

MAP OF PHYSIQUE AND CHRONOLOGICAL CURVE OF PHYSIQUE OF JAPANESE PUPILS

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We Japanese have great pride in the big task of taking each year, from 1900 to 1952 the mean values of height, weight and chest-circumference of school boys and girls (6-20 of age) totalling about 1 000 millions, but recently a criticism is heard that such toilsome labour should be dispensed with, as its usefulness is highly questionable.

Why is such an opinion expressed?

The reason is to be sought in the fact that we had under our hand no good method of physical judgement enabling us to profit by the precious collections of data in a simply way.

I have studied this problem for about seventeen years and recently established "A new Theory for physical Judgement and its practical Application," "An evaluation of health based on my synthetic judging method of physical status and strength" and "A method of expressing the diversity or change of physiques in the polar co-ordinates fashion."

Deep thanks are due to the Health Section of the Department of Education, for great encouragement and support, allowing me the use of a voluminous collection of data, the mean values arranged according to age and sex of height, weight and chest-circumference of all Japanese pupils (6-20 of age) yearly examined during 1900 to 1952.

I worked at the data and succeeded in producing a method of my own, that is, of expressing diversity of physique of Japanese pupils in different areas in the polar co-ordinates fashion. From this method I could find many note-worthy facts.

THE DIAGRAM OF PHYSIQUE IN THE POLAR CO-ORDINATES FASHION

Fig. I is a diagram of physique in the polar co-ordinates fashion in which the characteristics of physique in each area are shown by shadow-pictures; namely,

- the centre of this co-ordinates: average physique of 1950
- upside of this centre: good development
- right-upside: good development and stout figure and wide chest.
- right-side: stout figure and wide chest.
- right-under: bad development and stout figure and wide chest
- under: bad development
- left-under: bad development and thin figure and narrow chest

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left-side : thin figure and narrow chest

left-upside : good development and thin figure and narrow chest

and the radii from the centre common to all circles denote the different grade from the average physique.

Fig. II is the diagram in which the characteristics of physique are differentiated by color and its depth and the mean physique of each prefecture is indicated by means of points. In this figure, we can see that Hokkaido shows good development (blue) and Miyagi, Ibaragi, Chiba and Shiga show good development of a lesser degree (blue points), Aomori and Ishikawa show good development in a less degree and a stout figure and a wide chest, being an ideal physique (blue and green points); Kagoshima, Miyazaki and Oita show bad development but a stout figure and a wide chest (red and green stripes) and Kumamoto and Saga show bad development in a less degree but both a stout figure and a wide chest in a less degree (red and green points); Nagasaki, Yamaguchi and Tokushima show bad development (red) and Fukuoka, Ehime, Hyogo and Yamanashi show bad development in a less degree (red points) Aichi and Tokyo show good development but a thin figure and a narrow chest (blue and brown stripes) and Kanagawa, Kyoto and Tochigi show good development in a less degree but a thin figure and a narrow chest in a less degree (blue and brown points); Yamagata shows bad development in a less degree and a thin figure and a narrow chest, being a very poor physique (red and brown points); and the other Prefectures show average physique.

It should be mentioned that we recognized these same characteristics for each Prefecture in those of 1949, too.

I painted (Fig. III) the different prefectures in colours corresponding to their respective physiques in the diagram of physique (Fig. II), and I found the following interesting facts :

1. Development is good in north-east Japan and bad in south-west Japan.
2. In Tokyo, Aichi, Kanagawa and Kyoto, development is good but they show a thin figure and a narrow chest (urban physique).
This fact may have resulted from food and living condition.
3. In Ishikawa and Aomori, development is good with a stout figure and a wide chest (ideal physique) in spite of the fact that the neighbouring prefectures show average physique.

This fact may be due to the results of school health guidance and physical education.

4. In Yamagata, development is slightly bad with a thin figure and a narrow chest (poor physique) in spite of the fact that the neighbouring Miyagi shows good development and neighbouring Akita, Niigata and Fukushima show average physique.

Why is the physique of Yamagata so poor?

5. Why is the development so bad in Yamaguchi and Tokushima in spite of the fact that the neighbouring prefectures show average physique?

6. In the districts of Kei-Han-Shin including such large cities as Kyoto, Osaka and Kobe, Kyoto shows an urban physique but Osaka shows average physique while Hyogo shows bad development.

What is the reason for these different developments?

