer, Grace	9-6	52 $\frac{1}{2}$	57	60
Smith, Juanita	9-3	56 $\frac{1}{2}$	86	99
Tombaugh, Mary Ann	8-11	51 3/4	55	70
Townsend, Joyce Marie	8-8	49 $\frac{1}{4}$	53	30
Walker, Mattie M.	8-11	51 $\frac{1}{4}$	57	60
Welge, Norma Dell	8-10	58 3/4	93	99
Wendt, Mary Elizabeth	9-0	48	55	10

Section 32

Baker, Lottie Lee	9-3	52 $\frac{1}{2}$	66	70
Bauerschlag, Marlyn	9-5	53 $\frac{1}{2}$	65	70
Bragg, Mary Wanda	9-3	50 $\frac{1}{2}$	63	40
Burnett, Katheleen	8-7	51	68	70
Galbreath, Jeannine	9-4	49 $\frac{1}{2}$	52	20
Gold, Jenell	9-2	47	51	5
Guerrero, Dora	8-2	51 $\frac{1}{2}$	53	80
Hardinge, Charlotte	9-8	48 $\frac{1}{2}$	54	5
Harris, Anne	9-8	53 $\frac{1}{4}$	65	70
Jackson, Betty Ann	9-7	53 $\frac{1}{2}$	73	70
Lucas, Patsy	9-2	50 3/4	62	40
Payne, Oca Nell	8-11	51 $\frac{1}{4}$	53	60
Smith, Benniedean	9-3	52 $\frac{1}{2}$	63	70
Welch, Maida	9-7	54 $\frac{1}{2}$	80	90

Section 41

Cantu, Ida	9-10	50 3/4	64	20
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	Age	Height	Weight	Percentile Level
Cochran, Dorothy	12-3	54	64	10
Guerrero, Nelda Jean	10-7	54 $\frac{1}{2}$	71	60
Marshall, Mildred	9-0	54 $\frac{3}{4}$	48	95
Smith, Leonardine	10-2	57	67	95
Steffens, Rose Marie	10-2	55 $\frac{3}{4}$	88	80
Tramel, Mary Ann	9-4	48	45	5
White, Nellie May	11-4	52 $\frac{1}{4}$	64	10
Wiede, Dorothy	11-5	56 $\frac{1}{4}$	55	60

Section 42

Anderson, Roxie Dean	9-9	53	71	60
Dycus, Ludelia	10-0	52 $\frac{1}{2}$	66	50
Ivey, Sue Ann	11-3	49	98	1
McMullin, Francis	9-10	54 $\frac{1}{4}$	65	80
Miller, Barbara Ann	10-0	55 $\frac{1}{2}$	68	90
Rice, Erxa Elizabeth	11-4	53	65	10
Steffens, Dorothy	10-4	56 $\frac{1}{4}$	75	90

Section 51

Dane, Floy Marie	14-1	53 $\frac{1}{4}$	89	1
Denson, Miriam	11-3	56 $\frac{1}{4}$	73	60
Cortez, Ofelia	12-5	60 $\frac{3}{4}$	89	80
Golson, Jamie Francis	11-1	53	62	20
Henson, Jeppie Marie	10-9	54	59	50
Johnston, Ella Gene	10-6	56 $\frac{1}{2}$	76	80

	Age	Height	Weight	Percentile Level
Jones, Billie Marie	9-7	54 3/4	72	90
Jungers, Mildred Neva	11-11	55 $\frac{1}{2}$	75	30
Loftis, Betty Jo	11-1	57 $\frac{1}{2}$	91	80
O'Banion, Jacquelin	10-6	54 $\frac{1}{4}$	68	60
Smith, Julia Mae	12-0	56 $\frac{1}{4}$	83	40

Section 52

Ashberry, Ellen	10-11	56	70	70
Burnett, Gatha	9-11	54	70	70
Champion, Rosemary	11-5	53 $\frac{1}{4}$	62	20
Frazier, Johnie B.	11-1	56	66	60
Glasgow, Ruth Pauline	11-1	55	66	50
Ivey, Betty Lucille	11-3	61 $\frac{1}{2}$	86	99
Jones, Peggy Lee	10-9	56	79	70
Kaderli, Janell	10-11	52	63	10
Smith, Edna Jo Ann	11-2	58 $\frac{1}{4}$	76	90
Steffens, Marilyn	11-3	58	80	80
Timmerman, Ella Marie	11-0	57 $\frac{1}{2}$	74	80
Williams, Ilene	10-2	57 $\frac{1}{4}$	77	95
Wooton, Bonnie Lou	10-8	55 $\frac{1}{2}$	63	70

