SOME PROBLEMS OF 'PARTITIO NUMERORUM'; III: ON THE
EXPRESSION OF A NUMBER AS A SUM OF PRIMES.

BY

G. H. HARDY and J. E. LITTLEWOOD.
New College, Trinity College,
OXFORD, CAMBRIDGE.

I. Introduction.

1.1. It was asserted by Goldbach, in a letter to Euler dated 7 June, 1742, that every even number $2m$ is the sum of two odd primes, and this proposition has generally been described as 'Goldbach's Theorem'. There is no reasonable doubt that the theorem is correct, and that the number of representations is large when $m$ is large; but all attempts to obtain a proof have been completely unsuccessful. Indeed it has never been shown that every number (or every large number, any number, that is to say, from a certain point onwards) is the sum of 10 primes, or of 1,000,000; and the problem was quite recently classified as among those 'beim gegenwärtigen Stande der Wissenschaft unangreifbar'.

In this memoir we attack the problem with the aid of our new transcendental method in 'additive Zahlentheorie'. We do not solve it: we do not


2 We give here a complete list of memoirs concerned with the various applications of this method.

G. H. Hardy.


2. 'On the expression of a number as the sum of any number of squares, and in particular of five or seven', Proceedings of the National Academy of Sciences, vol. 4 (1918), pp. 189--193.

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