The Scales of Mt. Meru

$$A_n = A_{n-2} + A_{n-1}$$

$$\frac{A_n}{A_{n-1}} \text{ converges on } 1.618033989\ldots$$

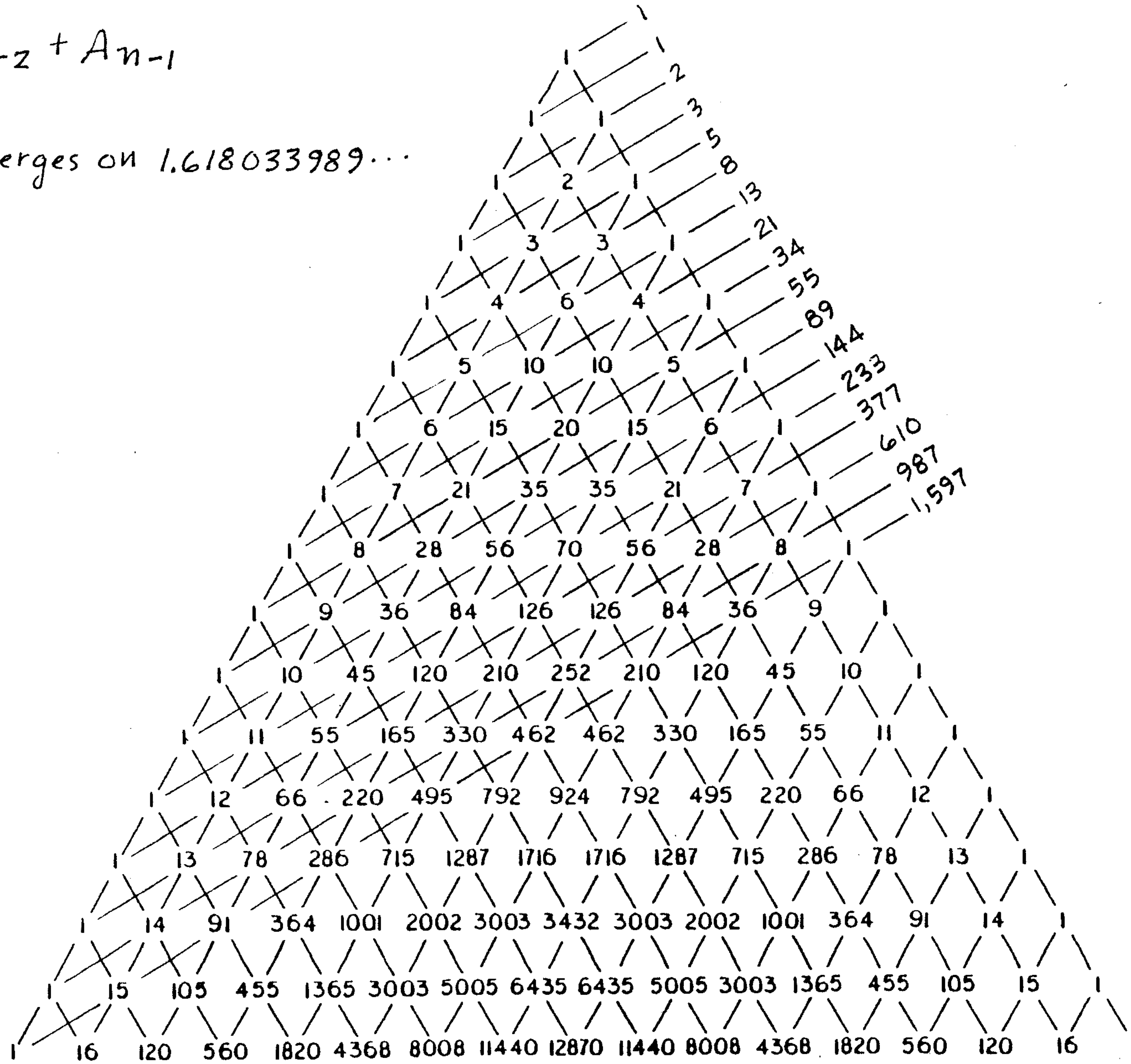

Fig 1

Ref: "On the use of series in Hindu Mathematics"
A.N. Sing, Osiris Vol I, pp 623-624, 1936
"Recurrent Sequences and Pascal's Triangle"
Thomas M. Green, Mathematic Magazine Vol. 41, 1968

Meru 1 1.618 033988 75..

Log_2 - .694 241913631..

1/x Pattern

		.694
←	1	.440
→	2	.270
←	3	.696
→	1	.436
←	2	.289
→	3	.448
←	2	.228
→	4	.373
←	2	.676
→	1	.478
←	?, (2	.088)
	? (11	.357)

0/1

Zig-Zag Pattern

1/1 → 1/2 → 2/3 → 3/4 → 5/7 → 7/10 → 9/13 → 16/23 → 25/36 → 34/49 → 59/85 → 84/121 → 109/157 → 193/278 → 277/399 → 470/677 → 663/955 → 856/1233 → 1049/1511 → 1905/2744 → 2761/3977 → 4666/6721 → 7427/10,698 → 10188/14675 → 11 places ?