Section 61

Alexander, Selita	12-3	54 $\frac{1}{2}$	70	10
Cochran, Bessie Grace	14-3	60 3/4	108	40
Frazier, Imogene	14-3	62 $\frac{1}{4}$	118	60
Gober, Janice	12-0	62 $\frac{1}{4}$	109	95

	Age	Height	Weight	Percentile Level
Guerrero, Irma	12-9	52 3/4	99	90
Hughes, Ola Jean	12-2	57 3/4	81	50
Inglot, Ladell	10-4	57 1/2	65	95
Laidley, Josephine	13-4	58 1/2	73	30
McMullin, Helen Rose	12-7	59	95	60
Pios, Hortensia	13-7	58	79	20
Tombaugh, Billie Louise	12-3	57 3/4	90	50
Yelvington, Mary Jo	13-2	62	97	70
Zamora, Faubla	13-9	62 1/2	97	70

Section 71

Beecroft, Catherine	12-11	59 3/4	99	50
Boggus, Marilyn	12-6	62	115	90
Epley, Gwen	12-1	65 1/4	118	99
Estes, Dorothy	14-2	61	100	40
Cary, Jean	11-5	60	110	95
Heard, Naomi	11-11	59 3/4	99	70
Kuhn, Dorothy L.	11-9	61 1/2	158	95
McRae, Donnie	12-3	60	75	20
Payne, Joyce	11-9	57 1/2	80	60
Posey, Florence	11-10	57 1/2	69	60

Section 72

Boggus, Doris Eleanor	11-6	59	80	20
Bunting, Mattie Byrd	11-10	56 1/2	86	50
Hardingo, Dorothy LaVerne	13-0	55 1/4	82	5

	Age	Height	Weight	Percentile Level
Herring, Shirley Jean	12-3	57	87	40
King, Sue	11-7	59	90	80
Magruder, Frances	11-8	57 $\frac{1}{2}$	76	60
Posey, Lila Beth	11-7	59	90	80
Schaefer, Eunice	14-4	64 $\frac{1}{2}$	129	80
Smith, Clara Mae	11-10	58 $\frac{1}{2}$	115	70
Smith, Mary	11-9	60 $\frac{1}{4}$	102	90
Smith, Shirley Jo	12-11	62 $\frac{3}{4}$	119	80
Wilson, June	11-8	60 $\frac{1}{4}$	88	90
Winkler, Mildred	12-4	59	86	60
Yotts, Joan	12-10	63 $\frac{1}{2}$	90	90

Section 81

Bailles, Faye	13-4	59 $\frac{1}{2}$	108	40
Cockrill, Jewell	14-1	59	114	20
Fletcher, Wanda	12-8	62	112	80
Gold, Susie	13-4	55	72	5
Jackson, Betty Jo	13-3	61	92	60
Leffingwell, Lucille	12-8	60 $\frac{1}{2}$	90	70
Massey, Essie	14-11	63 $\frac{1}{2}$	155	70
Mosely, Audrey	13-3	62	103	70
Payne, Janie	13-6	63 $\frac{1}{2}$	132	80
Shaw, Mildred	12-11	65 $\frac{1}{2}$	106	35
Taylor, Amy Rae	12-9	60	112	60
Tomblin, Margaret	12-8	59 $\frac{1}{2}$	102	60

