HARDY, G. H., AND WRIGHT, E. M., *An Introduction to the Theory of Numbers* (Fourth Edition) (Clarendon Press: Oxford University Press, 1960), 421 pp., 42s.

The fourth edition of this famous book differs only slightly from the third edition. Some of the notes and several sections have been altered to include information on recent results and in particular to note arithmetical results obtained by the use of electronic computers. In the latter category there is in Section 2.5 the latest information on the largest known prime (the corresponding note in the third edition appeared in the Notes to Chapter I) and in the Notes to Chapter XIII there is the latest statement on Fermat's Last Theorem and other Diophantine equations.

There are new or revised proofs of several theorems, including some simplification in the proofs of certain identities in Sections 19.8 and 19.9 in Chapter XIX, the chapter on partitions. There is also in Section 19.12 of this chapter a note on the recent work on partitions by Atkin and Swinnerton-Dyer.

The postscript on prime-pairs is now incorporated in the text as Section 22.20. Also an index of the names occurring throughout the book has been added. The reviewer feels that it would have been better to have produced instead, or, in addition, some form of general index. The aim of the list of books given on pages 414 and 415 might also be altered so that some of the more recent books could be included. These are however very minor criticisms. The book remains unique among books on Number Theory, with its wealth of material and its erudite and interesting comments on a great variety of topics.

J. HUNTER

SCHNEIDER, TH., *Introduction aux Nombres Transcendants,* translated by P. EYMARD (Gauthier-Villars, Paris, 1959), 151 pp., 3500 F.

This is a translation into French of the excellent book written in German by Dr. Schneider on transcendental numbers. The book gives an up to date study of a subject which, although now fairly classical, is very much alive and has seen several important advances in the last twenty years. The presentation and style are very pleasant.

The book contains good historical notes. Its aim is to present general methods, e.g. use of interpolation series, rather than particular methods applicable only to special problems. The bibliography covers the main results in the subject which have appeared during roughly the last hundred years. The work is presented in five chapters.

Chapter I contains methods of constructing transcendental numbers. The simplest is based on the approximation theorem of Liouville. A much more sophisticated result is based on a generalisation of the famous Thue-Siegel-Roth Theorem.

In Chapter II the main results are concerned with the transcendentality of numbers determined by certain types of functions.

Chapter III discusses the separation of transcendental numbers into classes, the classifications due to Mahler and Koksma being described and compared.

Chapter IV contains ideas on measuring the transcendentality of transcendental numbers and on approximating to such numbers by algebraic numbers.

Chapter V contains Siegel's method of discussing algebraic independence of transcendental numbers. This is not given in its full generality; only enough is given to prove Lindemann's Theorem and Siegel's results on values of Bessel functions.

On pages 139 and 140 eight unsolved problems are listed.

In an appendix, certain results on diophantine problems involving systems of linear equations and systems of linear inequalities, which were used in the earlier work, are proved.

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