7/10	.0057
9/13	.0019
16/23	.0014
25/36	.0002
84/121	.0000 2
193/278	.0000027
856/1233	.0000002
1905/2744	.00000007
2761/3977	.000000023
4666/6721	.000000015
7427/10,698	.0000000001

$B_n = B_{n-3} + B_{n-1}$

$\frac{B_n}{B_{n-1}}$ converges on $1.465571232\ldots$

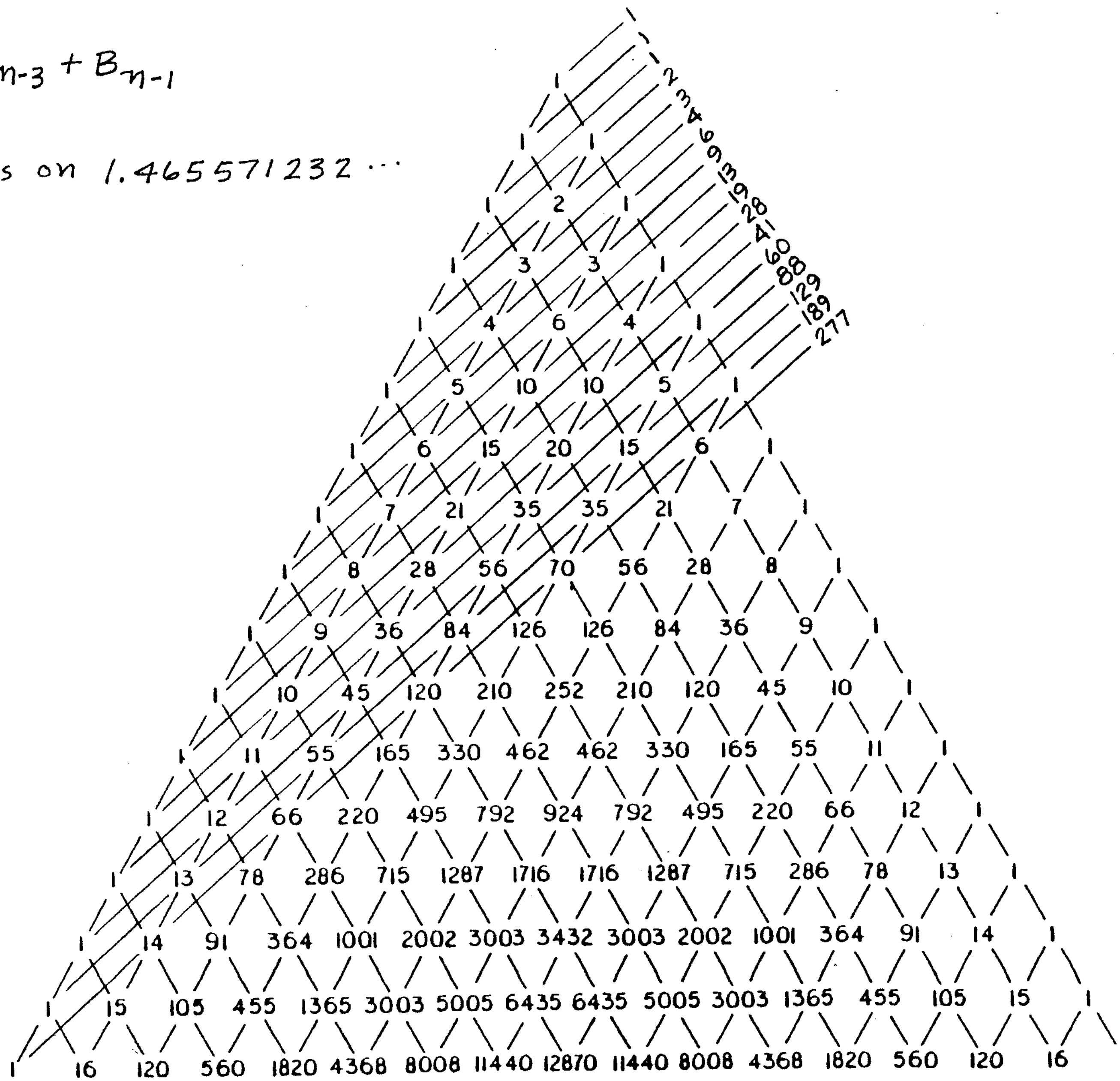

Fig. 2

Meru 2 , 1.46557123188…

$\log_2$ .551463089748…

1/N Pattern		
		.551
←	1	.813
→	1	.229
←	4	.357
→	2	.794
←	1	.258
→	3	.865
←	1	.155
→	6	.423
←	2	.361
→	2	.766
?	(1	.305
?	3	.274)