	Age	Height	Weight	Percentile Level
Section 82				
Baker, Imogene	13-5	62	92	70
Gilcrease, Bonnie	13-2	65 $\frac{1}{2}$	122	95
Key, Ellen Ruth	12-7	60	108	70
King, Lou	12-8	61 $\frac{1}{2}$	106	60
Martindale, Minerva	12-7	60	84	70
McGehee, Mary Jean	14-2	61	110	40
Phillips, Eloise	13-0	64 $\frac{1}{2}$	122	95
Sherrill, Billy Jo	12-10	62 $\frac{1}{4}$	114	60
Sherrill, Patricia	13-2	61 $\frac{1}{4}$	90	70
Tanner, Margaret	11-11	59 $\frac{1}{2}$	83	60
Smith, Nell	13-0	65 $\frac{1}{2}$	120	95
Section 83				
Arredondo, Agripina	16-10	65	110	50
Barrera, Olivia	14-3	62 $\frac{1}{4}$	108	60
Buckner, Louise	12-4	61 $\frac{1}{2}$	130	90
Hamilton, Ruth	12-7	56 $\frac{1}{2}$	73	20
Henson, Jo Dean	13-7	54	74	1
Jones, Ruth Kathryn	12-8	62 $\frac{1}{2}$	126	90
Webbott, Bettie Lou	13-1	62 $\frac{1}{2}$	86	60
Northington, Betsy	10-10	58	125	90
Posey, La Jean	15-1	56 $\frac{1}{4}$	100	1
Rios, Ruth	13-8	59 $\frac{1}{2}$	64	20
Sattler, Evelyn	12-8	58 $\frac{1}{2}$	94	40

	Age	Height	Weight	Percentile Level
Smith, Collean	13-9	59 $\frac{1}{4}$	75	30
Vogelman, Cora Lee	12-7	62 $\frac{3}{4}$	90	90

Section 91

Baker, Gloria	14-2	63	110	70
Brem, Virginia	14-1	63 $\frac{1}{4}$	111	80
Cloyd, Lois	13-2	64	103	90
Cozart, Fay	15-4	62	95	40
Feltner, Ethel Ruth	13-9	62 $\frac{1}{4}$	115	70
Ford, Mary Josephine	13-6	64 $\frac{3}{4}$	104	90
Glasgow, Mary Lou	13-8	63 $\frac{1}{2}$	108	80
Hamilton, Lorene	14-5	62	105	50
Inglet, Pearl	14-7	59 $\frac{1}{4}$	86	10
Merrill, Ruth	13-9	63	105	80
Murray, Carmen	13-10	61	110	50
Richter, Margie Nell	13-10	61	130	50
Rose, Margaret	14-6	61	101	40
Satterwhite, Gladys	14-0	68	142	99
Tramel, Barbara	12-9	45	72	- 1

Section 92

Appling, Minnie	13-8	61 $\frac{1}{2}$	98	60
Ashberry, Jean	14-3	63 $\frac{1}{2}$	108	80
Ashberry, Julia	14-3	63	102	70
Beecroft, Bettye Claire	14-4	64	117	80
Buckner, Claire	13-8	61 $\frac{1}{4}$	106	60

	Age	Height	Weight	Percentile Level
Dedeke, Edna	13-5	63 $\frac{1}{4}$	122	80
Reideman, Adelene	13-9	60 $\frac{1}{4}$	96	40
King, Anita	14-5	60 $\frac{1}{4}$	85	30
Murillo, Rosie	13-3	60 $\frac{1}{4}$	96	50
Owen, Wanda	13-10	63	125	70
Pappas, Jennie	14-7	60	108	20
Piper, Mary	13-9	60 $\frac{1}{4}$	87	40
Renteria, Clementine	16-7	61	100	20
Staudt, Dorothy	13-8	63 $\frac{1}{4}$	104	80
Wade, Marilyn	14-3	65 $\frac{1}{2}$	118	90
Williamson, Margie	14-5	60	99	30
Yolvington, Polly	14-11	61 $\frac{1}{2}$	110	40

Section 93

Acrey, Carrie Belle	15-1	66 $\frac{3}{4}$	111	99
Fannin, Dorothy	14-11	64	117	70
Harris, Mary	14-2	59 $\frac{1}{4}$	89	20
Lancaster, Jane	13-6	62 $\frac{1}{4}$	131	99
McGee, Rosemary	13-8	60 $\frac{3}{4}$	107	50
Rogers, Catherine	14-0	60	87	30
Schlameus, Janice	14-2	62	114	60
Torrez, Esperanza	12-3	61 $\frac{1}{4}$	116	80