November 1, 1941

Dear Hardy,

Thanks for your letter.   I am glad to know that the odd
fact I have found is at present just an odd fact, and is not
obvious from any standpoint yet familiar.   One direction in
which I had allowed myself to speculate is that

$$513 \quad 512 + 1 = 262657$$

and that this is a factor of $2^{513}-1$, since it is a factor also
of $2^{27}-1$.   Consequently an analogous, though not an identical,
situation would be produced if there were a prime p such that
$p^{19}-1$ were divisible by 262657. Possibly, however, the analogy
is too weak a one to be worth pursuing.

I clearly have not yet grasped the effective working ideas
for this sort of problem, since I cannot see any general method
even for the following problem, which I guess must surely be
soluble, namely, if p is a prime, to choose $p + 1$ out of
$p^2 + p + 1$ objects in a ring so that all distances occur once
only. One might hope that this would be easier than the cor-
responding problem when a power of a prime is substituted for p

Yours sincerely,