Zig-Zag Pattern

0/1 1/1

1/2

2/3

3/5

4/7

5/9 .004

6/11

11/20

16/29 .0002

27/49

43/78

59/107

75/136 .0000075

134/243

209/379

284/515

359/651

434/787

.00000047 509/923

584/1059

1093/1982 .000000079

1602/2905

2695/4887 .000000024

3788/6869 .000000005

4JAN01·EW

$$C_n = C_{n-3} + C_{n-2}$$

$\dfrac{C_n}{C_{n-1}}$ converges on 1.324717957

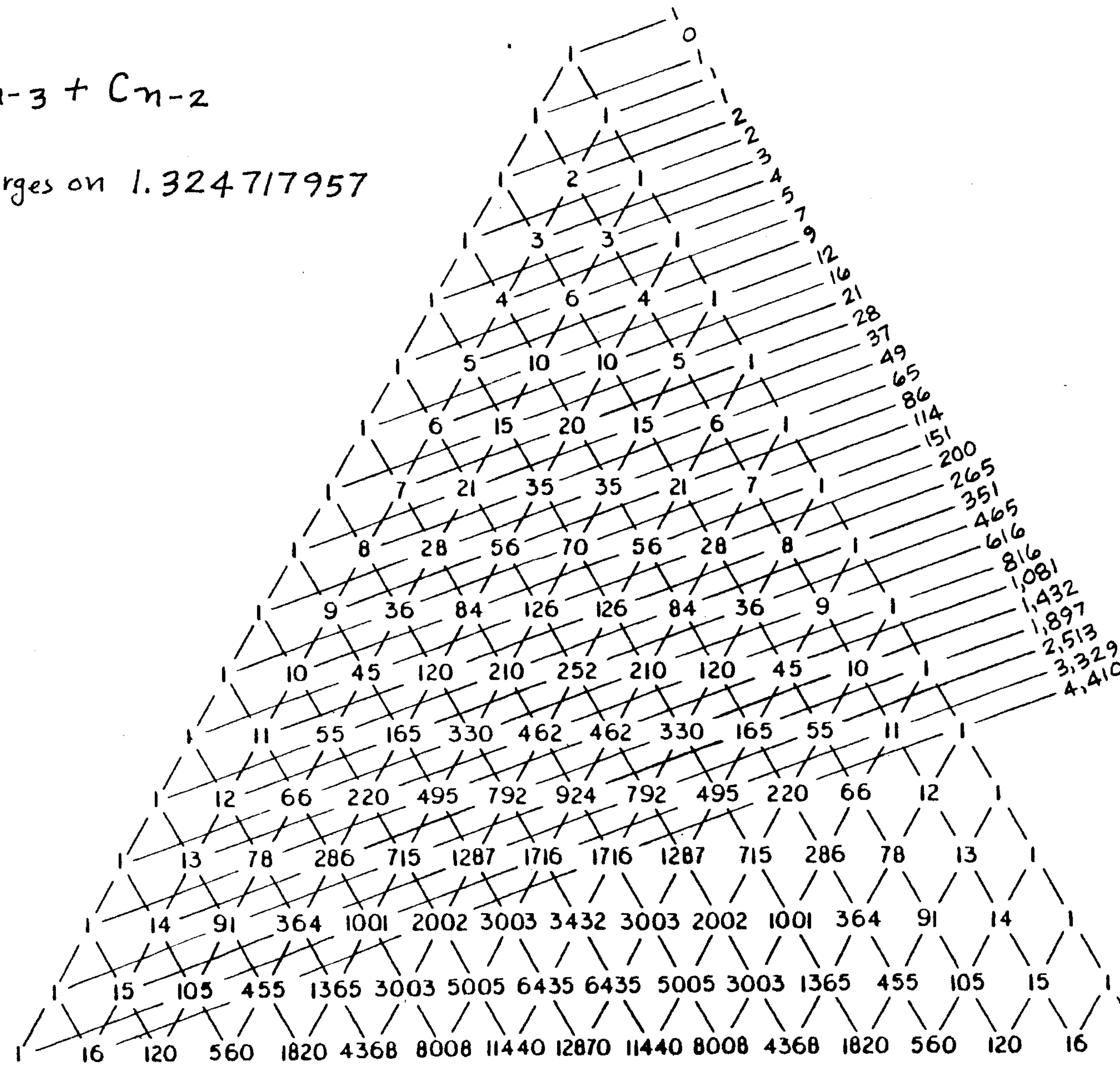

Fig. 3

Meru 3, 1.32471795725 (also Meru 6)

$\log_2$ .405685231382..

1/x Pattern

		.405
←	2	.464
→	2	.150
←	6	.635
→	1	.572
←	1	.745
→	1	.341
←	2	.929
→	1	.075
←	13	.275
? (	3	.625
?	1	.598)

Zig-Zag Pattern

0/1

1/1 ←

1/2

1/3

→ 2/5 → 3/7 −.005

5/12

7/17

9/22

11/27

13/32 .00056

15/37 −.0002

→ 28/69 .0001

(2×53) 43/106 .00002

→ 71/175

114/281

(9×43) 157/387 −.000000477

→ 271/668

(13 places)

