

Two single doses of 1 mg. of vitamin B<sub>1</sub> on successive days produced dramatic effects. Diuresis began within 36 hr., oedema disappeared, weight fell, the appetite increased, and the food consumption rose steeply. Diastolic blood pressure increased and arterial sounds were no longer audible at zero. The adrenalin test became negative. After 5 days electrocardiograms were within normal limits. Improvement persisted for 6 weeks, during which no further vitamin B<sub>1</sub> was given. Calf tenderness disappeared. Deep reflexes returned much later when 5 mg. of vitamin B<sub>1</sub> was administered daily and diet was unrestricted.

This case illustrates six steps in diagnosis: (1) non-nutritional causes were excluded; (2) nutritional causes were demonstrated; diagnosis was supported by (3) other signs, (4) functional tests and (5) vitamin estimations; (6) a therapeutic test was positive.

No single approach was adequate. Many patients without beriberi eat poor diets and excrete little vitamin B<sub>1</sub>. Functional tests and other signs were not pathognomonic. Even the therapeutic test would have been misleading without control of diet and exercise.

The application of a 'battery of methods' can be further exemplified by studies in polyneuritis (Ungley, 1939).

#### REFERENCES

- Sinclair, H. M. (1939). *Biochem. J.* 33, 2027.  
 Ungley, C. C. (1939). *Proc. 3rd Int. Neurol. Congr., Copenhagen*, p. 829.

### Remarks on Anthropometric and Performance Tests

By E. R. BRANSBY, *Ministry of Health, Whitehall, London, S.W. 1*

I had hoped that Yudkin (1948) would have dealt briefly with recent work on child development and then discussed where we stand. There are many matters in his paper on which I would have liked to comment, but propose to restrict my discussion to five somewhat unrelated points, which I have not time to develop in detail.

#### *Group data*

The average heights and weights of groups of children of various ages are sensitive indices of past or present environment, provided, of course, that genetic factors do not interfere. Such data are an essential part of public health statistics, and their collection and analysis should be designed to meet the needs of each individual locality. For example, data for the different social classes collected over a number of years in Liverpool show whether the differences between the social classes are contracting or expanding. There is little point at present in presenting more than straightforward height and weight averages by age and sex, except perhaps repetitive measurements on the same children, although there is no doubt that further research will show how growth data can be used in an even more sensitive way.

*Data for individual children*

The anthropometric indices mentioned by Yudkin (1948) are rarely used in this country, most medical officers and research workers being rightly sceptical of their value. Unfortunately, there is as yet no reliable method of using growth data to judge whether or not individual children are achieving their full physical potential. That is the basic problem. When a solution of that has been achieved, the problem arises of ascertaining to what part of the environment (nutrition, lack of sleep, overcrowding, and the like) the poor development in any particular child might be due. Yudkin's implied acceptance of devices such as Wetzels's grid suggests that he believes that a satisfactory forecast of a child's potential growth can be made, i.e. that the basic problem just mentioned has been solved. This, however, is far from being the case, and much research is being devoted to that aspect of child development.

*Targets*

The fact that the average physique of children improves with improving social class and that that of children of good social class is still improving, need cause no practical difficulties in the setting of standards or targets of improved growth for the child population as a whole. Thus it seems to me that a very suitable short-term target for primary and secondary schoolchildren would be the growth achievement of fee-paying pupils in independent schools. To accomplish that would mean a real improvement in some aspect of the environment of those children, with a consequent improvement in health.

*Short-term fluctuations in growth*

Yudkin suggests that in collecting growth data, short-term fluctuations should be minimized by extending the observations over a sufficiently long time. This, however, overlooks the value of the frequent measuring of children to detect interferences with growth as soon as possible. The approach must be by further research to understand the significance to health of these short-term fluctuations. In the new arrangements for medical examination in schools, the Ministry of Education recommend the weighing of children every term, so that those doing badly can be sent to a doctor for examination.

*Outlook*

I take an optimistic view of the potentialities of growth data. It is true that little of real practical importance in the health assessment of children has emerged up to now, but the prospects for the future are much brighter, owing to greatly improved methods of research. Growth data have often been criticized as being inaccurate or difficult to collect and thus of but limited value for practical public health purposes. This seems to me to beg the whole question. If research shows that growth data can reliably be used as a sieve to select those children not growing properly, then it would be a good public-health investment to collect the necessary measurements with the requisite degree of accuracy. In recent reviews American workers recommend a series of

measurements which take 8 min. to collect for each child, longer in fact than is spent on each child in the routine school medical examinations in this country (Stuart & Meredith, 1946; Meredith & Stuart, 1947). If any set of measurements can provide what is asked of them, then the time spent collecting them would indeed be time well spent.

## REFERENCES

- Meredith, H. V. & Stuart, H. C. (1947). *Amer. J. publ. Hlth*, **37**, 1435.  
 Stuart, H. C. & Meredith, H. V. (1946). *Amer. J. publ. Hlth*, **36**, 1365.  
 Yudkin, J. (1948). *Brit. J. Nutrit.* **2**, 158.

## Summing up

By H. E. MAGEE, *Ministry of Health, Whitehall, London, S.W. 1*

These comments are based on a study of papers submitted to me by the authors. The papers, on the authors' admission, were not in final form, and it is possible that substantial alterations may have been made in the meantime. In this event some of my comments may appear pointless or irrelevant, but I hope not impertinent. If, perchance, I have committed any of these faults, I apologize.

Marrack (1948) rightly points out that laboratory data have the great advantage that they are quantitative and free from personal errors or bias, but he is evidently not certain whether all such data are reliable or that their meaning is clear.

He compares the results of haemoglobin determinations during the war with pre-war values. His comparisons show that on the whole from 1943 there has been no falling off in haemoglobin levels. Indeed, there was an improvement in women. He asks why agricultural workers and others engaged in strenuous pursuits had lower values than sedentary workers such as civil servants. I asked the same question 2 years ago (Magee, 1946). My colleagues and I are at present carrying out investigations on this matter.

Marrack's review of the vitamin A data shows that some observers during the war found quite low values, under 70 i.u./100 ml., in blood, and low values also in the livers of people dying from diseases in which the liver was not involved. On the other hand, he himself and others found surprisingly high values in the blood and also in the liver. He quotes dark-adaptation tests, but concludes that the data are insufficient to throw any precise light on the state of nutrition in regard to vitamin A.

He deplores the paucity of data on blood phosphatase which is a sensitive index of the state of metabolism of calcium and phosphorus.

He refers also to the survey of Kon & Mawson (1947) which shows that the vitamin A content of the milk of nursing mothers did not vary with the amount eaten in the food. On the other hand, the vitamin C and vitamin B<sub>1</sub> contents varied with the amounts of these vitamins in the diet. An interesting finding is that the level of vitamin B<sub>1</sub> rose significantly in 1942 after the introduction of 85% extraction flour.

Yudkin (1948) in his paper is less concerned with the results of anthropometric and performance tests in determining nutritional status than with the appraisal of the