Very interesting and note worthy problems are presented by the map of physique of Japanese pupils.

CHRONOLOGICAL CURVE OF PHYSIQUE

The next important problem is a chronological curve of physique. In Fig. IV, I have drawn this curve of Japanese physique from 1900 to 1951.

In this figure we can recognize, many interesting facts as follows ;

1. Chronological process of physique

In 1901, the Japanese physique shows bad development and a narrow chest (the mean value of those of 1900, 1901 and 1902 being considered). In 1904, it shows worse development (in this period the Russo-Japanese War broke out). From 1904 to 1919, the development became better gradually but no change is shown in the physical type.

From 1919 to 1932, the development became better rapidly but the physical type became thinner and thinner and shows a more narrow chest. In this period, the Japanese had peaceful and happy days and their mind became fickle and frivolous so that the Imperial rescript was issued to make them more serious and sedate.

From 1932 to 1939, development is improved and the physical type, too, shows a stouter figure and a wider chest, which is an ideal physique. In this period, the Manchurian disturbance broke out, Japan cut her connections with the League of Nations, and the China Incident and then the Second World War occurred, so that the Japanese were much elated. Their strenuous effort appears in the Japanese physique as follows ; the development becomes better and better, the physical type shows a stouter and stouter figure and a wider and wider chest. From this fact we learn that physical training can make an ideal physique.

I am sorry to say that from 1940 to 1947 the mean value of measurement were not taken due to the Second World War so that we can not examine the process of change of Japanese physique but can compare the physique of 1939 with that of 1948.

During this period, the development becomes very much worse and goes about twenty years backwards, but the physical type undergoes a change for the better,—a stouter figure and a wider chest.

In this period, the destiny of the Japanese was becoming almost visible, the life of people was in extreme distress and excessive want of food came to be keenly felt on account of unreasonably increased production of munitions and then Japan was defeated.

We can understand that under unfavourable circumstances (lack of food or distressful living) the development of physique becomes markedly worse while the physical type shows rather a stouter figure and a wider chest in the case of growing pupils.

After the First World War, the Rohrer Index was used as a standard for judging the nourishment in providing meals to war-orphans without recognizing this fact. The authorities then thought that the Rohrer Index was not valuable as a standard for judging nourishment.

From 1948 to 1951, the development almost came to return to its pre-war state as living conditions improved but the physical type underwent scarcely any change for the better.

2. Comparison of male and female

Before the Second World War, the physique of males was superior to that of females but after the War the physiques of both became almost equal so that no differential improvement has been made by both sexes on the average physique of 1950.

I think this fact may show the influence of American mode of equality between men and women on the Japanese physique.

3. Physical type

When we compare the chronological curve of change of height-weight and that of height-chest circumference, we can see the latter is far more remarkable than the former.

This fact may show that in the case of growing pupils the influence of life environment is more potent on the thorax or the respiratory organ than on the muscular and fat or soft tissue.

RELATION BETWEEN THE MAP OF PHYSIQUE AND THE CHRONOLOGICAL CURVE OF PHYSIQUE

As above mentioned, the map of physique shows the characteristics of each prefecture in climate, topography, heredity, manners and customs, living standard (chiefly food-situation) and health plan, etc., while the chronological curve of Japanese physique expresses a sharp reaction to the Japanese history; namely, diplomatic and social policy, war and peace, prosperity and depression, mental tension and relaxation, or positive physical training and non-interference.

Which has more potent influence on the physique, conditions not reformable by human power such as climate, topography, heredity, etc., or conditions reformable by human power such as diplomatic, social and food policy, mental and physical education, etc.?

We can perceive the former influence in the map of physique alone and the latter influence both in the chronological curve of physique and in the map of physique.

Which is more remarkable, the difference of development in the map of physique or that in the chronological curve of physique?

In the map of physique, the highest difference of development is seen between Hokkaido and Kagoshima, being 0.5 sigma and that of the physical type is seen between Aichi and Ishikawa, being 0.3 sigma.

In the chronological curve of physique, the highest difference of the development is seen between 1904 and 1939 being 0.9 sigma (higher than 0.5 sigma of the map of physique) and that of the physical type is seen between 1932 and 1948 being 0.5 sigma (higher than 0.3 sigma of the map of physique).

From this, we can conclude that conditions reformable by human power has bigger influence on the physique than conditions reformable by human power.