(83×64) 2155/5312 .000000010

$$D_n = D_{n-4} + D_{n-1}$$

$\dfrac{D_n}{D_{n-1}}$ converges on 1.380277569

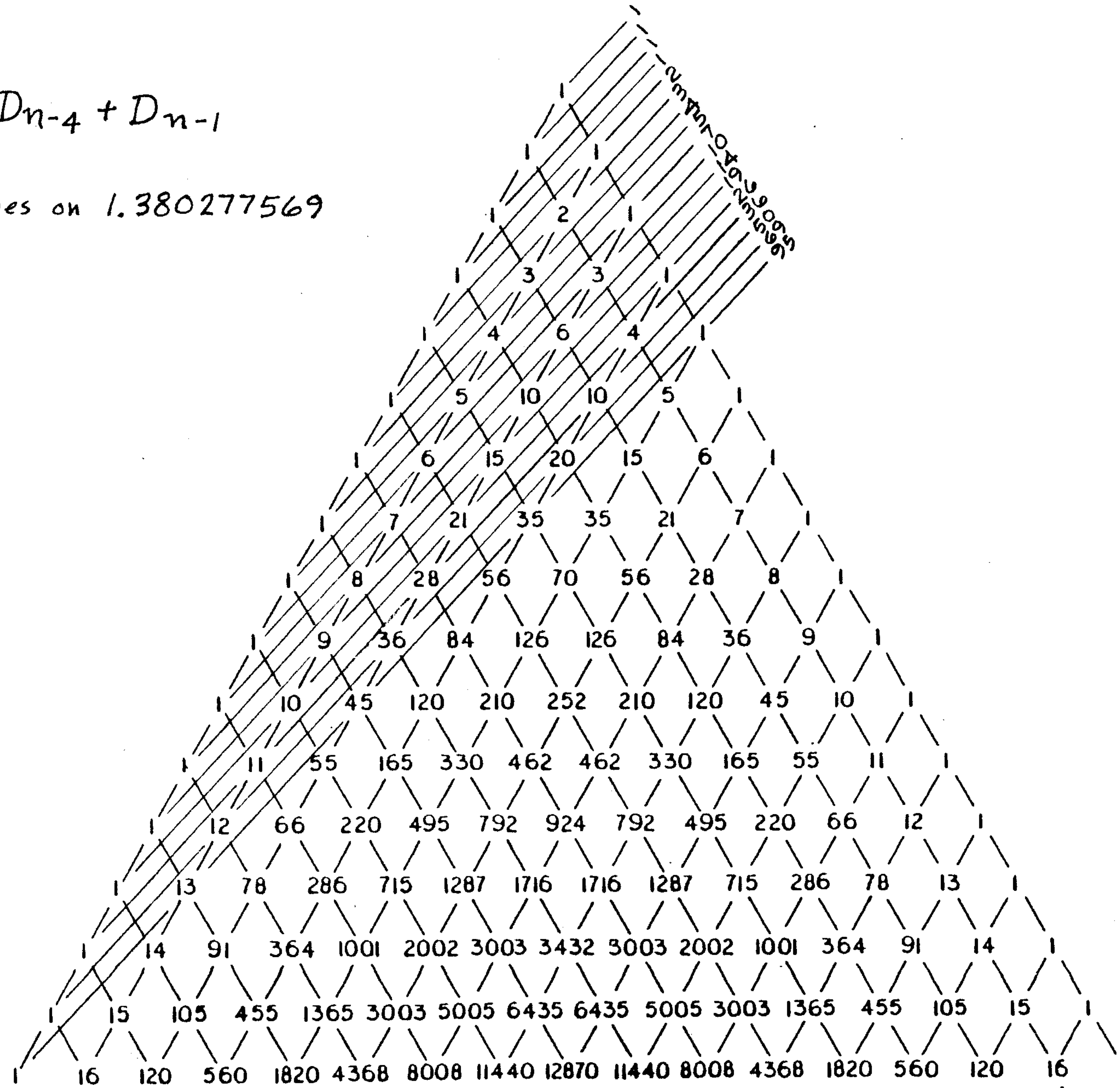

Fig. 4

(Meru 4.) 1.380277569

$\log_2$ .464958417209...

	$1/x$	
		.464
←	2	.150
→	6	.634
←	1	.576
→	1	.735
←	1	.360
→	2	.774
←	1	.290
→	3	.441
	2	.267
	3	.737
	1	.356
	2	.806

$\frac{0}{1}$ $\frac{1}{1}$

$\frac{1}{1} \to \frac{1}{2}$

$\frac{1}{3} \to \frac{2}{5}$ $\frac{3}{7}$ $\frac{4}{9}$ $\frac{5}{11}$ $\frac{6}{13}$ $\frac{7}{15}$

$\frac{7}{15} \to \frac{13}{28} \to \frac{20}{43} \to \frac{33}{71} \to \frac{53}{114} \to \frac{73}{157} \to \frac{126}{271} \to \frac{199}{428} \to \frac{272}{585}$ $\frac{345}{742}$

