Scan ~~A3477~~
A3471
(delicate) + many

John Riordan
~~[illegible]~~ 2 letters + 2 pages
1974

5 pages

add to ~~many~~ 8 sequences
9 many

(8) f91 N98

A3471 ~~283~~ 2083
A316 3470
A459 3481
A1788 3482
Oct. 24, 1974 A1818
A3472 A248
A245094 A1792
A259859 A1333
A129
A59300
A1858
A138464
A1862

Neil Sloane, Esq.
Bell Laboratories
Murray Hill, New Jersey 07974

Dear Neil:

Thanks for sending the Lucas pages so promptly. In trying to make sense of them, I ran into the following, for the Handbook

1. The number of permutations of n with hits [illegible] the main diagonals ($A_n(0)$ of L.C.A, prob 9 [illegible]) is not one of Lucas' and does not appear in [illegible]. It starts

3168
459
3471

n	3	4	5	6	7	8			
$= A_n(0)$	0	4	16	80	672	4752	48768	440192	5380160
		1	4	20	168	1188			

$A_7(0)$ is given incorrectly in ICA as 528

2. Some time ago, working over Cayley on partitions, I ran into the sum $\binom{l+1}{n} = \sum a_{nk} \binom{l}{n-k}$, which entails $a_n(x) = 2a_{n-1}(x) + x a_{n-2}(x)$, $a_0(x) = 1$, $a_1(x) = 1+2x$. $a_n(1)$ is sequence ~~1064~~ A1333; $a_{n0} = 2^n$, $a_{n1} = (n+1)2^{n-2}$ is sequence 1100. Should it be noted that 1100 is $(n+1)2^{n-2}$? A1792

3. The same polynomial with $a_0(x) = 1$, $a_1(x) = 2$, has $a_n(1)$ as sequence 552, $a_{n1} = (n-1)2^{n-2}$ as 1318, $a_{n2} = \binom{n-2}{2}2^{n-4}$ as 1729, A129 $\binom{n-3}{3}2^{n-6} = a_{n3}$ as 1116, $a_{n4} = \binom{n-4}{4}2^{n-8}$ does not appear: 1, 10, 60, 280, 1120, 4032, 13440 = A3472

[illegible] these [illegible] are [illegible] $a_n(x) = \sum \binom{n-k}{k} 2^{n-2k} x^k$

[redacted]

[illegible]

[redacted]

J. Riordan

N297 = 2083

3470
3481
3482

1979

Mr. N. J. A. Sloane, Esq.
Bell Laboratories
Murray Hill, New Jersey 07974

Dear Neil:

Here are some more sequences (promised in my letter ...).

1. Random Tournaments sequence 297. I ran into the paper by Capell & Narayana which you reference and found they had neglected the simple recurrences implicit in their definitions. If T_n is the number, their definitions may be compressed to

$T_1 = 1$, ... $T_{2n} = ...$ $n \geq 2$

$T_{2n+1} = 2T_{2n} - T_n$ ...

n	1	2	3	4	5	6	7	8	9	
T_{2n}	1	2				31		52	2017	(A245094)
$2T$	2	4		74	168	664	2616		4152	
T_n	1	1	1	2	3	6	11	22		A2083
T_{2n+1}	1	3						398	4155	

N297

f91

2. ... $d_{n+1} = 2d_n$ ...

A3470

3470 =

N1109.5

A3470 — new

A259859

f91

N297 2083

f91

Ent^d 3470

f91

from Riordan's letter but not used

.null.

.null.)

DO

Lib.

3. A paper by S.M. Tanny and M. Zuker, [illegible] Discrete Math, 1978 [illegible] contain [illegible]

[illegible] the [illegible]

3	4	5	6	7	8	9
143	986	6764	46367	317810	2178308	14930351

[illegible] reprint and I found

[illegible] $f_0 = f_1 = 1$, [illegible]

$$r_{k+2} = 7r_{k+1} - r_k + 4, \quad k = 1, 2, \ldots$$

[illegible] mial coeff [illegible] table

$3451^2 = N83785$ [illegible] N16.

8 + I enclose two tables which might have been included in [illegible]

Fig: [illegible] Fig: [illegible] The second [illegible] least heights [illegible] energy [illegible] the first

A1818

1997. 3. Your sequence 1997, for which the [illegible] Factorial Numbers (Familiar Identities, 2.15) [illegible]

1818 [illegible] which [illegible] 2.33 [illegible] I certainly [illegible]

[illegible] denoted by e_{2n} [illegible] from [illegible]

[illegible] the table for odd cycles (Handbook #1137)

Of course [illegible]

7. [illegible] Since you mentioned not having some of my reprints [illegible] didn't say which ones. If you let me know, [illegible]

[illegible] I can find something

Yours

John

3-2 (12-55)

Riordan and [redacted] Tables of [redacted] $= \sum \binom{n}{k} h^{n-k} x^k$

$L_n(x) = Y_n(\alpha, [redacted], mx$

$L_n^*(x) =$

[redacted]

	$L_n(x)$	1	1	3	10	[illegible]
	$k \backslash n$	0	1	2	3	[illegible]
	0	1				
	1		1	2	3	
#1729	2			1	6	
Not in H	3				1	
" H	4					
"	5					

[redacted]

$L_n^*(x)$	0				
	1	1	2	7	
	2	1	1	3	
	3		1	3	
	4			1	

$L_n^*(x)$

— Have N 1149

— Have N 1729

A 18 [illegible]

— Have

— A 1862

when corrected

$F_{n}(x) = B(x)\,(n + B(x))^{n-1} = Y$

$A_n^x(x) = x \sum_{0} \binom{n}{j} T_{n-j} A_j^x(x)$ … $(xT_1, \ldots, xT_n)$ $T_n = n^{n-2}$ $A_0^x = 1$

$A_{n1}^x = n^{n-2}$

$A_{n2}^x = \frac{1}{2}(n+b)(n-1)\,n^{n-4}$

…ts of Free Trees

$A_n^x(1)$	1	2	7	38	291	2932	36961	561998	10826505	[illegible]
k\n	1	2	3	4	5	6	7	8	9	10
1	1	1	3	16	125	1296	16807	224384	3687609	[illegible]
2		1	3	15	110	1080	13377			
3			1	6	45	435	5250			
4				1	10	105	1295			
5					1	15	210	3220		
6						1	21	378	7056	[illegible]
7							1	28	430	144
8								1	36	99
									1	[illegible]

A1858

A138464

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26