Dr. **RUDOLF ONDREJKA**
620 W. Revere Avenue
Linwood, New Jersey 08221

15 May 1976

Bell Laboratories
N.J.A. Sloane
600 Mountain AVE.
Murray Hill, N.J.   07974

Dear Mr. Sloane:

   Thank you for Supplement I to the Handbook and for your other authored
papers. In the Supplement, there was a "bonus" for me. Among several sequences
were large primes to be found. As a hobby, I collect large prime numbers, like
others collect rare coins or stamps or butterflies. However, the primes I search
for have to be at least 100 digits or more in length. Was able to find six of
them in the Supplement.

   Are you aware of the following sequence:

(3) (5) (7) (11) (13) (17)
1.) 111, 11111, 1111111, 11111111111, 1111111111111, 11111111111111111,

(29)
11111111111111111111111111111, 1111111111111111111111111111111, ... etc.   A 259102

Could be described as: Composite repunits composed of prime number of 1's.
Quite a bit of work has been done in searching for prime repunits : $\dfrac{10^P - 1}{9}$, p = prime.

Of the first 76 primes only 3 repunits have been found prime: p = 2, 19, 23.
A recent writeup and extending the range considerably, can be found in <u>Mathematics</u>
<u>of Computation</u>, but offhand I don't recall the issue or author as this was
several years ago.

   In Seq 589, could it not be better described as: <u>Total No.</u> of Permutations
of N Things; or $P_n = nP_{n-1} + 1$. Do you happen to know the extent of this
sequence? I have computed the first 53 terms.   A522

   In Seq 497, I can give you the next 2 terms in extending it, but they
they have respectively 78 and 155 digits.   A 1146

                                              Sincerely,

                                              Rudolf Ondrejka

July 8, 1976

Dr. Rudolf Ondrejka
620 W. Revere Avenue
Linwood, New Jersey   08221

Dear Dr. Ondrejka:

Thank you for your letter of May 15 (I have been away). I am glad you found some more large primes for your collection (from the Supplement). I agree with your comments about Seq. 589.

With a multiple-precision integer package it is easy to compute Seqs. 589, 497 etc. up to terms with thousands of digits, using a computer. But there is a large number of sequences in the book where I don't have enough terms to fill up two lines, and if you feel like computing some of these I would be very grateful.

With best wishes.

Yours sincerely,

MH-1216-NJAS-mv   N. J. A. Sloane