$$E_n = E_{n-4} + E_{n-3}$$

$\dfrac{E_n}{E_{n-1}}$ converges on 1.220744085

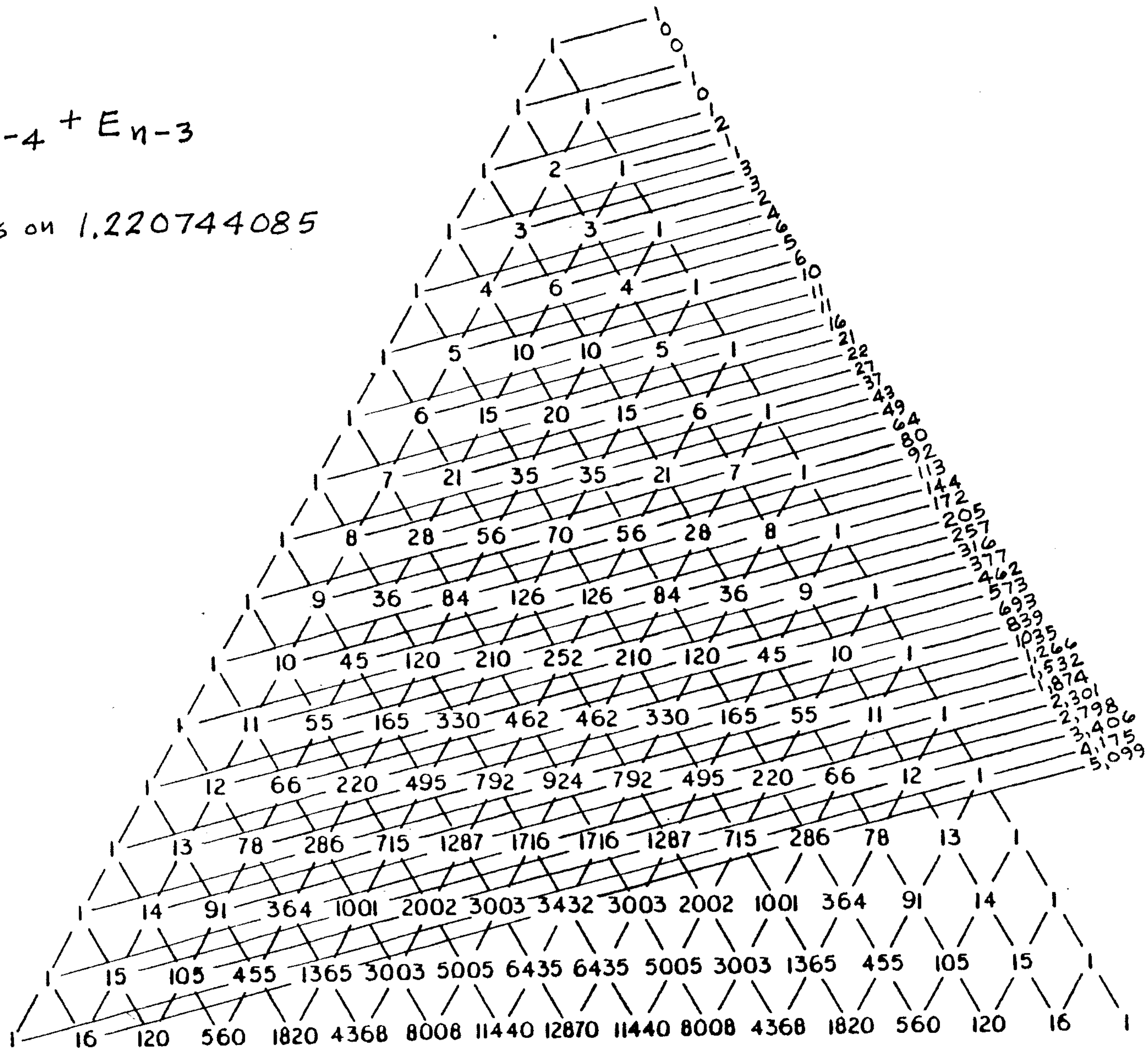

Fig. 5

Meru 5, 1.22074408461 ⋯

$\log_2 = .287760787088\cdots$

1/n Pattern

		.287
←	3	.475
→	2	.104
←	9	.543
→	1	.839
←	1	.191
	5	.227
	4	.396
	2	.525
	1	.904
	1	.105
	(9	.449)

0/1

1/1 ← 1/2 — 1/3 — 1/4 → 2/7 — 3/10 → 5/17

2/7 .002 !

