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An introduction to the theory of numbers, by G. H. Hardy and E. M. Wright, Clarendon, Oxford, 1938, 16 + 403 pp.

As the authors have taken pains to describe—too modestly—the nature of their work, we quote from their preface.

"This book has developed gradually from lectures delivered in a number of universities during the last ten years, and, like many books which have grown out of lectures, it has no very definite plan.

"It is not in any sense (as an expert can see by reading the table of contents) a systematic treatise on the theory of numbers. It does not even contain a fully reasoned account of any one side of that many-sided theory, but is an introduction, or a series of introductions, to almost all of these sides in turn. . . . There is plenty of variety in our programme, but very little depth; it is impossible, in 400 pages, to treat any of these many topics at all profoundly."

Those who had the pleasure of hearing the senior author's lectures when he was in the United States ten years ago, will have pleasurable anticipations of what to expect; nor will they be disappointed. The book is like no other that was ever written on the theory of numbers, as an introduction or as a treatise; although Edouard Lucas might have written something like it had he been primarily interested in the analytic theory and were he living today. Some of the topics treated have been frequently discussed in the English and German journals of about the past decade. As might be anticipated from the authors' interests, analysis dominates much of the material. The treatment throughout, even of old things, is fresh and individual.

. . .

As the last of the authors' introductions, we mention Chapter 13 on certain Diophantine equations ($x^n + y^n = z^n,\ n = 2, 3, 4$), the expression of m as a sum of rational cubes, $x^3 + y^3 = 3z^3$, and equal sums of two cubes.

The foregoing sample from the two dozen chapters covering 400 pages may give some idea of the extraordinary richness of the material, and suggest the justice of the authors' own characterization of their work as "a series of introductions" to a vast and many-sided theory. They have presented these introductions in a manner that should stimulate a reader to continue beyond some of them; and it seems safe to say a great deal more than what they themselves say, "we can hardly have failed completely, the subject-matter being so attractive that only extravagant incompetence could make it dull." The book is anything but dull; in fact it is as lively as the proverbial (not the English) cricket.

E. T. Bell

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