BOOK REVIEW

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FRANZEN (RAYMOND) (Ph. D.,) (Director of Research School Health Study, American Child Health Association.) Physical Measures of Growth and Nutrition. School Health Research Monographs No. 2—pp. xll + 138. With frontispiece and 4 charts. 1929. New York City: American Child Health Assoc., 370 Seventh Avenue. ($1 paper; $1.25 cloth.)

The American Child Health Association has done much to popularize right living as a civic aim in education. They have now been examining the bases on which many school activities are established. Research Monograph No. 2 on "Physical Measures of Growth and Nutrition" is founded on the observations of fifteen workers during 1927–29, and ranks with the inquiries of B. T. Baldwin, or Benedict and Talbot, among post-War studies in this direction.

It is the record of an unusually successful application of biometric methods, not only in bringing order out of the indefinite classifications comprehended in nutritional status or constitution, but also in helping to more correct methods of working.

Testing correlation between examiners' ratings on the usual 1, 2, 3, 4, 5, scale, these ratings were found too inexact to endorse their value. Analyzed into 46 separate traits, the best were then selected by high correlation, and thus reduced to 12 items expressive of skeletal characteristics (6), size of muscles (3), and amounts of subcutaneous tissue (3). The last was found to require very careful determination to avoid error. These data from groups of 1,000 school children in each year of age were investigated as to their variations, and their correlations to each other, to weight, and to the doctor's judgments. Correlation of height to weight comes out surprisingly small compared with other skeletal measurements. The individual variations in weight can be referred to measurable components, mainly of skeletal structure, of which breadth of hips is perhaps the best. Girths, of upper arm and calf, represent a large proportion of the element of weight predication not represented by bony structure. To adjust any determinations to skeletal variations, a method of "residuals" was used. The actual measurement (weight, girth, length, etc.) minus the measurement to be expected from the bony build is the "residual". Full explanation of the treatment of

these measures of variation is given, with complete tables of the data, measurements, and their statistical relations. This part of the work has much of interest; for instance, the comparison of growth in different age groups is made in biologic units, found by taking the difference of the means of the upper and lower ages, and dividing by the standard deviation for the age. Regression equations are given to determine any measurement from the others and tables of expected normal values are also worked out.

The work should have been done in England twenty years ago, and now, for its bearing and implications, must be read and appreciated by every school worker who aspires to do more than carry out the statutory duties required,