tion are shown by Marconi Instruments, Ltd., and The Accurate Recording Instruments Co.

Having dwelt at some length on only two of the exhibits may give the impression that there is little else to be seen. This is not so. The pictorial prints, lantern slides and stereoscopic transparencies are themselves worth a visit and can be relied upon to provide agreeable relaxation.

A SURVEY OF CANADIAN SCHOOLCHILDREN

THE statistical results of a survey of children in the elementary schools of the city of Toronto, taken in November 1939, have recently been published*. It is a team work in which the Hospital for Sick Children in Toronto, the Department of Pensions and National Health, Ottawa, the Education Statistics Branch of the Dominion Bureau of Statistics, and the Toronto Board of Education participated. The whole report is the work of Mr. N. Keyfitz and his assistants of the Social Analysis Branch of the Dominion Bureau of Statistics.

In 1923 the Department of Public Health in Toronto made a survey of 59,000 elementary pupils, from which a table of average heights and weights by age was calculated and which became the standard for Canadian school-children. During the intervening sixteen years it was found that, as a result of the policy of social improvement based on the previous findings, pupils in the various age-groups were outgrowing their categories, and it was decided to institute a new survey in which medical investigation would be as thorough as possible and the correction of physical defects would be a major aim.

In the present study of 78,000 children, equally divided on the basis of sex, emphasis is laid on the influence of such factors as economic status, birthplace of parents and the range within which nutrition affects the build of children. An effort is made throughout to determine the relative importance of the following points: (1) Does the economic status of the family influence the prevalence of disease and defect? (2) Does it retard the child in his academic standing as indicated by his school grade? (3) Do certain combinations of defects or diseases have more effect on the height and weight than the same defects and diseases unassociated? (4) How does heredity as shown by parental birth-place affect build?

The pupils of 1939 are found to be taller for their age than similar groups of 1923, except the six-year-olds. This may be explained by the fact that it is now customary to enter children at school at six, while formerly less robust six-year-olds were kept at home. Girls are found to mature earlier than boys; but thirteen-year-olds of the latter are found to mature at two different rates, as shown by a bimodal distribution representing maxima in height and weight combined.

An interesting comparison between the Toronto survey and Sir Frederick Menzies's London survey of 1938 is made. Canadian children, as one would expect, are taller than English ones. The London children of 1938 approximate in height and weight the 1923 levels of Toronto. However, the differences between the well-to-do and poorer metropolitan boroughs show the same tendencies as the Toronto ones, the differences being, if anything, less marked in England. A similar extensive study by the U.S. Department of Agriculture (Garment and Pattern Construction) in 1941 of 147,000 white schoolchildren of 4–17 years of age is remarkably close to the Canadian figures.

Economic status of parents: It is found that unskilled labourers and unemployed parents have children who are under-height; but there is striking absence of differences in build, that is, weight in relation to height, between children from poor and prosperous districts.

Diseases and defects: Diseases have no appreciable effects on height and weight, but defects tend to make their owners shorter and lighter for their height, that is, thinner.

Heredity: Children of United States-born parents are taller, and those of British-born parents are lighter than those of Canadian-born parents. Inter-racial marriage tends to increase the height of offspring. Children whose parents are eastern European-born are taller and those whose parents are of western European birth are shorter and heavier.

It is, of course, well known that foreign-born immigrants tend to be in less skilled occupations, while United States-born are often in a higher economic level than the Canadian-born.

The work is lavishly illustrated with charts and tables but one feels, after all is said, that fewer tables and a more detailed discussion of the biological principles governing growth would make this excellent booklet more valuable and instructive. Nevertheless, in these days when the very basis of science is being challenged, and men of science are everywhere engaged on the destructive aspects of their calling, it is refreshing to come across a progressive little book of the type, at once creative and far-sighted. R. E. G. ARMATTOE.

* A Height and Weight Survey of Toronto Elementary School Children, 1939. Pp. 36. Published by authority of the Hon. James A. MacKinnon, M.P., Minister of Trade and Commerce. (Ottawa, 1942.) 25 cents.

RADIO DETECTION AND RANGING

'RADAR', the code name for radio detecting and ranging, has been officially revealed to be one of the foremost scientific developments of the War, according to a statement issued by the Western Electric Co. (*Bell Lab. Rec.*, **21**, No. 10; June 1943). An electronic instrument projects a beam of radio impulses, and these impulses reveal the presence of distant objects by rebounding to the observer. When trained on enemy aeroplanes, still so distant as to be beyond the reach of anti-aircraft guns, 'radar' reports their presence. The system is, of course, unaffected by darkness, clouds or fog.

Under the name of radiolocation the method was credited by Lord Beaverbrook with winning the Battle of Britain. In the South Pacific, according to the article in the *Bell Laboratories Record*, it has been responsible for enemy losses of millions of dollars' worth of ships, aeroplanes and submarines. Radar was developed on the basis of years of research and experiment in electronics, independently in the United States and Great Britain, and credit for the development must be shared by many of the foremost scientific men of the two nations.

The fact that radio waves can be reflected just as