SUMMARY

The main points in this treatise to be noted are ;

1) We have been able to draw a map of physique and a chronological curve of physique, using the mean values arranged according to sex and age of height, weight and chest-circumference, by means of my method of expressing the diversity or change of physiques in the polar co-ordinates fashion.

2) The map of physique shows the characteristics of each prefecture in climate, topography, heredity, manners and customs, living standard (food-condition) and health plan, etc.

3) The chronological curve of physique shows a sharp reaction to Japanese history ; namely, diplomatic and social policy, war and peace, prosperity and depression, mental tension and relaxation, positive physical training and non-interference.

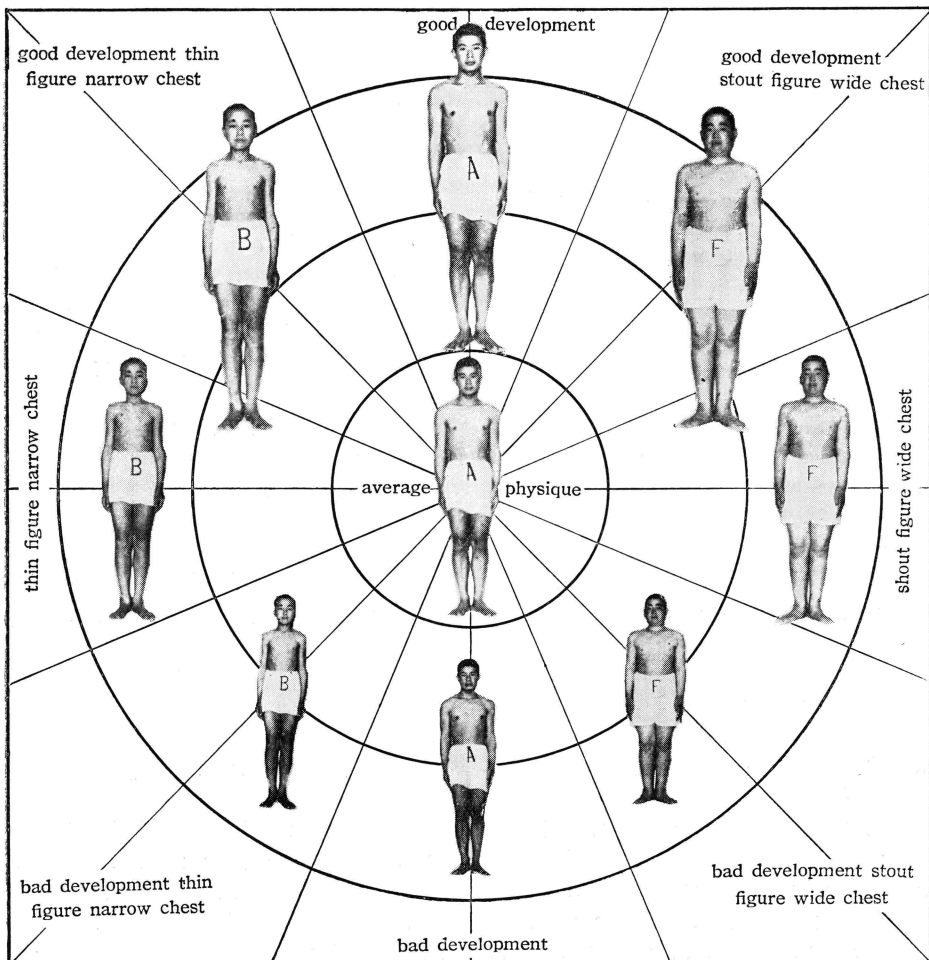


FIG. 1. A diagram of physique in the polar co-ordinates fashion, in which the characteristics of physique in different areas are shown by photographs of naked bodies.

Chronological table of physique

A.D. Era	Change of times	Change of physique
1900	M33	bad development with narrow chest.
1910	Russo-Japanese War	Development became worse.
	M40	
	T 1	Development became a little better.
1920	1st World War	
	Siberian Incident	
	Defleation	Development became rapidly better but physical type a thinner figure with a narrow Chest.
1930	Great Earthquake	
	S 1	Imperial rescript for moral enhancement
	Great deflation	
1940	Manchurian disturbance	Development became markedly better and the physical type a stouter figure with a wider chest (ideal processs)
	S 10	China Iucident
	IInd World War	
1950	Potsdam decl- aration	Development became worse very rapidly but the physical type showed a stouter figure and a wider chest
	S 20	
	World peace- conference	Development became better