7/24

9/31

11/38

13/45

15/52

17/59

19/66 .0001

21/73 .00009

→ 40/139 .000009

61/212 → 5 places etc

1 JAN01 · EW

$$F_n = F_{n-5} + F_{n-1}$$

$\dfrac{F_n}{F_{n-1}}$ converges on 1.324717957

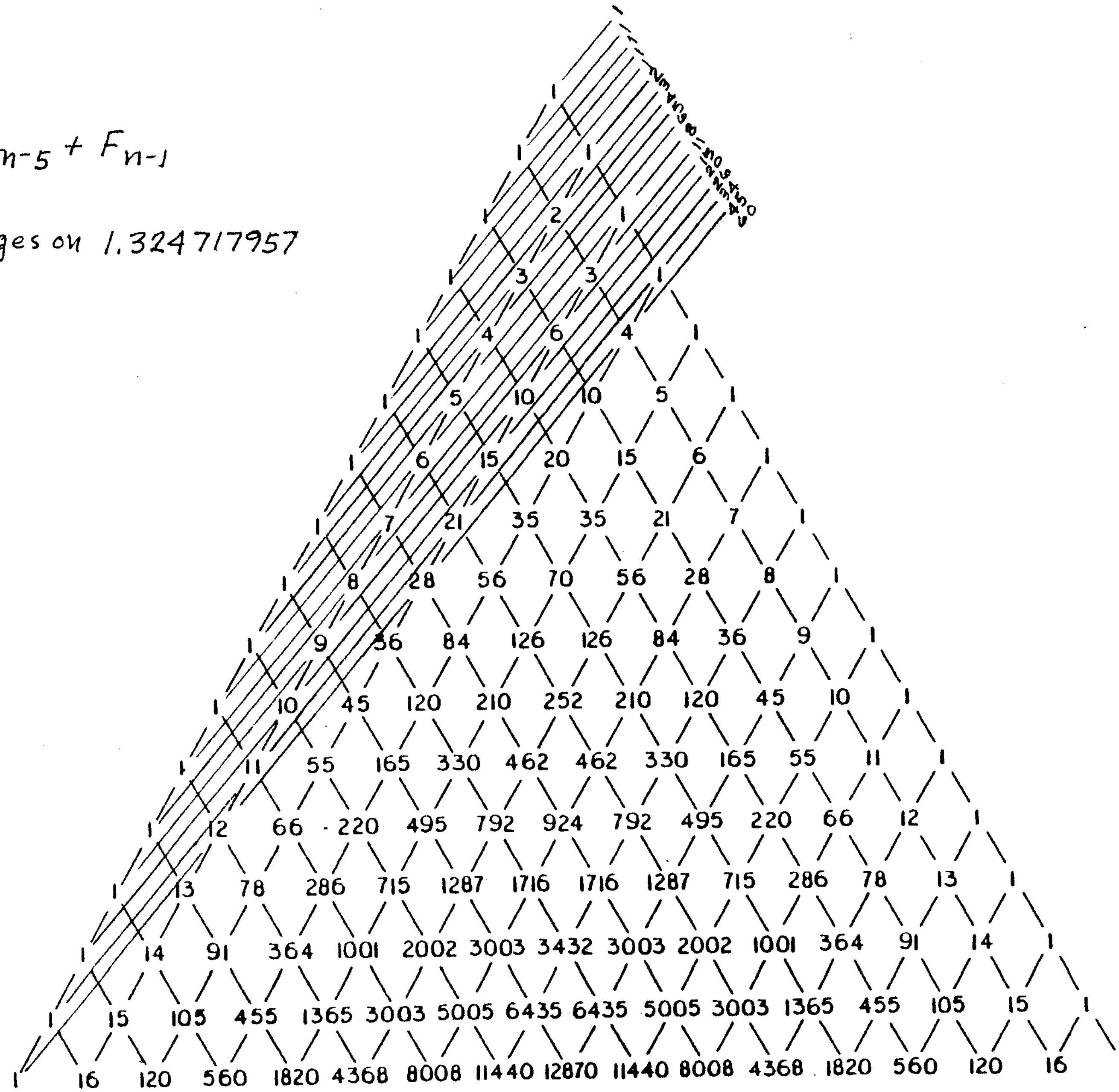

Fig. 6

Meru 3 , 1.32471795725 (also Meru 6)

Log 2 . .405685231382..

1/x Pattern

		.405
←	2	.464
→	2	.150
←	6	.635
→	1	.572
←	1	.745
→	1	.341
←	2	.929
→	1	.075
←	13	.275
?	(3	.625
?	1	.598)

Zig-Zag Pattern

0/1 1/1

1/2

1/3

2/5 -.005

3/7

5/12

7/17

9/22

11/27

13/32 .00056

15/37 -.0002

28/69 .0001

(2×53) 43/106 .00002

71/175

114/281

(9×43) 157/387 -.000000477

271/668

(13 places)

(83×64) 2155/5312 .000000010

(

$$G_n = G_{n-5} + G_{n-2}$$

$\dfrac{G_n}{G_{n-1}}$ converges on 1.236505703

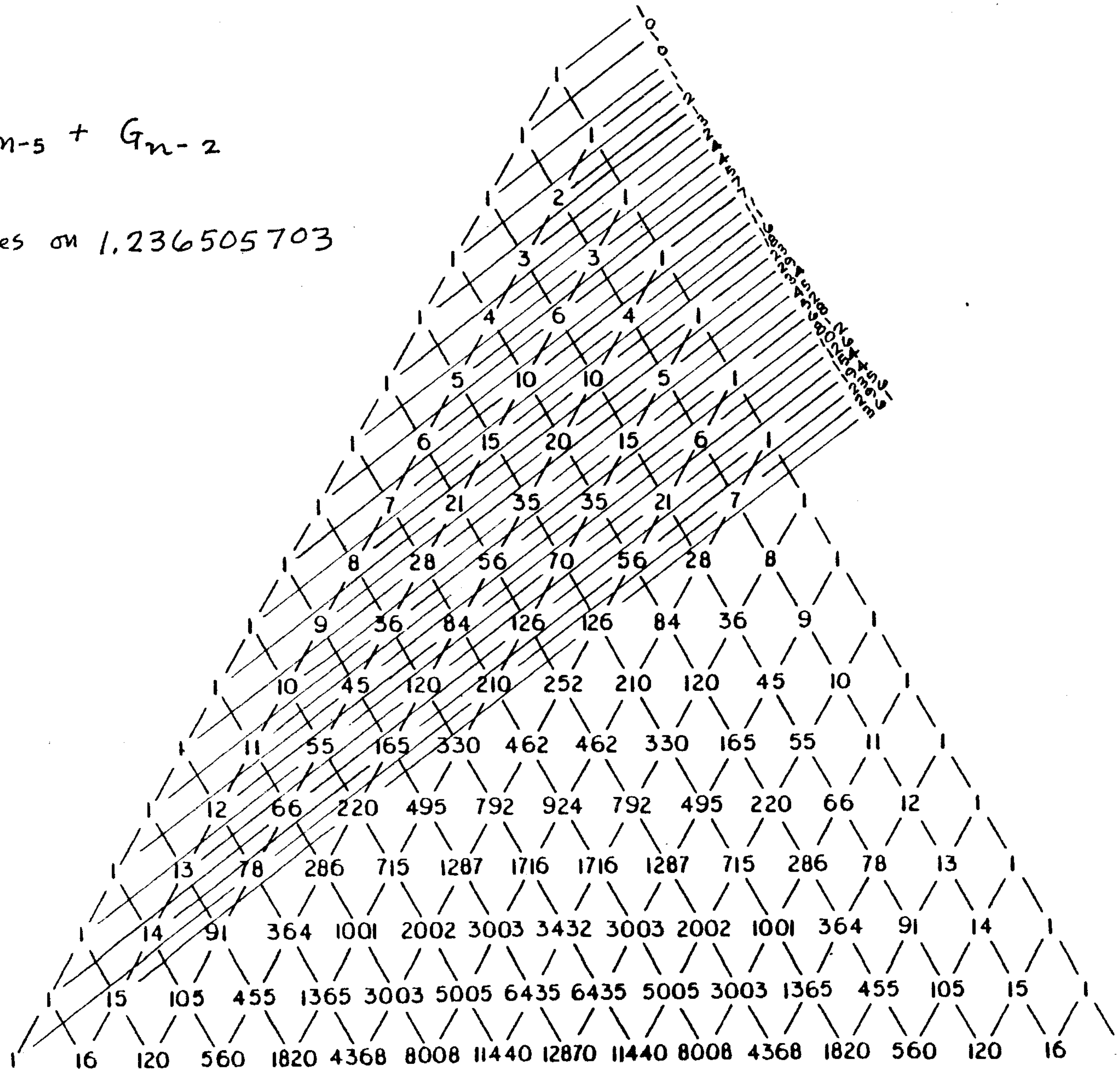

Fig. 7

Meru 7 1.23650570339...

