

BOOK REVIEWS

SWEDISH EDUCATORS

Educational Research and Educational Change

The Case of Sweden. By Torsten Husén and Gunnar Boalt. Pp. 233. (Wiley: New York and London; Almqvist and Wiksell: Stockholm, 1968.) 108s.

"THEY order these things better in Sweden" has long been an assumption among educational theorists. The value of this book is that it provides English readers for the first time with a detailed discussion of some of the investigations on which the Swedish contribution to current educational thinking has been based. As in many compilations of this sort, the level at which the different chapters are pitched implies a very varied readership. Much of the first chapter and the first part of the third chapter form an excellent general introduction to the problems of school reform for the general reader, but may be tediously familiar to the specialist. The second chapter on curriculum research and particularly the sixth chapter on assessing the reserves of ability, in which Harnqvist's researches using the "probability" method are described and criticized in great detail, will leave the general reader somewhat baffled but are of great interest to the specialist.

The parallels with our own problems, particularly in connexion with the move towards comprehensive secondary education, are very clear. If it is true, and obviously true, that one cannot apply Swedish findings blindly to English situations, it is equally true that the areas and methods of enquiry described in this book provide many suggestions for English theorists and reformers. Particularly interesting here is the short chapter on "Teachers' Attitudes". There is a problem here which our reformers have not seriously investigated and which perhaps they should. The evidence from a great number of enquiries on streaming in schools, reported in the Unesco survey edited by Alfred Yates, is inconclusive except in so far as it indicates that any system in which the teachers operating it fervently believe is likely to work better than any system which they conceive to have been imposed on them. Because, in general, teachers believe, perhaps not fervently but at least tenaciously, in the system to which they are accustomed, while a majority are likely to consider any new system as one which has been imposed, it might be possible to conclude that no system should ever be changed. The Swedish evidence does not bear out this gloomy conclusion. While initially the reforms met with very considerable opposition from teachers, Marklund's investigations showed that this diminished as the reforms were better understood. More recent reports appear to indicate that within the space of ten years the opposition has almost faded away.

The book, then, is a valuable small addition to an educational library. Its main theme is the statistical analysis, to which we have become accustomed from Swedish educators, of the inter-relation between social class and educational opportunity, but it is useful to have the details of so many investigations brought together in English and in convenient form. What is disappointing is the price and the carelessness of the production. If more than five guineas is charged for a book of 233 small pages,

it would surely not be unreasonable to expect an index. The proof reading has been lamentable. Again at this price it really will not do to spell Ejnar Neymark once as Neymark and once as Newmark in the same paragraph (page 87). True, the book is in a foreign language and the authors cannot be blamed, but an undergraduate hired by the publishers for the cost of one copy could have corrected at least twenty misprints.

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COMPLEX FUNCTIONS

Complex Function Theory

By Maurice Heins. (Pure and Applied Mathematics: A Series of Monographs and Textbooks, No. 28.) Pp. xv + 416. (Academic Press: New York and London, 1968.) 93s. 4d.

PROFESSOR HEINS started his career as a pupil of the doyen of American analysts, Marston Morse, and collaborated with him in research. He has a high reputation both as teacher and as investigator. In 1962 he contributed to the Athena series an exposition of "Selected Topics in the Classical Theory of Functions of a Complex Variable" which kindled the interest and widened the range of young graduates. He now presents a systematic course of complex variable theory. Mathematicians will expect from Professor Heins a book which is both scholarly and well conceived pedagogically, and their expectations will be fulfilled.

The presentation of complex function theory to honours classes in the years after 1945 (say) changed its character from the prevailing pre-war pattern. In the 1930s it came to be recognized that topological rigour must be observed besides analytical rigour. For instance, the index of a circuit γ for a point c came to be defined as

$$\frac{1}{2\pi i} \int_{\gamma} \frac{dz}{z-c}$$

whereas it had formerly been apprehended from a diagram as "the number of turns that γ takes round c ". Moreover, the essence of Cauchy's theorem came to be seen as the invariance of $\int_{\gamma} f$ for displacements of the curve γ within the region in which f was analytic.

The outstanding evangelist of the 1950s was Ahlfors whose *Complex Analysis* (1953), based on his Harvard lectures, fulfilled his declared aim to be "concise and rigorous, teachable and readable". Another different presentation was adopted by H. Cartan in Paris from 1957 and the English text of his course appeared in 1960. For the past ten years, homology and/or homotopy have been *de rigueur* for any writer who is expounding complex function theory as pure mathematics and not simply as a tool for calculations.

The book of Heins is in two parts. The first is designed as a basic course of complex function theory and covers in about 200 pages (chapters 1 to 7) what any undergraduate (or young graduate) must learn. The first part also contains chapter 8 on meromorphic functions and the ninth chapter in which the student is rewarded with the *bonne bouche* of the prime number theorem.

In forming an impression of the first part it is natural to scrutinize the fifth chapter which contains Cauchy's theorem and some of its immediate consequences. The proof of Cauchy's theorem, in the "homotopic form", uses a neat argument of F. M. Stewart. In this chapter, as elsewhere, many theorems are stated as exercises, with or without outlines of solutions. My preference would have been for a more systematic chain of theorems, with proofs, which would have formed a clear framework for the average honours undergraduate. For instance, Cauchy's integral formula and the startling property that, if a function has a derivative of the first order, it has