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July 12, 1971

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

Dear Dr. Sloane:

I was on vacation when your fascinating Catalog of Sequences arrived, so Mrs. Potter sent me a copy of a portion of it. It competed favorably with the attraction of the Canadian Rockies. However, the report will cost me many hours of sleep, since there is a lot of mathematics implied that is unfamiliar to me.

We could have used a copy of your catalog years ago. For example, Prof. J. R. Woodyard of the University of California Electrical Engineering Department posed a problem in cable splicing. Prof. Herbert Robbins, who was here at the time, provided a solution. It is the sequence given in Ref. 33 of UCRL-20418, and referred to in the Introduction of your Catalog as Bell numbers. They may have been well known, but not by us! A second sequence resulting from a problem in cable shielding, also asked by Prof. Woodyard, turns out to be the 14th sequence on page A-12. Incidentally, it perhaps would be convenient for the user if the sequences were assigned a serial number, either starting with 1 at the top of each page or numbering consecutively throughout the table.

Regarding corrections and additions to your catalog, I would mention the following:

1. On page 2, line 5, the sequence is defined as 2^{n-1}, and on page A-2, line 4, the same sequence is defined as 2^n. Either is correct according to 4(C), page 3, but it seems confusing.

2. Page A-6, line 10 and page A-7, line 28. The list of Mersenne primes has been extended. The latest term would be 19937, I think, for line 28.

3. Page A-6, line 34. There is a perfect number for each Mersenne prime. The last (latest) term is, I think, 12003.

4. Lehmer's cotangent sequence, 1, 3, 13, 183, 33673, ..., may qualify for your catalog. See D. H. Lehmer, Duke Math. Soc. 4, 334 (1938).

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5. Enclosed is a sequence based on cutting a cake. I neglected to save the reference, but it may have been Martin Gardner in Scientific American. The sequence is the same as page A-11, line 40, up to your last entry of 140. Could this last number be in error? The first differences are your sequence on page A-11, line 3. The two references are the same.

6. Partitions, p(n), of n are listed. The partitions of n omitting 1 are given by r(n) = p(n) - p(n-1), and would be, for your table, 1, 2, 2, 4, 4, 7, 8, 12, 14, 21, ... See r(n), page 80 in UCRL-20418.

   I encountered this partition ten or fifteen years ago in connection with a power series expansion of an equation describing the growth and decay of an element in a radioactive chain.

7. The four sequences which are the partial quotients of continued fraction expansions of 2.30384 ..., 3.30384 ..., 2.22475 ..., and 3.44935 ..., in UCRL-20418 may also qualify. The sequences were first determined by means of the recurrence relations on pages 176-178, then the decimal values were calculated from the continued fractions thus formed.

8. Possibly some of the integer sequences in Table IV of UCRL-20418 would be worth including in your catalog.

9. Page A-60, Ref. B11, for COLLOQUIM read COLLOQUIUM.
   Page A-63, Ref. R1. For JONN read JOHN.

I should mention that Prof. D. H. Lehmer saw your catalog and was intrigued by it.

Enclosed is another copy of UCRL-20418 with a more durable cover and more appropriate title, which I am sure you can appreciate. If you know of others who would like a copy of the report, let me know.

A final question: What will be the next inverted mathematical table?

Sincerely,

Herman P Robinson

Herman P. Robinson

HPR:bmc

P.S. Dr. Wrench has provided two more corrections to our table:

Page 6, 0.01582 ..., last five digits should be 11201 instead of 11200.

Page 8, 0.03154 ..., last six digits should be 602466 instead of 580412.

Note: My title is not Prof. nor even Dr. I am an engineer with the Chemistry Dept. of Lawrence Berkeley Laboratory. The name has recently been changed from L. Radiation Lab.

HPR.