$\log_2$ .306268894183...

	$1/x$	
		.306
←	3	.265
→	3	.772
←	1	.295
→	3	.387
←	2	.578
→	1	.727
←	1	.373
→	2	.676
←	1	.479
→	2	.086
	(11	.509)?

0/1 1/1

1/2

1/3

1/4 → 2/7 — 3/10 — 4/13 .0014

7/23 → 11/36 — 15/49 — 19/62 .0001

34/111 .00003

49/166 .00001

→ 83/271

132/431 → 215/702 — 298/973 .000001

.000000376

513/1675 → 811/2648 .000000012

→ 1324/4323

11 pl
?

$$H_n = H_{n-5} + H_{n-3}$$

$\dfrac{H_n}{H_{n-1}}$ converges on 1.193859111

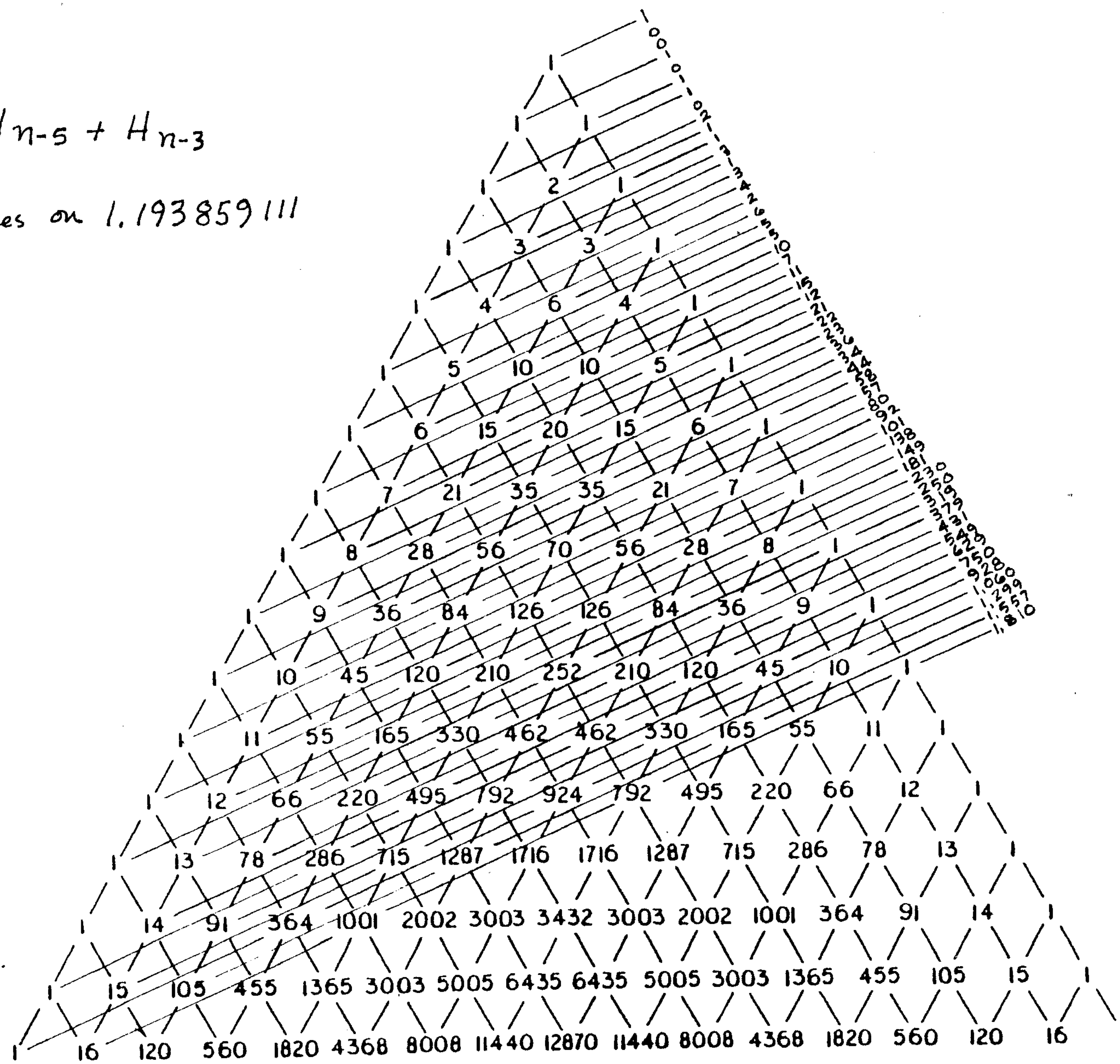

Fig. 8

Meru 8, 1.1938591113 2..

$\log_2$ .255632592555..