Figure III. Chronological curve of physique

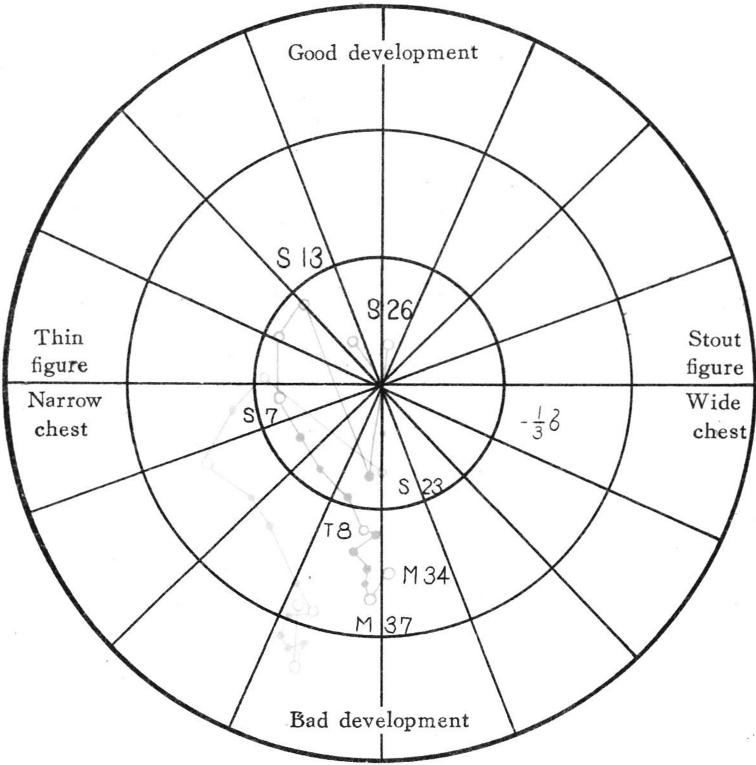


Figure III. Map of physique of Japanese pupils

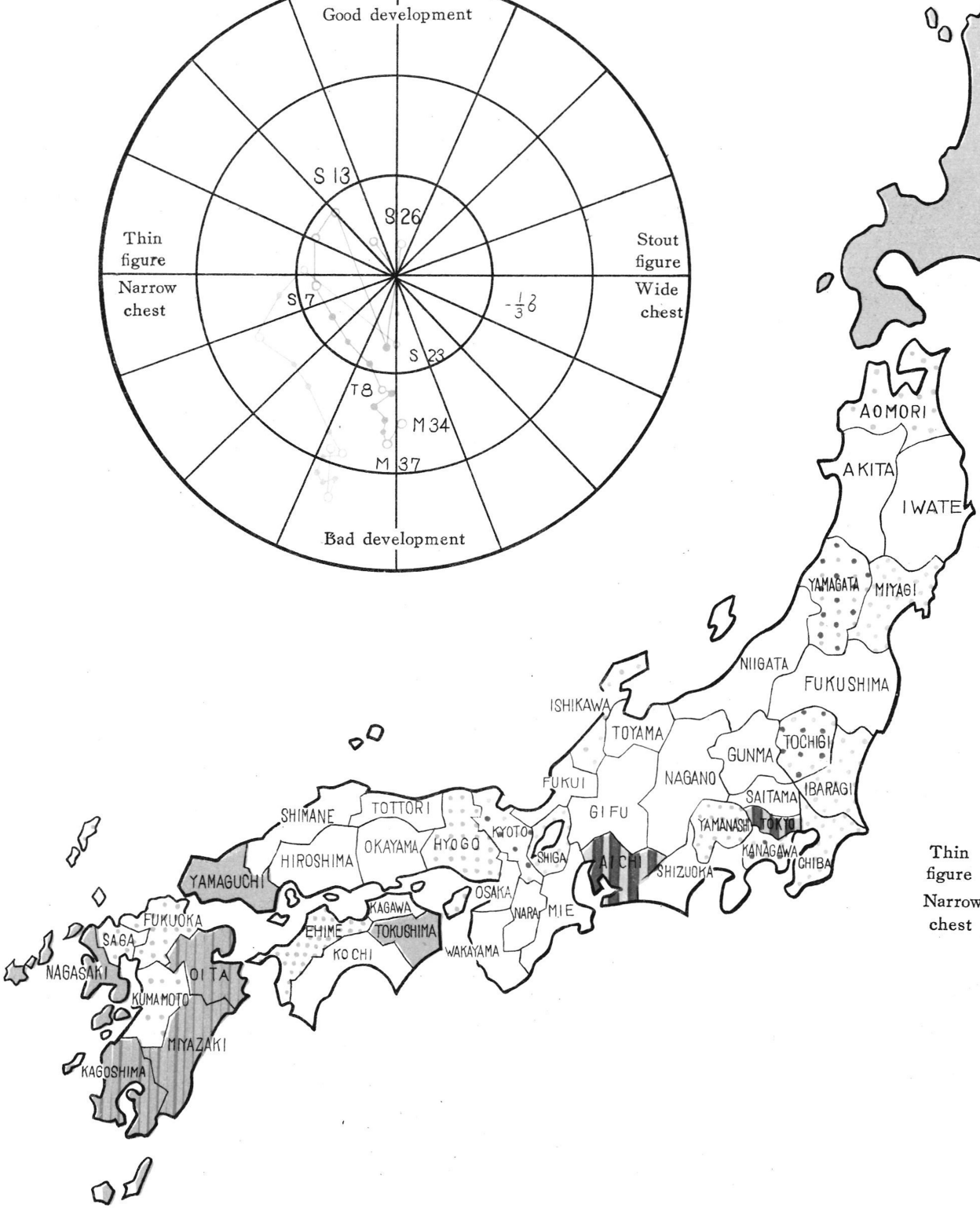
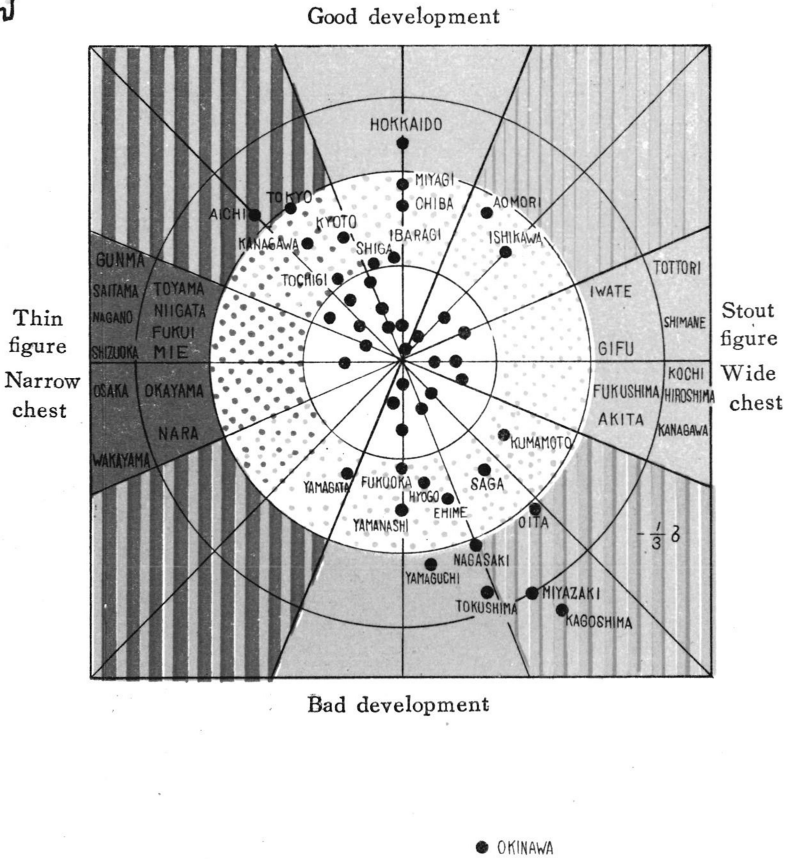


Figure I. A diagram of physique, in which the mean physique of each prefecture is indicated by a point.



Note: M is for Meiji Era, T for Taisho Era, and S for Showa Era.

4) Conditions reformable by human power—social and food policy, mental and physical education etc., have a more potent influence on the physique than those not reformable by human power—climate, topography, heredity, etc.

Thus I think it highly advisable that we should take the measurements of height, weight and chest-circumference of the pupils of an area and judge the physique of the area in question by means of the principles set out in this treatise with a view to improving the health and physique of the pupils.

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