1/n Pattern			zig-zag
←	3	.911	
→	1	.096	
←	10	.346	
→	2	.889	
←	1	.124	
→	8	.013	
←	73	.265	
	3	.765	

0/1 1/1

1/2

1/3

1/4 → 2/7

$\frac{3}{11}$ $\frac{4}{15}$ $\frac{5}{19}$ $\frac{6}{23}$ $\frac{7}{27}$ $\frac{8}{31}$ $\frac{9}{35}$ $\frac{10}{39}$ $\frac{11}{43}$

$\frac{12}{47}$ .00018

$\frac{23}{90}$ −.000077

$\frac{34}{133}$ (7×19) .0000065

$\frac{57}{223}$

(8 places)

$\frac{295}{1154}$ −.000000010

$\frac{329}{1287}$

73 places

$\frac{21569}{84375}$ 3.7000000E-11

$\frac{21864}{85529}$

$I_n = I_{n-5} + I_{n-4}$

$\dfrac{I_n}{I_{n-1}}$ converges on 1,167303978

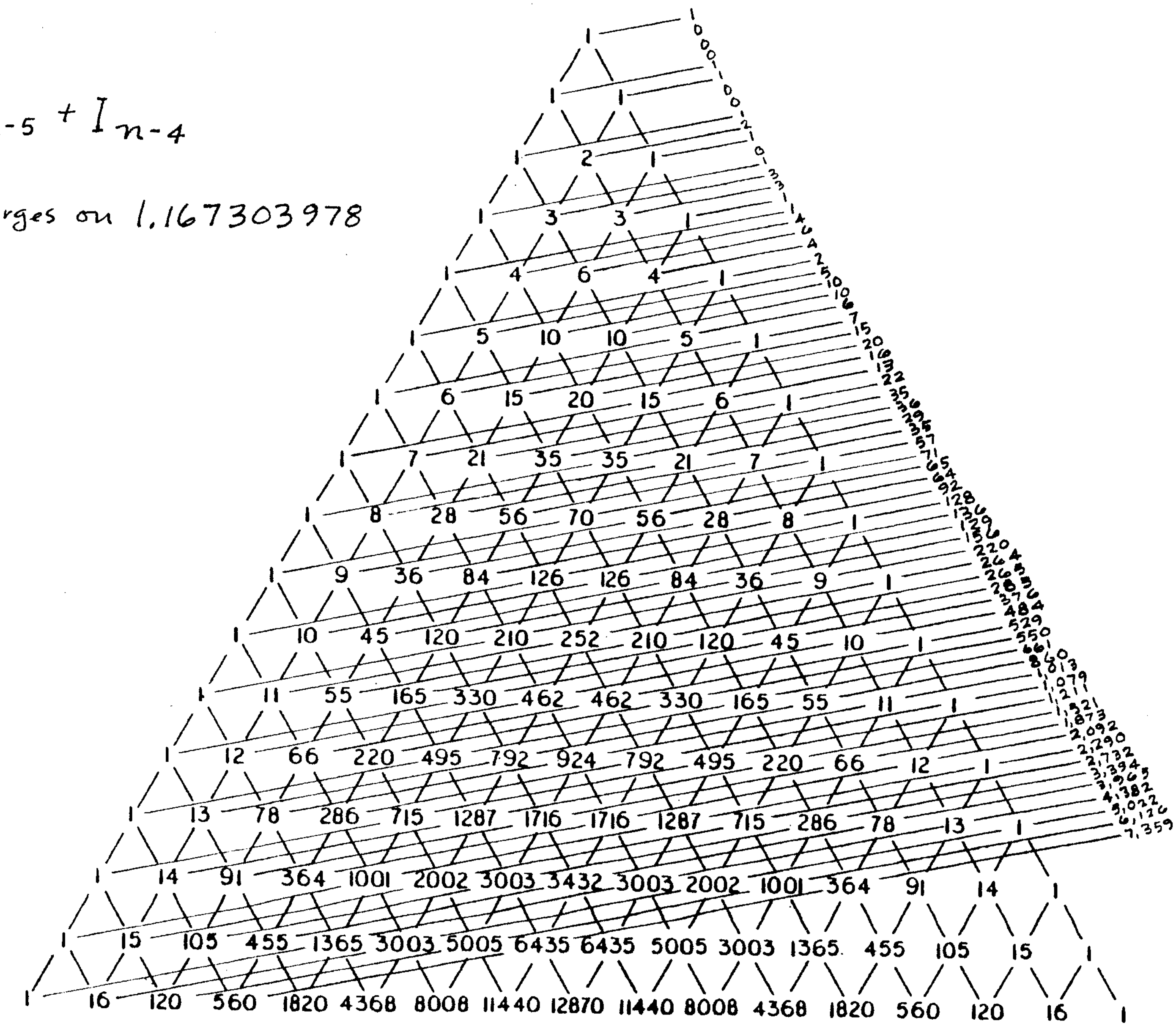

Fig. 9

Meru 9 = 1.16730397826..

Log_2 > .223180302967..

<u>1/x Pattern</u>

		.223
←	4	.480
→	2	.080
←	12	.441
→	2	.265
	3	.766
	1	.305
	3	.276
	3	.613
	1	.631

Zig-Zag Pattern

0/1

1/1

1/2

1/3

1/4

1/5

2/9

3/13

.000958

5/22

7/31

9/40 ! Surupan Melog per Kunst

11/49

13/58

15/67

17/76

19/85

21/94

23/103

25/112

27/121 → 52/233

77/345